APPENDIX G

PALEOWEST

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January 17, 2022

Ms. Candyce Burnett
Kimley-Horn
3880 Lemon Street, Suite 420
Riverside, CA 92501
Transmitted via email to Candyce.Burnett@kimley-horn.com

RE: Paleontological Resource Assessment for the Speedway Commerce Center II Project, San Bernardino County, California

Dear Ms. Burnett,

At the request of Kimley-Horn, PaleoWest LLC (PaleoWest) conducted a paleontological resource assessment for the Speedway Commerce Center II Specific Plan Project (Project) in unincorporated San Bernardino County, California. The goal of the assessment is to identify the geologic units that may be impacted by development of the Project, determine the paleontological sensitivity of geologic units within the Project area, assess potential for impacts to paleontological resources from development of the Project, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources, as necessary.

This paleontological resource assessment included fossil locality records searches conducted by the Natural History Museum of Los Angeles County (NHMLAC) and the San Bernardino County Museum (SBCM), as well as a search of the University of California Museum of Paleontology's (UCMP) online database. The records searches were supplemented by a review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed Project vicinity and region. This technical memorandum, which was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010), has been prepared to support environmental review under the California Environmental Quality Act (CEQA).

PROJECT LOCATION AND DESCRIPTION

The proposed Project lies between the cities of Fontana and Rancho Cucamonga in southwestern San Bernardino County (Figures 1 and 2). The Project encompasses approximately 432 acres of land within the 522-acre Auto Club Speedway (ACS) property. The ACS consists of eight contiguous parcels (Assessor Parcel Numbers 0231-011-09, -10, -11, -12, 17, -18, -19-, and -20) bounded by Cherry Avenue to the east, the Burlington Northern and Santa Fe Railroad to the north, the West Valley Materials Recycling Facility to the west, and California Steel Industries to the south (Figure 2). The Project area lies in Sections 9, 10, 15, and 16, Township 1 South, Range 6 West, San Bernardino Baseline and Meridian (SBBM), as depicted on the *Guasti, CA* and *Fontana, CA* 7.5' U.S. Geological Survey (USGS) topographic quadrangles (Figure 2).



PALEO WEST

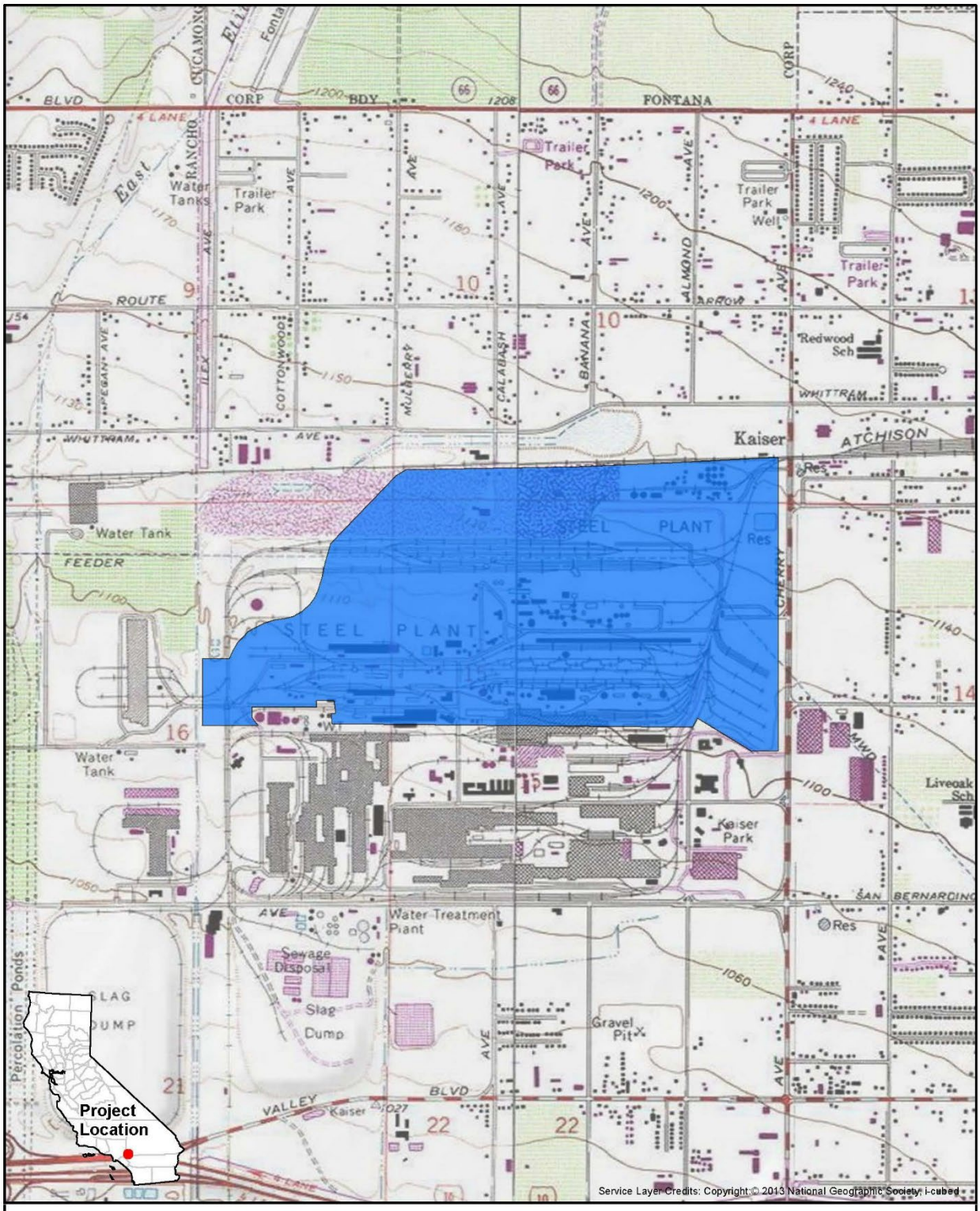
0 feet 12,000

0 meters 3,000

1:150,000

Figure 1. Project Vicinity Map
USGS 7.5' Quadrangle: Guasti, CA (1982) Fontana, CA (1980) T1S, R6W, Sec 9-10, 15-16 San Bernardino BM UTM Zone 11, NAD 83

● Project Vicinity



PALEO WEST

0 feet 2,000

0 meters 500

1:24,000

Figure 2. Project Location Map
USGS 7.5' Quadrangle: Guasti, CA (1982) Fontana, CA (1980) T1S, R6W, Sec 9-10, 15-16 San Bernardino BM UTM Zone 11, NAD 83

Project Area

The Project proposes conceptual land uses that include, but not limited to, the construction of approximately 6.6 million square feet of industrial warehouse/distribution and e-commerce development with approximately 12 acres of retail commercial and medical/health care. The Project site would also be developed with greenbelts, public roads, and other support amenity features, and water detention areas. The proposed Project would surround the Next Gen in California Project, which was approved by San Bernardino County in June 7, 2021. Construction of the proposed Project, including recordation of final subdivision map(s), and design review may be progressively implemented in stages, provided that vehicular access, public facilities, and infrastructure are constructed to adequately service the development, or as needed for public health and safety.

REGULATORY CONTEXT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that public agencies and private interests identify the potential environmental consequences of their Projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1 [b]). Appendix G in Section 15023 provides an Environmental Checklist of questions (PRC 15023, Appendix G, Section VII, Part f) that includes the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?"

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has provided guidance specifically designed to support state and Federal environmental review. The SVP broadly defines significant paleontological resources as follows (SVP 2010, page 11):

"Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered significant.

CALIFORNIA PUBLIC RESOURCES CODE

Section 5097.5 of the Public Resources Code (PRC) states:

"No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site,

including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor."

As used in this PRC section, "public lands" means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

LOCAL

The County of San Bernardino has goals and policies related to paleontological resource issues in their General Plan (County of San Bernardino 2020). The following presents the countywide goal for paleontological resources and their associated policies and programs.

GOAL CR-2 Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.

CR-2.1 National and state historic resources. We encourage the preservation of archaeological sites and structures of state or national significance in accordance with the Secretary of Interior's standards.

CR-2.2 Local historic resources. We encourage property owners to maintain the historic integrity of resources on their property by (listed in order of preference): preservation, adaptive reuse, or memorialization.

CR-2.3 Paleontological and archaeological resources. We strive to protect paleontological and archaeological resources from loss or destruction by requiring that new development include appropriate mitigation to preserve the quality and integrity of these resources. We require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.

CR-2.4 Partnerships. We encourage partnerships to champion and financially support the preservation and restoration of historic sites, structures, and districts.

CR-2.5 Public awareness and education. We increase public awareness and conduct education efforts about the unique historic, natural, tribal, and cultural resources in San Bernardino County through the County Museum and in collaboration with other entities and organizations.

PALEONTOLOGICAL RESOURCE POTENTIAL

Absent specific agency guidelines, most professional paleontologists in California adhere to the guidelines set forth by SVP (2010) to determine the course of paleontological mitigation for a given project. These guidelines establish protocols for the assessment of the paleontological resource potential of underlying geologic units and outline measures to mitigate adverse impacts that could result from project development. Using baseline information gathered during a paleontological resource assessment, the paleontological resource potential of the geologic unit(s) (or members thereof) underlying a project area can be assigned to one of four categories defined by SVP (2010). These categories include high, undetermined, low and no paleontological resource potential.

- High Sensitivity: Vertebrate fossils, as well as the respective stratigraphic units in which these vertebrate fossils were discovered, are likely present, and likely have significant scientific value. In areas of high sensitivity, full-time monitoring is recommended during project-related ground disturbance.

- Low Sensitivity: Stratigraphic units that have yielded few fossils in the past, based upon review of available literature and museum collections records, are considered to possess low paleontological sensitivity. Monitoring is usually not recommended during excavation within a stratigraphic unit of low sensitivity, although spot monitoring may be recommended to confirm that disturbance remains restricted to low-sensitivity units.

- Undetermined Sensitivity: In certain instances, the lack of available literature on a particular geologic unit, or absence of exposures of that unit, make it difficult to determine a unit's likelihood of yielding fossiliferous remains. Under these circumstances, further studies may be recommended to assess the unit's paleontological resource potential (i.e., field survey). If a unit remains of "undetermined" paleontological sensitivity, then it is treated as possessing "high" sensitivity for purposes of initial monitoring and mitigation.

- No Sensitivity: This category includes geological strata that are either too young (<10,000 years old), too weathered, metamorphosed, or too coarse-grained to preserve significant fossilized remains. Metamorphic and plutonic igneous rocks normally do not contain fossils due to the high heat and pressure during their formation, and commonly possess no paleontological sensitivity.

METHODS

In order to assess whether or not a particular area has the potential to contain significant fossil resources at the subsurface, it is necessary to review published geologic mapping to determine the geology and stratigraphy of the area. Geologic units are considered to be "sensitive" for paleontological resources if they are known to contain significant fossils anywhere in their extent. Therefore, a search of pertinent local and regional museum repositories for paleontological localities within and nearby the Project area is necessary to determine whether

or not fossil localities have been previously discovered within a particular rock unit. For this Project, data obtained from recent museum records searches conducted at the NHMLAC and the SBCM were used to assess paleontological resource sensitivity. The museum records search was supplemented by a review of the online collections of the UCMP and the San Diego Natural History Museum, the online Paleobiology Database and FAUNMAP, and other published paleontological and geological literature which contains records for the surrounding area.

RESOURCE CONTEXT

GEOLOGIC SETTING

The Project area is located in the northwestern portion of the Peninsular Ranges geomorphic province. Northwest trending mountain ranges and valleys following faults branching from the San Andreas Fault distinguish the Peninsular Ranges province. The Peninsular Ranges are bound to the east by the Colorado Desert and extend north to the San Bernardino – Riverside County line, west into the submarine continental shelf, and south to the California state line (Norris and Webb 1976). Locally, the Project is located in the Fontana plain, an alluvial fan originating in Lytle Creek canyon in the foothills of the San Bernardino Mountains to the north and extending south to the Jurupa Mountains (Dutcher and Garrett 1963). The Fontana plain is divided by Lytle Creek into an eastern section that is dominated by deposits of the late Holocene Epoch (11,700 years ago to today), and a western portion that contains deposits of the Pleistocene (2.6 million years ago to 11,700 years ago) and Holocene Epochs (Dutcher and Garrett 1963).

SITE SPECIFIC GEOLOGY AND PALEONTOLOGY

According to published geologic maps (Morton and Miller 2006), the Project area is predominantly underlain by Artificial fill (Qaf), with lesser amounts of Very young alluvial-fan deposits (Qf) and Young alluvial-fan deposits, Unit 5 (Qyf_5), all of late Holocene age (Figure 3). Artificial fill is composed of imported sand, gravel, and bedrock associated with construction activities (Morton and Miller 2006). Due to its artificial nature and *ex situ* context, Artificial fill has no paleontological sensitivity.

Very young alluvial-fan deposits are composed of unconsolidated to slightly coherent undissected deposits of angular to subrounded sand, gravel, and boulders. Young alluvial-fan deposits, Unit 5, are composed of unconsolidated to slightly consolidated coarse-grained sand to bouldery alluvial fan deposits having slightly dissected to essentially undissected surfaces. Due to their young age, late Holocene deposits have not been able to accumulate or preserve significant biological material and are considered to have low paleontological sensitivity.

However, late Holocene deposits can transition with depth into older Pleistocene deposits which have a high paleontological sensitivity. Elsewhere in San Bernardino County, Pleistocene deposits have produced remains of a diverse terrestrial fauna, including deer, mammoth, camel, horse, bison, badger, mole, rabbit, gray fox, and coyote (Jefferson 1991a, 1991b; Miller 1971; McLeod 2020).

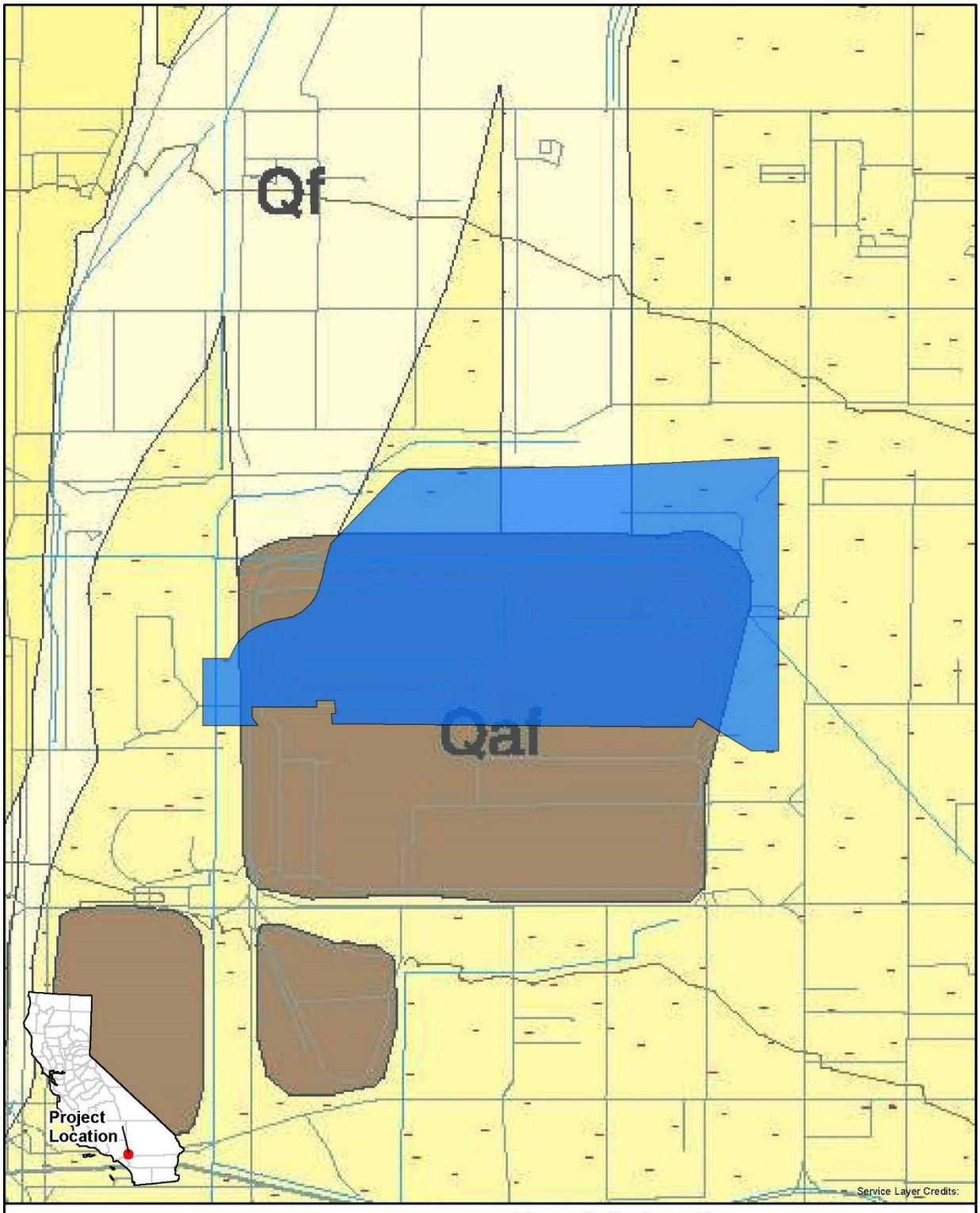


Figure 3. Geology Map
USGS 7.5' Quadrangle:
Guasti, CA (1982)
Fontana, CA (1980)
T1S, R6W, Sec 9-10, 15-16
San Bernardino BM UTM
Zone 11, NAD 83

RECORDS SEARCH RESULTS

The NHMLAC and SBCM do not have on record any previously recorded vertebrate fossil localities directly within the proposed Project boundaries; however, several fossil localities from sedimentary deposits similar to those found at depth within the Project site have been recorded somewhat nearby. South-southwest of the proposed Project area west of Mira Loma, LACM 8062 yielded fossil specimens of Proboscidea (elephant), *Ursus* (bear), *Canis dirus* (dog), *Equus* (horse), *Camelops* (camel) and *Bison* (bison) at shallow depths. Slightly farther south-southwest, LACM 7811 yielded a fossil specimen of *Masticophis flagellum* (coachwhip) from older Quaternary deposits at depths of 9 to 11 feet below the ground surface (McLeod 2020). The SBCM contains records of eight fossil sites within three miles of the Project, to the southeast. SBCM 5.1.11 preserved a partial *Smilodon* skull (sabre-toothed cat) at five feet below ground surface; SBCM 5.1.14 produced the invertebrates *Gyraulus* sp., *Stagnicola* sp., Gastropoda, and Bivalvia, in addition to the vertebrates, *Sylvilagus* sp. (rabbit), *Thomomys* sp. (pocket gopher), *Neotoma* sp. (packrat), *Microtus californicus* (California vole), *Mammut pacificus* (Pacific mastodon) (Cortez 2021). SBCM 5.1.15 resulted in a partial *Bison* tooth; SBCM 5.1.16 preserved bone fragments of *Camelops hesternus* (camel); SBCM 5.1.17 & 5.1.19 produced large mammal bones and fragmentary remains of *Mammut pacificus* (Cortez 2021). SBCM 5.1.20 preserved fragments of *Camelops hesternus*; SBCM 5.1.21 resulted in fragmentary remains of *Equus* sp. (horse) at 21 feet below ground surface (Cortez 2021).

A supplemental review of online museum collections records maintained by the UCMP returned no previously recorded vertebrate localities in the vicinity of the Project (UCMP 2021). However, the UCMP database maintains records for at least five vertebrate fossil locality records identified within unnamed Pleistocene deposits elsewhere in San Bernardino County. Recovered specimens include *Equus* (horse), *Lepus* (hare), *Hesperotestudo* (Western turtle), *Ovis canadensis* (bighorn sheep), *Camelops* and *Camelus* (camels), *Tanupolama stevensi* (llama), and *Canis dirus* (dog) (UCMP 2021). Table 1 below summarizes the compiled information on known vertebrate localities from Pleistocene alluvial deposits in San Bernardino County.

FINDINGS

Information provided by ACS representative Brian Geye indicated that the construction of the racetrack facility involved a high level of ground disturbance. Specifically, the interior portion of the track structure and stand areas required extensive overexcavation and subsequent compaction. Large quantities of fill were also placed around the perimeter of the track to create the raised outer bank of the track. Therefore, ground disturbance into this artificial fill (Qaf) will not require monitoring, unless disturbance extends to a depth below the fill and native sediment (Qyf_5 or Qf) is encountered.

Shallow excavations (approximately five feet in depth or less) into Young alluvial-fan deposits (Qyf_5) and Very young alluvial fan deposits (Qf) are unlikely to yield any significant paleontological resources, as late Holocene deposits are too young to contain fossils, and therefore possess low sensitivity. As a result, no impacts to paleontological resources would occur from earth-moving activities at shallow depths at the Project site. However, deeper excavations into Qyf_5 and Qf may extend down into older, high sensitivity Pleistocene

Table 1
Vertebrate Localities Reported from within Pleistocene Alluvial Deposits, San Bernardino County

LOCALITY NO.	GEOLOGIC UNIT	AGE	TAXA
LACM 8062	Unspecified Quaternary-age deposits	Pleistocene	Proboscidea (elephant), *Ursus* (bear), *Canis dirus* (dog), *Equus* (horse), *Camelops* (camel) and *Bison* (bison)
LACM 7811	Unspecified Quaternary-age deposits	Pleistocene	*Masticophis flagellum* (coachwhip)
UCMP RV6954	Quaternary older alluvium	Pleistocene	*Ovis canadensis* (bighorn sheep), *Camelops* and *Camelus* (camels), *Tanupolama stevensi* (llama), *Canis dirus* (dog)
UCMP V3625	Quaternary older alluvium	Pleistocene	*Equus* (horse)
UCMP V5930	Quaternary older alluvium	Pleistocene	*Lepus* (hare)
UCMP V92103	Quaternary older alluvium	Pleistocene	*Equus* (horse)
UCMP V99366	Quaternary older alluvium	Pleistocene	*Hesperotestudo* (Western turtle)
SBCM 5.1.11	Quaternary alluvium	Pleistocene	*Smilodon sp.* (Sabre-toothed cat)
SBCM 5.1.14	Quaternary alluvium	Pleistocene	*Gyraulus sp.* (snail), *Stagnicola sp.* (snail), Gastropoda (snail), Bivalvia, *Sylvilagus sp. (rabbit), Thomomys sp.* (pocket gopher), *Neotoma sp* (packrat), *Microtus californicus* (California vole), *Mammut pacificus* (Pacific mastodon)
SBCM 5.1.15	Quaternary alluvium	Pleistocene	*Bison sp.* (Bison)
SBCM 5.1.16	Quaternary alluvium	Pleistocene	*Camelops hesternus* (camel)
SBCM 5.1.17	Quaternary alluvium	Pleistocene	*Mammut pacificus* (Pacific mastodon), *Mammalia*
SBCM 5.1.19	Quaternary alluvium	Pleistocene	*Mammut pacificus* (Pacific mastodon), *Mammalia*
SBCM 5.1.20	Quaternary alluvium	Pleistocene	*Camelops hesternus* (camel)
SBCM 5.1.21	Quaternary alluvium	Pleistocene	*Equus sp.* (horse)

Sources: McLeod 2020; UCMP 2021; SBCM 2021

sediments. Pleistocene deposits underlying the Project area at depth are considered to have a high paleontological sensitivity because they have proven to yield significant paleontological resources (i.e., identifiable vertebrate fossils). Ground disturbing activities exceeding depths of five feet into Qyf_5 and Qf could potentially impact paleontological resources and should be monitored by a qualified paleontological monitor to identify and effectively salvage any recovered resources while minimizing discovery-related delays.

RECOMMENDATIONS

In general, the potential for a given project to result in negative impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the project; thus, the higher the amount of ground disturbances within geological deposits with a known paleontological sensitivity, the greater the potential for negative impacts to paleontological resources. Since this Project entails grading and excavations for multiple buildings, new ground disturbances are anticipated. Sediments in the Project area have a no to high paleontological sensitivity, being disturbed or too young at the surface to preserve fossil resources but increasing in age and sensitivity with depth. Ground disturbing activities in previously undisturbed portions of the Project that exceed five feet in depth into Qyf_5 and Qf may result in significant impacts under CEQA to paleontological resources, such as destruction, damage, or loss of scientifically important paleontological resources. Therefore, if the Project plans include excavations that extend five or more feet in depth into Qyf_5 and Qf, then a qualified paleontologist should be retained to develop and implement the measures recommended below. A review of the grading and excavation plans, when available, should help inform the need for the measures below. These measures have been developed in accordance with SVP guidelines; if implemented, these measures will satisfy the requirements of CEQA.

WORKER'S ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to the start of the proposed Project activities, all field personnel will receive a worker's environmental awareness training on paleontological resources. The training will provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Project area, the role of the paleontological monitor, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the Project Paleontologist. The training will be developed by the Project Paleontologist and can be delivered concurrent with other training including cultural, biological, safety, etc.

PALEONTOLOGICAL MITIGATION MONITORING

Prior to the commencement of ground-disturbing activities, a professional paleontologist will be retained to prepare and implement a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) for the proposed Project. The PRMMP will describe the monitoring required during excavations that extend into Pleistocene sediment (i.e., excavations greater than five feet in depth in Qyf_5 and Qf sediments), and the location of areas deemed to have a high paleontological resource potential. Monitoring will entail the visual inspection of excavated or graded areas and trench sidewalls. If the Project Paleontologist determines full-time monitoring is no longer warranted, based on the geologic conditions at depth, he or she may recommend that monitoring be reduced or cease entirely.

FOSSIL DISCOVERIES

In the event that a paleontological resource is discovered, the monitor will have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the Project Paleontologist shall complete the following:

1. Salvage of Fossils. If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor, and/or Project Paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the Project Paleontologist (or paleontological monitor) should recover them following standard field procedures for collecting paleontological as outlined in the PRMMP prepared for the project. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

2. Fossil Preparation and Curation. The PRMMP will identify the museum that has agreed to accept fossils that may be discovered during project-related excavations. Upon completion of fieldwork, all significant fossils collected will be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossils specimens will be identified to the lowest taxonomic level practical prior to curation at an accredited museum. The fossil specimens must be delivered to the accredited museum or repository no later than 90 days after all fieldwork is completed. The cost of curation will be assessed by the repository and will be the responsibility of the client.

FINAL PALEONTOLOGICAL MITIGATION REPORT

Upon completion of ground disturbing activity (and curation of fossils if necessary) the Project Paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

It has been a pleasure working with you on this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,

PALEOWEST



Benjamin Scherzer, M.S. |
Senior Paleontologist

REFERENCES

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November 30, 2021
Kleinfelder Project No. 20221328.002A

Mr. Joshua Cox, Vice President
HIP VI Enterprises, LLC
A Delaware Limited Liability Company
901 Via Piemonte, Suite 175
Ontario, CA 91764

SUBJECT: Report of Preliminary Infiltration Study
Proposed Speedway Commerce Center II
County of San Bernardino, California 92335

Dear Mr. Cox:

Kleinfelder is pleased to present this report summarizing our infiltration study performed for the proposed Speedway Commerce Center located at the surrounding areas of the Auto Club Speedway at 9300 Cherry Avenue in Fontana, California. Our scope of work was presented in our August 31, 2021 proposal. The purpose of this study is to provide preliminary conclusions and recommendations pertaining to infiltration characteristics of the existing subsurface soil at the subject site.

SITE AND PROJECT DESCRIPTION

The project site is located at the surrounding areas of the existing California Speedway site located at 9300 Cherry Avenue in Fontana, California. Hillwood wishes to construct approximately seven new logistics buildings within the project area. Other site improvements include new public streets, auto and truck trailer parking, and associated Best Management Practice (BMP) infiltration facilities.

We understand the new buildings will generally consist of large, warehouse-sized buildings equipped with loading docks and automotive and truck trailer parking areas and heavy-duty pavement. The approximate site area, building size, and number of truck trailer parking of the proposed buildings is shown in the table below.

Building	Site Area (acres)	Building Area (sf)	Truck Trailer Parking
1	53.99	1,286,600	271
2	22.99	540,500	107
3	53.99	1,316,800	292
4	39.60	960,500	210
5	40.36	939,800	274
6	41.76	926,000	187
7	26.92	629,800	136

We anticipate the proposed warehouse buildings will be single-story, concrete-tilt-up structures, supported on conventional shallow spread foundations with a dock high slab-on-grade floor.

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We were informed by Webb Associates (Webb), the project Civil Engineer, that numerous areas of underground infiltration chambers are planned. Kleinfelder performed infiltration testing at each of the 20 locations shown on Figure 1, Infiltration Test Location Map. The depth of our testing is approximately 10 feet below the existing ground surface (bgs) at each location.

FIELDWORK

Kleinfelder's subcontractor, BC2 Environmental, used a CME-95 drill rig to drill 20 borings that were converted to infiltration tests between September 6 and September 28, 2021. The infiltration tests were drilled to approximately 10 feet bgs and the approximate locations are shown on Figure 1. The infiltration tests were setup and tested in general accordance with the San Bernardino County Technical Guidance Document for Water Quality Management Plans, 2011 (SBCTGD) Percolation Test procedure. Based on the SBCTGD, the bottom elevation of the tests corresponded to the proposed inverts for the proposed infiltration systems.

SUBSURFACE CONDITIONS

In general, the subsurface conditions at the proposed infiltration facilities onsite consist of artificial fill soil overlying native alluvial soil. Artificial fill was encountered to depths ranging from approximately 2 feet bgs to the maximum depth explored of approximately 10 feet bgs. Native alluvial soil was encountered to the maximum depth explored of approximately 10 feet bgs.

Artificial fill generally consisted of silty sand to sand with varying amounts of silt and gravel, slag from previous site use, and debris. Similar to the artificial fill, native alluvial soils generally consisted of silty sand to poorly graded sand with varying amounts of gravel and sandy silt.

Groundwater was not encountered in any of the infiltration test borings. Groundwater is anticipated to be at a depth significantly greater than 50 feet below ground surface.

A detailed summary of the subsurface conditions encountered at the infiltration test locations are shown in Appendix A, Infiltration Test Logs. The borings were logged by a Kleinfelder engineer using the Unified Soil Classification System (USCS).

LABORATORY TESTING

Laboratory testing was performed on representative samples of soil collected from the bottom of our infiltration test borings to substantiate field classifications. Laboratory testing included sieve analysis (ASTM D422). The results of the testing performed are presented in Appendix B, Laboratory Testing.

BOREHOLE PERCOLATION TEST

Falling head percolation tests were performed per the SBCTGD. Test setup included placing 2 inches of gravel at the bottom of the borings 8 inches in diameter. At each location, a 3-inch perforated PVC pipe was placed, and the infiltration tests were pre-soaked. During testing, test holes were carefully filled with water to a depth equal to at least 5 times the hole's radius above the gravel at the bottom of the holes. Testing began by performing two trial readings to show if 6 inches of water seeps away in less than 25 minutes in order to verify if testing would be performed using "sandy soils" or "non-sandy soils" criteria. Nineteen tests were performed using "sandy soils" criteria, where testing was generally performed for one hour with readings taken

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every 10 minutes. P-15 was tested using “non-sandy soils” criteria and was performed for six hours with readings taken every 30 minutes. The tested percolation rates were converted to tested infiltration rates using the “Porchet Method”. Test reading data and calculations are provided in Appendix C, Infiltration Test Results. Results of the tests performed are summarized below.

INFILTRATION TEST LOCATION	*TESTED INFILTRATION RATE (INCH/ HOUR)
P-1	2.0
P-2	7.2
P-3	5.6
P-4	1.8
P-5	30.0
P-6	16.8
P-7	2.5
P-8	14.1
P-9	6.9
P-10	16.8
P-11	0.9
P-12	4.7
P-13	6.2
P-14	11.0
P-15	0.6
P-16	9.6
P-17	16.1
P-18	22.2
P-19	12.0
P-20	11.2

*Rate before applying the factor of safety

DATA EVALUATION

The field results of this testing provide unfactored infiltration rates. To evaluate design infiltration rates, correction factors are applied. Correction factors used for this study are based on the 2011 SBCTGD, summarized below:

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Site Suitability Related Considerations for Infiltration Facility Safety Factors*

CONSIDERATION	HIGH CONCERN (3)	MEDIUM CONCERN (2)	LOW CONCERN (1)
Assessment methods (see explanation below)	Use of soil survey maps or simple texture analysis to estimate short-term infiltration rates	Direct measurement of ≥ 20 percent of infiltration area with localized infiltration measurement methods (e.g., infiltrometer)	Direct measurement of ≥ 50 percent of infiltration area with localized infiltration measurement methods or Use of extensive test pit infiltration measurement methods
Texture Class	Silty and clayey soils with significant fines	Loamy soils	Granular to slightly loamy soils
Site soil variability	Highly variable soils indicated from site assessment or limited soil borings collected during site assessment	Soil borings/test pits indicate moderately homogeneous soils	Multiple soil borings/test pits indicate relatively homogeneous soils
Depth to groundwater/ impervious layer	<5 ft below facility bottom	5-10 ft below facility bottom	>10 below facility bottom

*As presented in Table VII.3 on page VII-31 of SBC Guidance Document (2011)

Design Related Considerations for Infiltration Facility Safety Factors*

Consideration	High Concern (3)	Medium Concern (2)	Low Concern (1)
Tributary area size	Greater than 10 acres.	Greater than 2 acres but less than 10 acres.	2 acres or less.
Level of pretreatment/ expected influent sediment loads	Pretreatment from gross solids removal devices only, such as hydrodynamic separators, racks and screens AND tributary area includes landscaped areas, steep slopes, high traffic areas, or any other areas expected to produce high sediment, trash, or debris loads.	Good pretreatment with BMPs that mitigate coarse sediments such as vegetated swales AND influent sediment loads from the tributary area are expected to be relatively low (e.g., low traffic, mild slopes, disconnected impervious areas, etc.).	Excellent pretreatment with BMPs that mitigate fine sediments such as bioretention or media filtration OR sedimentation or facility only treats runoff from relatively clean surfaces, such as rooftops.
Redundancy of treatment	No redundancy in BMP treatment train.	Medium redundancy, other BMPs available in treatment train to maintain at least 50% of function of facility in event of failure.	High redundancy, multiple components capable of operating independently and in parallel, maintaining at least 90% of facility functionality in event of failure.
Compaction during construction	Construction of facility on a compacted site or elevated probability of unintended/ indirect compaction.	Medium probability of unintended/ indirect compaction.	Heavy equipment actively prohibited from infiltration areas during construction and low probability of unintended/ indirect compaction.

*As presented in Table VII.4 on page VII-33 of the SBC Guidance Document (2011)

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CONCLUSIONS AND RECOMMENDATIONS

Based on our evaluation of the borehole percolation test procedure test data, the soils encountered at a depth of approximately 10 feet bgs in the borings tested generally exhibit a short-term, non-factored infiltration rate of 0.6 to 30.0 inches per hour.

The site suitability factors presented above were selected by Kleinfelder based on the materials observed during drilling services. The design related considerations were selected by Webb Engineers based on the proposed type of infiltration system. For the design infiltration rate, Kleinfelder recommends using the Combined Safety Factor presented below.

Factor of Safety and Design Infiltration Rate and Worksheet*

FACTOR CATEGORY		FACTOR DESCRIPTION	ASSIGNED WEIGHT (w)	FACTOR VALUE (v)	PRODUCT (p) p = w * v
A	Suitability Assessment	Soil assessment methods	0.25	2	0.50
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	2	0.50
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \sum p$			1.5
B	Design	Tributary area size	0.25	3	0.75
		Level of pretreatment/ expected sediment loads	0.25	3	0.75
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	3	0.75
		Design Safety Factor, $S_B = \sum p$			3.0
Combined Safety Factor, $S_{TOT} = S_A \times S_B$					$1.5 \times 3.0 = 4.5$

*As presented in Worksheet H of the SBC Guidance Document (2011)

Based on the testing performed and the correction factors presented above from the SBCTGD, we recommend a Combined Safety Factor of 4.5. The resulting design infiltration rates are summarized in the table below.

Summary of Design Infiltration Rates

Infiltration Test Location	Tested Depth from Ground Surface (ft)	Tested Infiltration Rate (in/hr)	Long-Term Design Infiltration Rate (in/hr)	Soil Description
P-1	5 – 10	2.0	0.4	Silty Sand with Gravel (SM)
P-2	4.5 – 10	7.2	1.6	Well Graded Sand with Silt and Gravel (SW-SM)

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Summary of Design Infiltration Rates (Continued)

Infiltration Test Location	Tested Depth from Ground Surface (ft)	Tested Infiltration Rate (in/hr)	Long-Term Design Infiltration Rate (in/hr)	Soil Description
P-3	7 – 10	5.6	1.2	Well Graded Sand with Silt and Gravel (SW-SM)
P-4	6.5 – 10	1.8	0.4	Sandy Silt (ML)
P-5	6.5 – 10	30.0	6.7	Well Graded Sand with Silt and Gravel (SW-SM)
P-6	7 – 10	15.0	3.7	Poorly Graded Sand with Silt and Gravel (SP-SM)
P-7	4.5 – 10	2.5	0.6	Silty Sand with Gravel (SM)
P-8	7 – 10	14.1	3.1	Well Graded Sand with Silt and Gravel (SW-SM)
P-9	5 – 10	6.9	1.5	Well Graded Sand with Silt and Gravel (SW-SM)
P-10	7 – 10	16.8	3.7	Well Graded Sand with Silt and Gravel (SW-SM)
P-11	5 – 10	0.9	0.2	Silty Sand with Gravel (SM)
P-12	7 – 10	4.7	1.0	Well Graded Sand with Silt and Gravel (SW-SM)
P-13	7 – 10	6.2	1.4	Well Graded Sand with Silt and Gravel (SW-SM)
P-14	5.5 – 10	11.0	2.4	Well Graded Sand with Silt and Gravel (SW-SM)
P-15	6.5 – 10	0.6	0.1	Silty Sand with Gravel (SM)
P-16	6 – 10	9.6	2.1	Well Graded Sand with Gravel (SW)
P-17	7 – 10	16.1	3.6	Well Graded Sand with Silt and Gravel (SW-SM)
P-18	7.5 – 10	22.2	4.9	Well Graded Sand with Silt and Gravel (SW-SM)
P-19	6.5 – 10	12.0	2.7	Well Graded Sand with Silt and Gravel (SW-SM)
P-20	6.5 – 10	11.2	2.5	Well Graded Sand with Silt and Gravel (SW-SM)

Based on the results of the infiltration testing, it is our opinion that the site is generally suitable for infiltration BMPs, provided the following recommendations are incorporated into the design and construction. Due to the relatively large size of the site, we recommend that a design infiltration

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rate for any individual infiltration facility be selected and properly sized based on the long-term rates provided above and the location of the testing (see Figure 1).

Groundwater was not encountered in any of the boreholes performed for the project. Groundwater is anticipated to be at a depth significantly greater than 50 feet below ground surface. Based on this information, we do not anticipate that the depth to groundwater will affect the long-term performance of an infiltration system.

The degree of influent water pre-treatment and system maintenance are critical factors that will affect long-term performance. Pre-treatment may consist of combinations of debris screens, sediment settling chambers, filters and/or other mechanisms. Maintenance may include clearing debris, cleaning pre-treatment filters and sediment chambers, and reconditioning the bottom of the infiltration system after storm events and at regular intervals.

If infiltration BMPs are impractical due to existing site constraints, we recommend alternatives, such as bio-filtration/bio-retention systems (bio-swales and planter boxes), be implemented at the project site. If bio-filtration/bio-retention systems are employed, we recommend that the BMPs be built such that water exiting from them will not seep into the foundation areas or beneath slabs and pavement. If planters are located within 10 feet of any building or building foundations, or adjacent to slabs and pavements, then some means of diverting water away from the building, building foundation soils, or soils that support slabs and pavements would be required, such as lining the planters.

Additional Design/Maintenance Recommendations

Based on the results from our testing, our knowledge of the project, and our professional judgment, the following is a list of recommendations for development of the proposed project.

- The design should incorporate pre-treatment of influent water.
- The infiltration facilities should be located at least 10 feet away from the bottom of any proposed structure foundation. Structure foundations include buildings, retaining walls, or screen walls supported on a foundation.
- Maintenance of the facility should be performed annually or at more frequent intervals depending on frequency of storm events and the system maintenance schedule. The schedule should also be selected based on volume and turbidity of influent water, and final design of the facility.
- The facility should be designed with an outlet system to allow excess flow to either bypass the system or flow through the system and discharge into the offsite storm drain system.
- An operations and maintenance manual should be developed for the facility. The manual should include requirements for monitoring the infiltration rate and sediment build up. The operations and maintenance manual should also include procedures on how the system should be cleaned out and restored at each maintenance interval.

Additional Considerations

This study was performed and this report was prepared to support the design of an infiltration system at the subject site. Heavy equipment and soil compaction should be limited within the

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excavation bottoms and areas designed to infiltrate water. Altering the natural density of the proposed infiltration bottom by compaction will decrease the design infiltration rate.

The environmental constituents at the site were not evaluated as part of this infiltration study.

LIMITATIONS

This report summarizes our evaluation only of the capacity of soils to infiltrate water. The findings, conclusions and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of our profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. No warranty or guarantee, express or implied, is made.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party, other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of this report and the nature of the new project, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and the client agrees to defend, indemnify, and hold harmless Kleinfelder from any claims or liability associated with such unauthorized use or non-compliance.

Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions.

CLOSING

We appreciate the opportunity to be of professional service to you on this project. If you have any questions or require additional information, please do not hesitate to contact the undersigned at 951.801.3681.

Sincerely,

KLEINFELDER





Charles Chen, PE, GE
Project Geotechnical Engineer

Jeffery D. Waller, PE, GE
Senior Geotechnical Engineer

Attachments: References
Figure 1 – Infiltration Test Location Map
Appendix A – Field Explorations
Appendix B – Laboratory Testing
Appendix C – Infiltration Test Results

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REFERENCES

San Bernardino County (SBC), 2011. *Technical Guidance Document for Water Quality Management Plans (WQMP)*, San Bernardino County Stormwater Program, July 28, 2011.

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FIGURE

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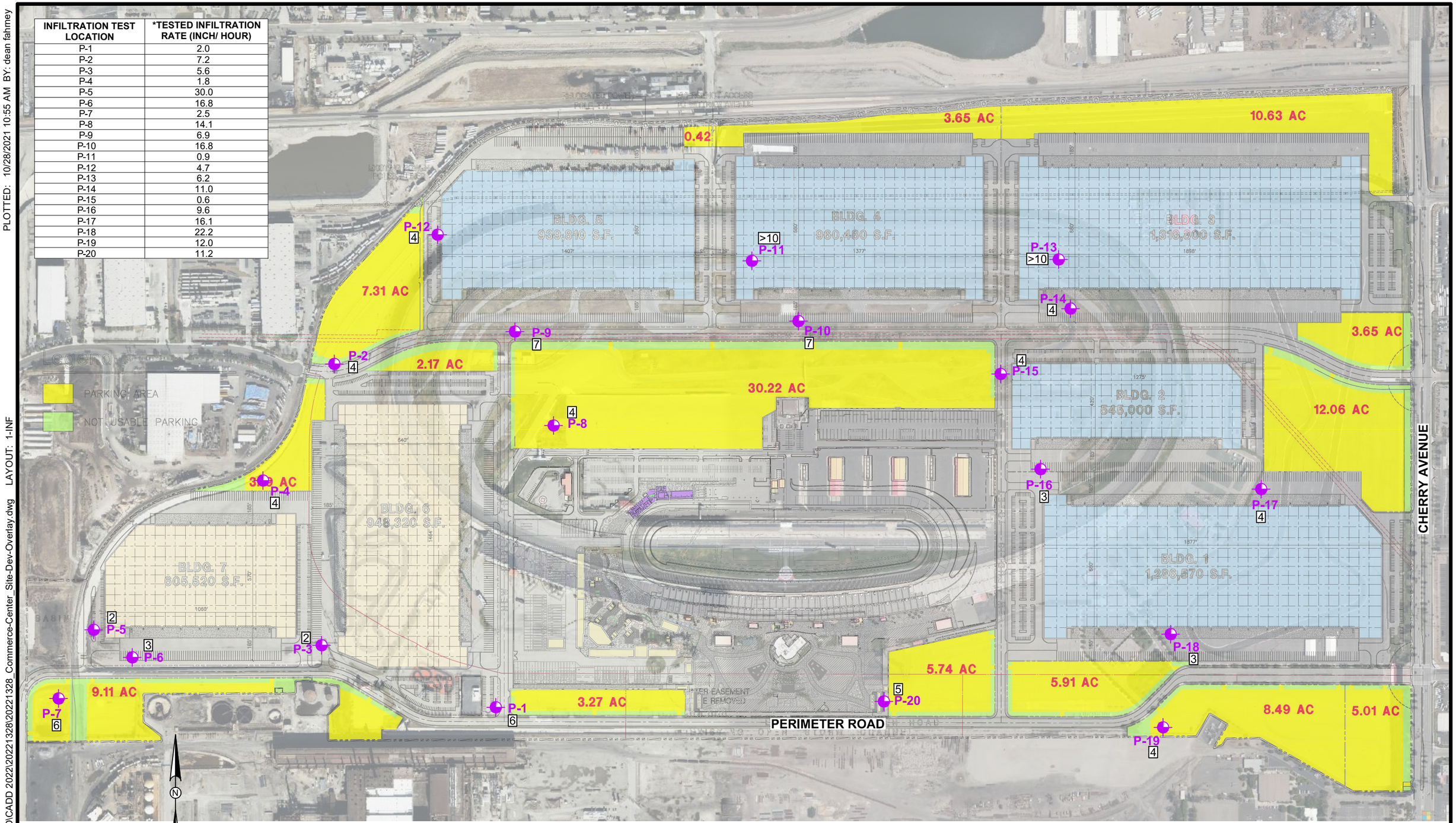
INFILTRATION TEST LOCATION	*TESTED INFILTRATION RATE (INCH/ HOUR)
P-1	2.0
P-2	7.2
P-3	5.6
P-4	1.8
P-5	30.0
P-6	16.8
P-7	2.5
P-8	14.1
P-9	6.9
P-10	16.8
P-11	0.9
P-12	4.7
P-13	6.2
P-14	11.0
P-15	0.6
P-16	9.6
P-17	16.1
P-18	22.2
P-19	12.0
P-20	11.2



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EXPLANATION

P-20 APPROXIMATE INFILTRATION TEST LOCATION

>10 APPROXIMATE DEPTH OF EXISTING FILL IN FEET

NOTE: KAISER STEEL MILL PLAN IS NOT A SCALED/SURVEYED DRAWING. ALL FORMER STRUCTURES ARE APPROXIMATE IN SCALE AND LOCATION.

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INFILTRATION TEST LOCATION MAP

PROPOSED SPEEDWAY COMMERCE CENTER
FONTANA, CALIFORNIA

FIGURE
1

PLOTTED: 10/28/2021 10:55 AM BY: dean fahmey
LAYOUT: 1-INF
CAD FILE: U:\Projects\CADD\CADD 2022\20221328\20221328_Commerce-Center_Site-Dev-Overlay.dwg

APPENDIX A
FIELD EXPLORATIONS

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SAMPLE/SAMPLER TYPE GRAPHICS

BULK SAMPLE

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

MODIFIED CALIFORNIA SAMPLER
(2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

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GRAPHICS KEY

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-1

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_GEO-LEG1 (GRAPHICS KEY) WITH USCS]
PROJECT NUMBER: 20221328.002A
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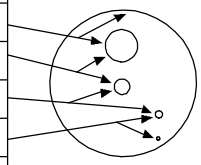
GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	Either the LL or the PI (or both) may be used to describe the soil plasticity. The ranges of numbers shown here do not imply that the LL ranges correlate with the PI ranges for all soils.	PI
Non-Plastic	NP		NP
Low	< 30		< 15
Medium	30 - 50		15 - 25
High	> 50		> 25

LL is from Casagrande, 1948. PI is from Holtz , 1959.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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SOIL DESCRIPTION KEY

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-2

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PROJECT NUMBER: 20221328.002A
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_GEO-LEG 2 (SOIL DESC KEY)]

Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-1**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08420°
Longitude: -117.50590°
Approximate Ground Surface Elevation (ft.): 1,097
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 4 ft
1095			**Artificial Fill** **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter yellowish brown												
	5		brown, medium dense	1		BC=7 12 16	4"								Drill chatter
1090			**Native** **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, medium dense, subangular gravel up to 3 inch diameter trace debris (possible slag)	2		BC=10 12 7	6"				66	14			Trace debris observed in soil cuttings
	10														
1085															
	15														
1080															
	20														
1075															
	25														
1070															
	30														
1065															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
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DATE:	10/7/2021

BORING LOG P-1

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-3

PAGE: 1 of 1

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PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-2**
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:** 140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.	

FIELD EXPLORATION

Latitude: 34.08950°
Longitude: -117.50890°
Approximate Ground Surface Elevation (ft.): 1,114
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 5 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter												
1110			increase in gravel												
	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, yellowish brown, moist, medium dense	1		BC=8 12 16	18"								
1105				2		BC=5 11 11	6"				50	8.2			
	10														
1100															
	15														
1095															
	20														
1090															
	25														
1085															
	30														
1080															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-2

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-4

PAGE: 1 of 1

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PROJECT NUMBER: 20221328.002A
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-3**
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:** 140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.	

FIELD EXPLORATION

Latitude: 34.08520°
Longitude: -117.50910°
Approximate Ground Surface Elevation (ft.): 1,089
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1089	0		**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter												
1085	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: dark brown, moist very dense, increase in sand and gravel	1		BC=15 50/5"	11"								
1080	10			2		BC=20 25 26	18"				52	6.2			
1075	15														
1070	20														
1065	25														
1060	30														
1055															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-3

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FIGURE
A-5

PAGE: 1 of 1

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Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-4**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08780°
Longitude: -117.51020°
Approximate Ground Surface Elevation (ft.): 1,102
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 3 inches thick, no base observed												Hand auger to 4 ft
1100			**Artificial Fill** **Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, brown, moist, trace subangular gravel up to 3 inch diameter												
	5		**Native** **Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, brown, moist, trace subangular gravel up to 3 inch diameter medium dense	1		BC=4 7 12	18"								
1095			**Sandy SILT (ML)**: fine to coarse-grained, dark brown, moist, medium stiff, trace debris (slag)	2		BC=2 3 4	18"				92	54			Trace debris observed in soil cuttings
	10														
1090															
	15														
1085															
	20														
1080															
	25														
1075															
	30														
1070															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-4

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FIGURE
A-6

PAGE: 1 of 1

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BORING LOG P-5

Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275		
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08540°
Longitude: -117.51320°
Approximate Ground Surface Elevation (ft.): 1,077
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1075	0		**Artificial Fill** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter												Hand auger to 2 ft
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter dense	1		BC=7 21 33	18"								
1070	5			2		BC=17 19 30	14"				71	7.9			
1065	10														
1060	15														
1055	20														
1050	25														
1045	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-5

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-7

Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-6**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08500°
Longitude: -117.51260°
Approximate Ground Surface Elevation (ft.): 1,078
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2.5 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 3 inch diameter												
1075	5		**Native** **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 3 inch diameter grayish brown, dense	1		BC=8 27 31	18"								
1070			**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse-grained, brown, medium dense, little subangular gravel up to 0.75 inch diameter	2		BC=4 10 13	18"				88	8.2			
	10														
1065	15														
1060															
	20														
1055															
	25														
1050															
	30														
1045															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-6

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-8

PAGE: 1 of 1

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Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-7**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08440°
Longitude: -117.51390°
Approximate Ground Surface Elevation (ft.): 1,090
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, dry to moist, subangular gravel up to 3 inch diameter												Hand auger to 1 ft
1085	5		medium dense	1		BC=10 12 8	18"								
			Native **Silty SAND (SM)**: fine to coarse-grained, dark brown, moist, loose, little subangular gravel up to 1 inch diameter												
1080	10			2		BC=3 2 3	18"				86	17			
1075	15														
1070	20														
1065	25														
1060	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-7

Proposed Speedway Commerce Center
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FIGURE
A-9

PAGE: 1 of 1

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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-8**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08860°
Longitude: -117.50480°
Approximate Ground Surface Elevation (ft.): 1,114
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter												
1110	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark yellowish brown, moist, medium dense, subangular gravel up to 3 inch diameter	1		BC=8 13 11	18"								
1105	10		very dense	2		BC=18 20 34	18"				58	5.5			
1100	15														
1095	20														
1090	25														
1085	30														
1080															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NUMBER: 20221328.002A
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BORING LOG P-8

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-10

Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-9**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09000°
Longitude: -117.50550°
Approximate Ground Surface Elevation (ft.): 1,120
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to medium-grained, dark brown, moist, trace subangular gravel up to 3 inch diameter brown, decrease in gravel												Hand auger to 2 ft
1115	5		loose	1		BC=4 4 4	18"								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, grayish brown, moist, medium dense, subangular gravel up to 1 inch diameter	2		BC=7 14 14	18"				68	6.2			
1110	10														
1105	15														
1100	20														
1095	25														
1090	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG P-9

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-11

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PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-10**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09030°
Longitude: -117.49990°
Approximate Ground Surface Elevation (ft.): 1,129
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1125	0		**Artificial Fill** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 1 inch diameter, trace subangular cobble up to 4 inch diameter, trace debris (possible slag)												Hand auger to 1 ft
	5		dense	1		BC=10 15 20	NR								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 1 inch diameter, trace subangular cobble up to 4 inch diameter												
1120	10			2		BC=13 19 25	18"				54	5.0			
1115	15														
1110	20														
1105	25														
1100	30														
1095															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-10

Proposed Speedway Commerce Center
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FIGURE
A-12

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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-11**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09110°
Longitude: -117.50100°
Approximate Ground Surface Elevation (ft.): 1,135
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 1.5 inch diameter, trace cobble up to 6 inch diameter, trace debris (slag)												Hand auger to 1 ft
1130	5		brown, dense, decrease in sand and gravel	1		BC=13 25 28	18"								
1125	10		grayish brown, medium dense, increase in sand	2		BC=4 6 7	18"				76	16			
1120	15														
1115	20														
1110	25														
1105	30														

LABORATORY RESULTS

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-11

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-13

PAGE: 1 of 1

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PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-12**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09150°
Longitude: -117.50670°
Approximate Ground Surface Elevation (ft.): 1,124
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 1 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, grayish brown, moist, subangular gravel up to 1 inch diameter, trace debris (possible slag up to 4 inches)												
1120	5			1		BC=23 50/6"	12"								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, grayish brown, moist, very dense, subangular gravel up to 1 inch diameter												
1115	10		increase in sand	2		BC=21 50/5"	10"				53	6.7			
1110	15														
1105	20														
1100	25														
1095	30														
1090															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-12

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-14

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-13**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09110°
Longitude: -117.49560°
Approximate Ground Surface Elevation (ft.): 1,140
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: approximately 4 inches thick												Hand auger to 1 ft
			Artifical Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 1.5 inch diameter												
1135	5		medium dense	1		BC=3 4 12	1"								
			brown to grayish brown, dense	2		BC=10 22 24	12"				51	7.5			
1130	10														
1125	15														
1120	20														
1115	25														
1110	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-13

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FIGURE
A-15

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-14**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09030°
Longitude: -117.49540°
Approximate Ground Surface Elevation (ft.): 1,135
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 1.5 inch diameter dark brown to black												Hand auger to 2 ft
1130	5		brown, trace subangular cobble up to 4 inch diameter	1		BC=50/6"	4"								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 1.5 inch diameter dense, increase in sand	2		BC=14 16 19	18"				67	6.2			
1125	10														
1120	15														
1115	20														
1110	25														
1105	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-14

Proposed Speedway Commerce Center
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FIGURE
A-16

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-15**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08930°
Longitude: -117.49650°
Approximate Ground Surface Elevation (ft.): 1,124
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter, trace debris (trash)												Hand auger to 1 ft
1120	5		**Native** **SILT with Sand (ML)**: fine-grained, non-plastic, yellowish brown, moist, stiff	1		BC=7 10 14	18"								
1115	10		**Silty Clayey SAND with Gravel (SC-SM)**: fine to coarse-grained, grayish brown, moist, medium dense, subangular gravel up to 1.5 inch diameter	2		BC=4 7 18	18"				74	21			
1110	15														
1105	20														
1100	25														
1095	30														
1090															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-15

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FIGURE
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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-16**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08790°
Longitude: -117.49580°
Approximate Ground Surface Elevation (ft.): 1,123
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2.5 inches thick, no base observed												Hand auger to 3 ft
			Artificial Fill **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark brown, moist, trace subangular gravel up to 1 inch diameter												
1120			**Native** **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, trace subangular gravel up to 1 inch diameter grayish brown, dense, increase in sand and gravel	1		BC=18 24 35	18"								
1115	5		medium dense	2		BC=7 12 17	18"				69	4.1			
1110	10														
1105	15														
1100	20														
1095	25														
1090	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-16

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-18

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Date Begin - End: 9/27/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG P-17**

Logged By: H. Marquez **Drill Crew:** Jason/Freddy/Ishmael

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.08750°
Longitude: -117.49180°
Approximate Ground Surface Elevation (ft.): 1,125
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, subangular gravel up to 1 inch diameter												
1120	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, dense, subangular gravel up to 1 inch diameter	1		BC=14 21 25	18"								
			grayish brown, increase in sand	2		BC=12 16 25	18"				73	5.9			
1115	10														
1110	15														
1105	20														
1100	25														
1095	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-17

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FIGURE
A-19

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Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-18**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08550°
Longitude: -117.49340°
Approximate Ground Surface Elevation (ft.): 1,117
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1115	0		**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 3 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, subangular gravel up to 1.5 inch diameter												
	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, very dense, subangular gravel up to 1.5 inch diameter	1		BC=15 42 40	18"								
1110			grayish brown, increase in sand	2		BC=15 26 29	18"				55	7.2			
	10														
1105															
	15														
1100															
	20														
1095															
	25														
1090															
	30														
1085															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-18

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-20

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-19**	
Logged By:	H. Marquez	**Drill Crew:**	Juan/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08390°
Longitude: -117.49360°
Approximate Ground Surface Elevation (ft.): 1,110
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 1 inch diameter, trace debris (slag up to 6 inches)												
1105	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, dense, subangular gravel up to 1 inch diameter	1		BC=11 22 30	18"								
			dark yellowish brown, increase in sand	2		BC=6 15 22	18"				58	7.0			
1100	10														
1095	15														
1090	20														
1085	25														
1080	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG P-19

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-21

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Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-20**	
Logged By:	H. Marquez	**Drill Crew:**	Juan/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08430°
Longitude: -117.49870°
Approximate Ground Surface Elevation (ft.): 1,106
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1105	0		**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, subangular gravel up to 1 inch diameter, trace debris (pieces of wire)												
	5			1		BC=10 16 21	18"								
1100			**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark yellowish brown, moist, dense, subangular gravel up to 1 inch diameter												
			very dense	2		BC=11 31 30	18"				54	7.5			
	10														
1095															
	15														
1090															
	20														
1085															
	25														
1080															
	30														
1075															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-20

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-22

APPENDIX B
LABORATORY TESTING

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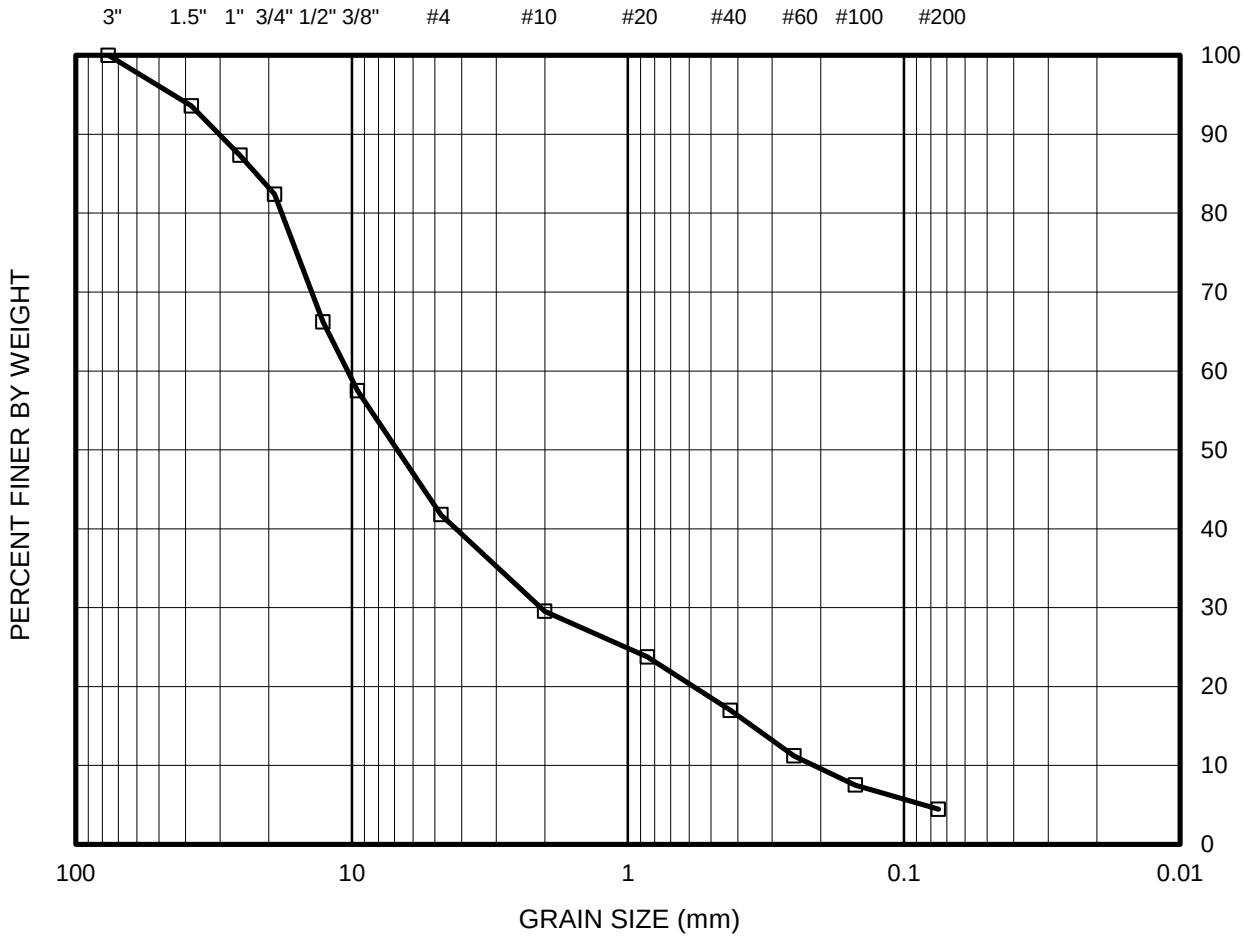
GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-1	1	1.0-5.0	Bulk	GW	N/A	N/A

Gravel:	58.2%
Sand:	37.3%
Fine:	4.5%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-2	4	20.0	SPT Bag	SW-SM	N/A	N/A

Gravel:	28.8%
Sand:	64.2%
Fine:	7.0%

EGLAB, INC.

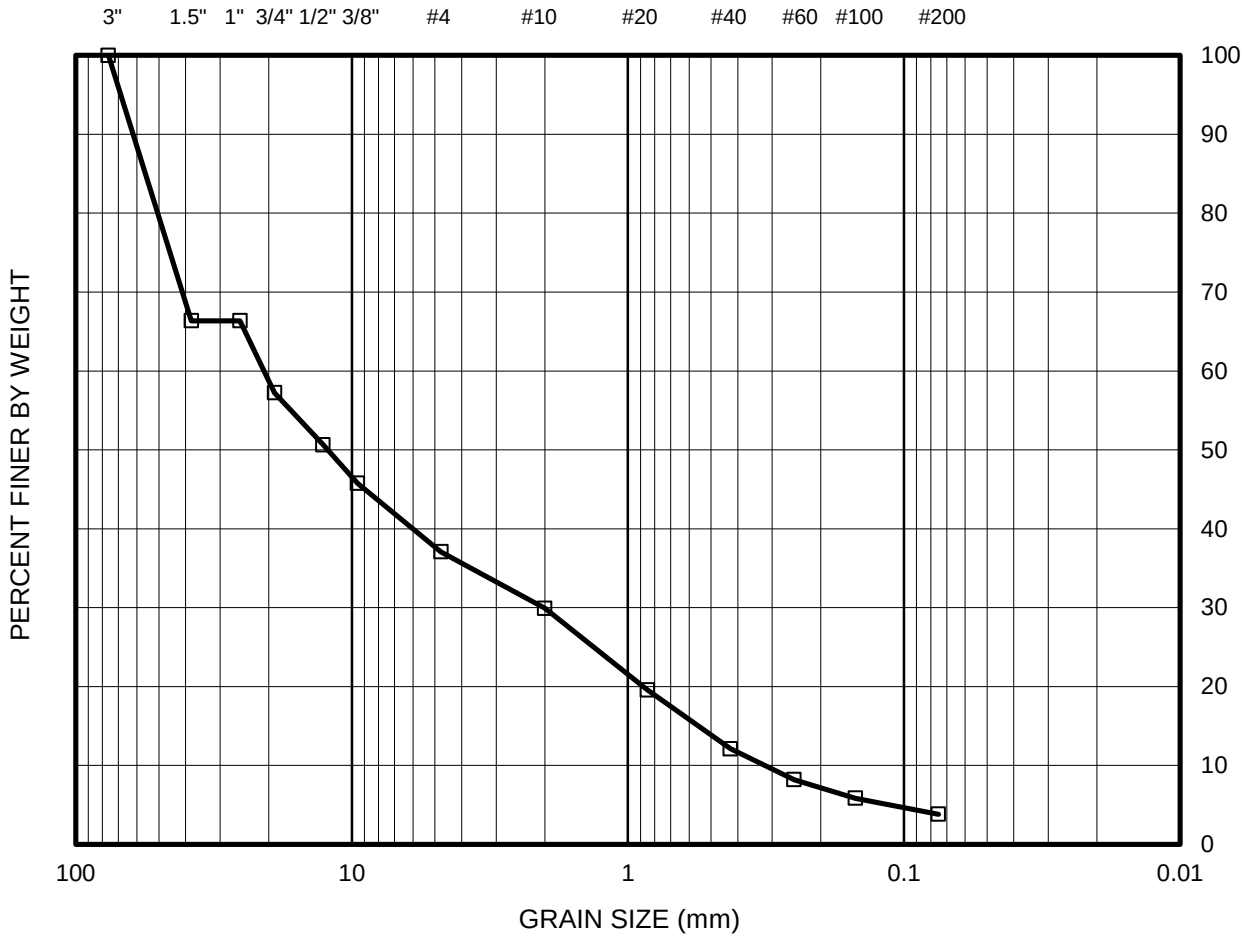
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-3	2	5.0	CAL	GW	N/A	N/A

Gravel:	62.9%
Sand:	33.3%
Fine:	3.8%

EGLAB, INC.

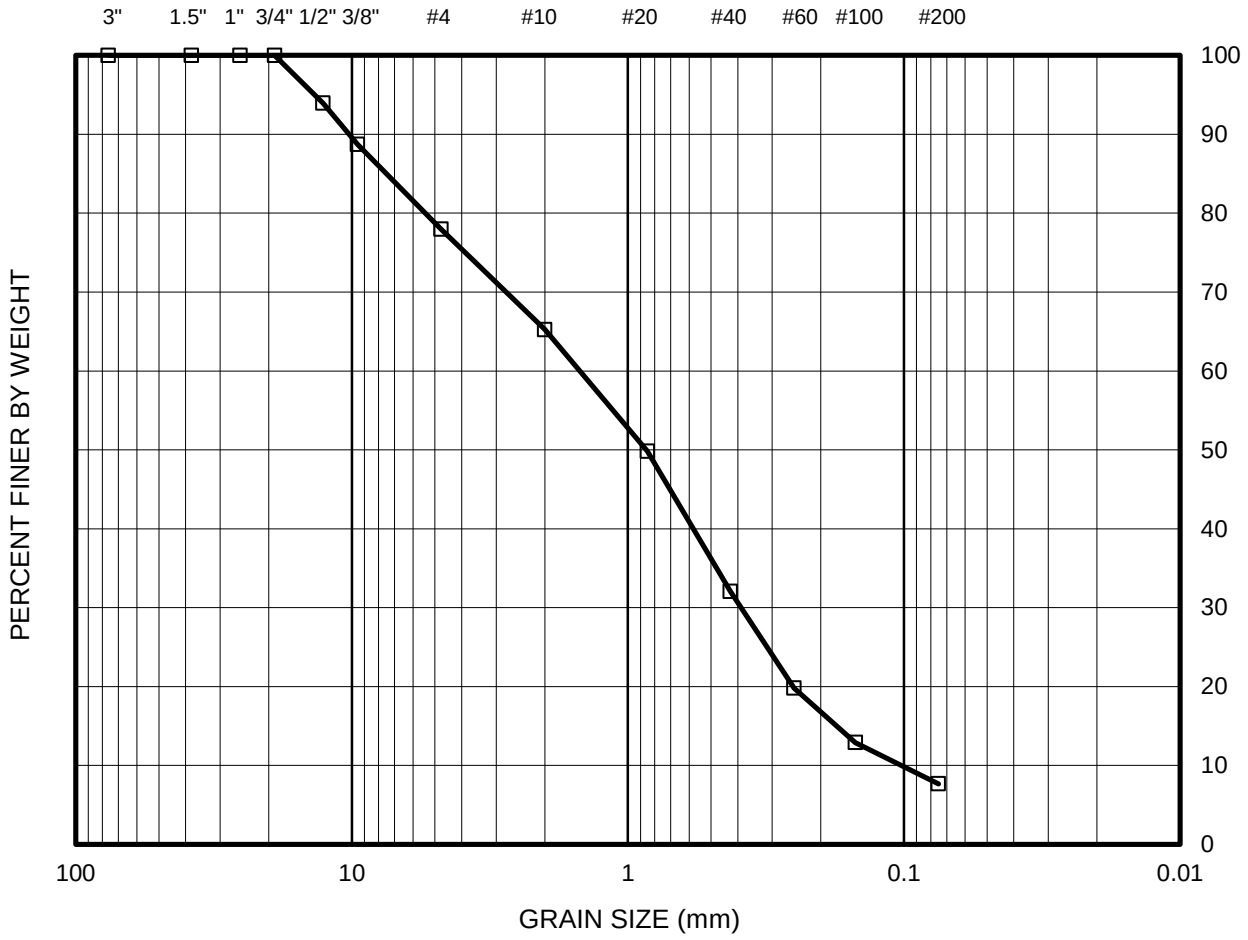
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-4	2	10.0	CAL	SW-SM	N/A	N/A

Gravel:	22.0%
Sand:	70.3%
Fine:	7.7%

EGLAB, INC.

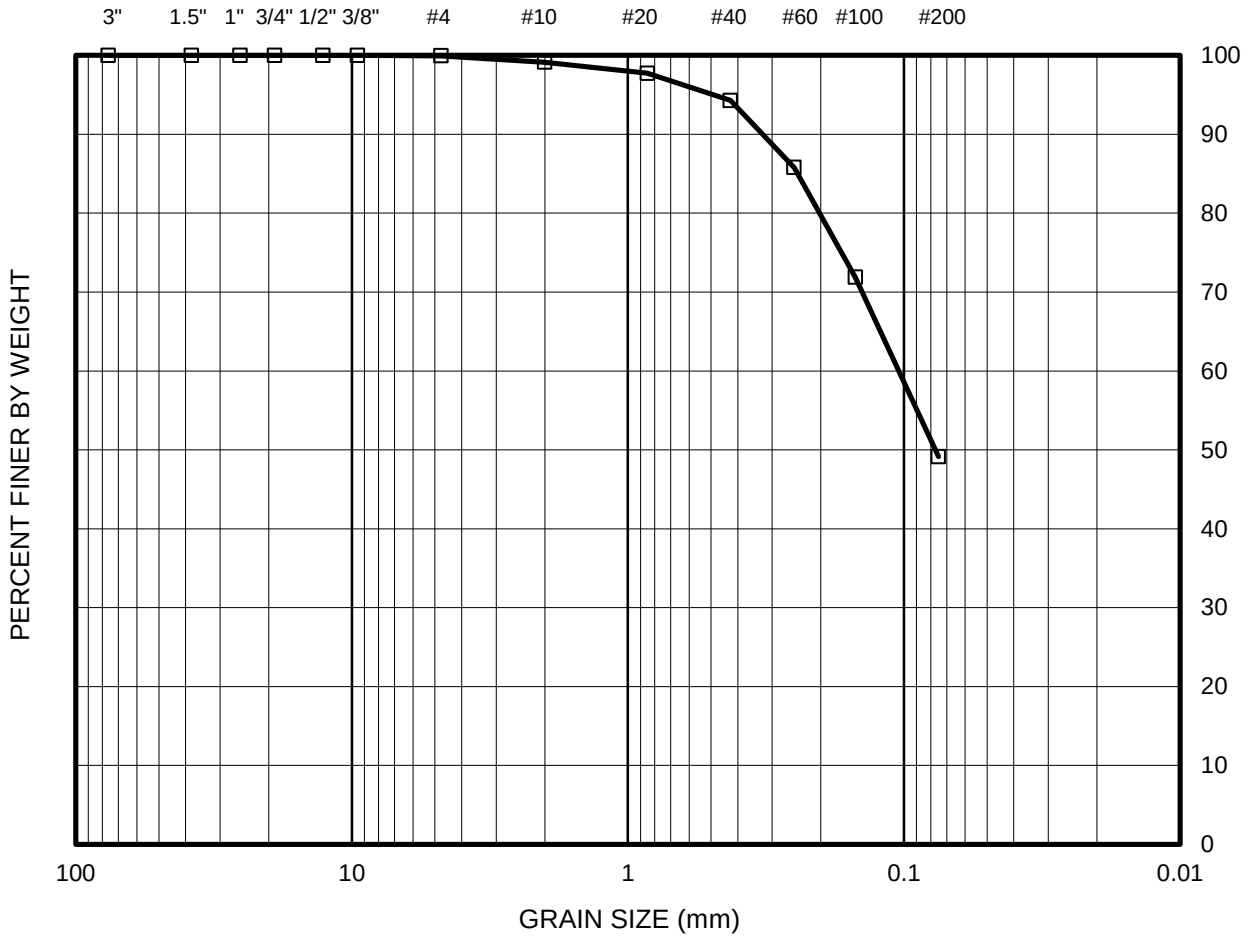
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-5	3	10.0	CAL	SC	N/A	N/A

Gravel:	0.1%
Sand:	50.8%
Fine:	49.1%

EGLAB, INC.

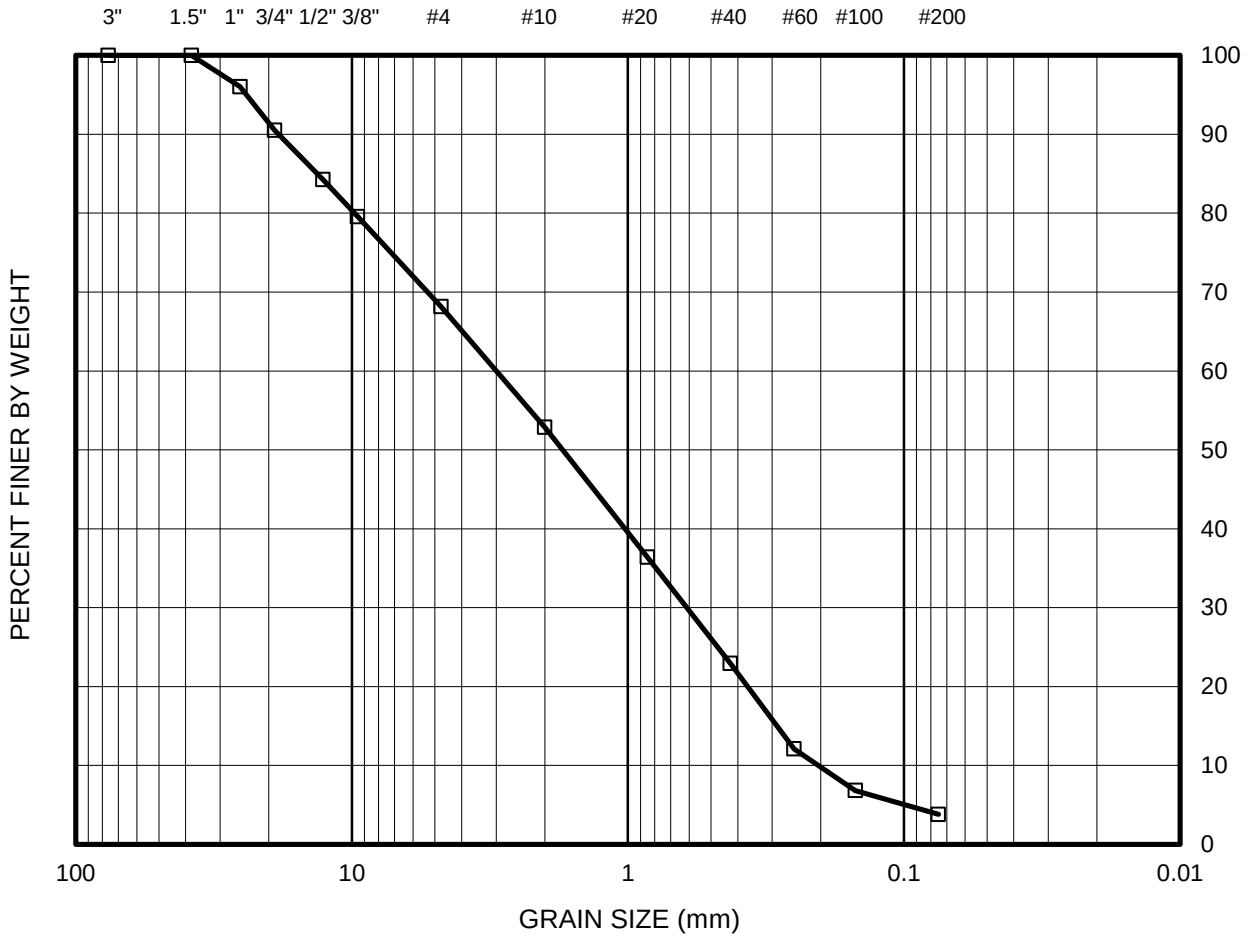
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-6	3	10.0	CAL	SW	N/A	N/A

Gravel:	31.8%
Sand:	64.4%
Fine:	3.8%

EGLAB, INC.

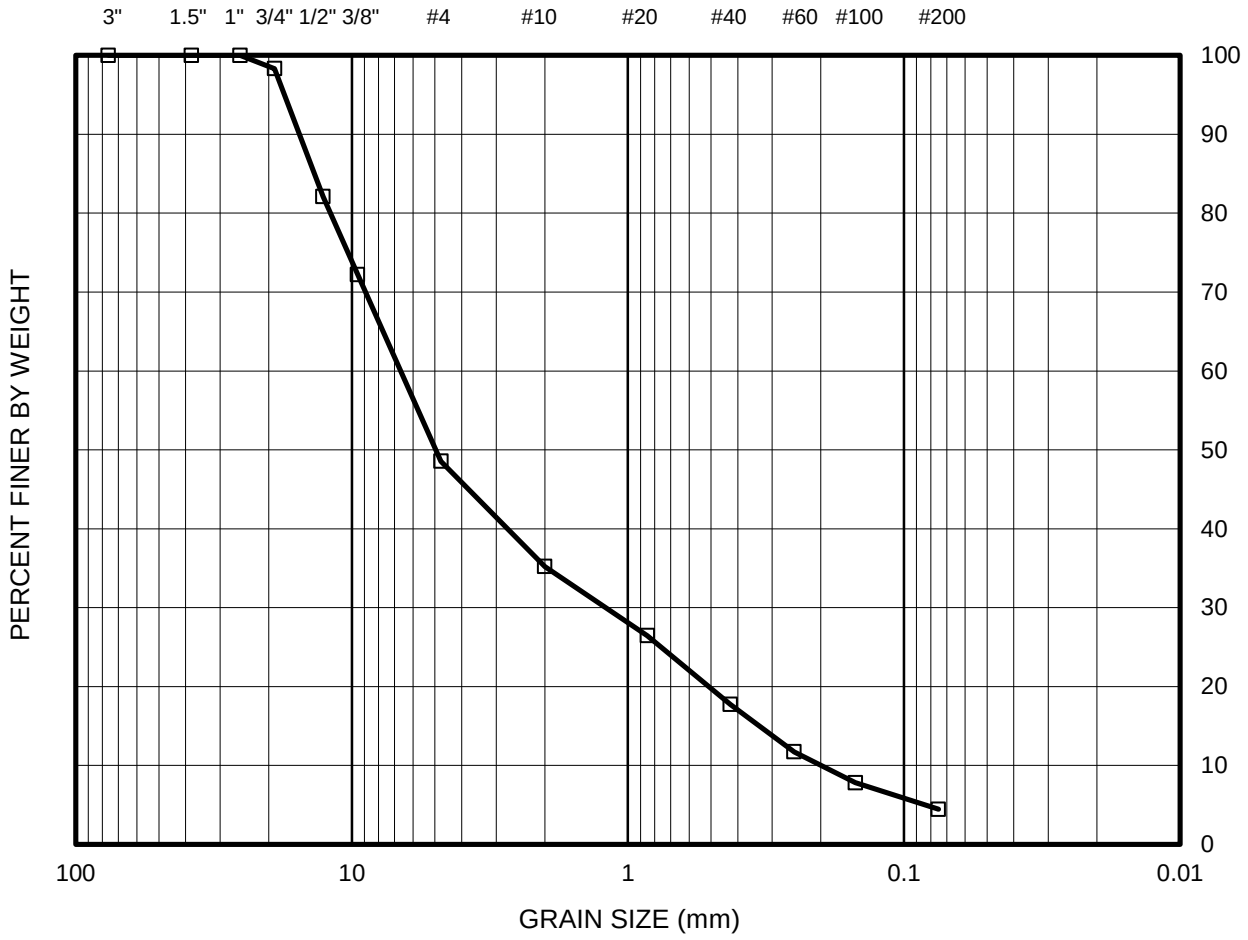
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-7	2	10.0	CAL	GW	N/A	N/A

Gravel:	51.5%
Sand:	44.1%
Fine:	4.4%

EGLAB, INC.

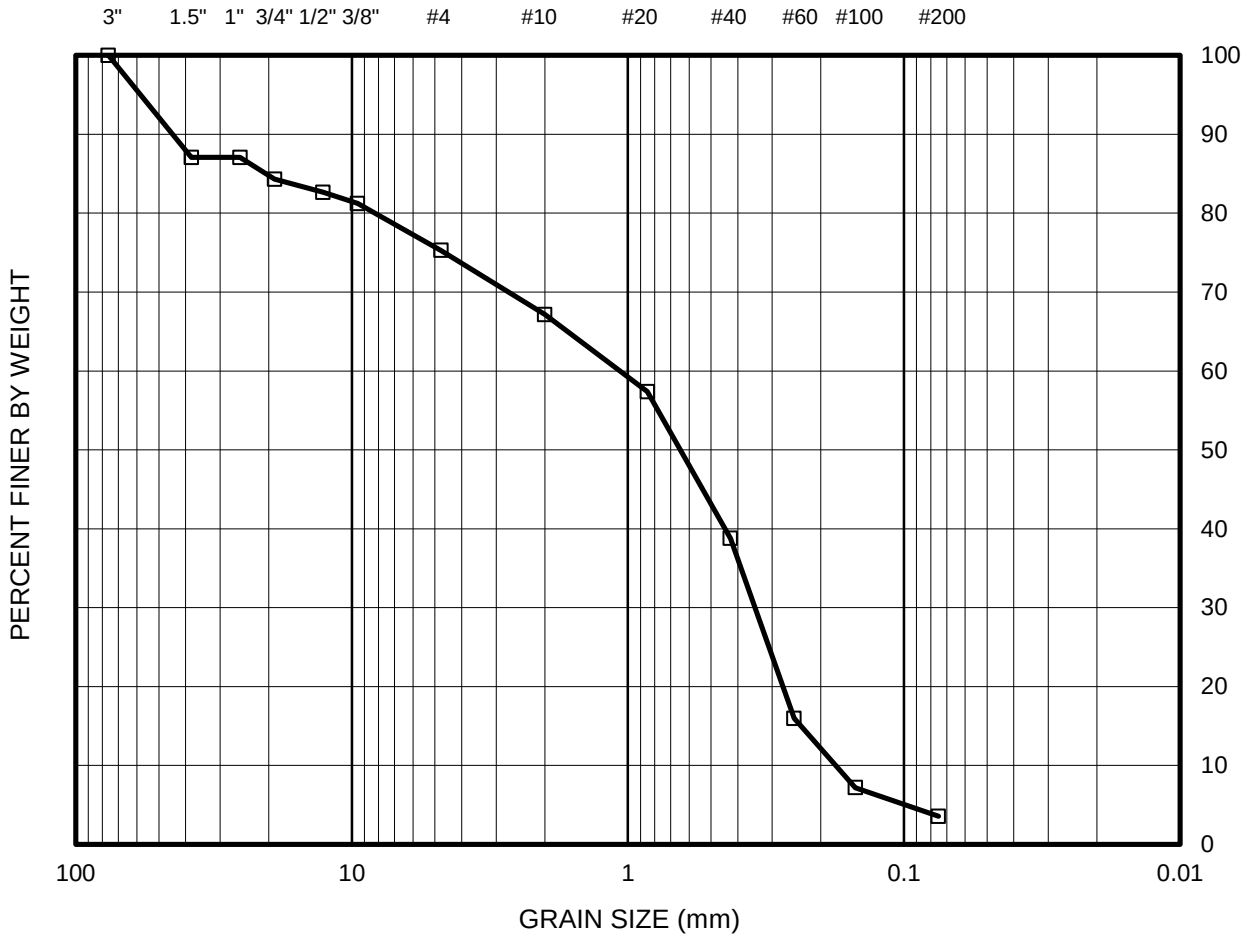
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-8	4	20.0	CAL	SW	N/A	N/A

Gravel:	24.7%
Sand:	71.7%
Fine:	3.6%

EGLAB, INC.

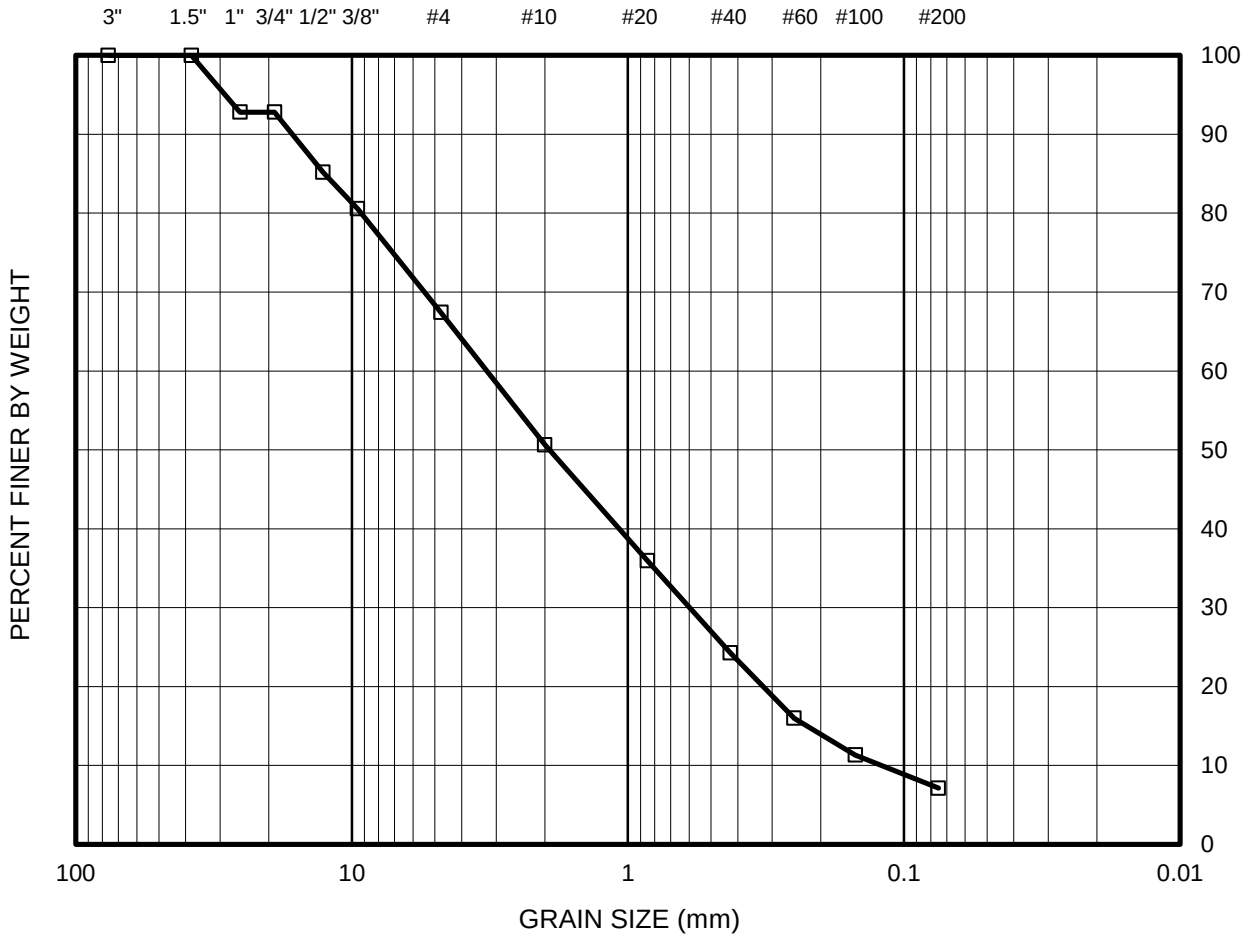
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-9	1	5.0	CAL	SW-SM	N/A	N/A

Gravel:	32.6%
Sand:	60.3%
Fine:	7.1%

EGLAB, INC.

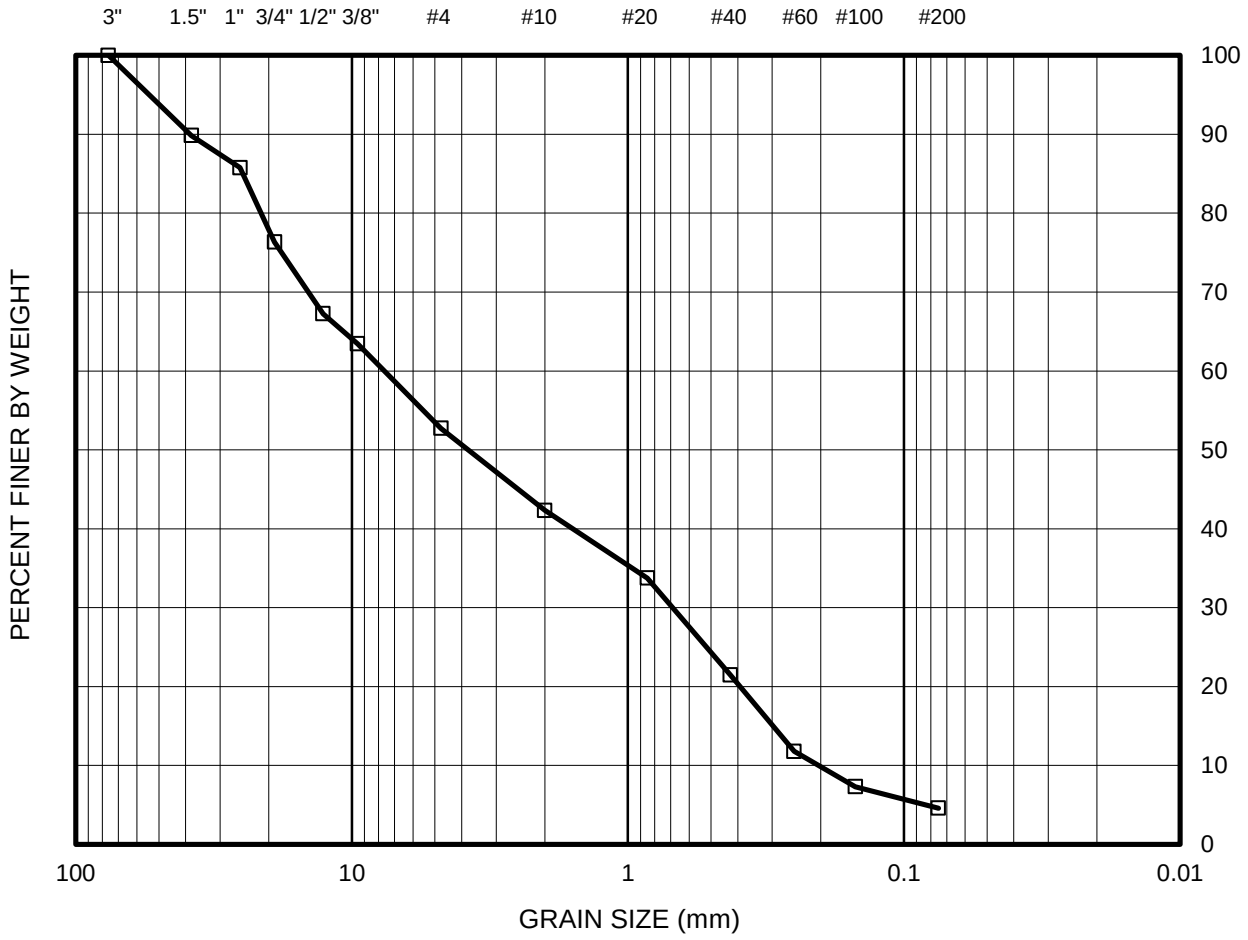
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-10	3	10.0	CAL	SW	N/A	N/A

Gravel:	47.3%
Sand:	48.1%
Fine:	4.6%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-11	1	5.0	CAL	SM	N/A	N/A

Gravel:	21.8%
Sand:	63.5%
Fine:	14.7%

EGLAB, INC.

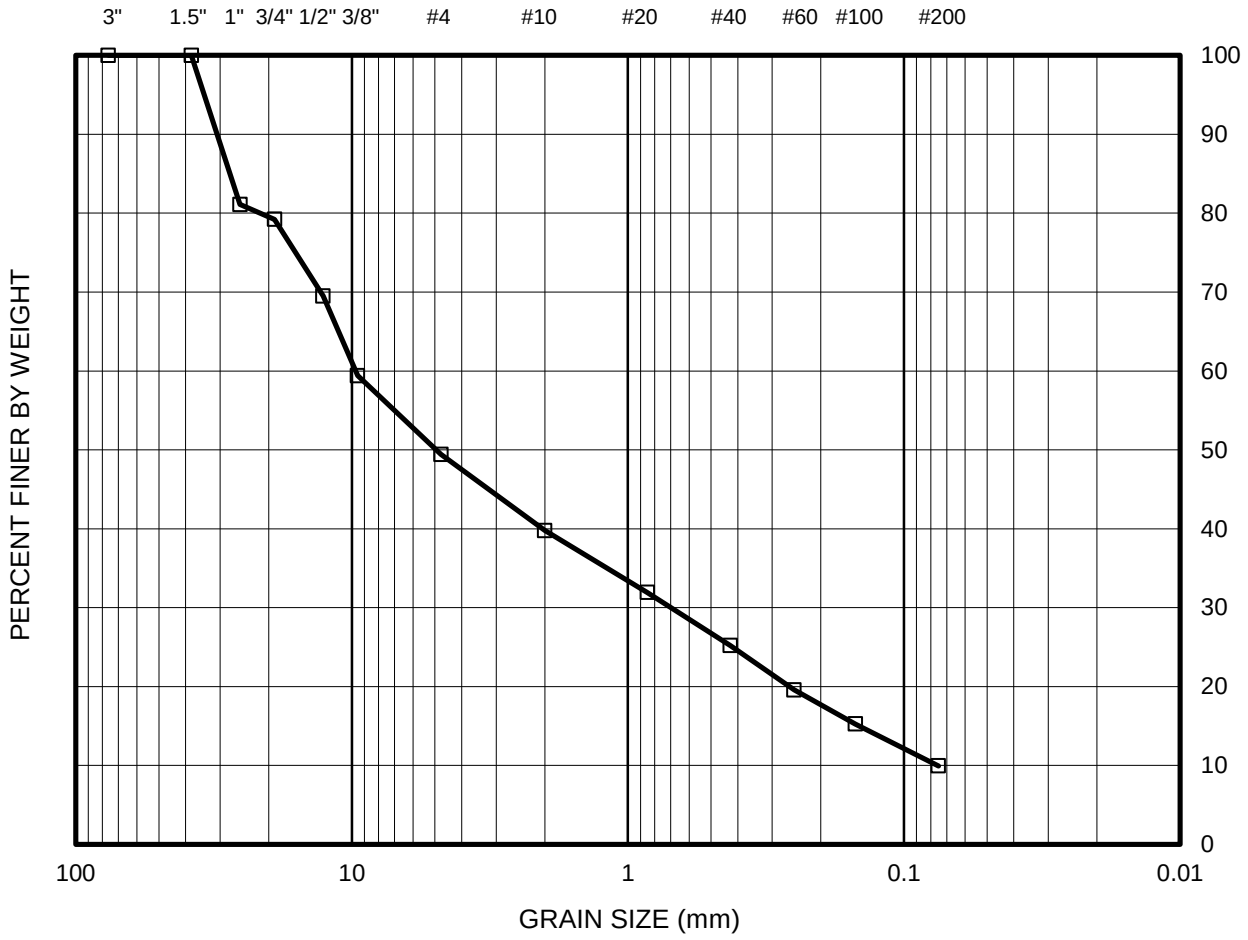
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-12	2	10.0	CAL	GW-GM	N/A	N/A

Gravel:	50.6%
Sand:	39.5%
Fine:	9.9%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-13	2	5.0	CAL	SM	N/A	N/A

Gravel:	5.0%
Sand:	70.0%
Fine:	25.0%

EGLAB, INC.

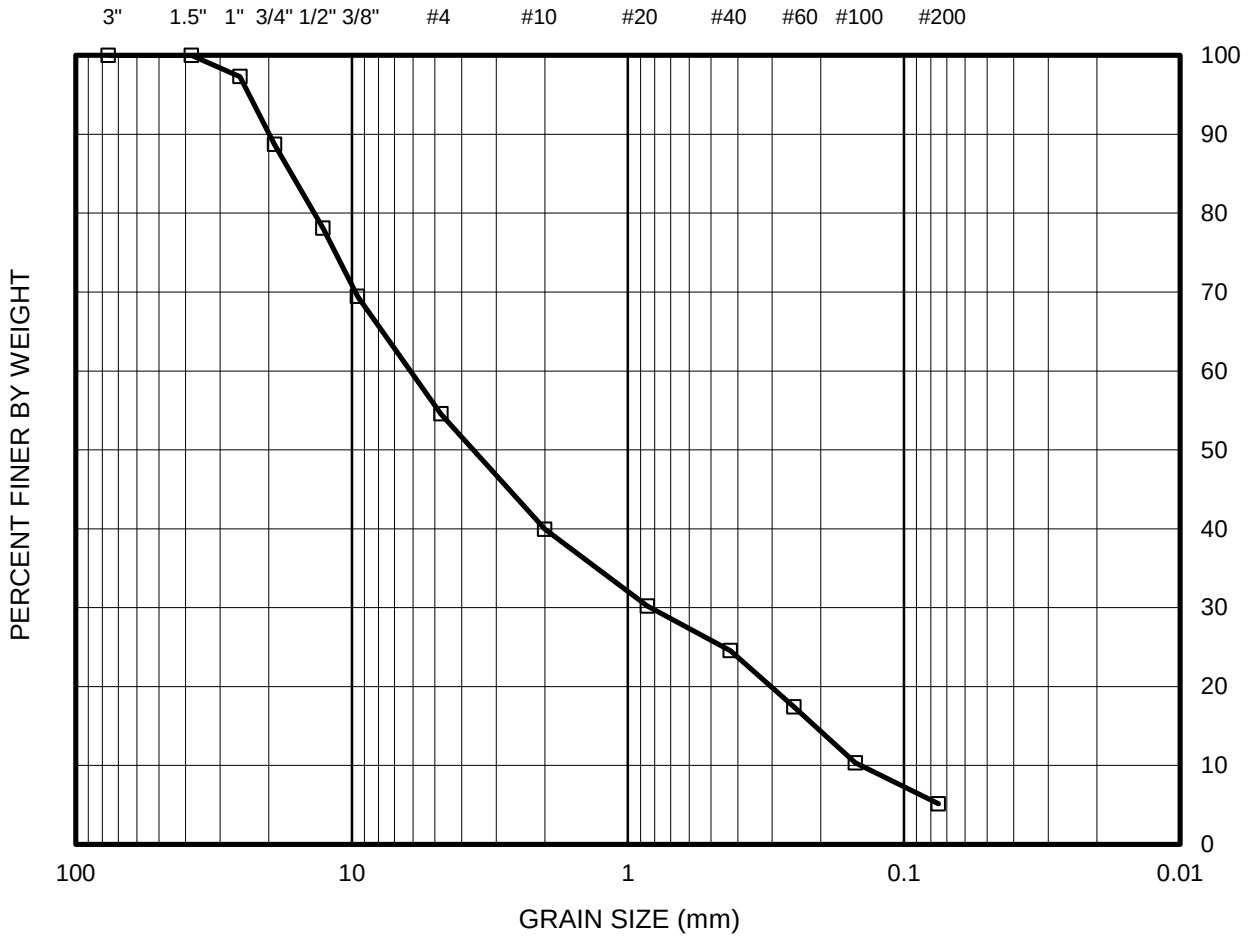
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-15	2	10.0	CAL	SW-SM	N/A	N/A

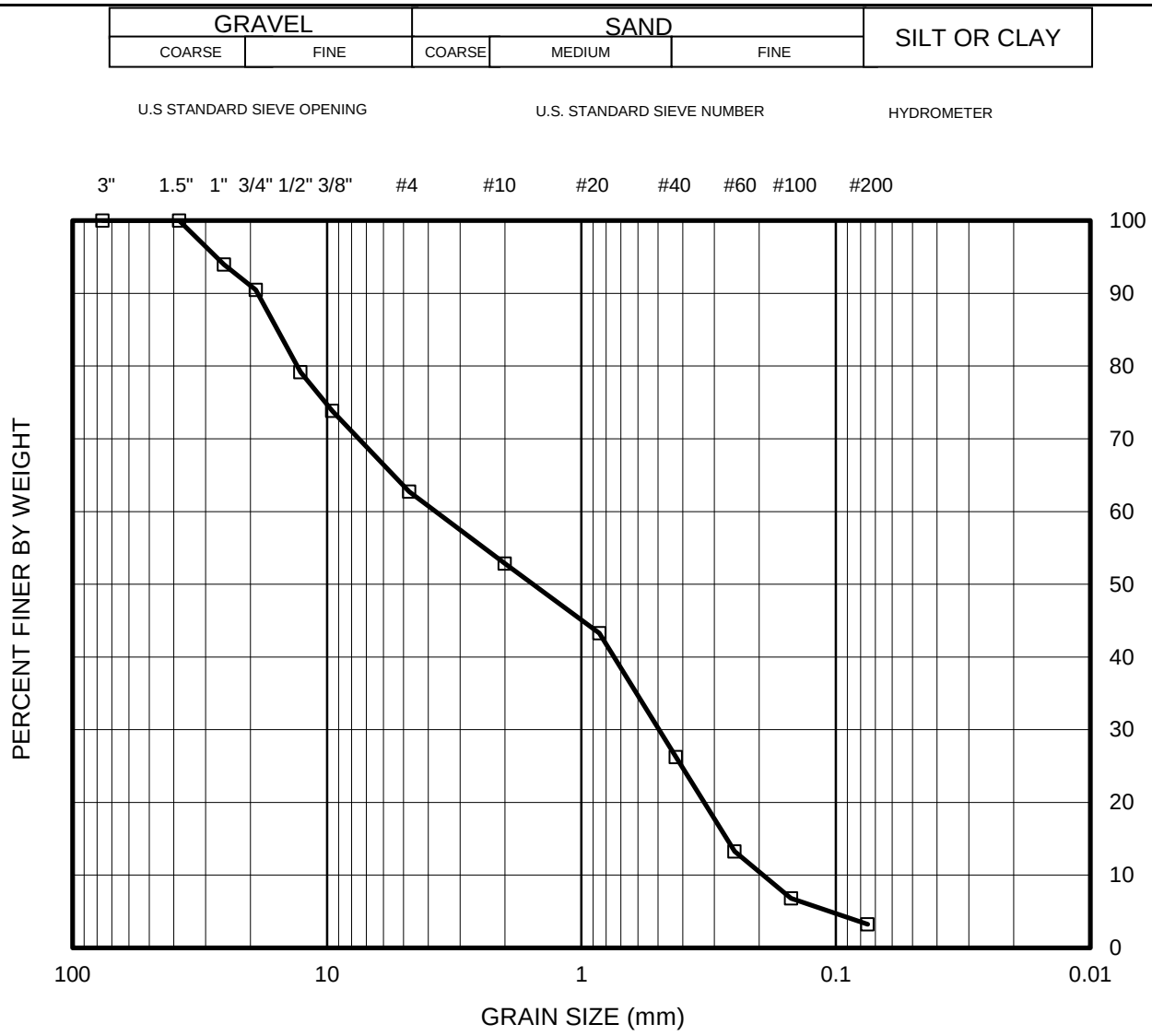
Gravel:	45.5%
Sand:	49.4%
Fine:	5.1%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-16	1	1.0-5.0	Bulk	SW	N/A	N/A

Gravel:	37.3%
Sand:	59.5%
Fine:	3.2%

EGLAB, INC.

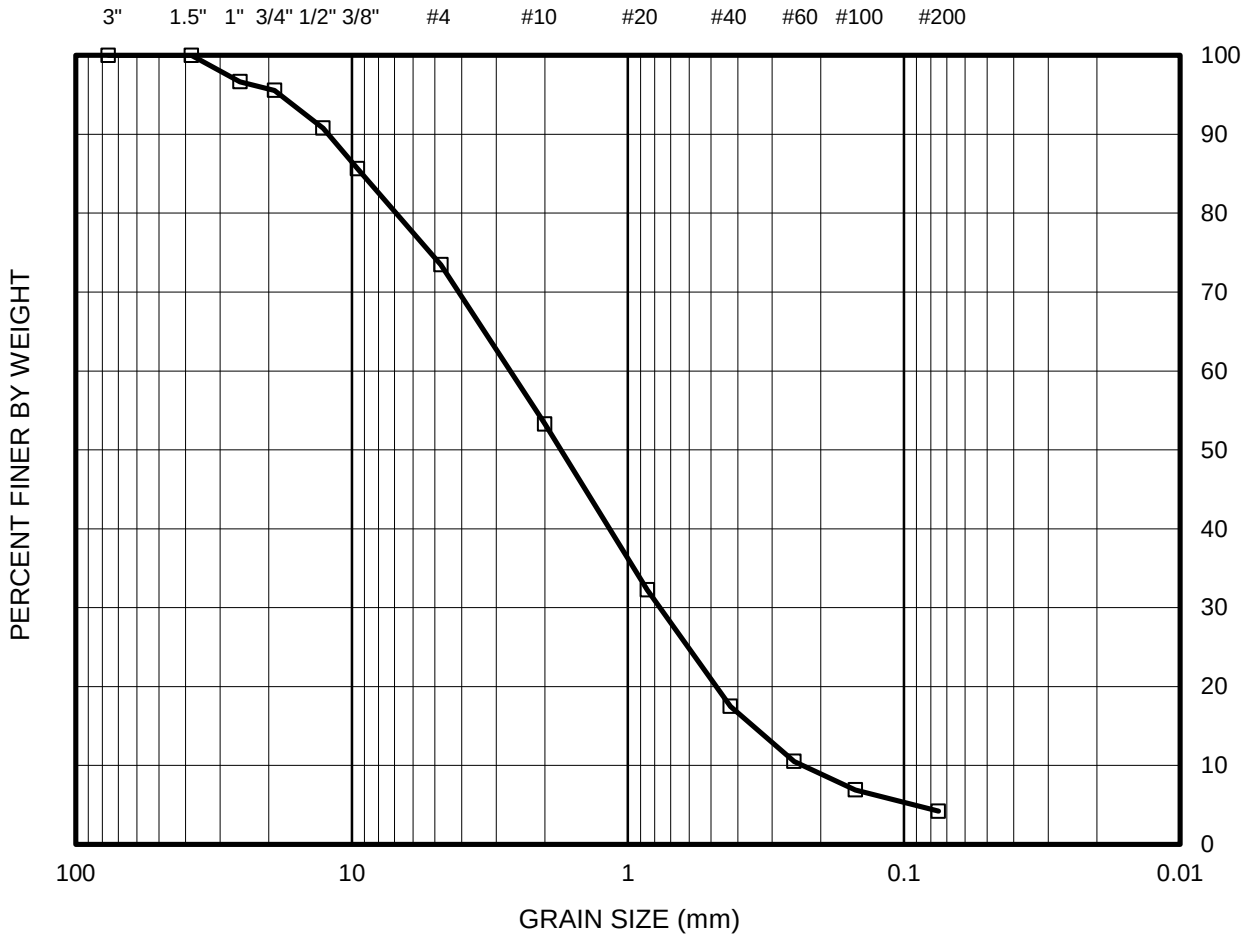
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-18	2	10.0	CAL	SW	N/A	N/A

Gravel:	26.5%
Sand:	69.3%
Fine:	4.2%

EGLAB, INC.

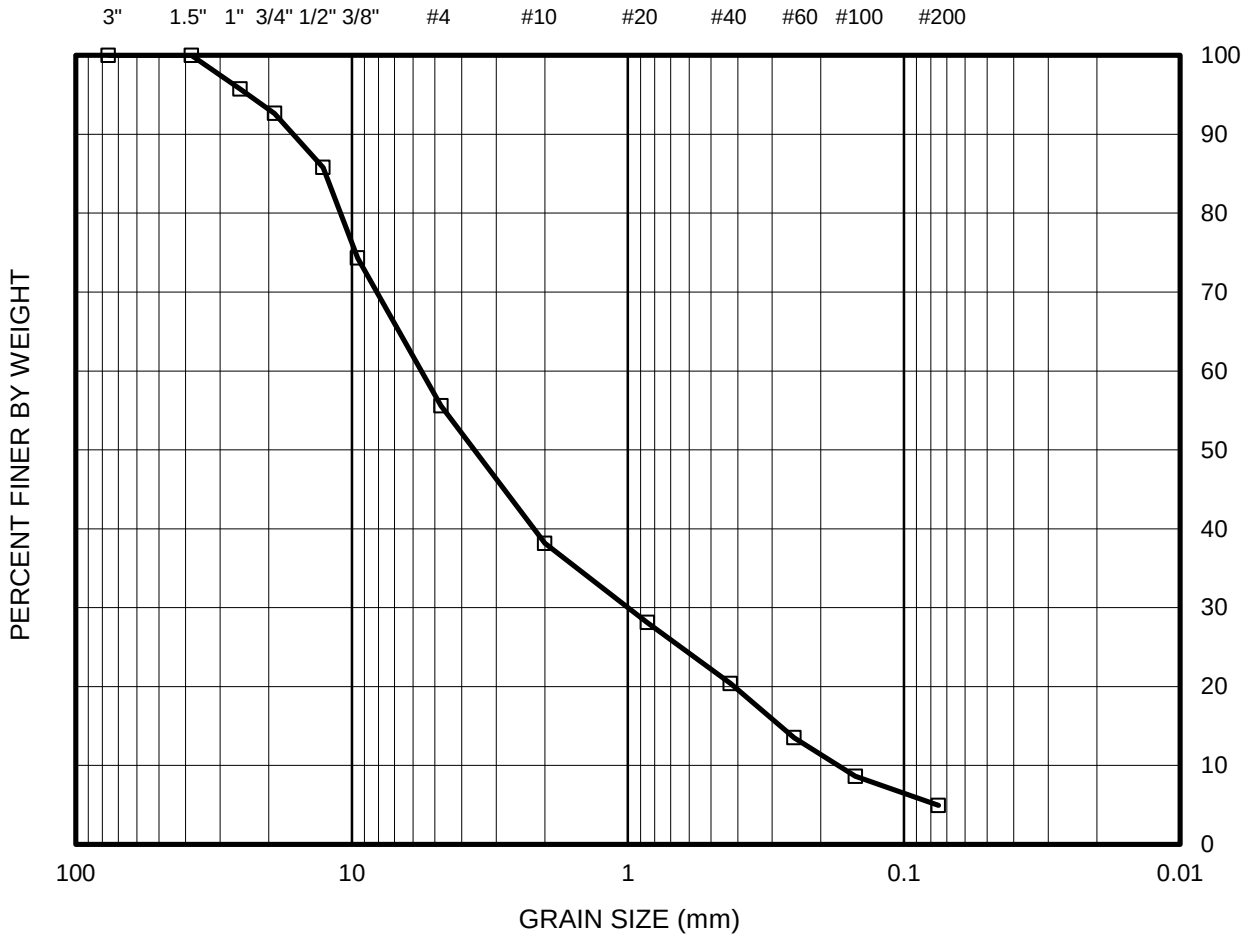
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-20	2	5.0	CAL	SW	N/A	N/A

Gravel:	44.4%
Sand:	50.7%
Fine:	4.9%

EGLAB, INC.

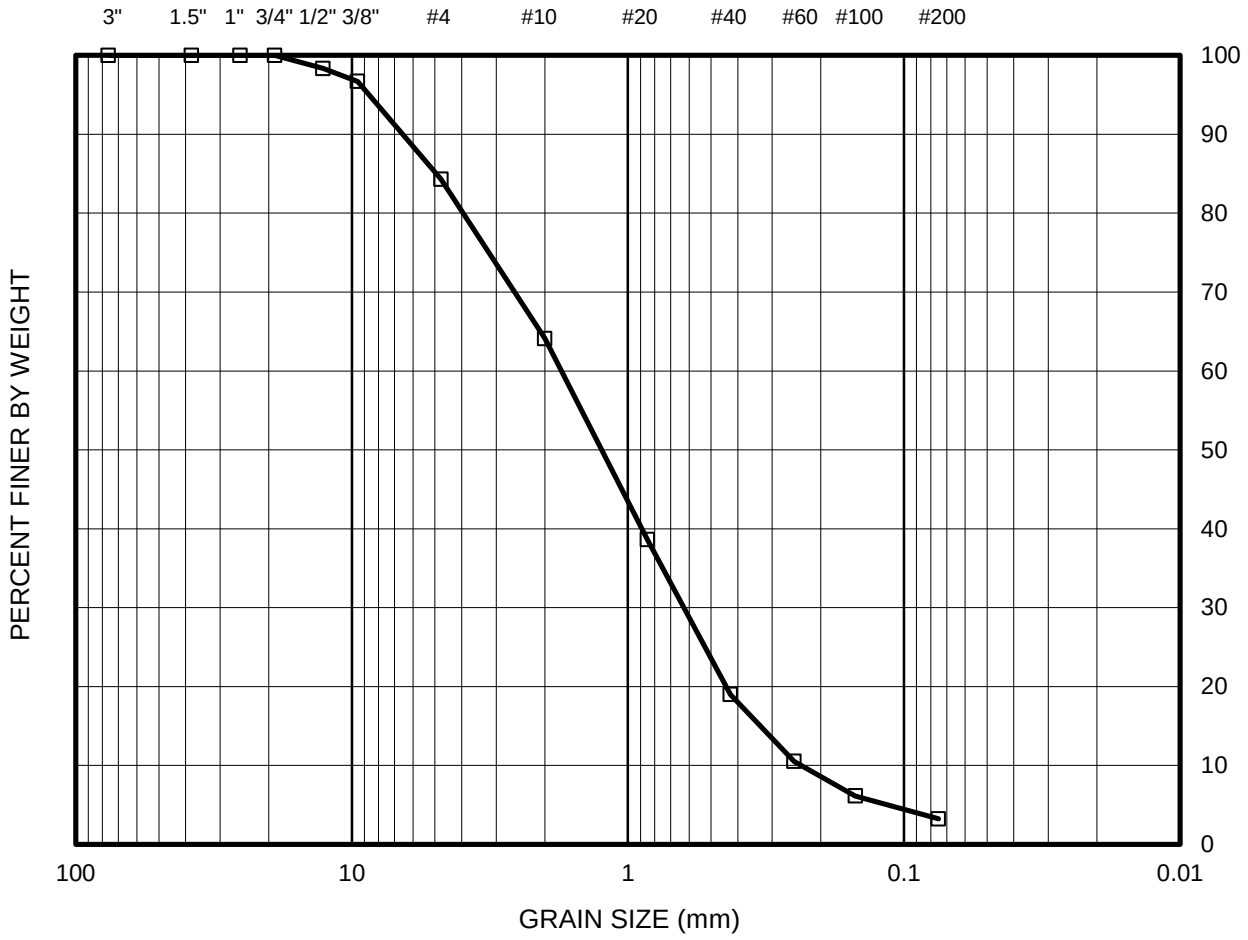
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-21	4	15.0	CAL	SW	N/A	N/A

Gravel:	15.7%
Sand:	81.1%
Fine:	3.2%

EGLAB, INC.

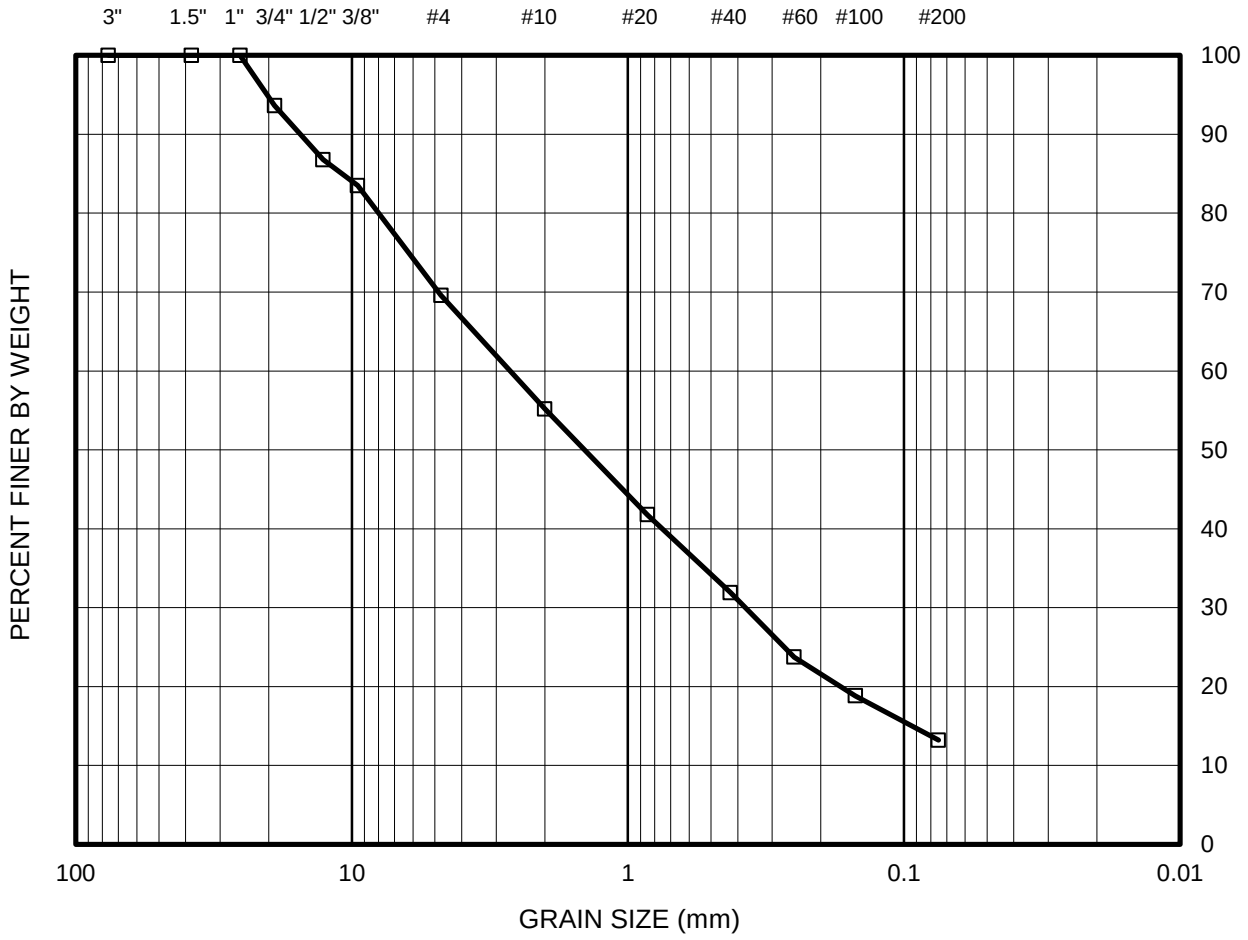
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-22	1	5.0	CAL	SM	N/A	N/A

Gravel:	30.4%
Sand:	56.4%
Fine:	13.2%

EGLAB, INC.

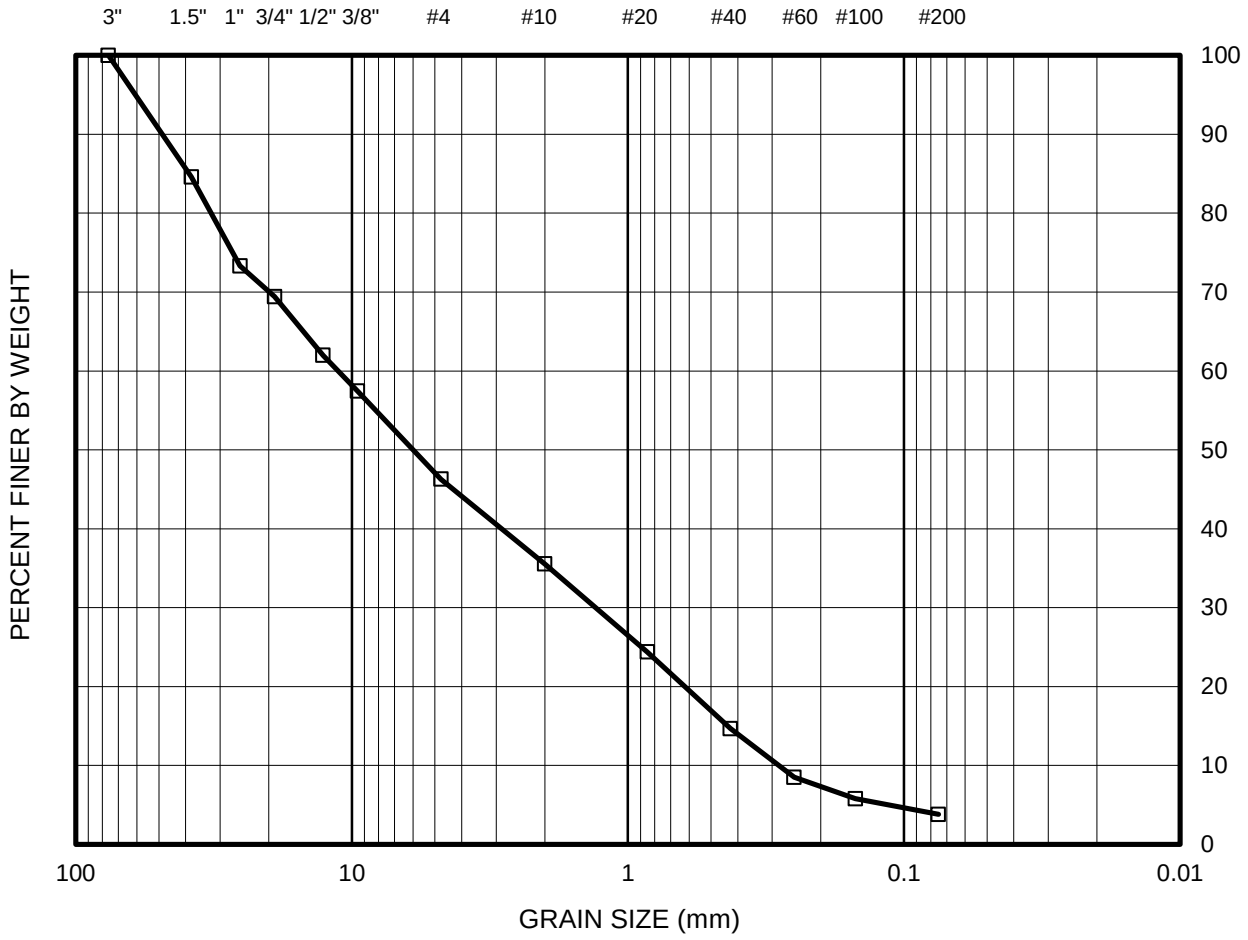
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-23	1	10.0	CAL	GW	N/A	N/A

Gravel:	53.7%
Sand:	42.5%
Fine:	3.8%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

APPENDIX C
INFILTRATION TEST RESULTS

Copyright 2021 Kleinfelder

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 13, 2021
Location: P-1

Method: Borehole Percolation Test Procedure

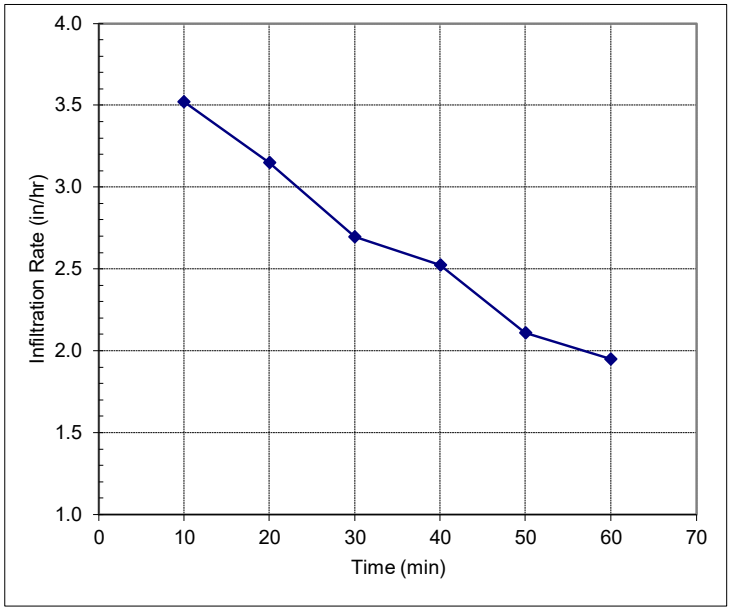
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	5.40	6.24	0.84	--	--
5	10.00	6.24	7.10	0.86	--	--
10	10.00	5.21	6.53	1.32	0.63	3.5
10	20.00	5.11	6.33	1.22	0.68	3.2
10	30.00	5.12	6.18	1.06	0.79	2.7
10	40.00	5.22	6.20	0.98	0.85	2.5
10	50.00	5.11	5.96	0.85	0.98	2.1
10	60.00	5.18	5.96	0.78	1.07	2.0

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	5.0
Well bottom depth (ft, bgs)	10.2
Final period drop delta d (in):	9.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

KLEINFELDER
Bright People. Right Solutions.

Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-1

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 13, 2021
Location: P-2

Method: Borehole Percolation Test Procedure

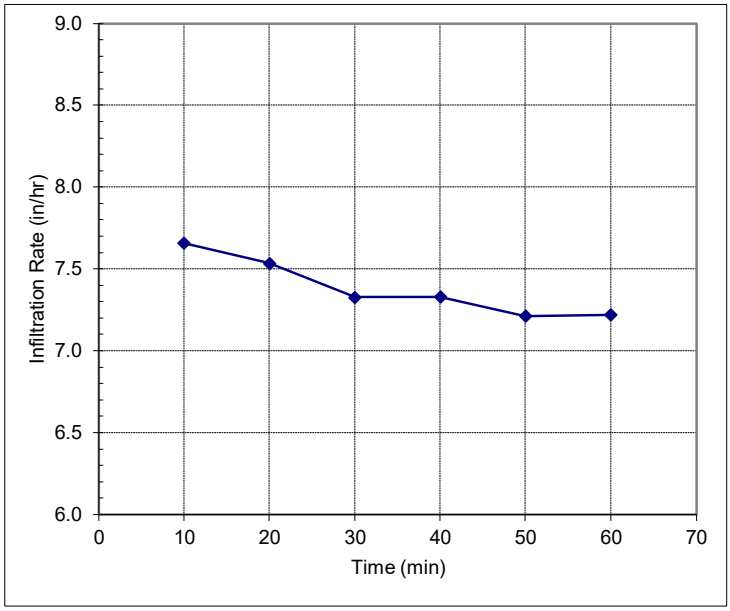
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	7.21	7.95	0.74	--	--
1	2.00	7.95	8.48	0.53	--	--
10	10.00	4.54	7.18	2.64	0.32	7.7
10	20.00	4.87	7.32	2.45	0.34	7.5
10	30.00	4.61	7.13	2.52	0.33	7.3
10	40.00	4.59	7.12	2.53	0.33	7.3
10	50.00	4.61	7.10	2.49	0.33	7.2
10	60.00	4.70	7.15	2.45	0.34	7.2

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	9.8
Final period drop delta d (in):	29.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-2

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 14, 2021
Location: P-3

Method: Borehole Percolation Test Procedure

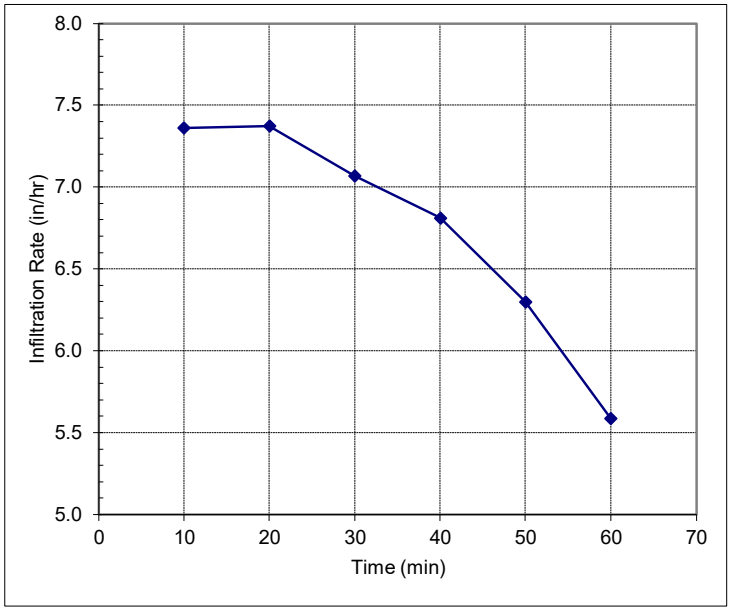
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	7.20	8.36	1.16	--	--
1	2.00	8.36	8.90	0.54	--	--
10	10.00	6.91	8.50	1.59	0.52	7.4
10	20.00	7.00	8.55	1.55	0.54	7.4
10	30.00	7.00	8.50	1.50	0.56	7.1
10	40.00	6.95	8.43	1.48	0.56	6.8
10	50.00	6.93	8.33	1.40	0.60	6.3
10	60.00	6.96	8.22	1.26	0.66	5.6

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	15.1
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-3

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 14, 2021
Location: P-4

Method: Borehole Percolation Test Procedure

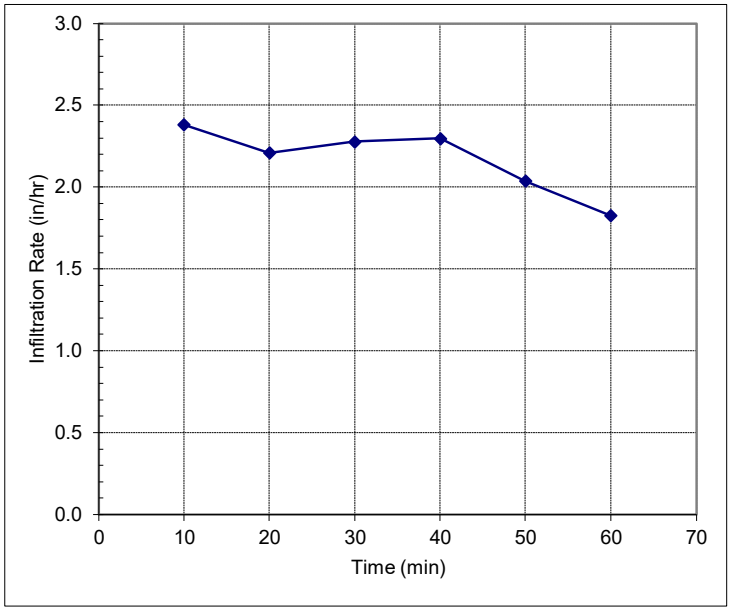
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	4.74	5.60	0.86	--	--
10	20.00	5.60	6.41	0.81	--	--
10	10.00	6.70	7.35	0.65	1.28	2.4
10	20.00	6.68	7.29	0.61	1.37	2.2
10	30.00	6.26	6.96	0.70	1.19	2.3
10	40.00	6.29	6.99	0.70	1.19	2.3
10	50.00	6.40	7.01	0.61	1.37	2.0
10	60.00	6.27	6.84	0.57	1.46	1.8

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	6.8
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-4

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 14, 2021
Location: P-5

Method: Borehole Percolation Test Procedure

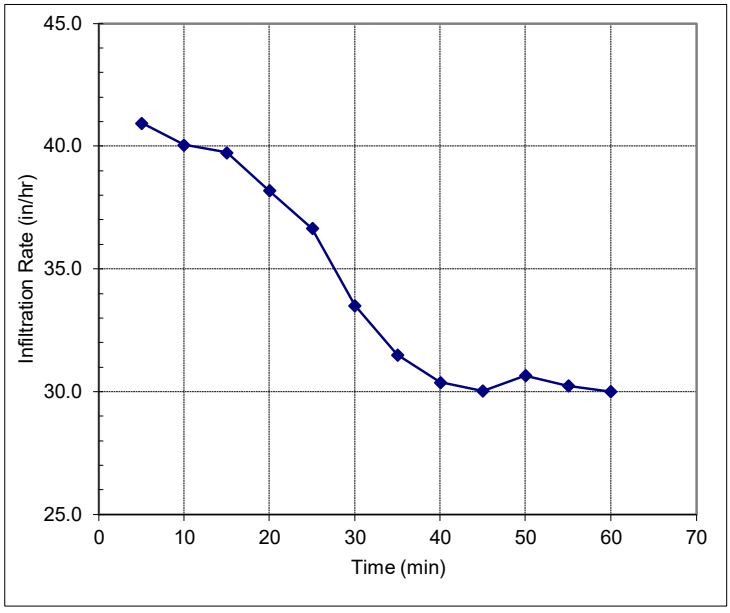
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
2	2.00	6.86	8.57	1.71	--	--
2	4.00	7.09	8.57	1.48	--	--
5	5.00	6.51	9.80	3.29	0.13	40.9
5	10.00	6.50	9.76	3.26	0.13	40.1
5	15.00	6.54	9.75	3.21	0.13	39.7
5	20.00	6.45	9.67	3.22	0.13	38.2
5	25.00	6.55	9.61	3.06	0.14	36.7
5	30.00	6.52	9.45	2.93	0.14	33.5
5	35.00	6.50	9.34	2.84	0.15	31.5
5	40.00	6.51	9.28	2.77	0.15	30.4
5	45.00	6.55	9.27	2.72	0.15	30.0
5	50.00	6.53	9.30	2.77	0.15	30.7
5	55.00	6.50	9.27	2.77	0.15	30.2
5	60.00	6.47	9.25	2.78	0.15	30.0

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	33.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-5

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 14, 2021
Location: P-6

Method: Borehole Percolation Test Procedure

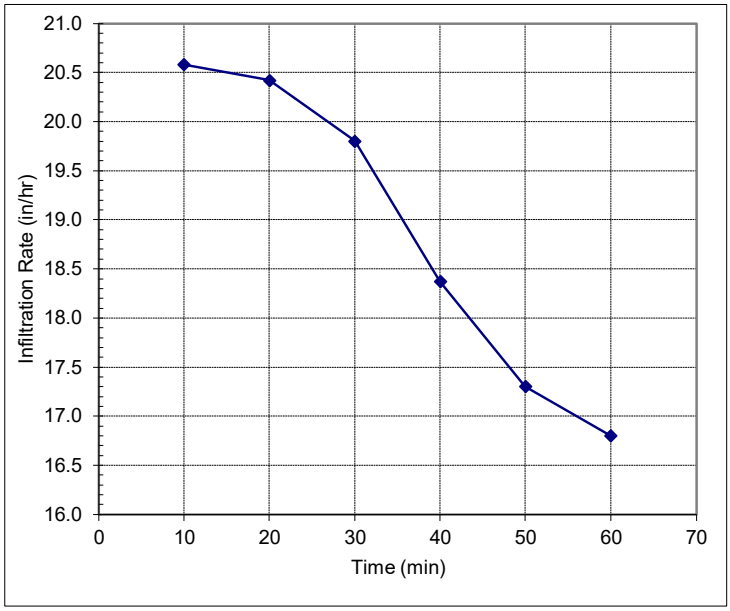
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	7.89	8.49	0.60	--	--
1	2.00	8.39	8.89	0.50	--	--
10	10.00	6.85	9.82	2.97	0.28	20.6
10	20.00	6.88	9.81	2.93	0.28	20.4
10	30.00	6.97	9.77	2.80	0.30	19.8
10	40.00	6.93	9.65	2.72	0.31	18.4
10	50.00	6.88	9.55	2.67	0.31	17.3
10	60.00	6.91	9.51	2.60	0.32	16.8

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	31.2
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-6

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 14, 2021
Location: P-7

Method: Borehole Percolation Test Procedure

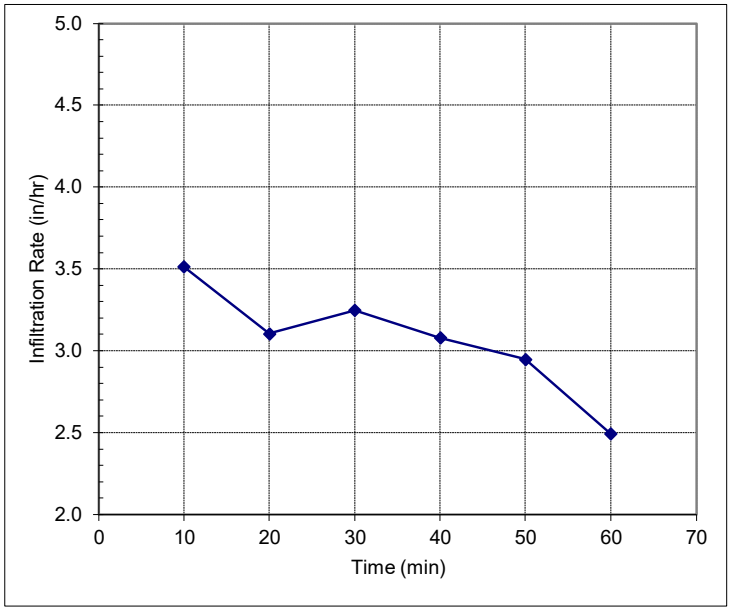
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	6.30	7.03	0.73	--	--
10	20.00	4.34	5.54	1.20	--	--
10	10.00	4.74	6.16	1.42	0.59	3.5
10	20.00	4.49	5.82	1.33	0.63	3.1
10	30.00	4.59	5.95	1.36	0.61	3.2
10	40.00	4.89	6.12	1.23	0.68	3.1
10	50.00	4.54	5.80	1.26	0.66	2.9
10	60.00	4.56	5.64	1.08	0.77	2.5

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	13.0
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-7

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-8

Method: Borehole Percolation Test Procedure

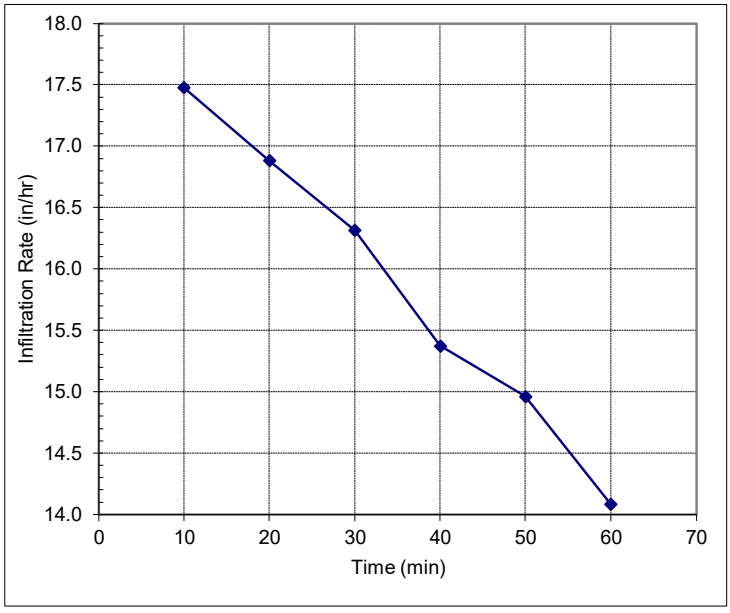
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.60	9.72	1.12	--	--
1	2.00	8.04	9.21	1.17	--	--
10	10.00	6.82	9.50	2.68	0.31	17.5
10	20.00	6.84	9.45	2.61	0.32	16.9
10	30.00	6.80	9.39	2.59	0.32	16.3
10	40.00	6.85	9.31	2.46	0.34	15.4
10	50.00	6.81	9.26	2.45	0.34	15.0
10	60.00	6.85	9.18	2.33	0.36	14.1

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.8
Final period drop delta d (in):	28.0
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-8

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-9

Method: Borehole Percolation Test Procedure

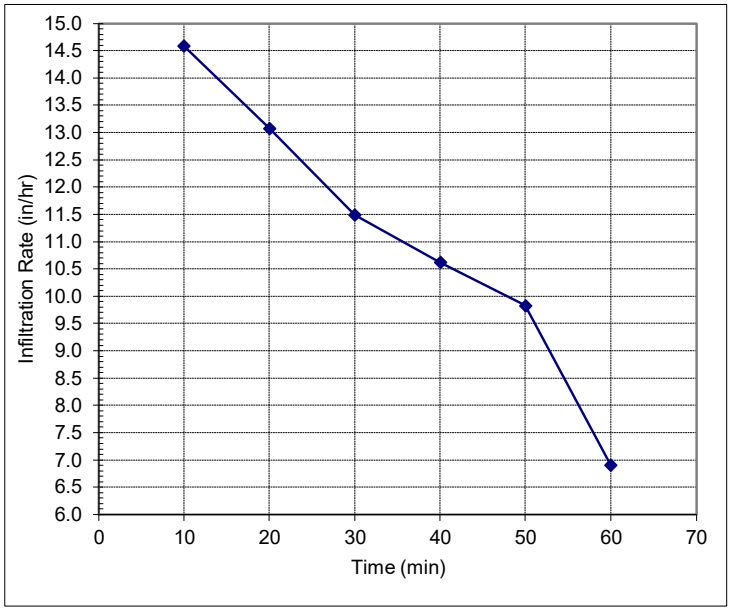
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.61	8.12	0.51	--	--
5	10.00	8.12	9.00	0.88	--	--
10	10.00	4.80	8.92	4.12	0.20	14.6
10	20.00	4.85	8.66	3.81	0.22	13.1
10	30.00	4.86	8.35	3.49	0.24	11.5
10	40.00	4.97	8.21	3.24	0.26	10.6
10	50.00	4.83	7.98	3.15	0.26	9.8
10	60.00	4.81	7.24	2.43	0.34	6.9

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	29.2
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-9

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-10

Method: Borehole Percolation Test Procedure

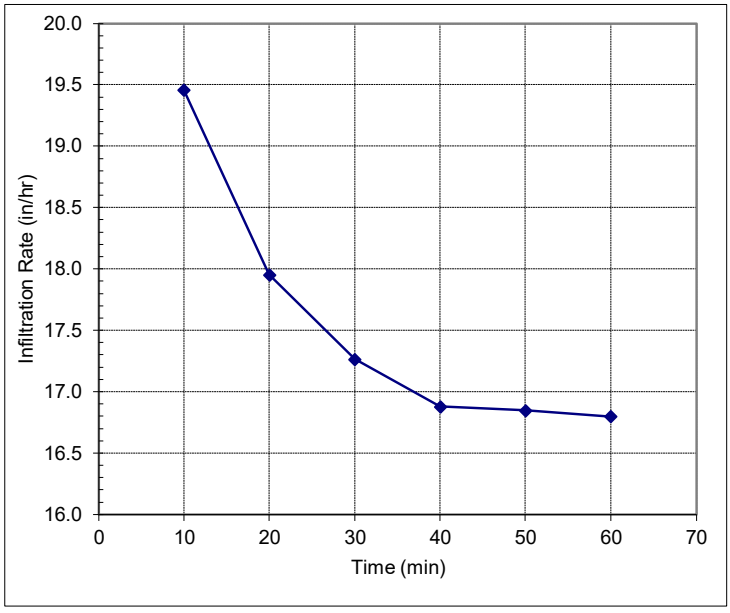
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.37	9.04	0.67	--	--
1	2.00	7.66	8.60	0.94	--	--
10	10.00	6.90	9.90	3.00	0.28	19.5
10	20.00	6.85	9.76	2.91	0.29	18.0
10	30.00	6.88	9.70	2.82	0.30	17.3
10	40.00	6.92	9.67	2.75	0.30	16.9
10	50.00	6.88	9.66	2.78	0.30	16.8
10	60.00	6.85	9.65	2.80	0.30	16.8

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	33.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-10

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-11

Method: Borehole Percolation Test Procedure

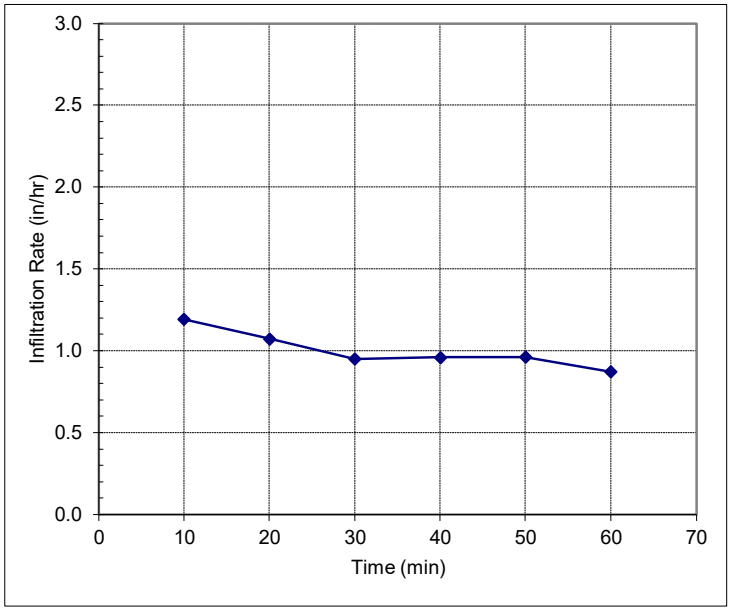
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	7.58	8.12	0.54	--	--
10	20.00	5.05	5.66	0.61	--	--
10	10.00	4.99	5.49	0.50	1.67	1.2
10	20.00	5.01	5.46	0.45	1.85	1.1
10	30.00	5.02	5.42	0.40	2.08	1.0
10	40.00	4.94	5.35	0.41	2.03	1.0
10	50.00	4.95	5.36	0.41	2.03	1.0
10	60.00	4.99	5.36	0.37	2.25	0.9

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r^* = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	4.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-11

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 28, 2021
Location: P-12

Method: Borehole Percolation Test Procedure

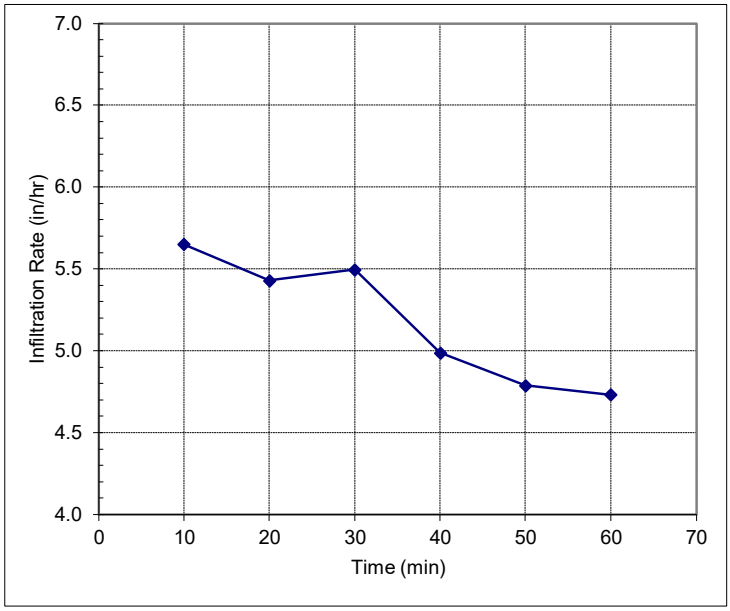
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.65	8.28	0.63	--	--
5	10.00	7.90	8.40	0.50	--	--
10	10.00	7.16	8.31	1.15	0.72	5.7
10	20.00	7.06	8.21	1.15	0.72	5.4
10	30.00	7.01	8.19	1.18	0.71	5.5
10	40.00	6.98	8.08	1.10	0.76	5.0
10	50.00	6.78	7.91	1.13	0.74	4.8
10	60.00	7.11	8.12	1.01	0.83	4.7

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	7.5
Well bottom depth (ft, bgs)	10.0
Final period drop delta d (in):	12.1
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-12

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 16, 2021
Location: P-13

Method: Borehole Percolation Test Procedure

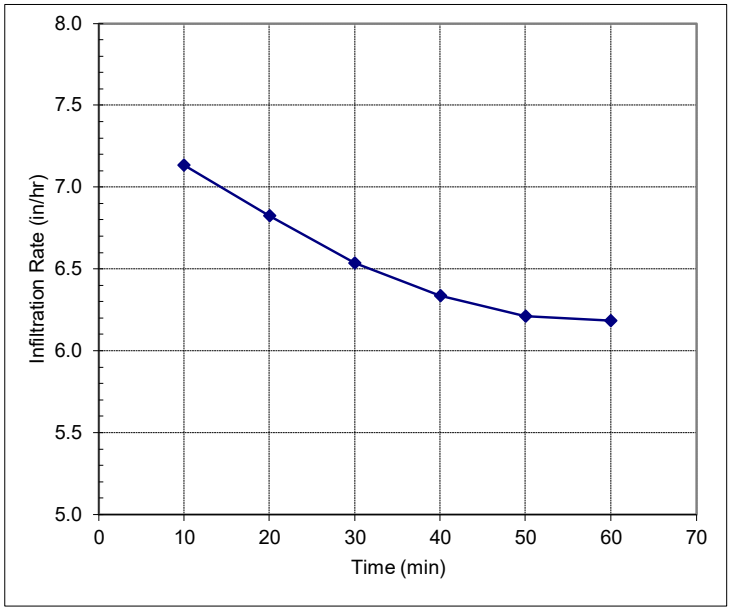
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.80	8.45	0.65	--	--
5	10.00	7.50	8.30	0.80	--	--
10	10.00	6.97	8.55	1.58	0.53	7.1
10	20.00	7.03	8.53	1.50	0.56	6.8
10	30.00	6.89	8.40	1.51	0.55	6.5
10	40.00	6.97	8.41	1.44	0.58	6.3
10	50.00	7.11	8.47	1.36	0.61	6.2
10	60.00	7.05	8.43	1.38	0.60	6.2

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.3
Final period drop delta d (in):	16.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-13

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 16, 2021
Location: P-14

Method: Borehole Percolation Test Procedure

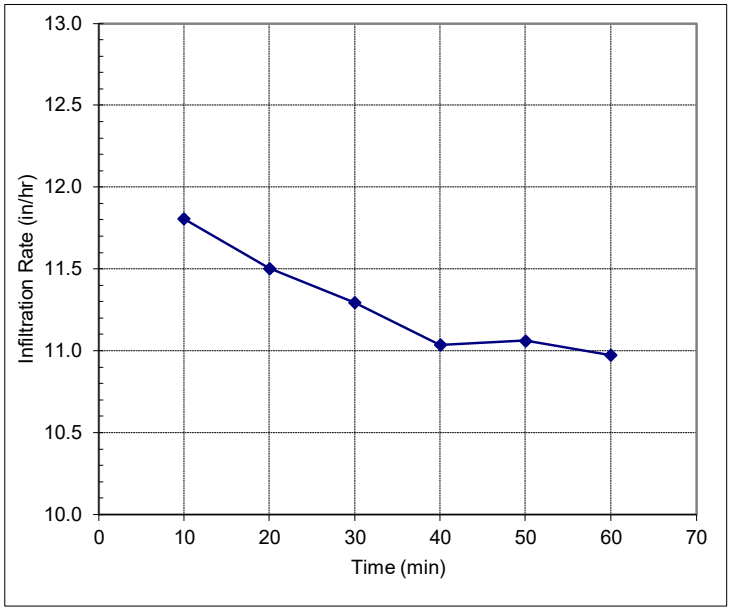
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	5.50	8.65	3.15	--	--
10	20.00	5.60	8.55	2.95	--	--
10	10.00	5.50	8.55	3.05	0.27	11.8
10	20.00	5.65	8.55	2.90	0.29	11.5
10	30.00	5.50	8.46	2.96	0.28	11.3
10	40.00	5.76	8.51	2.75	0.30	11.0
10	50.00	5.45	8.40	2.95	0.28	11.1
10	60.00	5.60	8.44	2.84	0.29	11.0

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	5.0
Well bottom depth (ft, bgs)	10.0
Final period drop delta d (in):	34.1
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-14

Project: Proposed Speedway Commerce Center
Tester CC/HM
Date: September 16, 2021
Location: P-15

Method: Borehole Percolation Test Procedure

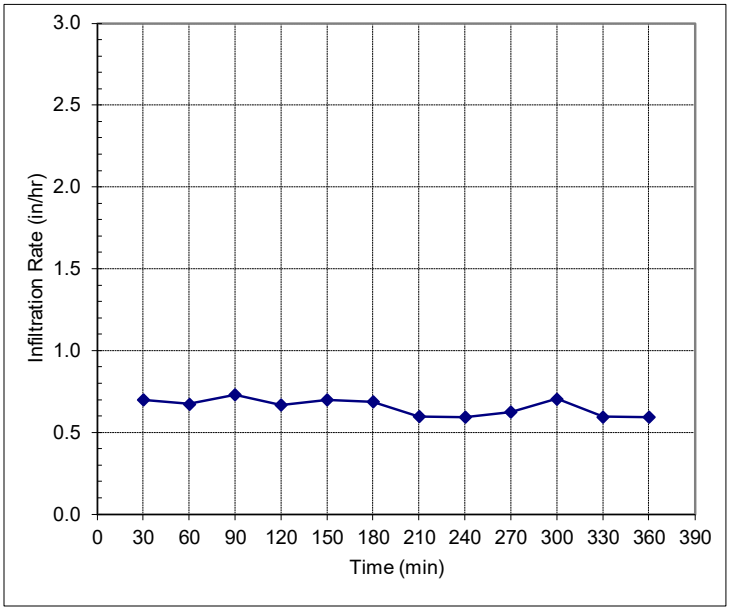
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
25	25.00	6.80	7.25	0.45	--	--
25	50.00	6.45	6.91	0.46	--	--
30	30.00	6.50	7.07	0.57	4.39	0.7
30	60.00	6.50	7.05	0.55	4.55	0.7
30	90.00	6.10	6.76	0.66	3.79	0.7
30	120.00	6.54	7.08	0.54	4.63	0.7
30	150.00	6.25	6.86	0.61	4.10	0.7
30	180.00	6.50	7.06	0.56	4.46	0.7
30	210.00	6.45	6.95	0.50	5.00	0.6
30	240.00	6.35	6.86	0.51	4.90	0.6
30	270.00	6.45	6.97	0.52	4.81	0.6
30	300.00	6.40	6.99	0.59	4.24	0.7
30	330.00	6.51	7.00	0.49	5.10	0.6
30	360.00	6.50	6.99	0.49	5.10	0.6

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r^* = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	5.9
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-15

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 16, 2021
Location: P-16

Method: Borehole Percolation Test Procedure

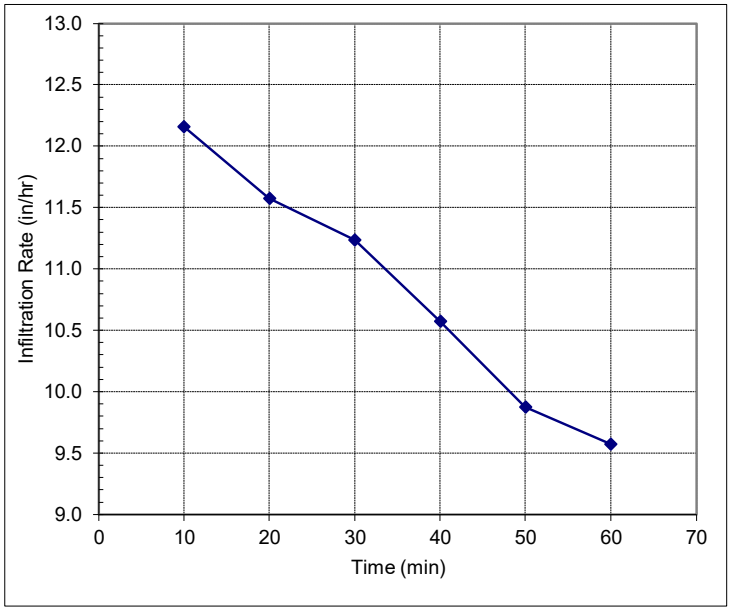
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
2	2.00	7.10	7.89	0.79	--	--
2	4.00	7.05	7.81	0.76	--	--
10	10.00	6.25	8.80	2.55	0.33	12.2
10	20.00	6.20	8.70	2.50	0.33	11.6
10	30.00	6.20	8.65	2.45	0.34	11.2
10	40.00	6.20	8.55	2.35	0.35	10.6
10	50.00	6.20	8.44	2.24	0.37	9.9
10	60.00	6.15	8.37	2.22	0.38	9.6

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	26.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-16

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 27, 2021
Location: P-17

Method: Borehole Percolation Test Procedure

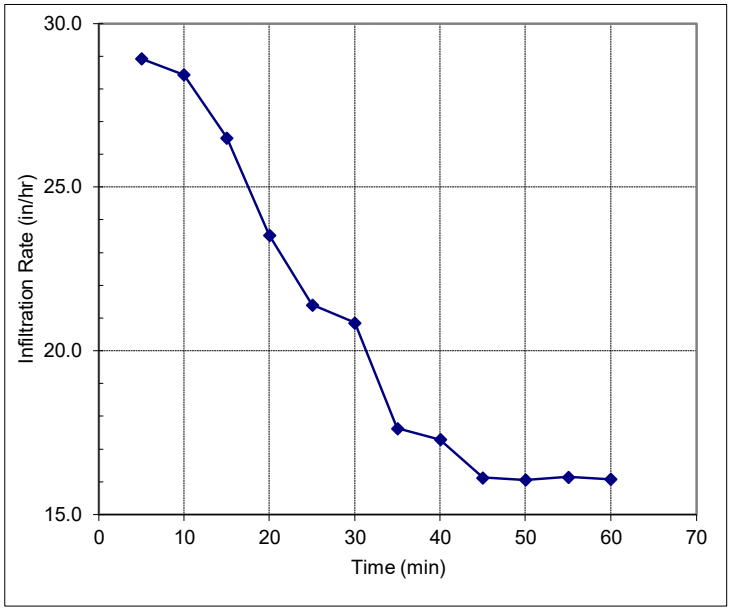
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.30	9.21	0.91	--	--
1	2.00	8.35	9.30	0.95	--	--
5	5.00	7.02	9.42	2.40	0.17	28.9
5	10.00	7.12	9.42	2.30	0.18	28.4
5	15.00	7.12	9.32	2.20	0.19	26.5
5	20.00	7.02	9.12	2.10	0.20	23.5
5	25.00	7.05	9.00	1.95	0.21	21.4
5	30.00	7.02	8.95	1.93	0.22	20.9
5	35.00	7.01	8.73	1.72	0.24	17.6
5	40.00	7.04	8.72	1.68	0.25	17.3
5	45.00	7.11	8.67	1.56	0.27	16.1
5	50.00	6.92	8.57	1.65	0.25	16.1
5	55.00	7.01	8.62	1.61	0.26	16.1
5	60.00	6.98	8.60	1.62	0.26	16.1

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^{*}r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.0
Final period drop delta d (in):	19.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-17

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 27, 2021
Location: P-18

Method: Borehole Percolation Test Procedure

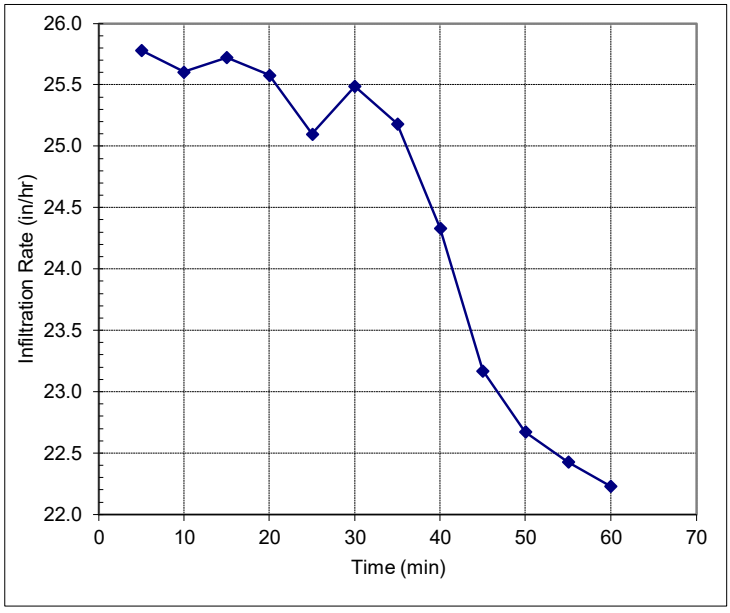
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.45	9.30	0.85	--	--
1	2.00	8.30	9.15	0.85	--	--
5	5.00	7.65	9.70	2.05	0.20	25.8
5	10.00	7.68	9.70	2.02	0.21	25.6
5	15.00	7.66	9.70	2.04	0.20	25.7
5	20.00	7.75	9.72	1.97	0.21	25.6
5	25.00	7.70	9.68	1.98	0.21	25.1
5	30.00	7.70	9.70	2.00	0.21	25.5
5	35.00	7.75	9.70	1.95	0.21	25.2
5	40.00	7.70	9.64	1.94	0.21	24.3
5	45.00	7.65	9.56	1.91	0.22	23.2
5	50.00	7.70	9.55	1.85	0.23	22.7
5	55.00	7.71	9.54	1.83	0.23	22.4
5	60.00	7.74	9.54	1.80	0.23	22.2

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	7.0
Well bottom depth (ft, bgs)	10.4
Final period drop delta d (in):	21.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-18

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 27, 2021
Location: P-19

Method: Borehole Percolation Test Procedure

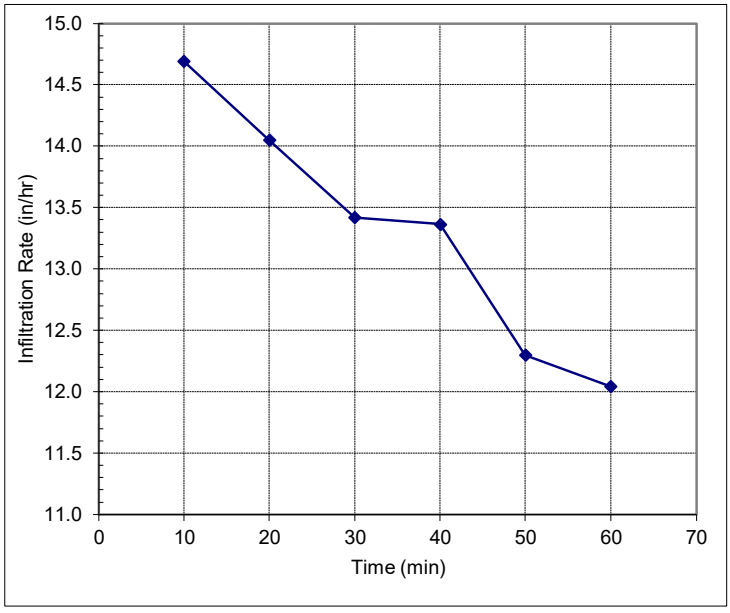
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.97	9.34	1.37	--	--
5	10.00	6.95	9.06	2.11	--	--
10	10.00	6.55	9.55	3.00	0.28	14.7
10	20.00	6.60	9.48	2.88	0.29	14.0
10	30.00	6.68	9.42	2.74	0.30	13.4
10	40.00	6.60	9.39	2.79	0.30	13.4
10	50.00	6.56	9.23	2.67	0.31	12.3
10	60.00	6.55	9.19	2.64	0.32	12.0

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.3
Final period drop delta d (in):	31.7
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-19

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 28, 2021
Location: P-20

Method: Borehole Percolation Test Procedure

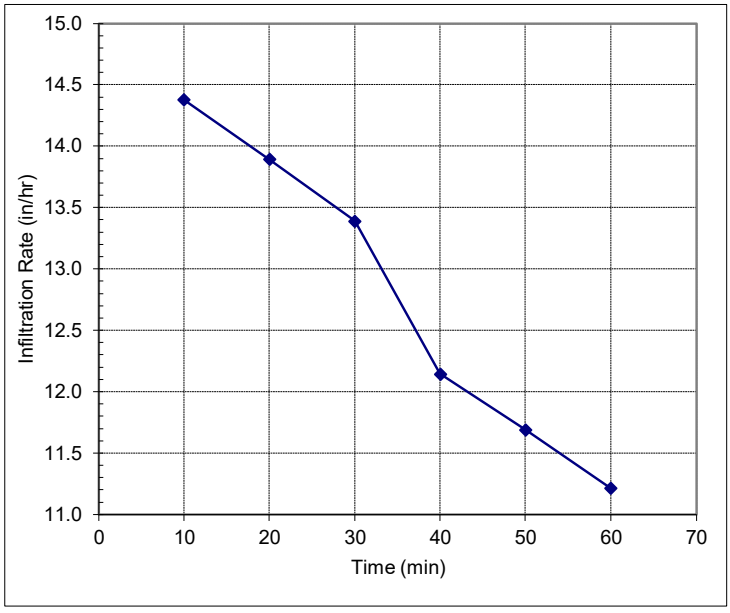
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.20	9.50	2.30	--	--
5	10.00	7.18	9.40	2.22	--	--
10	10.00	6.75	9.56	2.81	0.30	14.4
10	20.00	6.75	9.50	2.75	0.30	13.9
10	30.00	6.80	9.45	2.65	0.31	13.4
10	40.00	6.72	9.26	2.54	0.33	12.1
10	50.00	6.76	9.21	2.45	0.34	11.7
10	60.00	6.81	9.16	2.35	0.35	11.2

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.3
Final period drop delta d (in):	28.2
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-20

Project No.: 20221328.002A

December 3, 2021
Kleinfelder Project No. 20221328.002A

Mr. Joshua Cox, Vice President
HIP VI Enterprises, LLC
A Delaware Limited Liability Company
901 Via Piedmonte, Suite 175
Ontario, CA 91764

Subject: **Preliminary Report of Geotechnical Study**
Proposed Speedway Commerce Center II
County of San Bernardino, California

Dear Mr. Cox:

Kleinfelder is pleased to present this report summarizing the preliminary geotechnical study performed for the subject site, located at the surrounding areas of the existing Auto Club Speedway located at 9300 Cherry Avenue in Fontana, California. Our conclusions and recommendations for geotechnical design and construction are presented in the attached report. An Executive Summary has been included for your convenience.

We appreciate the opportunity to provide geotechnical engineering services to you on this project. If you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Charles Chen, P.E., G.E.
Project Geotechnical Engineer

Jeffery D. Waller, P.E., G.E.
Senior Geotechnical Engineer

Michael O. Cook, P.G., C.E.G
Senior Geologist

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PRELIMINARY REPORT OF GEOTECHNICAL STUDY PROPOSED SPEEDWAY COMMERCE CENTER II FONTANA, CALIFORNIA

KLEINFELDER PROJECT NO. 20221328.002A

DECEMBER 3, 2021

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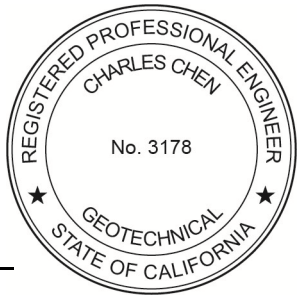
A Report Prepared for:

Mr. Joshua Cox, Vice President
HIP VI Enterprises, LLC
A Delaware Limited Liability Company
901 Via Piedmonte, Suite 175
Ontario, CA 91764

PRELIMINARY REPORT OF
GEOTECHNICAL STUDY
PROPOSED SPEEDWAY COMMERCE CENTER II
FONTANA, CALIFORNIA

Prepared by:



Charles Chen, P.E., G.E.
Project Geotechnical Engineer

Reviewed by:



Michael O. Cook, P.G., C.E.G
Senior Geologist

Reviewed by:



Jeffery D. Waller, P.E., G.E.
Senior Geotechnical Engineer

KLEINFELDER

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December 3, 2021
Kleinfelder Project No. 20221328.002A

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EXECUTIVE SUMMARY

This report presents the results of our preliminary geotechnical study for the proposed Speedway Commerce Center II at the surrounding areas of the existing Auto Club Speedway located at 9300 Cherry Avenue in Fontana, California. The location of the proposed site is shown on Figure 1, Site Vicinity Map. The improvements at the site are generally located in the surrounding areas of the existing speedway track as shown on Figure 2, Boring Location Map.

We understand HIP VI Enterprises, LLC wishes to construct approximately seven new logistics buildings within the project area. Other site improvements include new public streets, auto and truck trailer parking, and associated Best Management Practices (BMPs) infiltration facilities. The proposed project includes demolition of the existing asphalt parking lot, portions of the existing grandstand and speedway, and an existing maintenance building located at the northeast corner of the existing speedway track.

The purpose of this preliminary study was to evaluate the general subsurface soil conditions, the nature and engineering properties of the subsurface soils, and to provide preliminary recommendations for the design and construction of the proposed project. Our scope of work included field exploration (borings), laboratory testing, analysis, and report preparation. The boring locations are shown on Figure 2 and the boring logs are presented in Appendix A, Field Exploration. Laboratory testing performed by EGLab Inc. is presented in Appendix B, Laboratory Testing.

As encountered in our borings, the site is underlain by artificial fill containing steel slag, concrete, brick, and other inert debris created during demolition of the former Kaiser Steel Factory. The artificial fill was encountered to a depth up to approximately 13 feet and is underlain by loose to very dense alluvium to the total depth explored of approximately 50 feet below ground surface (bgs). Thicker artificial fill soils are potentially anticipated between our borings based on observations by others during demolition and remediation of the Kaiser Steel facility and construction of the Auto Club Speedway.

Groundwater was not encountered during our investigation. However, perched groundwater was encountered in boring KLF-4 at approximately 5½ feet bgs, KLF-12 at approximately 43 feet bgs, and KLF-13 at approximately 48 feet bgs. Based on research of the general area, groundwater is anticipated to be greater than 400 feet bgs and is not expected to impact project development.

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Fluctuations of localized zones of perched water and rise in soil moisture content should be anticipated during the rainy season. Irrigation of landscaped areas may also lead to an increase in soil moisture content and fluctuations of intermittent shallow perched groundwater levels.

It is our professional opinion that the site can be developed as planned from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into design and construction. The following conclusions and recommendations are based on our understanding of the proposed project and results of our field exploration, laboratory testing, and engineering analysis.

- Undocumented artificial fill extended down to 13 feet below existing grades. Deeper undocumented artificial fill soils may be present between borings. Based on current blow counts and our observations during initial grading, we anticipate the current engineered fill may be acceptable for support of the proposed improvements. However, documentation of the placement of the engineered fill would need to be reviewed by Kleinfelder to conclude the existing artificial fill is acceptable. If documentation is unavailable or the quality of artificial fill is determined to be unacceptable, then the undocumented artificial fill will need to be removed and replaced as engineered fill. A Kleinfelder professional (geologist or engineer) should also observe the fill during excavation and evaluate the condition of the fill at the elevation of the proposed foundations for relative conformance with the recommendations in this report.

- For areas with the higher axial column structural loads, ground improvement or deep foundations may be required.

- The proposed buildings may be constructed using a shallow foundation system with a slab-on-grade floor.

- Foundations, floor slabs, concrete flat work, and pavements should be supported on engineered fill. The existing engineered fill should be observed and evaluated once excavations are performed, however, we believe it is suitable for the proposed loading conditions.

- Spread foundations and building slab-on-grade underlain by engineered fill may be designed for a net allowable bearing pressure of 3,000 pounds per square foot (psf) for dead plus sustained live loads. All footings should be established at a depth of at least 24 inches below the lowest adjacent grade or finished slab grade, whichever is deeper.

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- On portions of the project site, overexcavation performed for the proposed building foundations may extend into very dense oversize materials. The overexcavation and bottom of each foundation should be observed during grading.
- The characteristics of the soils and the anticipated groundwater depth indicate that the site soils have a remote potential for liquefaction during a design-level earthquake. Dry seismically-induced settlement is estimated to be less than 1 inch or less.
- Prior to general site grading, existing vegetation, organic topsoil, debris, and oversized materials (greater than 6 inches in maximum dimension) should be stripped and disposed outside the construction limits. Large particles in the artificial fill may be encountered.
- We recommend that non-structural areas of the site be prepared by proof rolling and recompacting as needed. These areas should be evaluated by the onsite field technician and be processed as new engineered fill where needed.
- In areas of cut, over-excavation and re-compaction should be extended where necessary so that pavements and truck aprons are underlain by at least 18 inches of engineered fill.
- 2019 CBC Seismic Design Parameters for the project site are summarized in Table ES-1 below.

Table ES-1
2019 CBC Seismic Design Parameters

Design Parameter	Building 1	Building 2	Building 3	Building 4	Building 5	Building 6	Building 7
Site Class	C	C	C	C	C	C	C
S_s (g)	1.829	1.836	1.848	1.831	1.819	1.796	1.786
S_1 (g)	0.686	0.689	0.694	0.687	0.681	0.672	0.668
F_a	1.2	1.2	1.2	1.2	1.2	1.2	1.2
F_v	1.4	1.4	1.4	1.4	1.4	1.4	1.4
S_{MS} (g)	2.195	2.203	2.218	2.197	2.182	2.155	2.144
S_{M1} (g)	0.960	0.964	0.972	0.961	0.954	0.940	0.935
S_{DS} (g)	1.463	1.468	1.479	1.465	1.455	1.437	1.429
S_{D1} (g)	0.640	0.643	0.648	0.641	0.636	0.627	0.623
PGA_M (g)	0.938	0.942	0.949	0.940	0.932	0.919	0.914

- The R-Value test results from our investigations for the development ranged from 73 to 83. The result of the R-Value testing was evaluated and a design R-Value of 50 was selected for pavement design. The pavement sections presented in Tables ES-2 and ES-3 below were established using assumed Traffic Indices of 5, 7, 8, and 9.

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Table ES-2
Preliminary Asphalt Concrete Pavement Sections

Traffic Use	Assumed Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
General Parking Traffic	5	3.0	4.0
Local Street	6	3.0	5.0
Heavy Truck Access Ways	7	3.0	6.0
Public Streets	8	3.5	8.0
High Volume Heavy Truck Access Ways	9	4.0	9.0

Table ES-3
Preliminary Recommended PCC Pavement Sections

Traffic Use	Assumed Traffic Index (TI)	Concrete Thickness (inches; using a 28-day compressive strength of 4,000 psi)	Concrete Thickness (inches; using a 28-day compressive strength of 3,500 psi)	Concrete Thickness (inches; using a 28-day compressive strength of 3,000 psi)
General Parking Traffic	5	6.0	6.5	7.0
Local Street	6	6.5	6.5	7.0
Heavy Truck Access Ways	7	6.5	7.0	7.5
Public Streets	8	7.0	7.5	8.0
High Volume Heavy Truck Access Ways	9	7.5	8.0	8.5

- Most of the onsite soils may be reusable as engineered fill once any debris, oversized material, organic debris, and vegetation is cleared and disposed of outside the construction limits. Excavations extending into the existing artificial fill may generate oversize material of cobble or boulder size, which may need additional processing or handling to be placed within the engineered fill. Engineered fill should contain less than 2 percent organic content and maximum material size should be less than 6 inches in maximum dimension in the upper 3 feet. Particles of approximately 6 inches in maximum dimension were observed during our explorations. Placement of oversize material within

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the engineered fill in specific areas may be acceptable with approval by the geotechnical engineer.

- During dry months, moisture conditioning of the subgrade soils may be required if left exposed for greater than a few days. A sufficient water source should be available to provide adequate water during compaction. Conversely, during the wet months, soils may become saturated and may require provisions for drying of soils prior to compaction.

The executive summary briefly summarizes results of our geotechnical study for the subject project and should be used only in conjunction with recommendations presented in the attached report. This summary is also subject to the limitations included in Section 6 of this report.

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1 INTRODUCTION

This report presents the results of our preliminary geotechnical study for the proposed Speedway Commerce Center at the existing Auto Club Speedway site. The project site is located at the surrounding areas of the existing Auto Club Speedway site located at 9300 Cherry Avenue in Fontana, California. The general location of the site is shown on Figure 1, Site Vicinity Map.

The purpose of this preliminary geotechnical study was to evaluate the subsurface soil conditions at the site in order to provide geotechnical recommendations for the design and construction of the proposed development. The scope of our services was presented in our proposal dated August 31, 2021. This report only provides recommendations for the proposed improvements discussed below.

1.1 PROJECT DESCRIPTION

Based on our review of the referenced conceptual plans, we understand HIP VI Enterprises, LLC) wishes to construct approximately seven new logistics buildings within the project area. Other site improvements include new public streets, auto and truck trailer parking, and associated Best Management Practices (BMPs) infiltration facilities.

We understand the new buildings will generally consist of large, warehouse-sized buildings equipped with loading docks and automotive and truck trailer parking areas and heavy-duty pavement. The approximate site area, building size, and number of truck trailer parking of the proposed buildings is shown in Table 1, Proposed Buildings Summary Table.

Table 1
Proposed Buildings Summary Table

Building	Site Area (acres)	Building Area (sf)	Truck Trailer Parking
1	53.99	1,286,600	271
2	22.99	540,500	107
3	53.99	1,316,800	292
4	39.60	960,500	210
5	40.36	939,800	274
6	41.76	926,000	187
7	26.92	629,800	136

We anticipate the proposed warehouse buildings will be single-story, concrete-tilt-up structures, supported on conventional shallow spread foundations with a dock high slab-on-grade floor. We have assumed that foundations for proposed structures are proposed to be shallow (less than approximately 5 feet bgs) We have been provided the following loading conditions:

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- Typical Column Loads: Building 1 to 7 Column Pads – 110 kips, Building 3 Canopy – 45 kips, Building 3 Mezzanine/Office – 230 kips
- Slab on Grade – 60 to 100 psf dead load, 550 psf live load
- G+4.5 Building Column Pads: Column Pads – 90 to 1090 kips dead load, 34 to 1,242 kips live load
- Perimeter Concrete Wall: 8 to 10 kips per linear foot (klf)

Conceptual grading plans were not available at this time. Based on the existing topography, we anticipate the site will be balanced with cuts and fills to achieve desired grades in building areas. Deeper excavations to remove existing undocumented artificial fills, subterranean structures, and rubble fill are also recommended.

We have been informed by Webb Associates (Webb), the project Civil Engineer, that numerous areas of underground infiltration chambers are planned. At the time of preparation of this proposal, the location of the chambers has not been selected by Webb, but they have provided the 20 locations for Kleinfelder to investigate for additional information. We have provided our recommendations for long term infiltration in the referenced Kleinfelder 2021 infiltration report.

We anticipate parking lot and drive aisles will consist of asphaltic concrete (AC) pavement and Portland cement concrete pavement (PCCP). Ancillary construction is anticipated to include concrete flat work, landscaping, and installation of buried utilities.

1.2 SCOPE OF SERVICES

The scope of our preliminary geotechnical study consisted of a literature review, historical aerial photo review, subsurface exploration, infiltration testing, geotechnical laboratory testing, engineering evaluation and analysis, and preparation of this report. Our report includes a description of the work performed, a discussion of the geotechnical conditions observed at the site, and preliminary recommendations developed from our engineering analysis of field and laboratory data. A description of our scope of services performed for this project is presented below.

Our scope also included evaluation of site infiltration. We provided our geotechnical recommendations for site infiltration in our referenced Kleinfelder 2021 infiltration report.

Task 1 – Background Data Review. We reviewed published and unpublished geologic literature in our files and the files of public agencies, including selected publications prepared by

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the California Geological Survey and the U.S. Geological Survey. We also reviewed readily available seismic and faulting information, including data for designated earthquake fault zones and our in-house database of faulting in the general site vicinity. Additionally, we reviewed the referenced 1994 and 2020 Kleinfelder reports prepared for the original development and planned redevelopment of the California Speedway site.

Task 2 – Field Exploration. The subsurface conditions at the site were explored by drilling and logging twenty three (23) hollow-stem auger geotechnical borings (KLF-1 to KLF-23) and twenty (20) hollow-stem auger infiltration borings (P-1 to P-20). The geotechnical borings were drilled to depths of approximately 50 feet bgs and the infiltration borings were drilled to a depth of approximately 10 feet bgs. The locations of our borings are shown on the attached Figure 2, Exploration Location Map. The results of the infiltration testing are presented in a separate Kleinfelder report.

Prior to commencement of the fieldwork, our proposed exploration locations were cleared for known existing utility lines and with the participating utility companies through Underground Service Alert (USA). In addition, we retained a geophysical subconsultant to further confirm the absence of underground utilities at the boring locations. A Kleinfelder representative supervised the field operations and logged the borings. Selected bulk and drive samples were retrieved, sealed and transported to EGLab, Inc. of Arcadia, California for laboratory testing. Our typical sampling interval for the hollow stem auger borings was every 5 feet to full depths explored. The number of blows necessary to drive both Standard Penetration Test (SPT) and modified California-type samplers were recorded. A description of the field exploration and the logs of the borings, including a Legend to the Log of Borings, are presented in Appendix A.

Seven (7) seismic refraction surveys (SW-1 to SW-7) were conducted at each of the proposed seven building locations within the project site. The purpose of this investigation was to assess the general seismic velocity characteristics of the underlying earth materials and to evaluate site specific ground motions. The approximate seismic refraction survey locations are shown on Figure 2. Results of the seismic refraction surveys are presented in Appendix C, Seismic Refraction Survey Results.

Task 3 – Laboratory Testing. Laboratory testing was performed on representative samples of soil collected from our excavations to substantiate field classifications and to provide engineering parameters for geotechnical design. Laboratory testing included moisture determination and unit weight, grain size distribution, wash sieve, direct shear, consolidation, maximum dry density and optimum moisture, R-Value, and preliminary corrosion potential. A

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summary of the testing performed and the results for this subject site are presented in Appendix B.

Task 4 – Geotechnical Analyses. Field and laboratory data were analyzed in conjunction with the proposed site plan presented on Figure 2 and the provided structural loads to develop geotechnical recommendations for the design and construction of the proposed development. We evaluated potential foundation systems, lateral earth pressures, settlement, and earthwork considerations. Potential geologic hazards, such as ground shaking, seismic settlement potential, flood hazard, and fault rupture hazard were also evaluated.

Task 5 – Report Preparation. This report summarizes the work performed, data acquired, and our findings, conclusions, and geotechnical recommendations for the design and construction of the proposed development. Recommendations for the following are presented in this report:

- Earthwork, including site preparation, excavation, site drainage, and the placement of engineered fill;
- Design of suitable foundation systems including allowable capacities, lateral resistance, and settlement estimates;
- Seismic design parameters;
- Floor slab and slab-on-grade support, including subgrade preparation;
- Lateral earth pressures for design of retaining walls; and
- Design and construction of asphalt and Portland cement concrete pavements, including driveways, fire lanes, and concrete walks.

This report also contains reference maps and graphics, as well as the logs of the borings and laboratory test results.

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2 SITE AND SUBSURFACE CONDITIONS

2.1 SITE DESCRIPTION

The site is comprised of 8 contiguous parcels totaling approximately 520 acres. The site is located west of Cherry Avenue and is generally bounded by existing industrial facilities to the south and west, Cherry Avenue to the east, and railroad tracks to the north. While the site is relatively flat, except for slopes and fills for the racetrack and grandstand, the overall site generally drains to the south and west with approximate surface elevations of 1090 feet at the southwest corner of the site to 1170 feet at the northeast corner of the site. There is approximately 80 feet of relief across the site. The site is currently occupied by asphalt parking lot, portions of the existing grandstand and speedway, and an existing maintenance building located at the northeast corner of the existing speedway track (Building 2).

The overall site generally drains to the south and west or to onsite drainage facilities. A large diameter Metropolitan Water District (MWD) line is also located in the current racetrack infield.

2.2 SUBSURFACE CONDITIONS

The subject site is located at the northern end the Perris block along the northern boundary of the Peninsular Ranges geomorphic province of California (Norris and Webb, 1990). The area is underlain by Holocene age alluvial-fan and aeolian (wind blown) deposits overlying Quaternary age alluvial-fan deposits and Cretaceous age plutonic rock bedrock at depth. Detailed descriptions of the near surface deposits are provided in our boring logs and are presented in Appendix A.

Soils encountered during our field investigation consisted of:

- Artificial fill extending up to approximately 13 feet
- Alluvium was encountered from the contact with the artificial fill to at least approximately 50 feet bgs;
- The soils encountered during our field work consisted primarily of interbedded sands with varying silt content, gravel and cobbles to the total depths explored.

Boring KLF-9 encountered refusal at a depth of approximately 3 feet bgs due to an unknown large object. The boring was moved a distance of approximately 5 feet to the north.

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Artificial Fill:

Artificial fill soils generally consisted of sandy silt, silty sand and sands with varying amounts of gravel, and cobbles. During grading for the existing improvements at the site, artificial fill containing limited construction debris from the previous site grading operations was used. The construction debris placed in the artificial fill generally consisted of concrete, brick, and steel slag and is considered inert materials. It was documented by Kleinfelder that previously existing concrete structures and steel slag remnants were crushed and placed within the fill. At the locations we investigated, the artificial fill extended up to 13 feet below the ground surface. Thicker artificial fill soils are anticipated between our borings based on observations by others during demolition and remediation of the Kaiser Steel facility and construction of the Auto Club Speedway. A summary of artificial fill depth encountered during our current investigation is summarized in Table 2, Artificial Fill Summary Table.

Table 2
Artificial Fill Summary Table

Boring Number	Artificial Fill Depth (ft)
KLF-1	4
KLF-2	2
KLF-3	4
KLF-4	4
KLF-5	3
KLF-6	7
KLF-7	7
KLF-8	7
KLF-9	4
KLF-10	3
KLF-11	4
KLF-12	4
KLF-13	4
KLF-14	4
KLF-15	4

Boring Number	Artificial Fill Depth (ft)
KLF-16	9
KLF-17	4
KLF-18	13
KLF-19	4
KLF-20	3
KLF-21	9
KLF-22	4
KLF-23	9
P-1	6
P-2	4
P-3	2
P-4	4
P-5	2
P-6	3
P-7	6

Boring Number	Artificial Fill Depth (ft)
P-8	4
P-9	7
P-10	7
P-11	10
P-12	4
P-13	10
P-14	4
P-15	4
P-16	3
P-17	4
P-18	3
P-19	4
P-20	5

Maximum density-optimum moisture tests were performed on seven artificial fill samples. The optimum moisture content for the soil samples tested ranged from 5.6 to 9.4 percent and the maximum density of the samples tested ranged from 130.0 to 143.0 pounds per cubic foot (pcf).

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Alluvium/Native Soils:

The alluvium/native soils generally consisted of sandy silt, sandy clay, silty sand and sands with varying amounts of gravel and cobble to the total depth explored of approximately 51½ feet bgs. Generally, the apparent density of the subsurface soils was medium stiff to hard and loose to very dense.

2.3 GROUNDWATER CONDITIONS

Groundwater was not encountered during our investigation which was drilled up to an approximate depth of 51½ feet bgs. However, perched groundwater was encountered in boring KLF-4 at approximately 5½ feet bgs, KLF-12 at approximately 43 feet bgs, and KLF-13 at approximately 48 feet bgs. It appeared groundwater was likely perched on finer grained soil layers. Groundwater was not encountered during our 2020 investigation which was drilled up to an approximate depth of 81½ feet bgs. Depth to groundwater within onsite groundwater monitoring wells (SW-1S, SW-1M, SW-1D, SW-2, and SW-3, with approximate ground surface elevations of 1120 to 1160 feet) was approximately 425 to 450 feet bgs (approximate elevation 690 to 705 MSL) last measured on February 13, 2019 (RPS, 2019). Another well in the vicinity of the site is approximately 1.0 mile north of the site (01S/06W-10H003S) with a ground surface elevation of 1,212 above mean sea level (MSL). Depth to groundwater was approximately 500 feet bgs (approximate elevation 711 MSL) last measured on November 19, 2019 (WMWD, 2020).

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3 GEOLOGIC CONDITIONS

3.1 REGIONAL GEOLOGY

The subject site is situated within the Chino Valley at the northern end of the Perris block along the northern boundary of the Peninsular Ranges geomorphic province of California (Norris and Webb, 1990). The geology of the region is presented on a referenced map by Morton and Miller (2006). The Peninsular Ranges are the southernmost segment of a chain of North American Mesozoic batholiths that extend from Alaska to the southern tip of Baja California, and are a series of northwest-southeast trending mountain ranges separated by similarly trending valleys. These geomorphic structures in the area are sub-parallel to the major fault systems, such as the Elsinore Fault zone, which includes the Whittier, Chino-Central Avenue, and the San Jacinto Fault zone. The Perris Block is composed chiefly of crystalline rocks of Cretaceous and earlier ages with thin mantles of sedimentary and volcanic rocks (Woodford et al, 1971). The Perris Block is bounded on the northeast by the San Jacinto fault zone, on the north by the Sierra Madre-Cucamonga fault zone, on the west by the Elsinore Fault zone. The southern boundary is undefined.

3.2 SITE GEOLOGY

According to a review of available reports and maps which include the project site, the site is underlain by Holocene age alluvial-fan deposits (Qyf5) (Morton and Miller, 2006). Surficial deposits observed during drilling consist of fill soils ranging in thickness from approximately 2 to 13 feet bgs. Some of the fill soils contained fragments of steel slag debris likely from the former Kaiser Steel plant that previously occupied the site.

3.3 GEOLOGIC HAZARDS

We have addressed below the potential geologic hazards for the site.

3.3.1 Active and Potentially Active Fault Search

Earthquakes and faulting occur as the tectonic plates, which comprise the Earth’s crust, or lithosphere, move relative to one-another. Faults identified by the State of California and the County of San Bernardino as being active are not known to be present at the surface within the project limits. No portion of the site is located within a State of California-Special Studies Zone, formerly Alquist-Priolo Earthquake Fault Zone (CGS, 2021). The site is underlain by Holocene

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age alluvial sands and gravels several hundreds of feet thick, which overly Cretaceous age plutonic rock of the Perris Block. A review of stereo and oblique air photos, which encompass the project site, did not reveal lineaments or geomorphic features indicative of surface faulting. The site situated on the northern end of the Perris Block, which is bounded by the active Sierra Madre fault zone approximately 5 miles north and San Jacinto fault zone approximately 8.0 miles east.

Based on the lack of geomorphic evidence such as lineaments, off-set drainages or concentration of vegetation, and the distance to known active faults in the region, the risk of surface rupture at the site resulting from faulting is considered low.

3.3.2 Flooding

Surface water flow at the site is generally via sheet flow in a southwesterly direction.

The site is within a flood hazard zone “X” FP2, where the flood hazard is inside a 500 Year Flood Plain (SBC, 2010a,b). The site is not listed by the County of San Bernardino (SBC, 2010a,b), as being in any mapped dam inundation hazard zone.

A seiche is a wave or sloshing of a body of water that is at least partially impounded caused by strong wind or seismic shaking. The site is not downstream of large bodies of water or tanks which potentially could causes flooding and inundate the project site. The risk of seiche damage following a seismic event at the site is considered low.

3.3.3 Landslides

Landslides and other forms of mass wasting, including mud flows, debris flows, soil slips, and rock falls occur as soil or rock moves down slope under the influence of gravity. Landslides are frequently triggered by intense rainfall or seismic shaking. The site is not located within a State or County of San Bernardino (SBC, 2010a,b) designated landslide hazard zone. The site is relatively flat and the risk at the site from landslides and other forms of mass wasting is considered very low.

3.3.4 Subsidence

Land subsidence can occur as a result of sediment consolidation subsequent to groundwater or petroleum withdrawal or from liquefaction of subsurface soils due to seismic shaking. The project site is not situated within a City, County, or State designated area which is zoned or listed as susceptible to land subsidence. The risk of subsidence and/or earth fissures as a result

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of groundwater or petroleum withdrawal at the site is considered low. Depth to groundwater is reported to be greater than 400 feet below the ground surface (WMWD, 2021) and as such subsidence due to liquefaction is considered low.

3.3.5 Liquefaction

Liquefaction occurs when saturated, loose, coarse-grained or silty soils are subjected to strong shaking resulting from earthquake motions. The coarse-grained or silty soils typically lose a portion or all of their shear strength and regain strength sometime after the shaking stops. Soil movements (both vertical and lateral) have been observed under these conditions due to consolidation of the liquefied soils.

Based on the properties of the soils underlying the site and depth to groundwater, there is a low potential for impact due to liquefaction from a seismic event. Liquefaction potential is further discussed in Section 4.2.3.

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4 CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL

Based on the results of our field exploration, laboratory testing and geotechnical analyses conducted during this study, it is our professional opinion that the proposed project is geotechnically feasible, provided the recommendations presented in this report are incorporated into the project design and construction. The primary geotechnical considerations for site development are as follows:

1. Undocumented artificial fill soils (as deep as 13 feet bgs) located on site. Deeper undocumented artificial fill soils may be present between borings.
2. Settlement due to high structural loading.
3. Excavations extending into the existing artificial fill may be difficult to perform and heavy ripping and large grading equipment should be anticipated. Large artificial fill particles/debris up to and including boulder sizes should be anticipated and may need to be disposed outside of the engineered fill.
4. The soil placed within the building and pavement areas should consist of materials less than 6 inches in maximum dimension in the upper 3 feet of fill.
5. Based on the soils encountered during our investigation we do not anticipate expansive soils to adversely impact the design and construction of the proposed project.
6. The characteristics of the soils and the anticipated groundwater level indicate that the site soils have a remote potential for liquefaction during a design-level earthquake. Dry seismically-induced settlement is calculated to be less than 1 inch.

The following preliminary opinions, conclusions, and recommendations are based on the properties of the materials encountered in the prior and current explorations, the results of our literature review, the results of the laboratory testing program, and our engineering analyses performed. Our recommendations regarding the geotechnical aspects of the design and construction of the project are presented in the following sections. We do not anticipate any cut or fill slopes to have a maximum height greater than 25 feet or to have inclinations steeper that 2:1 (horizontal:vertical). We recommend that the final grading plans be reviewed by Kleinfelder prior to the start of construction.

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4.2 SEISMIC DESIGN CONSIDERATIONS

4.2.1 General

The site is located in a seismically active region of southern California. The proposed site can be expected to be subject to strong seismic shaking during its design life. Potential seismic hazards include ground shaking, localized liquefaction, ground rupture due to faulting, and seismic settlement. The following sections discuss these potential seismic hazards where relevant with respect to this site.

4.2.2 Seismic Design Parameters

According to the 2019 California Building Code, every structure, and portion thereof, including non-structural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE/SEI 7-16. The Seismic Design Category for a structure may be determined in accordance with Section 1613 of the 2019 CBC.

Based on information obtained from the investigation, published geologic literature and maps, and on our interpretation of the ASCE/SEI 7-16 criteria, it is our opinion that the project site may be classified as Site Class C, Very Dense Soil and Soft Rock, according to Section 1613 of 2019 CBC and Table 20.3-1 of ASCE/SEI 7-16 (2016). Approximate coordinates for the building sites are summarized in Table 3, Proposed Building Site Coordinates.

Table 3
Proposed Building Site Coordinates

Building	Latitude (°N)	Longitude (°W)
1	34.086365	117.492756
2	34.088873	117.494048
3	34.091588	117.492744
4	34.091268	117.499184
5	34.091412	117.504360
6	34.086329	117.507223
7	34.086237	117.511511

The Risk-Targeted Maximum Considered Earthquake (MCER) mapped spectral accelerations for 0.2 seconds and 1 second periods (S_s and S_1) were estimated using Section 1613 of the 2019 CBC and the OSHPD seismic design maps web-based application (available at https://seismicmaps.org/). The mapped acceleration values and associated soil amplification factors (F_a and F_v) based on the 2019 CBC and corresponding site modified spectral

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accelerations (S_{MS} and S_{M1}) and design spectral accelerations (S_{DS} and S_{D1}) are presented in Table 4, 2019 CBC Seismic Design Parameters.

Table 4
2019 CBC Seismic Design Parameters

Design Parameter	Building 1	Building 2	Building 3	Building 4	Building 5	Building 6	Building 7
Site Class	C	C	C	C	C	C	C
S_s (g)	1.829	1.836	1.848	1.831	1.819	1.796	1.786
S_1 (g)	0.686	0.689	0.694	0.687	0.681	0.672	0.668
F_a	1.2	1.2	1.2	1.2	1.2	1.2	1.2
F_v	1.4	1.4	1.4	1.4	1.4	1.4	1.4
S_{MS} (g)	2.195	2.203	2.218	2.197	2.182	2.155	2.144
S_{M1} (g)	0.960	0.964	0.972	0.961	0.954	0.940	0.935
S_{DS} (g)	1.463	1.468	1.479	1.465	1.455	1.437	1.429
S_{D1} (g)	0.640	0.643	0.648	0.641	0.636	0.627	0.623
PGA_M (g)	0.938	0.942	0.949	0.940	0.932	0.919	0.914

4.2.3 Ground Motion Hazard Analysis

The governing building code for the project is the 2019 CBC. As requested, a ground motion hazard analysis for Building 1 was developed in accordance with the requirements of ASCE 7-16, which is the basis for the 2019 CBC. Ground motion criteria were developed in terms of peak ground accelerations and response spectral accelerations for the subject site by using the current seismic source model for California (proximity to active faults, major historical earthquakes, and regional seismicity) and subsurface soil conditions at the site. The results of the site-specific ground motion hazard analysis for Building 1 are presented in Appendix D.

4.2.4 Liquefaction and Seismic Settlement

The term liquefaction describes a phenomenon in which saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading. The factors known to influence liquefaction potential include soil type, relative density, grain size, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. The cohesionless soils most susceptible to liquefaction are loose, saturated sands and some silt.

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Based on the properties of the soils encountered during our investigation and our knowledge of the geologic conditions in the area of the site from our previous investigations, a site class of 'C' is considered appropriate as determined from the 2019 California Building Code. The characteristics of the soils and depth to groundwater indicate that the site soils have a remote potential for liquefaction during a design-level earthquake. However, medium dense granular soils are prone to settlement due to seismic shaking. Seismically-induced settlement is estimated to be less than 1-inch total and ½ inch differential settlement over a distance of over 40 to 70 feet.

4.3 FOUNDATIONS

4.3.1 General

Based on our analysis, the structural loads for the proposed improvements may generally be supported on conventional shallow foundations underlain by engineered fill, provided that the subgrade preparation recommendations included in this report are implemented.

For areas with the higher axial column structural loads, our analysis of the static settlement exceeds the typical allowable settlement for buildings of similar construction. To mitigate the static settlement potential, several options of ground improvement or deep foundations should be evaluated. The decision as to which option to select will likely be dictated at least partially by economics and should be made by HIP VI Enterprises, LLC in consultation with the project team based on the overall project findings. Ground improvement options could consist of Deep Soil Mixing, stone columns, or rammed aggregate piers. Deep foundations generally consisting of cast-in-drilled-hole (CIDH) piles are a preliminary option for this site. Driven piles are not recommended as there are very dense subsurface layers that may include cobbles. Preliminary design and construction recommendations for ground improvement and CIDH piles are beyond the scope of this preliminary report. Further evaluation of ground improvement and deep foundations options should be considered as the project design progresses.

4.3.2 Allowable Bearing Capacity

Spread foundations (including retaining wall foundations) underlain by new engineered fill may be designed for a net allowable bearing pressure of 3,000 pounds per square foot (psf) for dead plus sustained live loads. All footings should be established at a depth of at least 24 inches below the lowest adjacent grade or finished slab grade, whichever is deeper. Thus, for interior column footings, embedment may be considered from the top of slab based on our understanding that the floor slabs will be a minimum of 6 inches thick directly over the finished

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subgrade pad (no gravel or sand between the engineered fill and floor slab). Where the slab is loaded in proximity to the columns, or above the underlying spread foundation, the allowable bearing pressure of the footing remains 3,000 psf and should include the slab load.

For footings that are directly adjacent to the property line, it is anticipated that the zone of influence below the footing will be outside of the new engineered fill placed for this project. In this case, the depth of building footings shall be increased by two feet. The deepened portion of the footing may be constructed using three-sack sand slurry mix, with vertical reinforcement designed by the structural engineer to tie in to the typical concrete footing. Footings at the property line may be designed for a net allowable bearing pressure of 3,000 pounds per square foot (psf) for dead plus sustained live loads.

The perimeter footings of any proposed buildings should be embedded at least 24 inches into the engineered fill soils. Embedment for perimeter footings should not be considered from top of pavements, flatwork, or aggregate base grades. The footing dimensions and reinforcement should be designed by the structural engineer. Footings should be deepened as needed based on the recommendations in Section 4.3.5 to avoid surcharging existing buried utilities and/or walls. The engineered fill should be prepared as recommended in Section 4.4.

The allowable bearing pressure provided above is a net value; therefore, the weight of the foundation (which extends below grade) may be neglected when computing dead loads. The allowable bearing pressure applies to dead plus live loads. This value may be increased by one-third for short-term loading due to wind or seismic forces.

4.3.3 Estimated Settlements

Total static settlement for foundations designed in accordance with the recommendations presented herein is estimated to be less than 1 inch. Differential static settlement between similarly loaded columns is estimated to be less than ½ inch over 40 to 70 feet. Note that this settlement is in addition to the estimated settlement due to seismic shaking. Seismically-induced settlement is estimated to be less than 1-inch total and ½ inch differential.

4.3.4 Lateral Resistance

Resistance to lateral loads (including those due to wind or seismic forces) may be provided by frictional resistance between the bottom of concrete foundations and the underlying soils and by passive soil pressure against the sides of the foundations. A coefficient of friction of 0.35 may be used between cast-in-place concrete foundations and the underlying soil. The passive

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pressure available for engineered fill may be taken as equivalent to the pressure developed by a fluid with a unit weight of 300 pounds per cubic foot (pcf). A one-third increase in the passive resistance may be used for resistance to transient loads such as wind and seismic. The upper one foot of soil should be neglected when calculating passive resistance.

The lateral resistance parameters provided above are ultimate values. Therefore, a suitable factor of safety should be applied to these values for design purposes. The appropriate factor of safety will depend on the design condition and should be determined by the project Structural Engineer. Depending on the application, typical factors of safety could range from 1.5 to 2.0.

4.3.5 Foundations Adjacent to Buried Utilities

To avoid surcharging existing utilities and walls below grade, foundations should be deepened below a 1:1 (H:V) plane projected from the bottom of the utility or wall. Alternatively, the utilities or wall could be evaluated for potential surcharge pressures due to the foundation loads.

4.4 EARTHWORK

4.4.1 General

Recommendations for site preparation are presented below. All site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations and other local, state or federal specifications. All references to maximum unit weights are established in accordance with the latest version of ASTM Standard Test Method D1557.

Engineered fill was placed during the original Auto Club Speedway development in the late 1990s. As encountered during our investigation, the fill extended down to 13 feet below existing grades. Based on current blow counts and our observations during initial grading, we anticipate the current engineered fill may be acceptable for support of the proposed improvements. However, documentation of the placement of the engineered fill would need to be reviewed by Kleinfelder to conclude the existing artificial fill is acceptable. If documentation is unavailable or the quality of artificial fill is determined to be unacceptable, then the undocumented artificial fill will need to be removed and replaced as engineered fill. A Kleinfelder professional (geologist or engineer) should also observe the fill during excavation and evaluate the condition of the fill at the elevation of the proposed foundations for relative conformance with the recommendations in this report.

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Grading operations during the wet season or in areas where the soils are saturated may require provisions for drying of soils prior to compaction. If the project necessitates fill placement and compaction in wet conditions, we can provide suggested alternative recommendations for drying the soil. Conversely, additional moisture may be required during the dry months. A sufficient water source should be available to provide adequate water during compaction. During dry months, moisture conditioning of the subgrade soils may be required if left exposed for greater than a few days.

4.4.2 Site Preparation

Prior to general site grading, existing vegetation, debris, and oversized materials (greater than 6 inches in maximum dimension) should be stripped and disposed outside the construction limits. We estimate the depth of stripping to be approximately 6 inches over most portions of the site. Deeper stripping or grubbing may be required where higher concentrations of vegetation are encountered during site grading. Stripped topsoil (less any debris) may be stockpiled and reused for landscaping purposes; however, this material should be evaluated for suitability if it is desired to use this material for engineered fill below structures.

All oversize and organic debris, including any produced by demolition operations, (wood, steel, piping, plastics, etc.), should be separated and disposed offsite. The material generated during demolition of the existing roadways and concrete structures may be reused onsite. If reused, the particles should be crushed to a maximum particle size of 6 inches and spread across the site to prevent nesting.

Existing utility pipelines (if encountered) which extend beyond the limits of the proposed construction and are to be abandoned in place should be plugged with cement grout to prevent migration of soil and/or water. Demolition, disposal, and grading operations should be observed and tested by a representative from our office.

Depending on the condition of the soils immediately adjacent to the property line, shoring and/or underpinning may be required to perform demolition and overexcavation adjacent to existing properties. Excavations within a 1:1 (horizontal: vertical) plane extending downward from a horizontal distance of 2 feet beyond the bottom outer edge of existing improvements should not be attempted without bracing and/or underpinning. All applicable excavation safety requirements and regulations, including OSHA requirements, should be met. As an alternative, slot cutting using an “ABC” technique may be used. Temporary shoring and slot cutting recommendations are presented in Sections 4.4.9, respectively.

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4.4.3 Overexcavation

Recommendations for overexcavation of the proposed building pads (building foundations and floor slabs), embankments, and parking lots (pavements) are presented below. All site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations and other local, state, or federal specifications. All references to maximum unit weights are established in accordance with the latest version of ASTM Standard Test Method D1557.

Excavations within a 1:1 (horizontal: vertical) plane extending downward from a horizontal distance of 2 feet beyond the bottom outer edge of existing improvements (e.g. building foundations) or property lines should not be attempted without bracing and/or underpinning. All applicable excavation safety requirement and regulations, including OSHA requirements should be met. As an alternative, slot cutting using an “ABC” technique may be used. Slots should not expose more than 6 feet of continuous feet of existing continuous foundations and should be separated by at least 12 feet of native or structural fill. We recommend the existing structures be monitored for signs of settlement or distress during slot cutting and backfilling.

4.4.3.1 Structural Areas Supporting Spread Footings

In order to provide uniform support for the proposed spread foundations and slab-on-grade floors, we recommend the site soils be overexcavated and replaced as engineered fill to a minimum depth of 3 feet from existing grade and at least 3 feet below the bottom of footings, whichever is greater. Existing undocumented artificial fill soils should be removed until native alluvium is exposed. The overexcavation should extend horizontally at least 5 feet beyond the edges of foundations and a distance equivalent to the thickness of anticipated fill below the footing, whichever is greater. Depending on the observed condition of the existing soil and engineered fill, deeper overexcavation may be required in some areas. The Geotechnical Engineer of Record should be notified for supplemental recommendations if the minimum relative compaction of the soil is not achieved.

4.4.3.2 Non-structural Areas

Within the non-structural areas, such as truck aprons, pavements, sidewalks, other flatwork, etc., we anticipate the presence of artificial fill soils. Based on the presence of artificial fill soils and the understanding that minor pavement maintenance may be needed, we recommend that these items be underlain by at least 24 inches of newly placed engineered fill. In these areas, a

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few locations should be potholed to observe the presence and condition of the existing fill soils and evaluate their suitability.

Depending on the depth of existing artificial fill and the observed condition of the existing soils and the observation of soil porosity during our investigation, deeper overexcavation may be required in some areas. The overexcavation should extend beyond the proposed improvements a horizontal distance of at least two feet.

After site preparation and overexcavation, and prior to scarification or placement of compacted fills, the excavation bottom should be observed, evaluated, and approved by a Kleinfelder professional (geologist or engineer). Additional removals may be needed if significant porosity or other adverse conditions are observed. The subgrade should then be scarified to a depth of approximately 12 inches, moisture conditioned to at least optimum moisture content; and recompacted. After compaction, the subgrade should be proof rolled using equipment with sufficient weight to evaluate surface deflection. Proof rolling should be performed to verify that the subgrade soils are firm and unyielding at the depth of the recommended overexcavation presented above.

During excavations within the artificial fill, oversize material of cobble to boulder size may be generated. These oversized materials, if encountered, would require additional processing prior to placement within the fill. Placement of oversize material (larger than 6 inches in maximum diameter) within the engineered fill may be acceptable with approval by the geotechnical engineer, but may require special handling and placement within the fill. Specific recommendations can be provided during grading based on the material encountered and available placement areas within the fill.

4.4.4 Permanent slopes

We anticipate fill slopes with inclinations of up to 2:1 (horizontal:vertical) will be proposed. Based on our knowledge of the subsurface information, cut and fill slopes inclined at a 2:1 (H:V) or flatter will be globally stable. The following sections present recommendations for design and construction of slopes.

Where the toe of a fill slope terminates, we recommend constructing a keyway at the toe of the fill slope as shown on Figure 3, Typical Engineered Fill Slope Detail. In general, fill slope keyways should have a minimum width of 15 feet, with a minimum depth of three feet into competent natural material or existing artificial fill, and should extend a distance equal to the

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depth of the keyway beyond the toe of the fill. The keyway depth and width should be constructed as presented in Table 5, Minimum Keyway Recommendations.

Table 5
Minimum Keyway Recommendations

Keyway Recommendations for Fill Slopes up to 30 feet High			
Slope Height	5 feet or less	> 5 feet to 10 feet	> 10 feet to 30 feet
Minimum Keyway Depth	1 foot into competent material	2 feet into competent material	2 feet into competent material
Minimum Keyway Width	8 feet	10 feet	10 feet

Proposed embankment slopes that will terminate into the existing embankment slope should be benched into the existing slope as shown on Figure 3.

When constructing fill slopes, the contractor should avoid spillage of loose material down the face of the slope during dumping and rolling conditions. We recommend that the incoming load be dumped behind the face of the slope and bladed into place. In order to obtain slope face compaction, the slope may be over-built and then trimmed back to expose a compacted core. As an alternative method, after each 4 feet of vertical height has been obtained, the contractor may compact the outer face of the slope by backing the tamping roller over the top of the slope and thoroughly covering the entire slope surface with overlapping passes of the roller. The foregoing should be repeated after the placement of each 4-foot thickness of fill. As discussed previously, fill slopes should conform to the requirements of the engineered fill section of this report and should contain no particles greater than 6 inches in maximum dimension. The fill slope surface should be compacted to a minimum of 90 percent relative compaction per ASTM D1557, or as specified in the project plans and specifications. Surface drainage control, such as berms at the tops of slopes, should be included in the design of fill slopes to direct sheet flow away from the tops of slopes and reduce the potential for slope erosion.

4.4.5 Excavations Within Artificial Fill

Grading plans were not provided to use at the time this report was written, however based on experience from similar projects, overexcavation for foundations and excavation for utilities may encounter large particles in the underlying fill. The contractor should expect to encounter large particles as presented in the table in Section 4.4.7 below.

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4.4.6 Engineered Fill

We anticipate that most of the on-site soils may be reusable as engineered fill once any debris and oversized materials greater than 6 inches in diameter have been removed, and after any vegetation and organic debris is cleared. Engineered fill should contain less than 2 percent organic content and maximum material size should be less than 6 inches in maximum dimension. Disturbed/tilled soil, less vegetation, may be used in landscape areas, exported, or placed in a controlled manner and blended with the onsite soils, provided that the resulting engineered fill contains less than 2 percent organic content.

Fill should be placed in lifts no greater than 8 inches thick, loose measurement, and should be compacted to at least 90 percent of the maximum dry density. The moisture content of the on-site soils should be within 2 percent of the optimum moisture at the time of compaction.

Engineered fill placed below pavement should be compacted to at least 90 percent of the maximum dry density obtained by the ASTM D1557 method of compaction, with the upper 12 inches below pavements compacted to at least 95 percent relative compaction.

Although not anticipated, any imported fill materials to be used for engineered fill should be sampled and tested for approval by the geotechnical engineer prior to being transported to the site. The expansion index of an imported soil should be less than 20. In general, well-graded mixtures of gravel, sand and non-plastic silt are acceptable for use as import fill. A minimum notice of 3 working days will be required to allow for qualification testing prior to compaction of imported materials.

4.4.7 Demolition Debris

Based on review of project documents and our boring logs, we anticipate encountering steel slag and other demolition debris from the previous site uses and grading operations. Table 6, Buried Demolition Debris In Engineered Fill Recommendations, was presented in Kleinfelder's referenced 1994 report. In the existing artificial fill, grading operations at the depths presented below are likely to encounter particles up to the maximum particle size. Additionally, we recommend that any newly placed engineered fill conform to the same recommendations. In fill soils where oversized material, if any, will be placed, the oversized material should be mixed with native soils or pulverized such that a soil/rock fill is created. A soil/rock fill is defined as a fill containing oversized fragments with a sufficient matrix of soil to allow for proper compaction of the soil fill. Oversized material should be buried within compacted soil such that voids surrounding the oversized material are filled with compacted fill and "point to point" contact

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between oversized fragments is minimized. Nesting of oversized fragments should not be permitted.

Table 6
Buried Demolition Debris In Engineered Fill Recommendations

Depth Below Final Grade	Maximum Particle Size
0 – 3 Feet	6 inches
3 – 6 feet	9 inches
6 – 10 feet	12 inches
Greater than 10 feet	36 inches

If during removal of existing artificial fill, excess amounts of oversize material is encountered and requires removal/disposal, it is an option to place such material in windrows outside of the current project area. Details regarding the placement of windrows are shown on Figure 4, Typical Oversize Rock Disposal.

4.4.8 Post Construction Settlement of Fills

The post-construction settlement of fills following site preparation and fill construction, as described in previous sections of this report, is estimated to be approximately 0.1 percent of the fill thickness for fills compacted to 90 percent of the maximum dry density at moisture contents near optimum moisture content. Most of the static settlement are expected to occur as the loads are applied or shortly thereafter.

4.4.9 Temporary Excavations

All excavations must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below solely as a service to our client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

Excavations within a 1:1 plane extending downward from a horizontal distance of 2 feet beyond the bottom outer edge of existing improvements (e.g. building foundations) should not be attempted without bracing and/or underpinning the improvements. The geotechnical engineer or their field representative should observe the excavations so that modifications can be made to

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the excavations, as necessary, based on variations in the encountered soil conditions. All applicable excavation safety requirements and regulations, including OSHA requirements, should be met.

Near-surface soils encountered during our field investigation consisted predominantly of sandy silt, silty sand and sands with varying amounts of gravel and cobble. In our opinion, these soils would be considered a Type 'C' soil with regard to the OSHA regulations. For this soil type, OSHA requires a maximum slope inclination of 1.5:1 (horizontal to vertical) or flatter for excavations 20 feet or less in depth. Temporary, shallow excavations with vertical side slopes less than 4 feet high should generally be stable, although sloughing may be encountered. Vertical excavations greater than 4 feet high should not be attempted without appropriate shoring to prevent local instability. All trench excavations should be braced and shored in accordance with good construction practice and all applicable safety ordinances and codes. The contractor should be responsible for the structural design and safety of the temporary shoring system, and we recommend that this design be submitted to Kleinfelder for review to check that our recommendations have been incorporated.

Stockpiled (excavated) materials should be placed no closer to the edge of an excavation than a distance equal to the depth of the excavation, but no closer than 4 feet. All trench excavations should be made in accordance with OSHA requirements.

4.4.10 Excavation Conditions

The borings were advanced using a truck-mounted hollow-stem auger drill rig. Drilling excavations were completed with moderate to difficult effort through the existing artificial fill, engineered fill and site soils. Boring KLF-9 encountered auger refusal at approximately 3 feet bgs and was relocated approximately 5 feet away. KLF-9 reached the design depth of approximately 51½ feet after relocation.

Conventional earth moving equipment should be capable of performing the soil excavations, although large and dense materials are known to have been placed in the artificial fill. The artificial fill was also encountered within the proposed development areas investigated. Based on review of project documents and discussions with the project team, there are areas of buried foundations, slag, and large concrete pieces within the existing developed areas onsite.

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4.4.11 Shrinkage/Bulking

Due to the inherent inaccuracies and the many variables associated with the soil materials onsite and the additional aspects of construction, it is our opinion that shrinkage estimates may be unreliable. We have provided our estimate based on the limited information available and should only be used by the designers and not for grading bidding purposes.

Estimates for shrinkage of the onsite soils have been approximated by evaluating the results of in situ moisture and dry density tests and laboratory maximum dry density tests taken from soils within the upper 5 to 20 feet in selected borings. Although a great deal of care has been exercised in sampling and testing of the soils, a significant variability of actual shrinkage values is likely. These variations are heavily influenced by changes in soil types and densities between borings, the distance between the borings, the earthwork methods employed by the contractor, and variations in the actual compaction effort used. We estimate that overexcavation and recompaction of the onsite soils will result in an average shrinkage of approximately 5 to 15%.

4.4.12 Slope Stability

Based on our current understanding of the proposed project, we do not anticipate any cut or fill slopes to have a maximum height greater than 20 feet and to have inclination steeper that 2:1 (horizontal:vertical), and therefore do not require additional slope stability analysis. Once final grading plans and slope configuration and retaining wall designs are complete we should be provided the opportunity to review and perform further slope stability analysis, if needed.

4.4.13 Pipe Bedding and Trench Backfill

Pipe bedding and pipe zone material should consist of sand or similar granular material having a minimum sand equivalent value of 30. Onsite soils may be suitable, but should be tested and approved by the engineer of record prior to use. The sand should be placed in a zone that extends a minimum of 6 inches below and 6 inches above the pipe for the full trench width. The bedding material should be compacted to a minimum of 90 percent of the maximum dry density or to the satisfaction of the geotechnical engineer's representative observing the compaction of the bedding material. Bedding material should consist of sand, gravel, crushed aggregate, or native free-draining granular material with a maximum particle size of ¾ inch. Bedding materials should also conform to the pipe manufacturer's specifications, if available. Trench backfill above bedding and pipe zone materials may consist of approved, on-site or import soils placed in lifts no greater than 8 inches loose thickness and compacted to 90 percent of the maximum dry density based on ASTM Test Method D1557. Jetting of backfill is not recommended. The on-site

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soils are suitable for backfill of utility trenches from one foot above the top of the pipe to the surface provided the material is free of organic and deleterious substances.

4.4.14 Stockpiling Excess Material

All stockpiles of excess soil materials should be kept away from the top of the excavations a minimum distance equal to the depth of the excavation. We recommend that stockpiles be constructed with a slope ratio of at least 2:1 (horizontal to vertical) and compacted to at least 85 percent relative compaction. Compaction requirements and slope ratios are provided only for temporary stockpiling considerations, such as erosion control and temporary influences on excavations. We have not considered any long-term or structural support usage of stockpiles.

4.5 CONCRETE SLABS SUPPORTED ON GRADE

4.5.1 General

Slab-on-grade floors should be underlain by engineered fill as discussed in the Earthwork Section of this report. We anticipate that the planned floor slabs will have a minimum thickness of 6 inches, will be unreinforced and dowelled at panel edges. Minimum reinforcement for floor slabs, if required, should be determined by the structural engineer. The structural engineer should design the slabs for any specific loading conditions. A modulus of subgrade reaction of 150 pounds per cubic inch may be used for design. The moisture content of the upper 18 inches of engineered fill should be at the recommended range for fill compaction at the time the floor slab is constructed. Precautions should be taken so as not to allow the upper engineered fill below the slab to dry out below the recommended moisture range between completion of the building pad and construction of the floor slab. Total static settlement for foundations designed in accordance with the recommendations presented herein, with an anticipated maximum load of 500 psf, is estimated to be less than a 1 inch.

Construction activities and exposure to the environment can cause deterioration of the prepared subgrade. We recommend that a Kleinfelder representative inspect the final subgrade conditions prior to placement of the concrete, and if necessary, perform additional moisture and density testing to determine the subgrade suitability. A low slump concrete should be used to reduce possible curling of the slab.

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4.5.2 Exterior Flatwork

Where exterior flatwork, such as sidewalks, are to be constructed, the subgrade should be prepared by being scarified to a depth of 8 inches and moisture conditioned to a moisture content within 2 percent of the optimum moisture content, and recompacted as recommended in the Earthwork Section of this report. Exterior, structurally loaded flatwork, such as truck docks or trash enclosures should adhere to the recommendations for rigid pavement presented in this report.

4.5.3 Vapor Retarder

Subsurface moisture and moisture vapor naturally migrate upward through the soil and, where the soil is covered by a building or pavement, this subsurface moisture will collect. To reduce the impact of this subsurface moisture and the potential impact of future introduced moisture (such as landscape irrigation or precipitation) on moisture sensitive flooring, the current industry standard is to place a vapor retarder on a compacted crushed rock layer and/or sand layers, 1 to 2 inches in thickness, placed above and below the vapor retarder. The crushed rock layer and/or sand layer may be omitted in accordance with the vapor barrier manufacturer's installation recommendations.

The necessity and placement of a vapor retarder should be evaluated by the structural engineer and/or flooring consultant. It should be noted that although vapor barrier systems are currently the industry standard, this system might not be completely effective in preventing floor slab moisture problems. These systems typically will not necessarily assure that floor slab moisture transmission rates will meet floor covering manufacturer standards and that indoor humidity levels be appropriate to inhibit mold growth. The design and construction of such systems are totally dependent on the proposed use and design of the proposed building and all elements of building design and function should be considered in the slab-on-grade floor design. Building design and construction may have a greater role in perceived moisture problems since sealed buildings/rooms or inadequate ventilation may produce excessive moisture in a building and affect indoor air quality.

4.5.4 Concrete Curing and Flooring

Various factors such as surface grades, adjacent planters, the quality of slab concrete and the permeability of the on-site soils affect slab moisture and can control future performance. In many cases, floor moisture problems are the result of either improper curing of floor slabs or improper application of flooring adhesives. We recommend contacting a flooring consultant

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experienced in the area of concrete slab-on-grade floors for specific recommendations regarding your proposed flooring applications. Special precautions must be taken during the placement and curing of all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking or curling of the slabs. High water-cement ratio and/or improper curing also greatly increase the water vapor permeability of concrete. We recommend that all concrete placement and curing operations be performed in accordance with the American Concrete Institute (ACI) Manual.

It is emphasized that we are not floor moisture-proofing experts. We make no guarantee, nor provide any assurance that use of the capillary break/vapor retarder system will reduce concrete slab-on-grade floor moisture penetration to any specific rate or level, particularly those required by floor covering manufacturers. The builder and designers should consider all available measures for slab moisture protection.

4.6 RETAINING WALLS

We have provided preliminary cantilever retaining wall recommendations below. Further evaluation will be needed once wall types, locations and heights are selected.

4.6.1 General

Design earth pressures for retaining walls depend primarily on the allowable wall movement, wall inclination, type of backfill materials, backfill slopes, surcharges, and drainage. The earth pressures provided assume that that a non-expansive backfill will be used and a drainage system will be installed behind the walls, so that external water pressure will not develop. If a drainage system will not be installed, the wall should be designed to resist hydrostatic pressure in addition to the earth pressure as well as reinforcement that should be protected from rust or other corrosion-inducing effects of moisture. Determination of whether the active or at-rest condition is appropriate for design will depend on the flexibility of the walls. Walls that are free to rotate at least 0.002 radians (deflection at the top of the wall of at least 0.002 x H, where H is the unbalanced wall height) may be designed for the active condition. Walls that are not capable of this movement should be assumed rigid and designed for the at-rest condition. The recommended active and at-rest earth pressure values are provided in Table 7, Earth Pressures for Retaining Walls.

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Table 7
Earth Pressures for Retaining Walls
(Non-Expansive Backfill)

Wall movement	Equivalent Fluid Pressure Level Backfill (pcf)	Equivalent Fluid Pressure Backfill at 2:1 (H:V) (pcf)
Free to Deflect (active condition)	40	60
Restrained (at-rest condition)	60	85
Seismic Increment Increase[1, 2]	30	85

[1] Walls supporting more than 6 feet of backfill should be designed to support an incremental seismic lateral pressure for the active condition, which is applied as a triangular pressure distribution with a maximum pressure at the bottom of the wall, not inverted. Analysis of seismic 2:1 slope backfill has been limited to 10-foot wall height and 10 foot slope height. Additional information specific to each wall should be provided for walls greater than these limits.

[2] For restrained wall, use the static active earth pressure and seismic increment to check the seismic condition; use at-rest earth pressure only to check the static condition; the larger loading of both cases should be used for the design of restrained wall.

In addition to the above lateral pressure, undrained walls will have to be designed for full hydrostatic pressure. The above lateral earth pressures do not include the effects of surcharges (e.g., traffic, footings), compaction, or truck-induced wall pressures. Any surcharge (live, including traffic, or dead load) located within a 1:1 plane drawn upward from the base of the excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind walls may be calculated by multiplying the surcharge by 0.3 for cantilevered walls and 0.45 for restrained walls. Walls adjacent to areas subject to vehicular traffic should be designed for a 2-foot equivalent soil surcharge (240 psf). Lateral load contributions from other surcharges located behind walls may be provided once the load configurations and layouts are known.

4.6.2 Backfill Compaction

Care must be taken during the compaction operation not to overstress the wall. Wall backfill should be compacted to a least 90 percent relative compaction; however, heavy construction equipment should be maintained a distance of at least 3 feet away from the walls while the

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backfill soils are being placed. Kleinfelder should be contacted when development plans are finalized for review of wall and backfill conditions on a case-by-case basis.

4.6.3 Drainage

Walls should be properly drained or designed to resist hydrostatic pressures. Adequate drainage is essential to provide a free-drained backfill condition and to limit hydrostatic buildup behind the wall. Walls should also be appropriately waterproofed and include weep holes for drainage. In lieu of weep holes, a 4-inch diameter perforated PVC pipe, placed perforations down leading to a suitable gravity outlet, should be installed at the base of the walls.

4.7 DRAINAGE AND LANDSCAPING

It is important that positive surface drainage be provided to prevent ponding and/or saturation of the soils in the vicinity of foundations, concrete slabs-on-grade, or pavements. We recommend that the site be graded to carry surface water away from the improvements and that positive measures be implemented to carry away roof runoff. Poor perimeter or surface drainage could allow migration of water beneath the building or pavement areas, which may result in distress to project improvements. If planted areas adjacent to structures are desired, we suggest that care be taken not to over irrigate and to maintain a leak-free sprinkler piping system. In addition, it is recommended that planter areas next to buildings have a minimum of 5 percent positive fall away from building perimeters to a distance of at least 5 feet. Drain spouts should be extended to discharge a minimum of 5 feet from the building, or some other method should be utilized to prevent water from accumulating in planters. Landscaping after construction should not promote ponding of water adjacent to structures.

4.8 EXPANSION POTENTIAL

Based on the granular nature of the soils encountered during our investigation, expansion potential of the existing soils is considered very low.

4.9 PRELIMINARY SOIL CORROSIVITY

The soil corrosivity potential of the on-site materials to steel and buried concrete was preliminarily evaluated using a sample collected during our investigation. Testing was performed in general accordance with California Test Methods 643, 417, and 422 for pH and resistivity, soluble chlorides, and soluble sulfates, respectively. The test results are presented in Table 8, Preliminary Corrosivity Test Results.

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Table 8
Preliminary Corrosivity Test Results

Boring	Depth (ft)	pH	Sulfate (% per weight)	Chloride (ppm)	Resistivity (ohm-cm)
KLF-1	1 – 5	9.16	0.037	135	3,100
KLF-3	1 – 5	8.15	0.001	115	14,000
KLF-4	10	8.05	0.001	130	21,000
KLF-5	3 – 5	10.66	0.013	135	3,800
KLF-6	5	8.23	0.001	125	16,000
KLF-7	5	7.63	0.001	195	13,000
KLF-10	1 – 5	9.68	0.122	135	1,500
KLF-12	10.0	8.87	0.216	155	1,400
KLF-13	1 – 5	10.11	0.222	245	720
KLF-16	1 – 5	7.66	0.001	125	19,000
KLF-17	10	7.63	0.001	215	8,500
KLF-18	5	8.3	0.017	305	3,600
KLF-19	5	4.48	0.001	275	14,000
KLF-20	1 – 5	7.62	0.001	205	11,000

These tests are only an indicator of soil corrosivity for the samples tested. Other soils found on site may be more, less, or of a similar corrosive nature. Imported fill materials should be tested to confirm that their corrosion potential is not more severe than those noted.

Resistivity values below 1,000 ohm-cm are considered extremely corrosive and values between 1,000 and 3,000 ohm-cm are considered highly corrosive to buried ferrous metals (Roberge, 2006). Corrosion potential generally decreases as resistivity values increase.

A water-soluble chloride content of less than 500 ppm is generally considered non-corrosive to reinforced concrete.

The concentrations of soluble sulfates indicate that the subsurface soils in the vicinity of Building 3 and 4 represent a Class S2 exposure to sulfate attack on concrete in contact with the soil based on ACI 318-14 Table 19.3.1.1 (ACI, 2014). Therefore, in accordance with ACI Building Code 318-14, a concrete mix of Type V cement with a minimum compressive strength of 4,500 psi and maximum water-cement ratio of 0.45 are specified for these sulfate concentrations in the vicinity of Building 3 and 4. We recommend further corrosion testing in the vicinity of Building 3 and 4 to confirm higher sulfate concentrations in this area as the concentrations in these areas appear significantly higher than the project site. An option to decrease the sulfate content in this area is by using the, grading operation to blend soils in this area with onsite soil containing lower sulfate concentrations. Subsequent verification corrosion testing in these areas presenting results with lower sulfate content should be performed.

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The concentrations of soluble sulfates elsewhere on the project site indicate that the subsurface soils represent a Class S0 exposure to sulfate attack on concrete in contact with the soil based on ACI 318-14 Table 19.3.1.1 (ACI, 2014). Therefore, in accordance with ACI Building Code 318-14, no special provisions for selection of cement type are required in these areas.

We provided the results of the corrosion testing to a competent corrosion engineer to evaluate the corrosion potential of the on-site soils to the proposed improvements. A Soil Corrosion Evaluation report is presented in Appendix E, Soil Corrosivity Evaluation. We recommend further consultation with a corrosion engineer and testing as required to provide specific corrosion mitigation methods appropriate for the project, if desired.

4.10 PAVEMENT SECTIONS

4.10.1 Asphalt-Concrete Pavement Sections

The required pavement structural sections will depend on the expected wheel loads, volume of traffic, and subgrade soils. The Traffic Indexes (TI's) assumed should be reviewed by the project Owner, Architect, and/or Civil Engineer to evaluate their suitability for this project. Changes in the TI's will affect the corresponding pavement section. The pavement subgrade should be prepared just prior to placement of the base course. Positive drainage of the paved areas should be provided since moisture infiltration into the subgrade may decrease the life of pavements. Table 9, Preliminary Asphalt Concrete Pavement Sections, presents our recommendations of asphalt concrete pavement sections.

Table 9
Preliminary Asphalt Concrete Pavement Sections
(Design R-value = 50)

Traffic Use	Assumed Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
General Parking Traffic	5	3.0	4.0
Local Streets	6	3.0	5.0
Heavy Truck Access Ways	7	3.5	6.0
Public Streets	8	3.5	8.0
Heavy Truck Access Ways	9	4.0	9.0

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The R-Values from our investigation were evaluated and a design R-Value of 50 was selected for pavement design. Since the characteristics of the near-surface soils can change as a result of grading, we recommend that the subgrade/artificial fill soils be retested for pavement support characteristics, to confirm the parameters used in design and allow for a possible reduction in structural section thickness. Pavement sections provided above are contingent on the following recommendations being implemented during construction.

- The pavement sections recommended above should be placed on at least 18 inches of engineered fill compacted to at least 90 percent of maximum dry density with the upper 12 inches below pavements compacted to at least 95 percent relative compaction. The overexcavation of the pavement areas should be conducted as recommended in the earthwork section of this report. Prior to fill placement, the exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to the moisture content of granular soils (sands, silty sands and gravels) should be within 2 percent of the optimum moisture content at the time of compaction.
- Subgrade soils should be in a stable, non-pumping condition at the time aggregate base materials are placed and compacted.
- Aggregate base materials should be compacted to at least 95 percent relative compaction.
- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet.
- Aggregate base materials should meet current Caltrans specifications for Class 2 aggregate base rock, or crushed miscellaneous base as specified in the "Standard Specifications for Public Work Construction" ("Greenbook").
- The asphalt pavement should be placed in accordance with “Green Book” specifications or the County of San Bernardino requirements, as appropriate. We recommend that the asphalt pavement be placed in a single layer of ½-inch aggregate mix for pavements 4 inches thick or less. If the pavement section is over 4 inches thick, then the asphalt should be placed in at least two layers of mix. The first layer should consist of a base or coarse layer (3/4-inch mix). The second layer (i.e., top layer) should consist of a medium or fine layer of ½-inch mix.
- Based on our analyses and our experience with similar projects, it is our professional opinion that the as-built asphalt pavement sections should have a tolerance of +/- ¼-inch in order to remain valid for satisfying the intent of the recommendations presented

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herein. Typically, the loose thickness should be ¼ inch per inch greater than the required compacted thickness. In addition to loose measurements prior to compaction, this is typically evaluated by averaging the thickness of several cores in a specific area. Individual measurements (loose thickness or core dimension) should be within at least ¾-inch of the design thickness.

- All concrete curbs separating pavement and landscaped areas should extend into the subgrade and below the bottom of adjacent, aggregate base materials.

Pavement sections provided above are based on the soil conditions encountered during our field investigation, our assumptions regarding final site grades, and limited laboratory testing. Since the actual pavement subgrade materials exposed during grading may be significantly different than those tested for this study, we recommend that representative subgrade samples be obtained and additional R-value tests performed. Should the results of these tests indicate a significant difference, the design pavement section(s) provided above may need to be revised.

4.10.2 Portland Cement Concrete Pavement

Concrete pavements may be desirable in loading dock and trash collection areas. The concrete pavement should have a minimum 28-day compressive strength of 3,000 psi. Control joints should be spaced approximately every 10 feet. The concrete pavement section should be placed on at least 18 inches of engineered fill compacted to at least 90 percent of the maximum dry density. Prior to fill placement, the exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to the moisture content range recommended in Section 4.4 of this report. Table 10, Preliminary Recommended PCC Pavement Sections, presents our recommendations of Portland Cement Concrete pavement sections.

Table 10
Preliminary Recommended PCC Pavement Sections

Assumed Traffic Index (TI)	Concrete Thickness (inches; using a 28-day compressive strength of 4,000 psi)	Concrete Thickness (inches; using a 28-day compressive strength of 3,500 psi)	Concrete Thickness (inches; using a 28-day compressive strength of 3,000 psi)
5	6.0	6.5	7.0
6	6.5	6.5	7.0
7	6.5	7.0	7.5
8	7.0	7.5	8.0
9	7.5	8.0	8.5

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As an alternative to placing PCC pavements directly over 18 inches of engineered fill, 6 inches of aggregate base material may be added between the PCC and engineered fill to provide additional load distribution, drainage, and an option to reduce the thickness of the recommended PCC. If 6 inches of aggregate base material (compacted to 95% relative compaction) is used between the recommended 18 inches of engineered fill and PCC pavement, the recommended PCC thickness may be reduced by ½ inch. Aggregate base materials should meet current Caltrans specifications for Class 2 aggregate base, or crushed miscellaneous base as specified in the "Standard Specifications for Public Work Construction" ("Greenbook").

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5 ADDITIONAL SERVICES

5.1 DESIGN LEVEL INVESTIGATION

This report presents preliminary geotechnical recommendations to develop a conceptual design and provide planning-level cost estimating. This study is not intended to be a design-level geotechnical study, and additional field and laboratory testing will be required in order to provide detailed geotechnical recommendations.

The recommendations provided in this report are based on our understanding of the described project information and on our interpretation of the data. We have made our recommendations based on experience with similar subsurface conditions under similar loading conditions. The recommendations apply to the specific project discussed in this report; therefore, any change in the structure configuration, loads, location, or the site grades should be provided to us so that we can review our conclusions and recommendations and make any necessary modifications.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that a general review of the project plans and specifications be conducted before they are finalized to verify that our geotechnical recommendations have been properly interpreted and implemented during design. We also recommend that evaluations be performed on any slopes and retaining wall designs that are proposed. If we are not accorded the privilege of performing this review, we can assume no responsibility for misinterpretation of our recommendations. The review can be completed on a time-and-expense basis.

5.3 CONSTRUCTION OBSERVATION AND TESTING

The construction process is an integral design component with respect to the geotechnical aspects of a project. Because geotechnical engineering is an inexact science due to the variability of natural processes and materials, and because we sample only a small portion of the soils affecting the performance of the proposed project, unanticipated or changed conditions can be disclosed during grading. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process. Therefore, we recommend that Kleinfelder be retained during the construction of the proposed development to observe compliance with the design concepts and geotechnical recommendations, and to allow design changes in the event

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that subsurface conditions or methods of construction differ from those assumed while completing this study.

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6 LIMITATIONS

This report has been prepared for the exclusive use of HIP VI Enterprises, LLC, a Delaware Limited Liability Corporation, and its consultants and contractors for specific application to the proposed improvements for the proposed Speedway Commerce Center. The findings, conclusions and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of our profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. No warranty or guarantee, express or implied, is made. Our field exploration program for the geotechnical study of this project was based on the approximate building locations provided to us by the client.

The client has the responsibility to see that all parties to the project, including the designer, contractor, subcontractors, etc., are made aware of this report in its entirety. This report contains information that may be useful in the preparation of contract specifications. However, this report is not designed as a specification document and may not contain sufficient information for this use without proper modification.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party, other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of this report and the nature of the new project, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and the client agrees to defend, indemnify, and hold harmless Kleinfelder from any claims or liability associated with such unauthorized use or non-compliance.

The scope of our geotechnical services did not include any environmental site assessment for the presence or absence of hazardous/toxic materials, including methane or other landfill related gases. Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

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FIGURES

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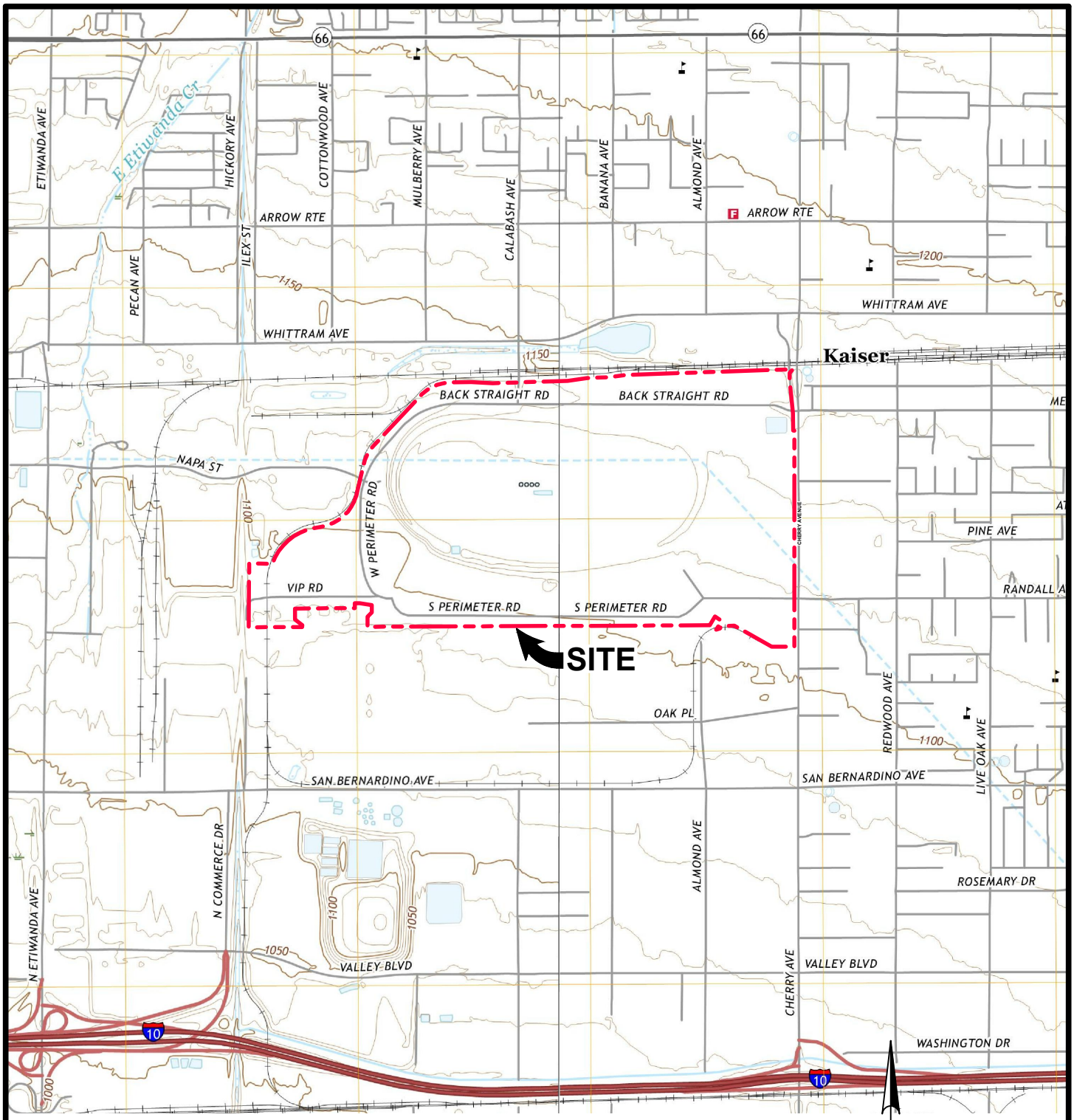

SOURCE: U.S.G.S. 7.5' topographic series, Guasti and Fontana, California quadrangles dated 2018.

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APPROXIMATE SCALE (feet)

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SITE VICINITY MAP

PROPOSED SPEEDWAY COMMERCE CENTER II
COUNTY OF SAN BERNARDINO, CALIFORNIA

FIGURE
1

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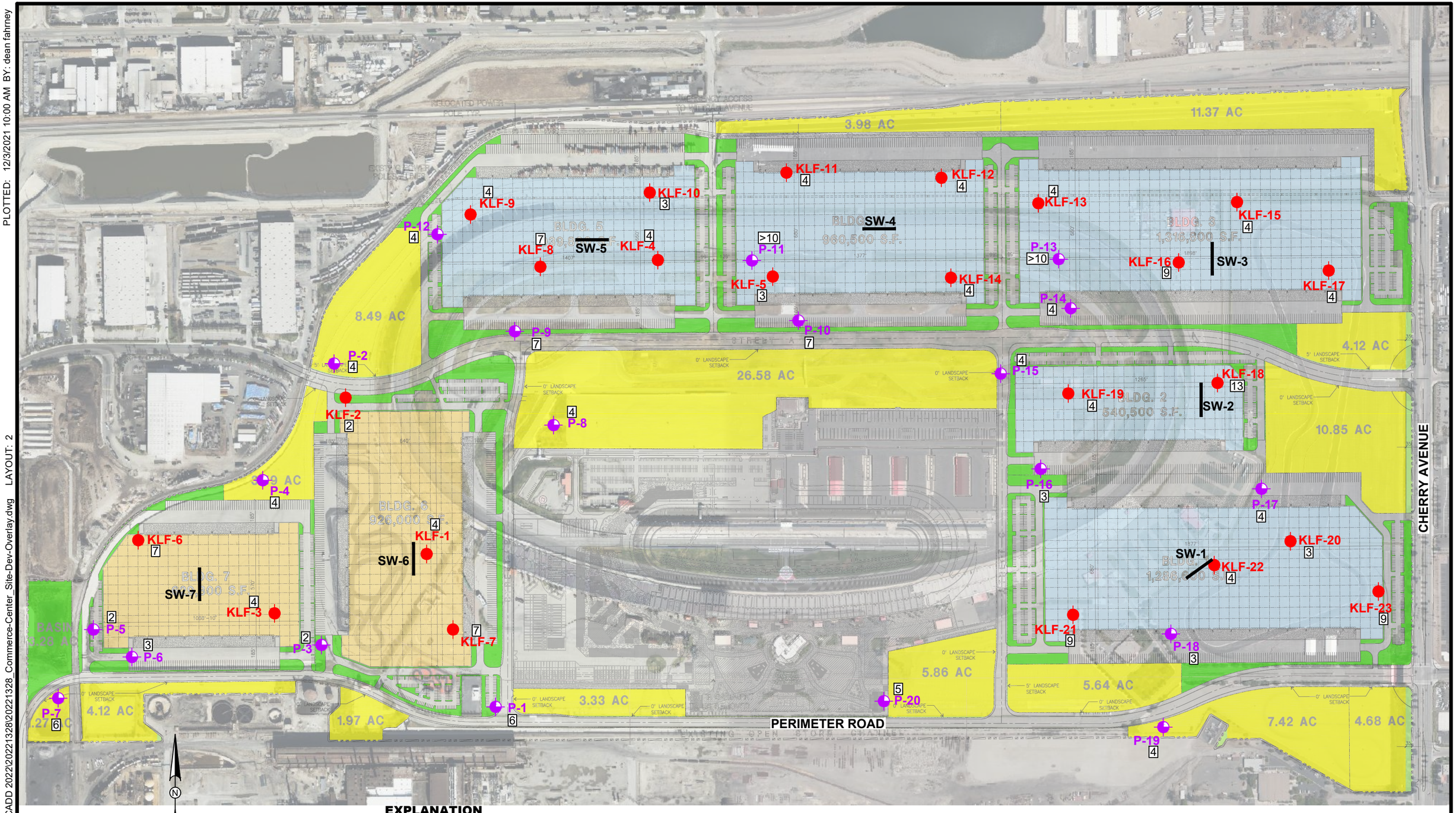

EXPLANATION

KLF-23	APPROXIMATE GEOTECHNICAL BORING LOCATION
P-20	APPROXIMATE INFILTRATION TEST LOCATION
13	APPROXIMATE DEPTH OF EXISTING FILL IN FEET
SW-7	APPROXIMATE SHEAR WAVE VELOCITY LINE LOCATION

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EXPLORATION LOCATION MAP

PROPOSED SPEEDWAY COMMERCE CENTER II
COUNTY OF SAN BERNARDINO, CALIFORNIA

FIGURE
2

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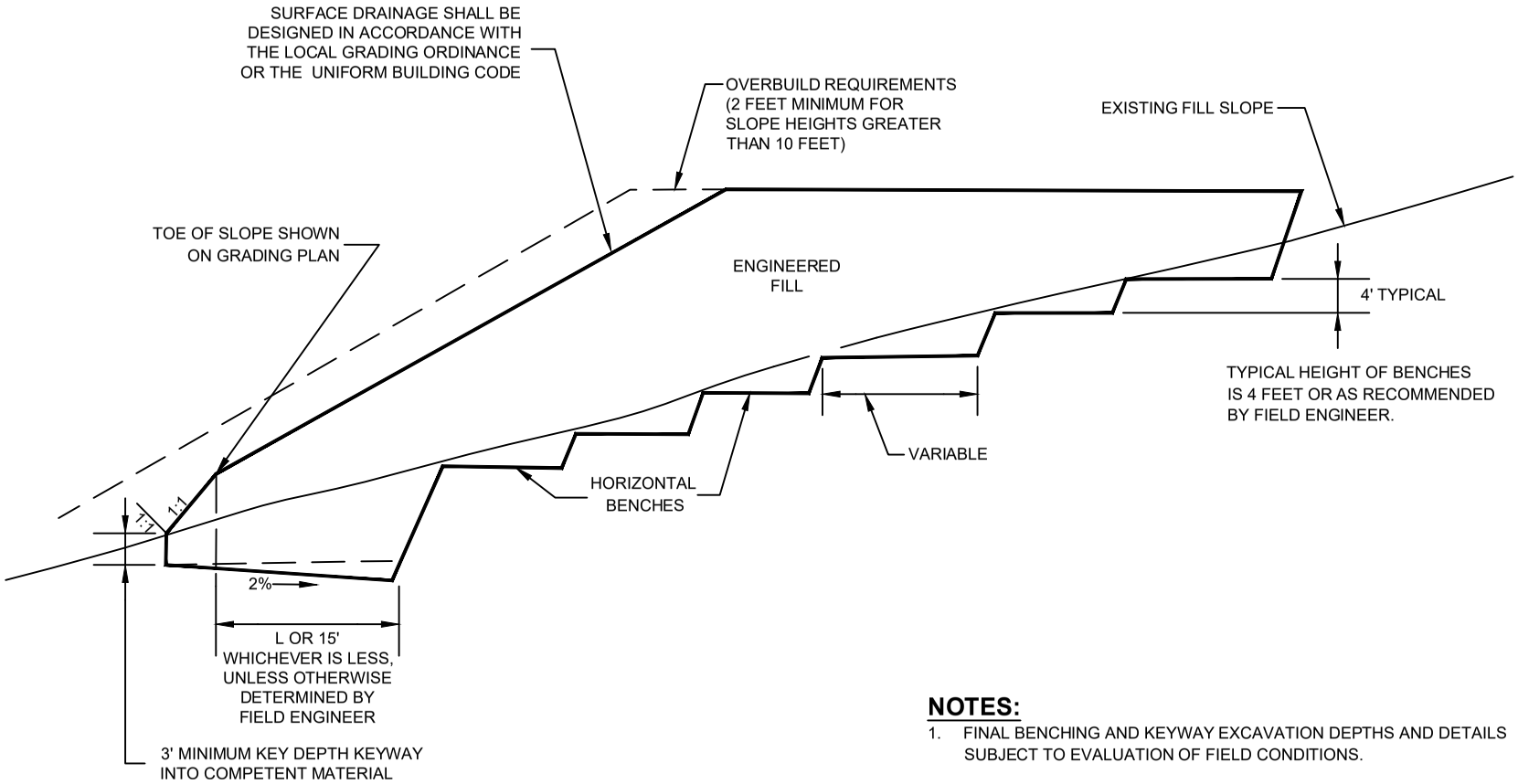
TYPICAL ENGINEERED
FILL SLOPE DETAIL

PROPOSED SPEEDWAY COMMERCE CENTER II
COUNTY OF SAN BERNARDINO, CALIFORNIA

FIGURE
3



NOTES:

1. FINAL BENCHING AND KEYWAY EXCAVATION DEPTHS AND DETAILS SUBJECT TO EVALUATION OF FIELD CONDITIONS.

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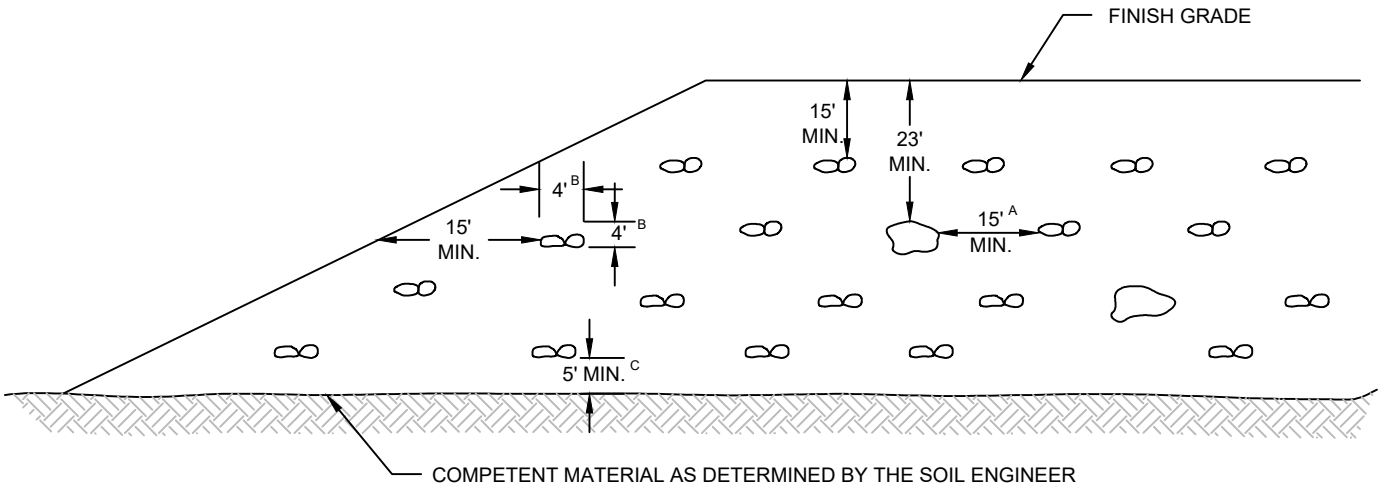
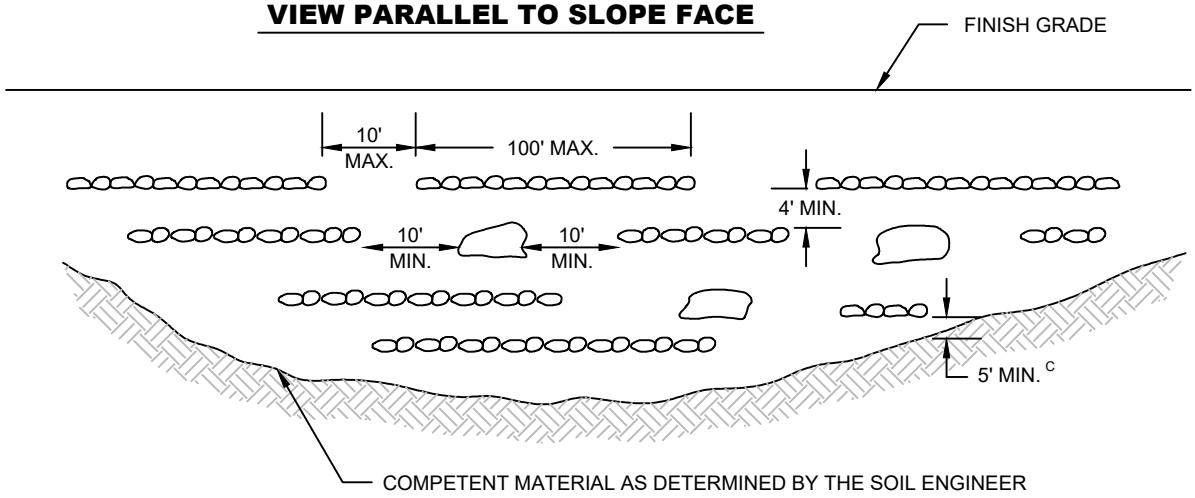
VIEW NORMAL TO SLOPE FACE



NOTE:
ORIENTATION OF WINDROWS MAY VARY BUT SHALL BE AS RECOMMENDED BY SOIL ENGINEER. STAGGERING OF WINDROWS IS NOT NECESSARY UNLESS RECOMMENDED BY SOIL ENGINEER.

VIEW PARALLEL TO SLOPE FACE



NOTE:
A) ONE EQUIPMENT WIDTH OR A MINIMUM OF 15 FEET.
B) HEIGHT AND WIDTH MAY VARY DEPENDING ON ROCK SIZE AND TYPE OF EQUIPMENT.
C) IF APPROVED BY SOIL ENGINEER, WINDROWS MAY BE PLACED DIRECTLY ON COMPETENT MATERIALS PROVIDING ADEQUATE SPACE IS AVAILABLE FOR COMPACTION.
D) VOIDS IN WINDROW TO BE FILLED BY FLOODING GRANULAR SOIL INTO PLACE. GRANULAR SOIL SHALL MEAN ANY SOIL WHICH HAS A UNIFIED SOIL CLASSIFICATION SYSTEM (UBC 18-1) DESIGNATION OF SM, SP, SW, GM, GP, GW.
E) AFTER FILL BETWEEN WINDROWS IS PLACED AND COMPACTED WITH THE LIFT OF FILL COVERING WINDROW, WINDROW SHALL BE PROOF-ROLLED WITH D-9 DOZER OR EQUIVALENT.
F) OVERSIZED ROCK IS DEFINED AS LARGER THAN 6" IN SIZE.

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TYPICAL OVERSIZED ROCK DISPOSAL

PROPOSED SPEEDWAY COMMERCE CENTER II
COUNTY OF SAN BERNARDINO, CALIFORNIA

FIGURE
4

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APPENDIX A
FIELD EXPLORATIONS

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APPENDIX A
FIELD EXPLORATIONS

The subsurface conditions at the site were explored by drilling and logging twenty three (23) hollow-stem auger geotechnical borings and twenty (20) hollow-stem auger infiltration borings. The hollow stem auger borings were drilled using a CME-95 drill rig. The hollow stem auger drill rigs were provided by BC2 Environmental of Orange, California. The hollow stem auger drill rigs mentioned above was equipped with an automatic hammer system to drive the samplers. The locations of our borings are shown on Figure 2. The infiltration borings and infiltration recommendations are presented in the referenced Kleinfelder 2021 report.

The logs of borings are presented as Figures A-3 through A-25. An explanation to the logs is presented on Figures A-1 and A-2. The Logs of Borings describe the earth materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the boring number, excavation date and the name of the logger and excavation subcontractor. A HAZWOPER trained Kleinfelder engineer logged the borings utilizing the Unified Soil Classification System (USCS). The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Bulk and drive samples of representative earth materials were obtained from the borings at maximum intervals of about 5 feet.

A California-type sampler was used to obtain relatively undisturbed drive samples of the soil encountered. This sampler consists of a 3-inch O.D., 2.4 inch I.D. split barrel shaft that is driven a total of 18 inches into the soil at the bottom of the boring. The soil was retained in six 1-inch brass rings for laboratory testing. The sampler was driven using a 140-pound hammer falling 30 inches. The total number of hammer blows required to drive the sampler the final 12 inches is termed the blow count and is recorded on the Logs of Borings. Where the sample was driven less than 12 inches, the number of blows to drive the sample for each 6-inch segment, or portion thereof, is shown on the logs. For example, 50/4" indicates 50 blows to drive the sampler 4 inches to refusal.

Samples were also obtained using a Standard Penetration Sampler (SPT). This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft that is advanced into the soils at the bottom of the drill hole a total of 18 inches. The sampler was driven using a 140 pounds hammer falling 30 inches. The total number of hammer blows required to drive the sampler the final 12 inches is termed the blow count (N-value) and is recorded on the Logs of Borings. Where the sample was driven less than 12 inches, the number of blows to drive the sample for

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each 6-inch segment, or portion thereof, is shown on the logs. The procedures we employed in the field are generally consistent with those described in ASTM Standard Test Method D-1586.

Soil samples obtained from the SPT sampler were stored in plastic bags. Bulk samples of the sub-surface soils were retrieved directly from the soil cuttings and placed in large plastic bags.

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SAMPLE/SAMPLER TYPE GRAPHICS

BULK SAMPLE

MODIFIED CALIFORNIA SAMPLER
(2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

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GRAPHICS KEY

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-1

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_GEO-LEG1 (GRAPHICS KEY) WITH USCS]
PROJECT NUMBER: 20221328.002A
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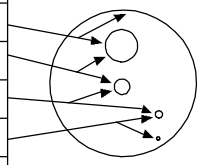
GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL		PI
Non-Plastic	NP	Either the LL or the PI (or both) may be used to describe the soil plasticity. The ranges of numbers shown here do not imply that the LL ranges correlate with the PI ranges for all soils.	NP
Low	< 30		< 15
Medium	30 - 50		15 - 25
High	> 50		> 25

LL is from Casagrande, 1948. PI is from Holtz , 1959.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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SOIL DESCRIPTION KEY

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-2

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Date Begin - End: 9/13/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-1**

Logged By: H. Marquez **Drill Crew:** Jason/Joaquin

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

FIELD EXPLORATION

Latitude: 34.08660°
Longitude: -117.50720°
Approximate Ground Surface Elevation (ft.): 1,095
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded GRAVEL with Sand (GW)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter	1							42	4.5			R-Value Corrosion Testing **Direct Shear=** Peak Cohesion: 248 psf Peak Friction Angle: 40.0°
1090	5		**Native** **Well-Graded GRAVEL with Sand**: fine to coarse-grained, dark brown, moist, dense, subangular gravel up to 3 inch diameter	2		BC=8 16 13	18"		1.3	127.3					
1085	10		**Silty SAND (ML)**: fine-grained, non-plastic, brown, moist, medium dense	3		BC=8 10 12	18"		7.0	99.8		30			Consolidation Testing
1080	15		**Silty SAND with Gravel (SM)**: fine to coarse-grained, yellowish brown, moist, dense, subangular gravel up to 3 inch diameter, trace calcium carbonate stains	4		BC=8 12 23	18"		12.9	124.5					
1075	20		very dense, increase in sand and gravel, trace subangular cobble up to 4 inch diameter	5		BC=27 50/5"	11"		2.0	120.6					
1070	25		dark brown	6		BC=22 40 50	12"								
1065	30		**Native** **Silty SAND with Gravel (SM)**: fine to coarse-grained, dark brown to grayish brown, moist, very dense, trace subangular cobble up to 4 inch diameter, trace calcium carbonate stains	7		BC=29 50/5"	11"								

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BORING LOG KLF-1

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-3

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Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-1**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION Latitude: 34.08660° Longitude: -117.50720° Approximate Ground Surface Elevation (ft.): 1,095 Surface Condition: Asphalt Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine to medium-grained, brown, moist, dense	8		BC=10 17 22	18"								
1055	40		medium dense	9		BC=10 12 17	18"								
1050	45		very dense	10		BC=10 26 33	18"								
			medium dense, increase in sand	11		BC=9 9 15	18"								
1045	50														
1040	55														
1035	60														
1030	65														

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG KLF-1

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-3

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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-2**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08890°
Longitude: -117.50860°
Approximate Ground Surface Elevation (ft.): 1,109
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2.5 inches thick, no base observed												Hand auger to 5 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 3 inch diameter												
1105			**Native**												
	5		**Silty SAND (SM)**: fine to medium-grained, dark brown, moist, trace subangular gravel up to 2 inch diameter, trace debris (asphalt concrete)	1		BC=13 19 30	18"		1.7	124.7					
			dense, increase in gravel												Drill chatter
1100			**Silty SAND with Gravel (SM)**: fine to coarse-grained, grayish brown, moist, subangular gravel up to 3 inch diameter												
	10		dense	2		BC=13 19 39	18"		1.5	123.9					
1095			**Sandy SILT (ML)**: fine-grained, non-plastic, grayish brown, moist, stiff												
	15			3		BC=9 10 12	18"		10.2	105.5					
1090			**Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, grayish brown, dry to moist, very dense, subangular gravel up to 3 inch diameter, trace subangular cobble up to 4 inch diameter												
	20			4		BC=19 32 40	18"				71	7.0			
1085															
	25					BC=20 40 50	NR								
1080															
	30			5		BC=32 50/5"	1"								Poor recovery
1075															

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BORING LOG KLF-2

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-4

Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-2**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08890°
Longitude: -117.50860°
Approximate Ground Surface Elevation (ft.): 1,109
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND with Gravel (SM): fine to coarse-grained, grayish brown, dry to moist, very dense, subangular gravel up to 3 inch diameter, trace subangular cobble up to 4 inch diameter, trace debris (brick fragment)	6		BC=32 50/3"	5"								Trace debris observed in soil cuttings
1070															
	40		**Silty SAND**: fine to coarse-grained, dark yellowish brown, moist, very dense	7		BC=19 28 36	4"								
1065															
	45		dark reddish brown, medium dense, increase in moisture	8		BC=5 10 11	12"								
1060			very dense	9		BC=18 26 50	18"								
	50														
1055															
	55														
1050															
	60														
1045															
	65														
1040															

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG KLF-2

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-4

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Date Begin - End: 9/14/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-3**

Logged By: H. Marquez **Drill Crew:** Jason/Joaquin/Alonso

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.08580°
Longitude: -117.51010°
Approximate Ground Surface Elevation (ft.): 1,085
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded GRAVEL with Sand (GW)**: fine to coarse-grained, brown to dark yellowish brown, moist, subangular gravel up to 3 inch diameter	1					7.5	121.9					R-Value Corrosion Testing Consolidation Testing **Direct Shear=** Peak Cohesion: 344 psf Peak Friction Angle: 38.0°
1080	5		**Native** **Well-Graded GRAVEL with Sand (GW)**: fine to coarse-grained, brown to dark yellowish brown, moist, very dense, subangular gravel up to 3 inch diameter	2		BC=18 25 36	18"		1.4	133.6	37	3.8			
1075	10		grayish brown	3		BC=18 25 50	18"		1.5	122.9					
1070	15		increase in sand	4		BC=18 28 36	18"		1.6	135.5					
1065	20		trace cobbles up to 4 inch diameter	5		BC=29 35 50/5"	17"		2.5	124.5					
1060	25			6		BC=32 50/5"	11"								
			Silty SAND (SM): fine to medium-grained, reddish brown, moist, medium dense												
1055	30			7		BC=8 8 20	14"								

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BORING LOG KLF-3

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-5

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Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-3**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08580°
Longitude: -117.51010°
Approximate Ground Surface Elevation (ft.): 1,085
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine to medium-grained, reddish brown, moist, medium dense very dense, strongly cemented	8		BC=50/6"	6"								
1045	40		dense, weakly cemented, increase in sand	9		BC=12 18 19	18"								
			Poorly Graded SAND with Silt (SP-SM): fine to medium-grained, reddish brown, moist, very dense												
1040	45			10		BC=19 24 32	18"								
			grayish brown, dense	11		BC=10 17 22	18"								
1035	50														
1030	55														
1025	60														
1020	65														

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
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DATE:	10/7/2021

BORING LOG KLF-3

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-5

PLOTTED: 11/01/2021 06:02 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/15/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-4**

Logged By: H. Marquez **Drill Crew:** Jason/Joaquin/Gabe

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.09110°
Longitude: -117.50300°
Approximate Ground Surface Elevation (ft.): 1,130
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, dark brown, moist, subangular gravel up to 3 inch in diameter, debris (slag)												Hand auger to 1 ft
		Native												
1125	5	**Sandy SILT (ML)**: fine-grained, non-plastic, brown, hard	1		BC=35 37 30	18"		9.6	120.3					**Direct Shear=** Peak Cohesion: 192 psf Peak Friction Angle: 33.0°
		wet												Perched water
1120	10	**Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, wet, very dense, subangular gravel up to 3 inch in diameter	2		BC=25 32 40	18"		3.8	124.7	78	7.7			Corrosion Testing
		Well-Graded SAND with Silt and Gravel (SW-SM): fine to coarse-grained, grayish brown, very dense, fine gravel												
1115	15		3		BC=21 30 50	18"		6.3	140.7					Hard drilling
1110	20		4		BC=21 30 45	18"		5.3	130.9					
1105	25	moist	5		BC=28 33 50	18"								
1100	30		6		BC=18 28 31	18"								Very hard drilling

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
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DATE: 10/7/2021

BORING LOG KLF-4

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-6

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
PROJECT NUMBER: 20221328.002A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2022 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-4**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09110°
Longitude: -117.50300°
Approximate Ground Surface Elevation (ft.): 1,130
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Well-Graded SAND with Silt and Gravel (SW-SM): fine to coarse-grained, grayish brown, very dense, fine gravel	7		BC=18 32 50	18"								
1090	40		dark yellowish brown, increase in sand	8		BC=30 36 50	18"								
			Sandy SILT (ML): fine-grained, non-plastic to low plasticity, reddish brown, moist, very soft												
1085	45			9		BC=8 12 18	18"								
			increase in sand	10		BC=8 8 12	18"								
1080	50														
1075	55														
1070	60														
1065	65														

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
▽ Perched groundwater was observed at approximately 7 ft. below ground surface during drilling.
▼ Perched groundwater was observed at approximately 4 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG KLF-4

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-6

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-5**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09080°
Longitude: -117.50080°
Approximate Ground Surface Elevation (ft.): 1,133
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1130	0		**Artificial Fill** **Silty SAND (SM)**: fine to medium-grained, dark brown, moist, subangular gravel up to 3 inch diameter, trace subangular cobble up to 6 inch diameter, trace debris (asphalt concrete)												Hand auger to 1 ft
			Native **Silty SAND (SM)**: fine-grained, non-plastic to low plasticity, dark yellowish brown, moist, medium dense	1											R-Value Corrosion Testing **Direct Shear=**
1125	5			2		BC=7 12 13	18"		10.4	120.2		38			Peak Cohesion: 172 psf Peak Friction Angle: 33.0°
	10		fine to medium-grained, grayish brown, very dense, trace subangular gravel up to 3 inch diameter	3		BC=35 50/2"	2"		12.9	116.3	100	49			Light drill chatter
1120	15		**Sandy SILT (ML)**: fine-grained, non-plastic, grayish brown, moist, medium stiff	4		BC=4 7 8	18"		9.4			60			Consolidation Testing
1115	20			5		BC=3 4 7	18"								
1110	25		**Silty SAND (SM)**: fine to medium-grained, grayish brown, moist, medium dense	6		BC=7 10 11	18"								
1105	30		**Silty SAND with Gravel (SM)**: fine to medium-grained, grayish brown, moist, very dense, subangular gravel up to 3 inch diameter			BC=50/6"	NR								Light drill chatter
1100			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, reddish brown, moist, very dense												

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BORING LOG KLF-5

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-7

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PROJECT NUMBER: 20221328.002A
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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-5**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09080°
Longitude: -117.50080°
Approximate Ground Surface Elevation (ft.): 1,133
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Poorly Graded SAND with Silt (SP-SM): fine to medium-grained, reddish brown, moist, very dense	7		BC=19 21 36	18"		5.8						
1095															
	40		dense, increase in sand	8		BC=10 17 22	18"								
1090			**Sandy Lean CLAY (CL)**: fine-grained, low plasticity, reddish brown, moist, very stiff												
	45			9		BC=4 7 10	18"		19.0			63			
1085															
	50		increase in sand	10		BC=5 11 18	18"								
1080															
	55														
1075															
	60														
1070															
	65														
1065															

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG KLF-5

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-7

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/17/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-6**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Joaquin/Tony		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08670°
Longitude: -117.51260°
Approximate Ground Surface Elevation (ft.): 1,084
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 1 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter, trace subangular cobble up to 6 inch diameter	1											
1080	5		brown to grayish brown, dense	2		BC=12 23 34	18"		1.2	129.3					Corrosion Testing
			Native **Silty SAND with Gravel (SM)**: brown to grayish brown, moist, very dense												Hard drilling
1075	10			3		BC=8 23 50/4"	14"		1.7	123.2	68	3.8			
1070	15			4		BC=37 50/6"	9"		1.8	125.6					
1065	20		increase in gravel	5		BC=16 50/5"	10"								
1060	25		brown, decrease in gravel	6		BC=16 23 36	18"								
1055	30		**Silty SAND (SM)**: fine-grained, non-plastic, yellowish brown, moist, medium dense	7		BC=7 9 11	18"		7.6			31			
1050															

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PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG KLF-6

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-8

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
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Date Begin - End:	9/17/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-6**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Joaquin/Tony		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08670°
Longitude: -117.51260°
Approximate Ground Surface Elevation (ft.): 1,084
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1045	40		**Silty SAND (SM)**: fine-grained, non-plastic, yellowish brown, moist, medium dense non-plastic to low plasticity, reddish brown, trace calcium carbonate stains	8		BC=4 7 12	18"								
			non-plastic, dark yellowish brown, increase in fines	9		BC=6 9 13	18"								
1040	45		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, dark yellowish brown, moist, dense	10		BC=8 15 19	18"								
1035	50		trace subangular gravel up to 1 inch diameter	11		BC=9 20 28	18"								
1030	55														
1025	60														
1020	65														
1015															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 17, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG KLF-6

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-8

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PROJECT NUMBER: 20221328.002A
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/17/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-7**

Logged By: H. Marquez **Drill Crew:** Ramon/Joaquin/Tony

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.08550°
Longitude: -117.50660°
Approximate Ground Surface Elevation (ft.): 1,098
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 5 ft
			Artificial Fill **Silty SAND (SM)**: fine to medium-grained, brown to dark yellowish brown, moist, trace subangular gravel up to 3 inch diameter decrease in gravel, increase in sand												
1095	5		medium dense, increase in gravel	1		BC=8 16 18	18"		1.7	111.5					Corrosion Testing
			Native **Well-Graded GRAVEL with Sand (GW)**: fine to coarse-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter												Drill chatter
1090	10		medium dense	2		BC=6 12 22	18"		2.0	127.4	49	4.4			
1085	15		grayish brown, very dense	3		BC=12 36 42	18"		2.4	125.5					
1080	20		dense	4		BC=8 12 25	18"								
1075	25		very dense	5		BC=17 21 37	18"								
1070	30		dense	6		BC=11 19 22	18"								
1065															

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
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DATE: 10/7/2021

BORING LOG KLF-7

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-9

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
PROJECT NUMBER: 20221328.002A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2022 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/17/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-7**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Joaquin/Tony		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08550°
Longitude: -117.50660°
Approximate Ground Surface Elevation (ft.): 1,098
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1060	40		**Native** **Well-Graded GRAVEL with Sand (GW)**: fine to coarse-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter dark yellowish brown, very dense	7		BC=14 28 46	18"								Hard drilling
1055	45		grayish brown to brown, trace subangular cobble up to 4 inch diameter **Sandy SILT (ML)**: fine-grained, non-plastic, yellowish brown to reddish brown, moist, stiff	8		BC=11 33 50/4"	18"								
1050	50			9		BC=5 7 8	18"								
1045	55		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, medium dense	10		BC=5 7 11	18"								
1040	60														
1035	65														
1030															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 17, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG KLF-7

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-9

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/07/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-8**

Logged By: H. Marquez **Drill Crew:** Ramon/Joaquin/Tony

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.09100°
Longitude: -117.50510°
Approximate Ground Surface Elevation (ft.): 1,130
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, dark brown, moist, subangular gravel up to 3 inch diameter												Hand auger to 1 ft
1125	5		very dense	1		BC=36 35 50/5"	17"		11.0	126.0					
			Native **Silty SAND with Gravel (SM)**: fine to medium-grained, dark yellowish brown, moist, very dense												
1120	10			2		BC=50/6"	6"								
1115	15		fine to coarse-grained	3		BC=48 50/3"	2"								Poor recovery
1110	20		**Well-Graded SAND with Gravel (SW)**: fine to medium-grained, grayish brown, moist, very dense, subangular gravel up to 3 inch diameter	4		BC=40 50/3"	9"		3.7	114.3	75	3.6			
1105	25		**Silty SAND (SM)**: dark yellowish brown, moist, very dense	5		BC=20 29 30	18"								
1100	30		**Silty SAND with Gravel (SM)**: fine to coarse-grained, grayish brown, moist, very dense, subangular gravel up to 3 inch diameter, trace subangular cobble up to 4 inch diameter	6		BC=20 50/5"	8"								

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PROJECT NO.: 20221328.002A
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DATE: 10/7/2021

BORING LOG KLF-8

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-10

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/07/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-8**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Joaquin/Tony		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09100°
Longitude: -117.50510°
Approximate Ground Surface Elevation (ft.): 1,130
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND with Gravel (SM): fine to coarse-grained, grayish brown, moist, very dense, subangular gravel up to 3 inch diameter, trace subangular cobble up to 4 inch diameter brown, trace debris (rust flakes up to 0.25 inch in size	7		BC=18 50/6"	5"								Hard drilling Trace debris observed in soil cuttings
1090	40			8		BC=21 50/6"	10"								
1085	45		brown to grayish brown	9		BC=32 50/4"	8"								
1080	50			10		BC=34 50/4"	7"								
1075	55														
1070	60														
1065	65														

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 07, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-8

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-10

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:03 PM BY: YNguyen

Date Begin - End: 9/24/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-9**

Logged By: H. Marquez **Drill Crew:** Gerardo/Freddy/Izzy

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

FIELD EXPLORATION

Latitude: 34.09170°
Longitude: -117.50640°
Approximate Ground Surface Elevation (ft.): 1,124
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 1 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, dark brown, moist, subangular gravel up to 3 inch diameter, trace debris (slag up to 5 inches)												Hard drilling from 3 to 8 ft
1120	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, brown to yellowish brown, moist, very dense	1		BC=50/6"	5"		5.1	124.1	67	7.1			
1115	10					BC=50/6"	NR								
1110	15		grayish brown	2		BC=50/4"	2"								
1105	20		**Poorly Graded SAND (SP)**: fine to medium-grained, grayish brown, moist, very dense, subangular gravel up to 2 inch in diameter	3		BC=13 27 50	18"		2.8	123.8					
1100	25		**Silty SAND with Gravel (SM)**: fine to medium-grained, yellowish brown to grayish brown, moist, very dense, subangular gravel up to 3 inch in diameter	4		BC=33 50/4"	10"								
1095	30		trace subangular cobble up to 4 inch in diameter, trace debris (slag)	5		BC=20 42 50	14"								
1090															

LABORATORY RESULTS

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DATE: 10/7/2021

BORING LOG KLF-9

Proposed Speedway Commerce Center
Fontana, California

FIGURE

A-11

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
PROJECT NUMBER: 20221328.002A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2022 [_KLF_BORING/TEST PIT SOIL LOG]
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB

Date Begin - End:	9/24/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-9**	
Logged By:	H. Marquez	**Drill Crew:**	Gerardo/Freddy/Izzy		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09170°
Longitude: -117.50640°
Approximate Ground Surface Elevation (ft.): 1,124
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND with Gravel (SM): fine to medium-grained, yellowish brown to grayish brown, moist, very dense, subangular gravel up to 3 inch in diameter			BC=50/1"	NR								Sampler bouncing
1085	40		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, dense	6		BC=13 15 19	18"								
1080	45			7		BC=13 19 21	18"								
1075	50		**Poorly Graded SAND (SP)**: fine to medium-grained, yellowish brown, moist, dense	8		BC=7 21 28	18"								
1070	55														
1065	60														
1060	65														
1055															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 24, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG KLF-9

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-11

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
[L_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB

Date Begin - End:	9/24/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-10**	
Logged By:	H. Marquez	**Drill Crew:**	Gerardo/Freddy/Izzy		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09210°
Longitude: -117.50310°
Approximate Ground Surface Elevation (ft.): 1,131
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1130			**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 1 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter	1					8.0	120.6					R-Value Corrosion Testing Consolidation Testing **Direct Shear=** Peak Cohesion: 292 psf Peak Friction Angle: 33.0°
	5		**Native** **Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, dense increase in sand	2		BC=7 19 30	18"		2.9	123.2					
1125			**Well-Graded SAND with Gravel (SW)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter												Drill chatter
	10		brown to grayish brown	3		BC=8 40 50	18"		2.1	132.0	53	4.6			
1120															
	15		trace subangular cobble up to 4 inch diameter	4		BC=26 50/4"	10"		3.3	109.1					
1115															
	20		dark yellowish brown, increase in sand	5		BC=36 50/6"	12"		2.1	130.1					
1110															
	25			6		BC=17 27 33	18"								
1105															
	30			7		BC=40 50/3"	6"								
1100															

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BORING LOG KLF-10

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-12

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:03 PM BY: YNguyen

Date Begin - End:	9/24/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-10**	
Logged By:	H. Marquez	**Drill Crew:**	Gerardo/Freddy/Izzy		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09210°
Longitude: -117.50310°
Approximate Ground Surface Elevation (ft.): 1,131
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1095			**Well-Graded SAND with Gravel (SW)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter brown to grayish brown	8		BC=39 50/3"	6"								
	40			9		BC=26 50/6"	9"								
1090			**Clayey SAND (SC)**: fine to medium-grained, low plasticity, reddish brown, moist, dense												
	45			10		BC=12 20 13	18"					44			
1085				11		BC=10 13 24	18"								
	50		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, dense												
1080															
	55														
1075															
	60														
1070															
	65														
1065															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 24, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG KLF-10

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-12

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-11**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09240°
Longitude: -117.50050°
Approximate Ground Surface Elevation (ft.): 1,134
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter												
1130			**Native**												
	5		**Silty SAND with Gravel (SM)**: fine to medium-grained, brown to grayish brown, moist, very dense, subangular gravel up to 3 inch diameter	1		BC=50/4"	3"		7.8	115.0	78	15			Hard drilling
1125															
	10		observed debris (pieces of steel up to 3 inch)	2		BC=31 50/4"	8"		7.8	110.6					Debris observed in soil cuttings
1120															
	15		dark brown to black, dense	3		BC=4 21 21	12"		7.1	113.5					
1115															
	20		very dense, increase in debris (rebar fragments and steel)	4		BC=31 50/3"	9"								Very hard drilling
1110															
	25		dark yellowish brown	5		BC=29 50/4"	10"								Swap out drill bit teeth
			Sandy Lean CLAY (CL): fine-grained, low to medium plasticity, dark yellowish brown, moist, very stiff												
1105	30			6		BC=8 12 11	18"		21.1			67			
1100															

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BORING LOG KLF-11

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-13

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-11**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09240°
Longitude: -117.50050°
Approximate Ground Surface Elevation (ft.): 1,134
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Sandy SILT (ML): non-plastic to low plasticity, dark yellowish brown, moist, hard, trace calcium carbonate	7		BC=6 12 22	18"		13.4			56			
1095	40		moderately cemented	8		BC=8 15 24	18"								Hard drilling Smoke coming out of hole Drillers add water
1090	45		**Silty SAND with Gravel (SM)**: fine to coarse-grained, dark yellowish brown, moist, very dense, subangular gravel up to 1 inch diameter	9		BC=13 31 23	14"								
1085	50		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, dense	10		BC=10 18 27	18"								
1080	55														
1075	60														
1070	65														
1065															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG KLF-11

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-13

PLOTTED: 11/01/2021 06:03 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/28/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-12**

Logged By: H. Marquez **Drill Crew:** Juan/Freddy/Earnie

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

FIELD EXPLORATION

Latitude: 34.09230°
Longitude: -117.49760°
Approximate Ground Surface Elevation (ft.): 1,143
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger 3 ft
			Artificial Fill **Well-Graded GRAVEL with Silt and Sand (GW-GM)**: fine to medium-grained, yellowish brown, moist, subangular gravel up to 2 inch diameter												
1140															
	5		**Native** **Well-Graded GRAVEL with Silt and Sand (GW-GM)**: fine to medium-grained, yellowish brown, moist, very dense, subangular gravel up to 2 inch diameter, trace debris (concrete)	1		BC=50/4"	3"								Trace debris observed in soil cuttings
1135															
	10		dark brown, medium dense, trace debris (slag)	2		BC=8 16 12	18"		3.7	131.6	49	9.9			Corrosion Testing
1130															
	15		fine to coarse-grained, dark yellowish brown, very dense, subangular gravel up to 3 inch diameter, increase in sand	3		BC=13 42 47	18"		1.9	130.6					
1125															
	20			4		BC=30 33 39	18"		2.1	133.8					
1120															
	25		brown to graysish brown	5		BC=19 50/5"	8"								
1115															
	30		**Silty SAND with Gravel (SM)**: fine to coarse-grained, dark yellowish brown, moist, very dense, subangular gravel up to 1 inch diameter	6		BC=20 43 50/5"	17"								
1110															

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
CHECKED BY: CC
DATE: 10/7/2021

BORING LOG KLF-12

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Fontana, California

FIGURE
A-14

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:04 PM BY: YNguyen

Date Begin - End:	9/28/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-12**	
Logged By:	H. Marquez	**Drill Crew:**	Juan/Freddy/Earnie		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09230°
Longitude: -117.49760°
Approximate Ground Surface Elevation (ft.): 1,143
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1105	40		**Silty SAND with Gravel (SM)**: fine to coarse-grained, dark yellowish brown, moist, very dense, subangular gravel up to 1 inch diameter	7		BC=23 26 35	18"								
			increase in moisture	8		BC=30 50/4"	10"								
1100			**Well-Graded SAND with Gravel (SW)**: fine to coarse-grained, dark brown, wet, dense, subangular gravel up to 1 inch diameter												Perched water
	45			9		BC=19 15 21	7"								
1095			**Lean CLAY (CL)**: medium plasticity, reddish brown, moist, very stiff, trace fine-grained sand												
	50			10		BC=4 7 20	18"								
1090															
	55														
1085															
	60														
1080															
	65														
1075															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 28, 2021.

GROUNDWATER LEVEL INFORMATION:
▽ Perched groundwater was observed at approximately 43 ft. below ground surface during drilling.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG KLF-12

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FIGURE
A-14

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/28/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-13**

Logged By: H. Marquez **Drill Crew:** Jason/Freddy/Earnie

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.09190°
Longitude: -117.49590°
Approximate Ground Surface Elevation (ft.): 1,148
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2.5 inches thick, no base observed	1											Hand auger to 1 ft R-Value Corrosion Testing
1145			**Artificial Fill** **Silty SAND (SM)**: fine to medium-grained, dark brown, moist, trace subangular gravel up to 2 inch diameter												
	5		**Native** **Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, very dense, trace subangular gravel up to 2 inch diameter	2		BC=16 28 32	18"		5.7	117.5	95	45			
1140															
	10		increase in gravel	3		BC=15 43 36	18"		2.8	123.0					
1135															
	15		brown, dense, increase in sand	4		BC=8 21 20	18"		2.7	125.2					
1130															
	20		grayish brown, very dense, subangular gravel up to 3 inch diameter	5		BC=22 50/6"	12"		2.3	117.2					
1125															
	25			6		BC=22 47 50	18"								
1120			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, grayish brown, moist, very dense, trace subangular gravel up to 0.5 inch												
	30			7		BC=11 50/6"	12"								
1115															

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
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DATE: 10/7/2021

BORING LOG KLF-13

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-15

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/28/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-13**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Earnie		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09190°
Longitude: -117.49590°
Approximate Ground Surface Elevation (ft.): 1,148
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1110	40		**Silty SAND with Gravel (SM)**: fine to coarse-grained, grayish brown, moist, very dense, subangular gravel up to 2 inch diameter	8		BC=12 50/6"	12"								
			increase in gravel up to 3 inch diameter	9		BC=25 41 50/3"	15"								
1105	45			10		BC=30 50/6"	12"								
1100															Perched water
	50		**Lean CLAY (CL)**: medium plasticity, reddish brown, wet, stiff, trace fine-grained sand	11		BC=20 12 17	18"								
1095	55														
1090	60														
1085	65														
1080															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 28, 2021.

GROUNDWATER LEVEL INFORMATION:
▽ Perched groundwater was observed at approximately 48 ft. below ground surface during drilling.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-13

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-15

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-14**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09080°
Longitude: -117.49750°
Approximate Ground Surface Elevation (ft.): 1,134
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, brown, moist, trace silt, subangular gravel up to 3 inch diameter, trace subangular cobble up to 4 inch diameter, trace debris (trash)												Hand auger 1 ft
1130			**Native**												
	5		**Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, medium dense, subangular gravel up to 3 inch diameter	1		BC=8 13 21	18"		1.6	125.1		4.8			
1125															
	10		brown, increase in sand	2		BC=6 14 18	18"		2.6	114.4					
1120															
	15		grayish brown, dense, trace debris (steel fragment 5 inches)	3		BC=16 24 33	18"		1.4	128.6					Trace debris observed in soil cuttings
1115															
	20		very dense			BC=50/5"	NR								
1110															
	25			4		BC=23 48 43	18"								
1105															
	30		brown, dense	5		BC=17 19 12	18"								
1100															

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
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DATE: 10/7/2021

BORING LOG KLF-14

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-16

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-14**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09080°
Longitude: -117.49750°
Approximate Ground Surface Elevation (ft.): 1,134
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Native												
1095			**Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, medium dense, subangular gravel up to 3 inch diameter trace debris (steel fragment 6 inches)	6		BC=10 21 26	18"								
	40		brown to grayish brown, very dense	7		BC=36 32 50/5"	17"								Trace debris observed in soil cuttings Hard drilling
1090	45			8		BC=40 50/5"	11"								
1085	50		**Silty SAND (SM)**: fine to medium-grained, reddish brown, moist, medium dense	9		BC=6 8 12	18"								
1080	55														
1075	60														
1070	65														
1065															

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-14

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-16

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/28/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-15**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Earnie		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09190°
Longitude: -117.49220°
Approximate Ground Surface Elevation (ft.): 1,146
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1145			**Asphalt Concrete**: approximately 3.5 inches thick, no base observed												
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter												
			Native												
	5		**Well-Graded SAND with Silt and Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, dense, subangular gravel up to 3 inch diameter	1		BC=14 22 37	18"		2.2	132.4					
1140															
	10		brown, very dense, increase in gravel	2		BC=16 42 40	18"		1.9	131.5	55	5.1			
1135															
	15		fine to coarse-grained, grayish brown, trace subangular cobble up to 4 inch diameter	3		BC=26 32 47	18"		3.6	118.0					
1130															
	20		dark yellowish brown	4		BC=15 32 50/3"	15"		4.0	126.1					
1125															
			fine to coarse-grained, dark yellowish brown, moist, very dense												
	25			5		BC=14 32 36	18"								
1120															
	30		brown, increase in gravel	6		BC=16 43 50/4"	16"								
1115															

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PROJECT NO.:	20221328.002A
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BORING LOG KLF-15

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-17

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
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BORING LOG KLF-15

Date Begin - End:	9/28/2021	**Drilling Company:**	BC2 Environmental - #1051275		
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Earnie		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION | LABORATORY RESULTS

Latitude: 34.09190°
Longitude: -117.49220°
Approximate Ground Surface Elevation (ft.): 1,146
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1110			**Native** **Well-Graded SAND with Silt and Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, dense, subangular gravel up to 3 inch diameter	7		BC=38 30 40	18"								
1105	40		dark yellowish brown	8		BC=24 35 50/4"	16"								
1100	45		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, dark yellowish brown, moist, very dense	9		BC=15 28 31	18"								
1095	50		**Lean CLAY with Sand (CL)**: fine-grained, low to medium plasticity, reddish brown, moist, hard	10		BC=8 12 18	18"								
1090	55														
1085	60														
1080	65														

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 28, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE

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DATE: 10/7/2021

BORING LOG KLF-15

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-17

Date Begin - End:	9/22/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-16**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09100°
Longitude: -117.49330°
Approximate Ground Surface Elevation (ft.): 1,144
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Asphalt Concrete: approximately 2 inches thick, no base observed	1											Hand auger to 2 ft
		Artificial Fill **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, yellowish brown, moist, subangular gravel up to 3 inch diameter						8.0	117.0	63	3.2			R-Value Corrosion Testing Consolidation Testing **Direct Shear=** Peak Cohesion: 283 psf Peak Friction Angle: 35.0°
1140	5	dense	2		BC=10 20 23	18"		1.6	118.5					
1135	10	**Native** **Sandy SILT (ML)**: fine-grained, non-plastic, brown, moist, stiff	3		BC=6 7 8	18"		15.3	97.7		51			
1130	15	**Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter	4		BC=13 33 44	18"		1.8	127.9					Drill chatter
1125	20	brown to grayish brown, increase in gravel	5		BC=21 50/6"	10"								Hard drilling
1120	25	trace subangular cobble up to 4 inch diameter	6		BC=18 50/4"	6"								
1115	30		7		BC=25 50/6"	10"								
1110														

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PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG KLF-16

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-18

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:04 PM BY: YNguyen

Date Begin - End:	9/22/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-16**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09100°
Longitude: -117.49330°
Approximate Ground Surface Elevation (ft.): 1,144
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND with Gravel (SM): fine to coarse-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter	8		BC=18 42 44	18"								
1105	40		**Poorly Graded SAND (SP)**: fine to medium-grained, dark yellowish brown, moist, very dense, trace subangular gravel up to 1 inch diameter	9		BC=8 50/6"	12"								
1100	45		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, dense	10		BC=9 16 18	18"								
1095	50		**Poorly Graded SAND (SP)**: fine to medium-grained, moist, dense	11		BC=6 9 9	18"								
1090	55														
1085	60														
1080	65														
1075															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 22, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
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DATE:	10/7/2021

BORING LOG KLF-16

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-18

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

BORING LOG KLF-17

Date Begin - End:	9/22/2021	**Drilling Company:**	BC2 Environmental - #1051275		
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09090°
Longitude: -117.49060°
Approximate Ground Surface Elevation (ft.): 1,142
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												R-Value
			Artificial Fill												Hand auger to 2 ft
1140			**Silty SAND with Gravel (SM)**: fine to medium-grained, dark brown, moist, subangular gravel up to 3 inch diameter												
			Native												
	5		**Silty SAND with Gravel (SM)**: fine to medium-grained, dark yellowish brown, moist, medium dense	1		BC=4 15 15	18"		2.6	102.8					
1135															
			Sandy SILT (ML): fine-grained, non-plastic, brown, moist, stiff												
	10			2		BC=6 8 10	18"		15.0	94.2		59			Corrosion Testing
1130															
			Silty SAND with Gravel (SM): fine to coarse-grained, brown to grayish brown, moist, dense, subangular gravel up to 3 inch diameter												
	15			3		BC=10 20 37	18"		2.6	122.5					Drill chatter
1125															
	20		very dense, increase in gravel	4		BC=27 50/3"	8"		1.9	123.5					Hard drilling
1120															
	25		increase in sand	5		BC=15 23 27	18"								
1115															
	30		trace subangular cobble up to 4 inch diameter	6		BC=17 50/6"	10"								
1110															

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DATE: 10/7/2021

BORING LOG KLF-17

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-19

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
PROJECT NUMBER: 20221328.002A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2022 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/22/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-17**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09090°
Longitude: -117.49060°
Approximate Ground Surface Elevation (ft.): 1,142
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1105			**Silty SAND with Gravel (SM)**: fine to coarse-grained, brown to grayish brown, moist, dense, subangular gravel up to 3 inch diameter	7		BC=15 33 37	18"								
	40		**Sandy SILT (ML)**: fine-grained, non-plastic, dark yellowish brown to reddish brown, moist, stiff	8		BC=8 7 8	18"								
1100															
	45		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, brown, moist, medium dense	9		BC=8 10 12	18"								
1095															
	50		**Sandy SILT (ML)**: fine-grained, non-plastic to low plasticity, dark yellowish brown to reddish brown, moist, stiff	10		BC=6 7 8	18"								
1090															
	55														
1085															
	60														
1080															
	65														
1075															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 22, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
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DATE:	10/7/2021

BORING LOG KLF-17

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-19

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/22/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-18**

Logged By: H. Marquez **Drill Crew:** Jason/Joaquin/Gabe

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.08920°
Longitude: -117.49260°
Approximate Ground Surface Elevation (ft.): 1,134
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger 2 ft
			Artificial Fill **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark brown to black, moist, subangular gravel up to 3 inch diameter												
1130	5		very dense, trace debris (slag/concrete)	1		BC=27 50/4"	10"		6.7	116.2					Corrosion Testing
1125	10		fine to coarse-grained, brown, dense, increase in sand	2		BC=8 21 25	18"		2.5	120.9	74	4.2			
			Native **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter												
1120	15			3		BC=13 50/6"	18"		2.0	120.7					
1115	20			4		BC=17 25 35	10"		2.4	121.7					
1110	25		dense	5		BC=15 20 19	18"								
1105	30			6		BC=15 17 20	18"								
1100															

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
CHECKED BY: CC
DATE: 10/7/2021

BORING LOG KLF-18

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-20

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
PROJECT NUMBER: 20221328.002A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2022 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/22/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-18**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08920°
Longitude: -117.49260°
Approximate Ground Surface Elevation (ft.): 1,134
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Native **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter very dense, increase in gravel	7		BC=35 50/2"	6"								
1095	40		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, medium dense	8		BC=6 9 9	18"								
1090	45		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, dark yellowish brown, moist, dense	9		BC=11 17 19	18"								
1085	50		**Sandy SILT (ML)**: fine-grained, non-plastic, dark yellowish brown, moist, stiff	10		BC=5 5 9	18"								
1080	55														
1075	60														
1070	65														
1065															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 22, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-18

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-20

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-19**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08900°
Longitude: -117.49530°
Approximate Ground Surface Elevation (ft.): 1,126
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1125			**Artificial Fill** **Silty SAND (SM)**: fine to coarse-grained, yellowish brown, moist, subangular gravel up to 3 inch diameter	1					6.5	125.6					Consolidation Testing **Direct Shear=** Peak Cohesion: 232 psf Peak Friction Angle: 38.0° Hand auger 1 ft
	5		**Native** **Sandy SILT (ML)**: fine-grained, non-plastic, yellowish brown, moist, medium stiff	2		BC=4 5 9	18"		12.2	100.3		51			Corrosion Testing
1120			**Silty SAND (SM)**: fine-grained, brown, moist, medium dense												
	10			3		BC=5 8 10	18"		10.7	103.3		33			
1115			**Silty SAND with Gravel (SM)**: fine to coarse-grained, grayish brown, moist, very dense												Drill chatter
	15		trace subangular gravel up to 3 inch diameter	4		BC=32 50/5"	10"		2.2	123.2					
1110															
	20		trace subangular cobble up to 4 inch diameter	5		BC=33 50/6"	12"		4.8	128.7					
1105															
	25		grayish brown to brown	6		BC=22 36 38	18"								
1100															
	30			7		BC=50/6"	6"								
1095															

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-19

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-21

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:04 PM BY: YNguyen

Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-19**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08900°
Longitude: -117.49530°
Approximate Ground Surface Elevation (ft.): 1,126
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1090			**Silty SAND with Gravel (SM)**: fine to coarse-grained, grayish brown, moist, very dense	8		BC=48 50/5"	11"								Hard drilling
	40		**Silty SAND (SM)**: fine to medium-grained, brown, moist, dense	9		BC=8 13 17	18"								
1085															
	45		**Sandy Silty CLAY (CL-ML)**: fine-grained, low plasticity, dark yellowish brown, moist, very stiff	10		BC=5 11 14	18"								
1080															
	50		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist, dense	11		BC=7 15 22	18"								
1075															
	55														
1070															
	60														
1065															
	65														
1060															

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-19

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-21

PLOTTED: 11/01/2021 06:04 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/23/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-20**
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:** 140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.	

Latitude: 34.08670°
Longitude: -117.49130°
Approximate Ground Surface Elevation (ft.): 1,121
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1120			**Asphalt Concrete**: approximately 2 inches thick, no base observed	1											Start at 11:00am Hand auger to 3 ft Corrosion Testing
			Artificial Fill **Silty SAND (SM)**: fine to medium-grained, dark yellowish brown, moist												
			Native **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, dense, subangular gravel up to 3 inch diameter												
	5			2		BC=9 17 28	18"		2.1	128.0	56	4.9			Consolidation Testing
1115															
			Silty SAND (SM): fine to medium-grained, brown, moist, medium dense												
	10			3		BC=4 6 9	18"		6.0	99.9					
1110															
	15		yellowish brown	4		BC=5 9 11	18"		6.3	95.7					
1105															
			Silty SAND (SM): fine-grained, non-plastic, dark brown, moist, stiff												
	20			5		BC=8 9 12	18"		15.6	99.6		49			
1100															
			Silty SAND with Gravel (SM): fine to medium-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter												
	25			6		BC=50/6"	3"								
1095															Hard drilling
	30		brown to yellowish brown, dense, increase in sand, decrease in gravel	7		BC=10 20 24	16"								
1090															

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
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DATE:	10/7/2021

BORING LOG KLF-20

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-22

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:05 PM BY: YNguyen

Date Begin - End:	9/23/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-20**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08670°
Longitude: -117.49130°
Approximate Ground Surface Elevation (ft.): 1,121
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1085			**Silty SAND (SM)**: fine to medium-grained, reddish brown to yellowish brown, moist, medium dense	8		BC=8 12 13	18"								
	40		increase in sand	9		BC=4 8 12	18"								
1080			**Poorly Graded SAND (SP)**: fine to coarse-grained, yellowish brown, moist, dense												
	45			10		BC=12 20 26	18"								Done drilling at 1:00pm Done with patching at 1:15pm
1075															
	50			11		BC=17 17 20	18"								
1070															
	55														
1065															
	60														
1060															
	65														
1055															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 23, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-20

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-22

PLOTTED: 11/01/2021 06:05 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 9/23/2021 | **Drilling Company:** BC2 Environmental - #1051275 | **BORING LOG KLF-21**

Logged By: H. Marquez | **Drill Crew:** Ramon/Gerardo/Alonso

Hor.-Vert. Datum: Not Available | **Drilling Equipment:** CME-95 | **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees | **Drilling Method:** Hollow Stem Auger

Weather: Sunny | **Bore Diameter:** 8 in. O.D.

Latitude: 34.08560°
Longitude: -117.49530°
Approximate Ground Surface Elevation (ft.): 1,115
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Asphalt Concrete: approximately 2 inches thick, no base observed	1											Start at 7:00am Hand auger 2 ft R-Value Corrosion Testing
		Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, dark brown, moist, subangular gravel up to 3 inch diameter, debris (6-inch steel nail)												
1110	5	dark brown to black, very dense	2		BC=50/5"	5"		6.1	118.0					
		Native **Silty SAND (SM)**: fine to medium-grained, yellowish brown, moist, loose, trace subangular gravel up to 1 inch diameter	3		BC=5 5 6	18"		6.0	114.1					
1100	15	**Well-Graded SAND with Gravel (SP)**: fine to coarse-grained, grayish brown, moist, medium dense, subangular gravel up to 0.5 inch diameter	4		BC=8 14 20	18"		2.5	115.9	84	3.2			
1095	20	**Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter	5		BC=23 38 42	18"								
1090	25	medium dense, decrease in gravel	6		BC=10 10 12	18"								
1085	30	**Silty SAND with Gravel (SM)**: medium-grained, brown, moist, medium dense, subangular gravel up to 3 inch diameter very dense, increase in gravel	7		BC=21 50/5"	10"								

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
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DATE: 10/7/2021

BORING LOG KLF-21

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-23

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:05 PM BY: YNguyen

Date Begin - End:	9/23/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-21**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08560°
Longitude: -117.49530°
Approximate Ground Surface Elevation (ft.): 1,115
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND with Gravel (SM): fine to medium-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter	8		BC=22 38 41	18"								
1075	40		brown to yellowish brown	9		BC=33 50/6"	12"								
1070	45		debris (observed old rag)	10		BC=34 50/4"	10"								Debris observed in soil cuttings.
			Sandy SILT (ML): fine-grained, non-plastic, moist, stiff												Done at 8:30am Done with patch at 8:55am
1065	50			11		BC=6 7 8	18"								
1060	55														
1055	60														
1050	65														

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 23, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-21

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-23

PLOTTED: 11/01/2021 06:05 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

BORING LOG KLF-22

Date Begin - End:	9/23/2021	**Drilling Company:**	BC2 Environmental - #1051275		
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08640°
Longitude: -117.49260°
Approximate Ground Surface Elevation (ft.): 1,121
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1120			**Asphalt Concrete**: approximately 2 inches thick, no base observed												Start at 9:05am
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, yellowish brown to dark brown, moist, subangular gravel up to 3 inch diameter												Hand auger 2 ft
1115	5		**Native** **Silty SAND with Gravel (SM)**: fine to medium-grained, yellowish brown to dark brown, moist, medium dense, subangular gravel up to 3 inch diameter	1		BC=8 9 13	18"		4.6	124.5	70	13			
1110	10		**Sandy SILT (ML)**: fine-grained, non-plastic, dark yellowish brown, moist, stiff	2		BC=5 8 8	18"		15.4	98.8		64			
1105	15		**Poorly Graded SAND (SP)**: fine to medium-grained, grayish brown, moist, medium dense	3		BC=7 11 14	18"		1.0	114.1					
1100	20		**Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter	4		BC=29 50/5"	11"		2.1	123.5					Drill chatter
1095	25			5		BC=11 50/2"	4"								Hard drilling
1090	30		dense	6		BC=17 19 24	16"								

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PROJECT NO.: 20221328.002A
DRAWN BY: RF
CHECKED BY: CC
DATE: 10/7/2021

BORING LOG KLF-22

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-24

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE
PLOTTED: 11/01/2021 06:05 PM BY: YNguyen

Date Begin - End: 9/23/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG KLF-22**

Logged By: H. Marquez **Drill Crew:** Ramon/Gerardo/Alonso

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.08640°
Longitude: -117.49260°
Approximate Ground Surface Elevation (ft.): 1,121
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1085			**Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, very dense, subangular gravel up to 3 inch diameter very dense, trace subangular cobbles up to 4 inch diameter	7		BC=17 36 37	18"								
	40		**Silty SAND (SM)**: fine to medium-grained, dark yellowish brown to reddish brown, moist, medium dense	8		BC=6 10 10	18"								
1080															
			Poorly Graded SAND with Silt (SP-SM): fine to medium-grained, dark yellowish brown, moist, dense												
	45			9		BC=7 15 20	18"								
1075															
			SILT with Sand (ML): fine-grained, non-plastic to low plasticity, reddish brown, moist, stiff												Done drilling at 10:30am Done with patch at 10:55am
	50			10		BC=4 6 7	18"								
1070															
	55														
1065															
	60														
1060															
	65														
1055															

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 23, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.: 20221328.002A
DRAWN BY: RF
CHECKED BY: CC
DATE: 10/7/2021

BORING LOG KLF-22

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-24

PLOTTED: 11/01/2021 06:05 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/23/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-23**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08600°
Longitude: -117.48970°
Approximate Ground Surface Elevation (ft.): 1,120
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger 2 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, yellowish brown to dark brown, moist, subangular gravel up to 3 inch diameter												
1115	5		medium dense			BC=2 14 14	NR								
			Native **Well-Graded GRAVEL with Sand (GW)**: fine to coarse-grained, yellowish brown to dark brown, moist, very dense, subangular gravel up to 3 inch diameter	1		BC=9 24 50/4"	14"		1.4	130.4	46	3.8			Corrosion Testing
1105	15		yellowish brown to grayish brown	2		BC=39 50/6"	12"		1.7	129.9					
1100	20		trace subangular cobbles up to 4 inch diameter	3		BC=30 50/4"	18"		3.9	120.3					
1095	25		increase in sand	4		BC=18 34 34	18"								
1090	30			5		BC=43 50/6"	12"								
			Silty SAND (SM): fine to coarse-grained, dark yellowish brown, moist, medium dense, trace subangular gravel up to 1 inch diameter												

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BORING LOG KLF-23

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-25

PLOTTED: 11/01/2021 06:05 PM BY: YNguyen
PROJECT NUMBER: 20221328.002A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2022 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/23/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG KLF-23**	
Logged By:	H. Marquez	**Drill Crew:**	Ramon/Gerardo/Alonso		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08600°
Longitude: -117.48970°
Approximate Ground Surface Elevation (ft.): 1,120
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
			Silty SAND (SM): fine to coarse-grained, dark yellowish brown, moist, medium dense, trace subangular gravel up to 1 inch diameter	6		BC=7 13 13	15"
1080	40		**Poorly Graded SAND (SP)**: fine to medium-grained, dark yellowish brown, moist, dense	7		BC=9 20 15	18"
1075	45		**Sandy Lean CLAY (CL)**: fine-grained, reddish brown, moist, very stiff	8		BC=8 10 11	18"
1070	50		**Sandy SILT (ML)**: fine-grained, low plasticity, reddish brown, moist, very stiff	9		BC=6 10 12	18"
1065	55						
1060	60						
1055	65						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 23, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
DRAWN BY:	RF
CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG KLF-23

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-25

PLOTTED: 11/01/2021 06:05 PM BY: YNguyen
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 20221328.002A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_BORING/TEST PIT SOIL LOG]

APPENDIX B
LABORATORY TESTING

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APPENDIX B
LABORATORY TESTING

Laboratory tests were performed on representative intact and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. The laboratory testing was performed by EGLab Inc. of Arcadia, California. Testing was performed in accordance with one of the following references:

1. Lambe, T. William, Soil Testing for Engineers, Wiley, New York, 1951
2. Laboratory Soils Testing, U.S. Army, Office of the Chief of Engineers, Engineering Manual No. 1110-2-1906, November 30, 1970
3. ASTM Standards for Soil Testing, latest revisions
4. State of California Department of Transportation, Standard Test Methods, latest revisions.

LABORATORY MOISTURE DETERMINATIONS AND UNIT WEIGHTS

Natural moisture content and unit weight tests were performed on selected samples. The moisture content tests were performed in general accordance with ASTM Test Method D 2216 and the unit weight tests were performed in general accordance with ASTM Test Method D 2937. The results are presented on the Logs of Borings in Appendix A.

WASH SIEVE

The percent passing the #200 sieve analysis of ten soil samples was performed by wash sieving in accordance with ASTM Standard Test Method D1140. The test results are summarized in Table B-1, Wash Sieve Test Results and presented on the Logs of Borings in Appendix A.

SIEVE ANALYSES

Sieve analyses were performed on selected samples of the materials encountered at the site to evaluate the grain size distribution characteristics of the soils and to aid in their classification. Tests were performed in general accordance with ASTM Test Method D 422. Results of these tests are presented as Figures B-1 through B-20, Grain Size Distribution Curve.

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DIRECT SHEAR

Direct shear testing was performed on relatively undisturbed and remolded samples for shear strength and cohesion values of the in-situ soils in accordance with ASTM Standard Test Method D 3080. The results are presented as Figure B-21 through B-28, Direct Shear Test.

CONSOLIDATION TESTS

Consolidation testing was performed on selected relatively undisturbed and remolded samples in accordance with ASTM D 2435. The tests were performed on 1.0-inch-high, 2.41-inch diameter samples. After trimming the ends, the sample was placed in a consolidometer and an initial reading was recorded. The sample was saturated during loading, and thereafter, the sample was incrementally loaded. The test results are presented on Figure B-29 through Figure B-35, Consolidation Test in Appendix B.

PRELIMINARY CORROSIVITY TESTS

A series of chemical tests were performed on select near-surface soil samples to evaluate pH, resistivity, sulfate and chloride contents. The results of these tests are presented in Table B-2, Preliminary Corrosion Test Results.

R-VALUE TEST

Resistance value (R-value) tests were performed on select bulk soil samples to evaluate pavement support characteristics of the near-surface onsite soils. R-value testing was performed in accordance with Caltrans Standard Test Method 301. The test results are presented in Table B-3, R-Value Test Results.

MAXIMUM DENSITY

Maximum density tests were performed on a select bulk sample of the on-site soils to determine compaction characteristics. The test was performed in accordance with ASTM Standard Test Method D 1557. The test results are presented in Table B-4, Maximum Dry Density and Optimum Moisture.

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Table B-1
Wash Sieve Test Results

Boring Number	Depth (ft)	Percentage Passing #200 Sieve
KLF-1	10	30
KLF-5	5	37.9
KLF-5	15	59.6
KLF-5	45	62.7
KLF-6	30	30.7
KLF-10	45	43.6
KLF-11	30	66.6
KLF-11	35	55.6
KLF-14	5	4.8
KLF-16	10	50.5
KLF-17	15	58.5
KLF-19	5	50.5
KLF-19	10	33.3
KLF-20	20	48.6
KLF-22	10	63.9

Table B-2
Preliminary Corrosivity Test Results

Boring	Depth (ft)	pH	Sulfate (% per weight)	Chloride (ppm)	Resistivity (ohm-cm)
KLF-1	1 – 5	9.16	0.037	135	3,100
KLF-3	1 – 5	8.15	0.001	115	14,000
KLF-4	10	8.05	0.001	130	21,000
KLF-5	3 – 5	10.66	0.013	135	3,800
KLF-6	5	8.23	0.001	125	16,000
KLF-7	5	7.63	0.001	195	13,000
KLF-10	1 – 5	9.68	0.122	135	1,500
KLF-12	10.0	8.87	0.216	155	1,400
KLF-13	1 – 5	10.11	0.222	245	720
KLF-16	1 – 5	7.66	0.001	125	19,000
KLF-17	10	7.63	0.001	215	8,500
KLF-18	5	8.3	0.017	305	3,600
KLF-19	5	4.48	0.001	275	14,000
KLF-20	1 – 5	7.62	0.001	205	11,000
KLF-21	1 – 5	8.67	0.023	110	2,200
KLF-23	10	7.55	0.001	130	37,000

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Table B-3
R-Value Test Results

Boring Number	Depth (ft)	R-Value
KLF-1	1 – 5	82
KLF-3	1 – 5	83
KLF-5	3 – 5	73
KLF-10	1 – 5	80
KLF-13	1 – 5	80
KLF-16	1 – 5	79
KLF-19	0 – 4	78
KLF-21	1 – 5	78

Table B-4
Maximum Dry Density and Optimum Moisture

Boring Number	Depth (ft)	Maximum Density (pcf)	Optimum Moisture (%)
KLF-1	1 – 5	137.5	7.0
KLF-3	1 – 5	135.5	7.5
KLF-5	3 – 5	131.5	9.4
KLF-10	1 – 5	134.0	8.0
KLF-16	1 – 5	130.0	8.0
KLF-19	0 – 4	139.5	6.5
KLF-21	1 – 5	143.0	5.6

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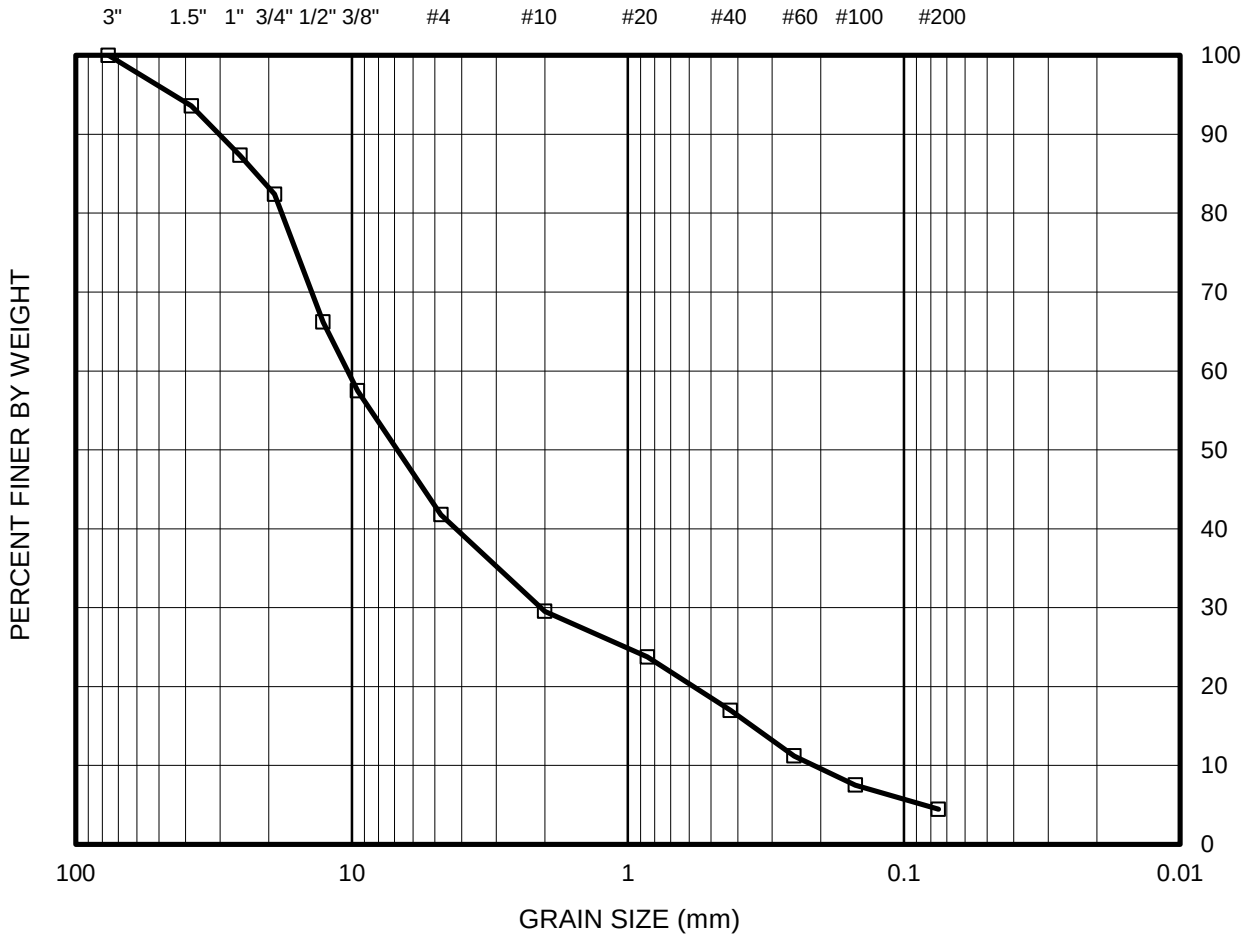
GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-1	1	1.0-5.0	Bulk	GW	N/A	N/A

Gravel:	58.2%
Sand:	37.3%
Fine:	4.5%

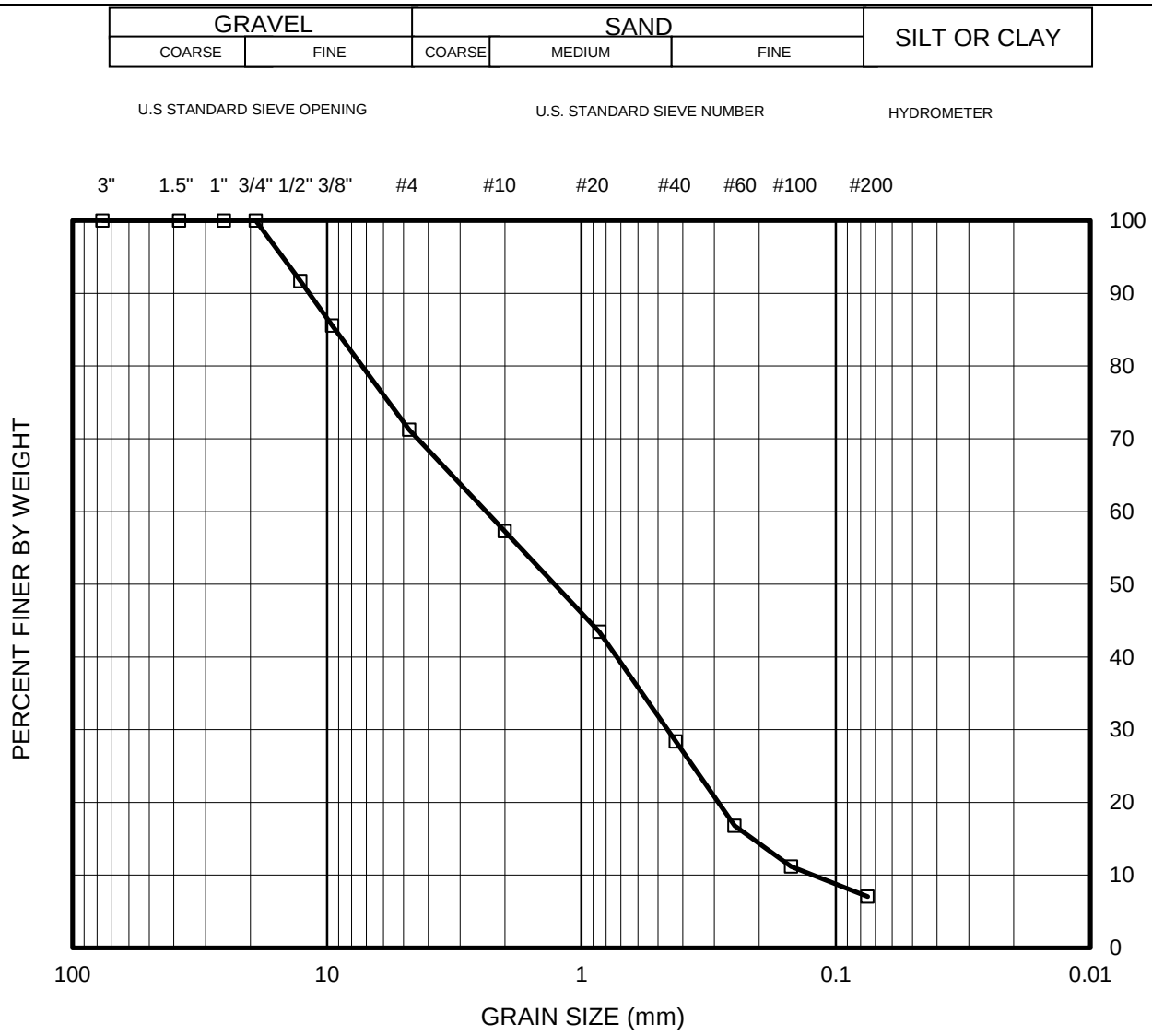
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-1
FIGURE



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-2	4	20.0	SPT Bag	SW-SM	N/A	N/A

Gravel:	28.8%
Sand:	64.2%
Fine:	7.0%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

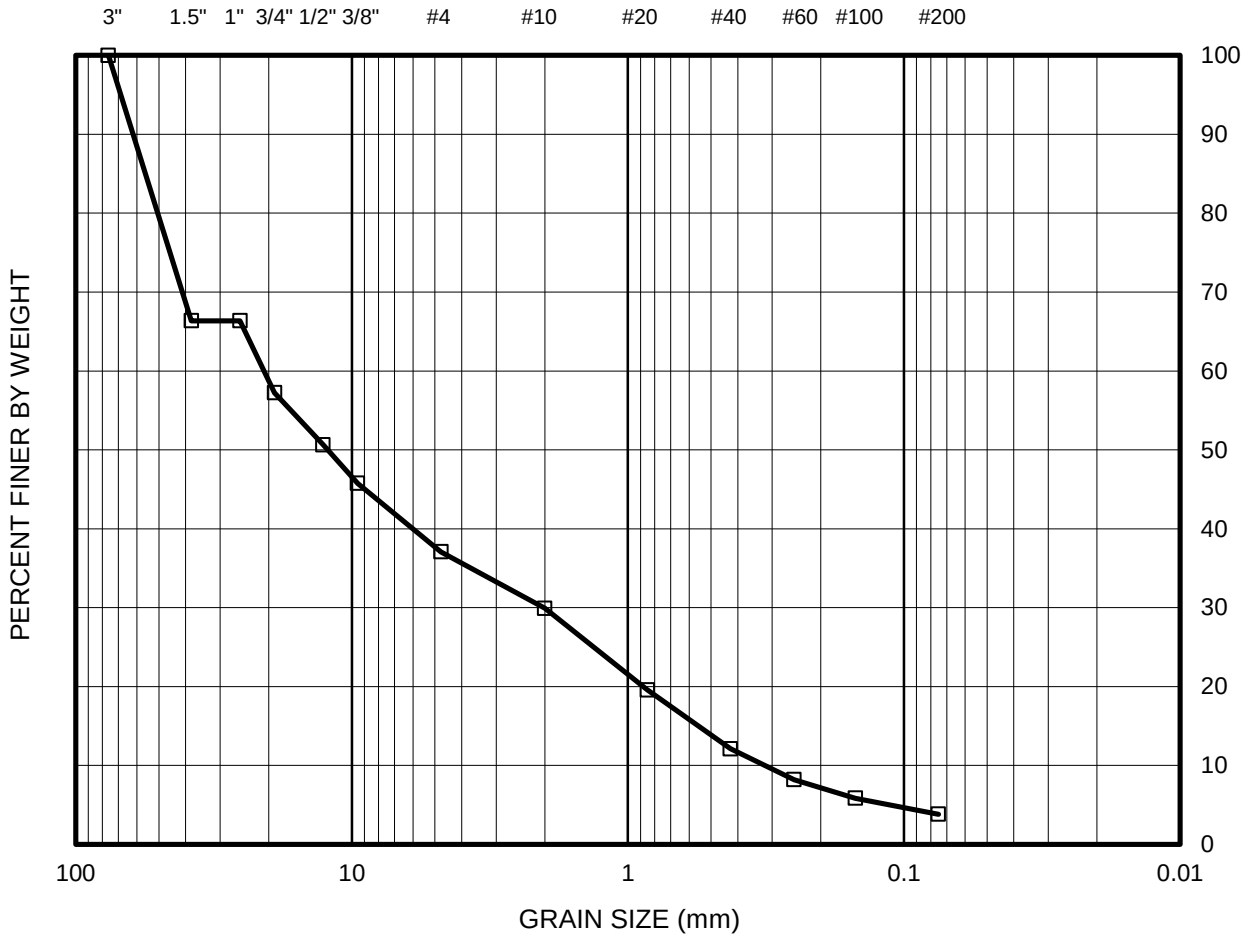
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-2
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-3	2	5.0	CAL	GW	N/A	N/A

Gravel:	62.9%
Sand:	33.3%
Fine:	3.8%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

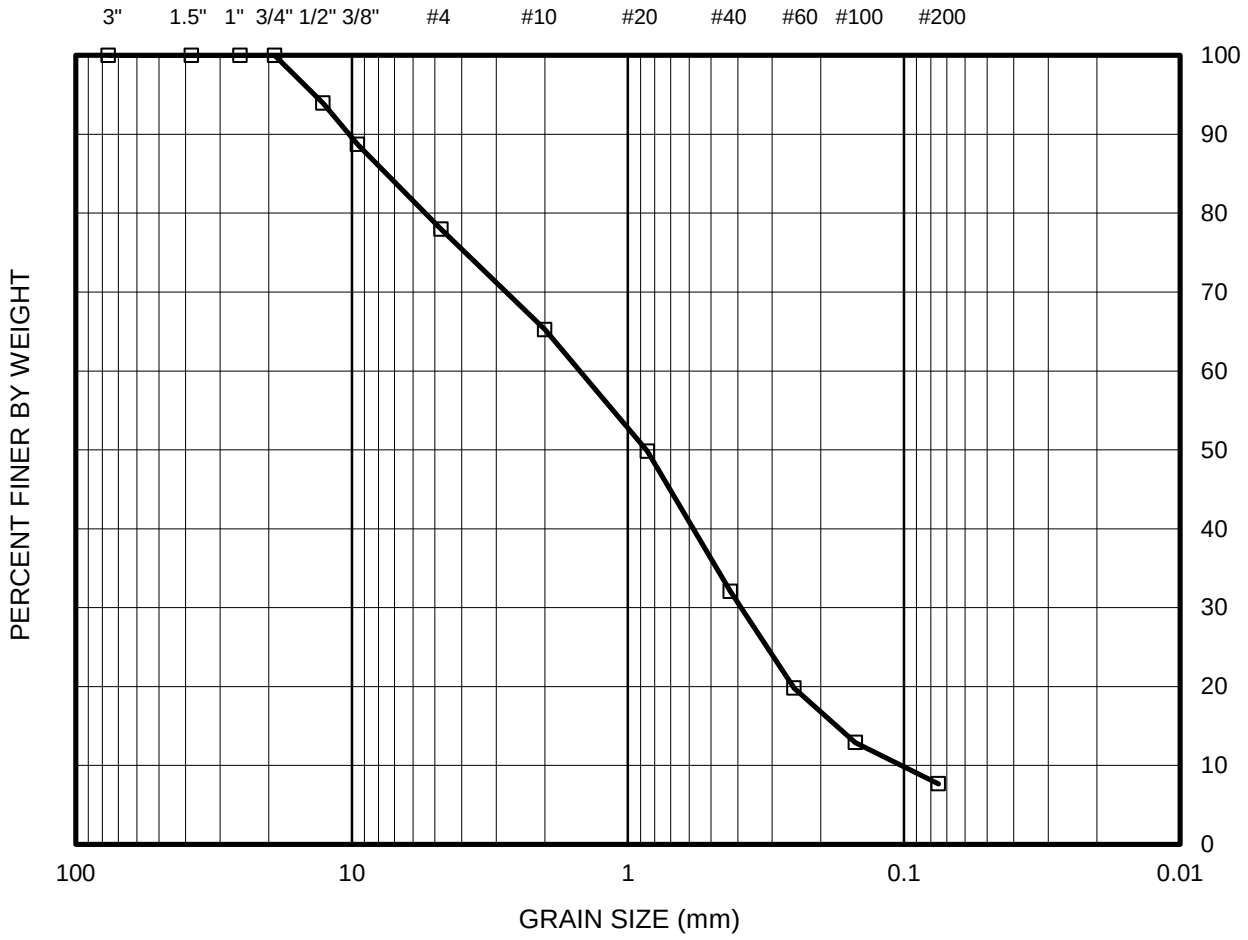
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-3
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-4	2	10.0	CAL	SW-SM	N/A	N/A

Gravel:	22.0%
Sand:	70.3%
Fine:	7.7%

EGLAB, INC.

Project Name:
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Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

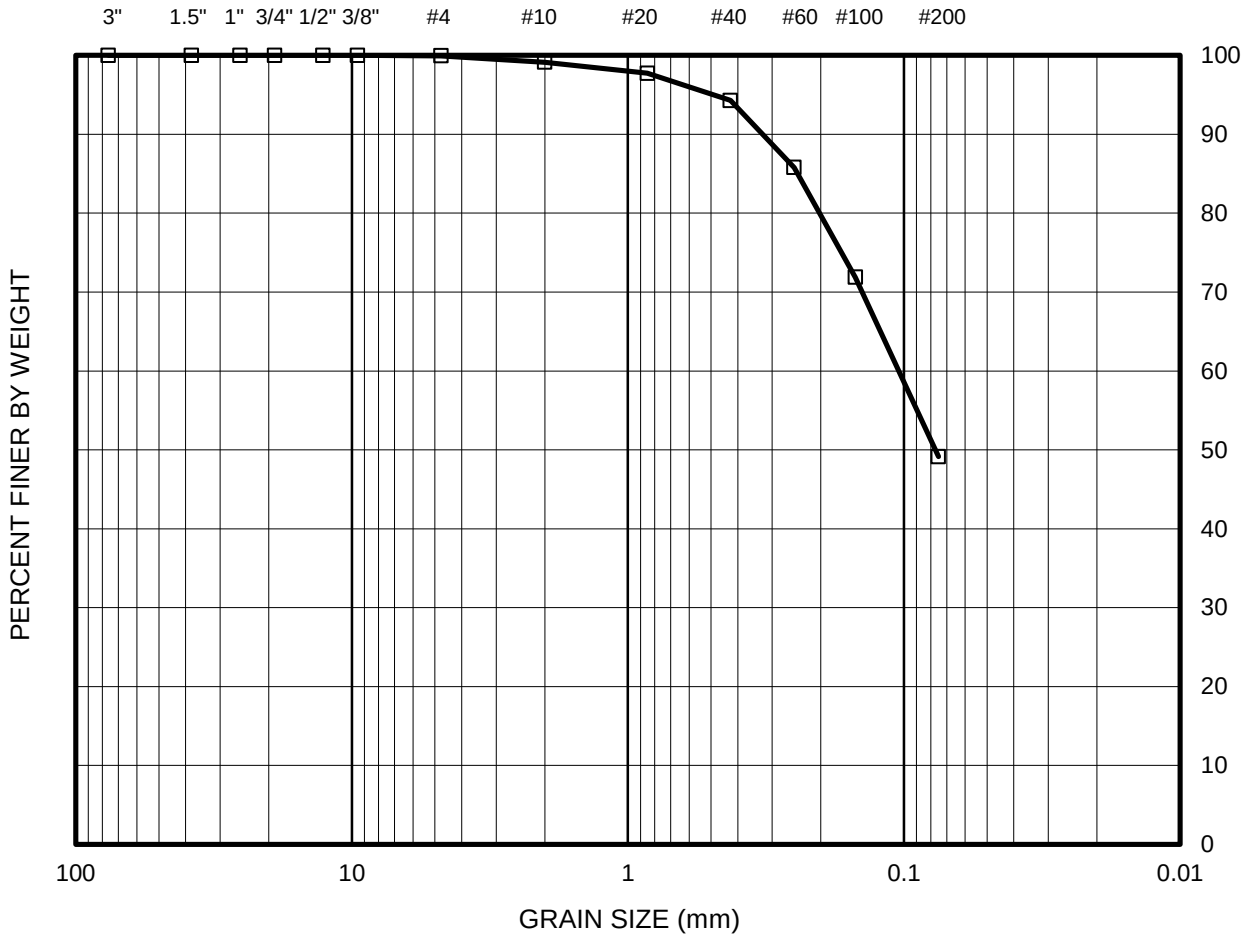
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-4
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-5	3	10.0	CAL	SC	N/A	N/A

Gravel:	0.1%
Sand:	50.8%
Fine:	49.1%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

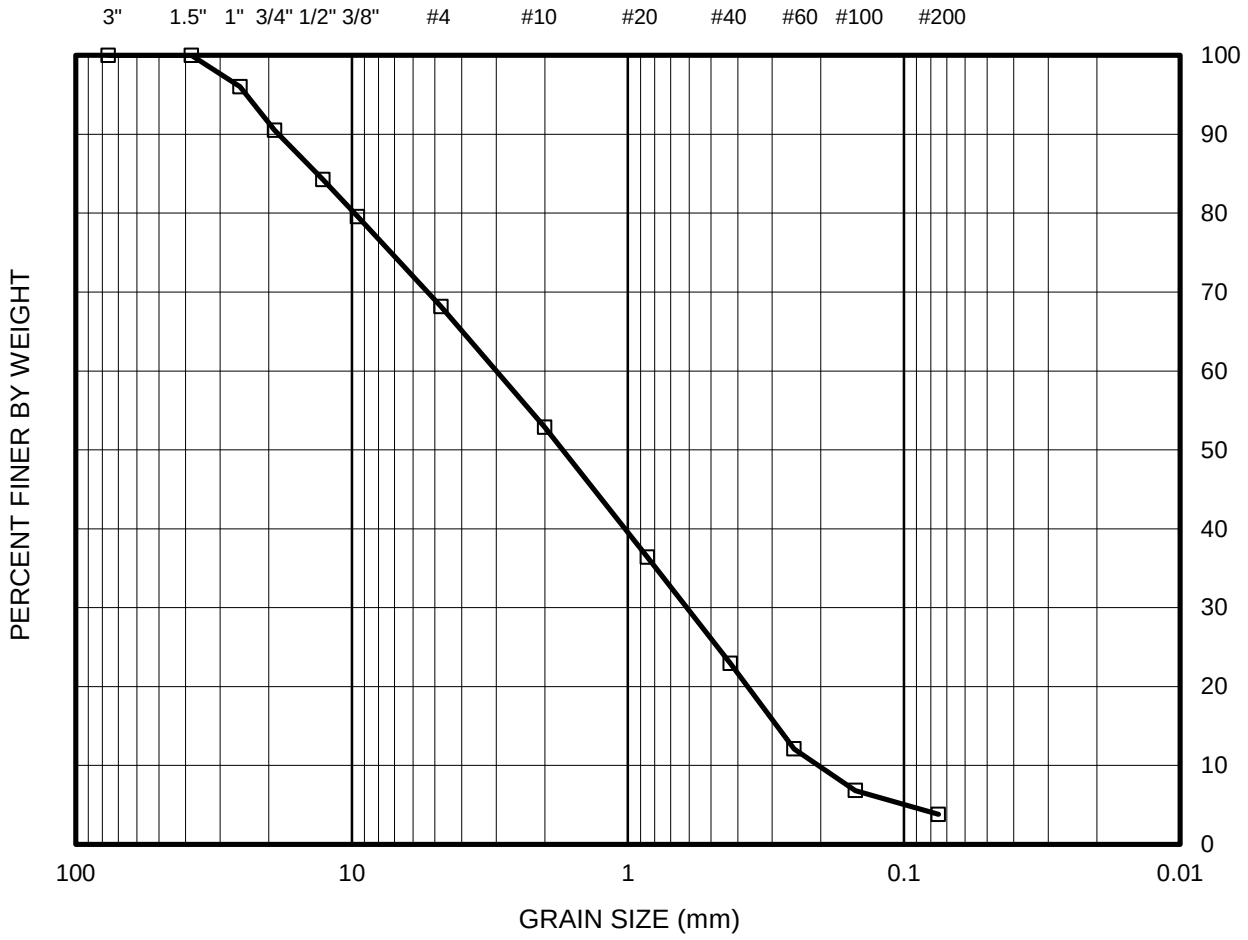
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-5
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-6	3	10.0	CAL	SW	N/A	N/A

Gravel:	31.8%
Sand:	64.4%
Fine:	3.8%

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Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

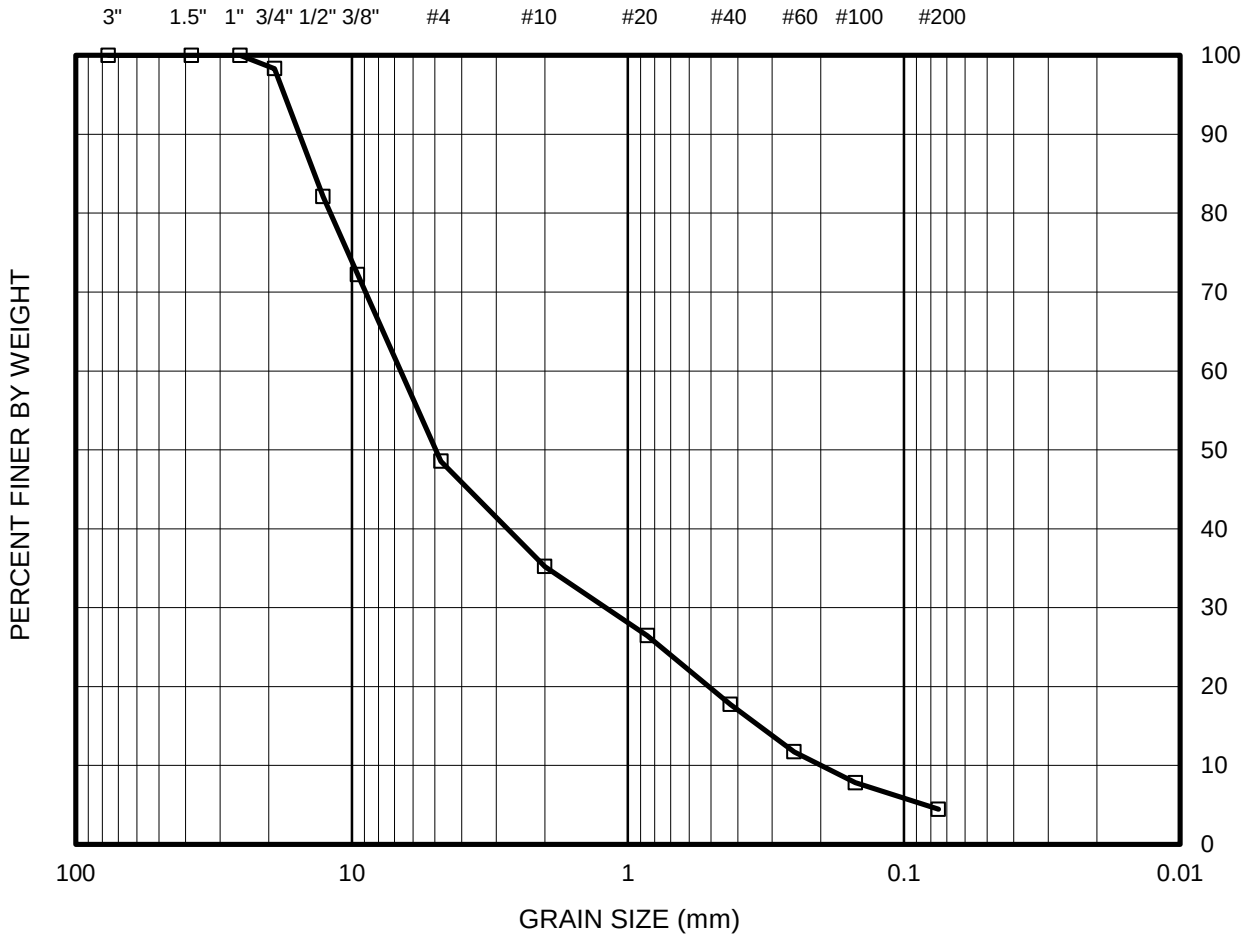
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-6
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-7	2	10.0	CAL	GW	N/A	N/A

Gravel:	51.5%
Sand:	44.1%
Fine:	4.4%

EGLAB, INC.

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Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

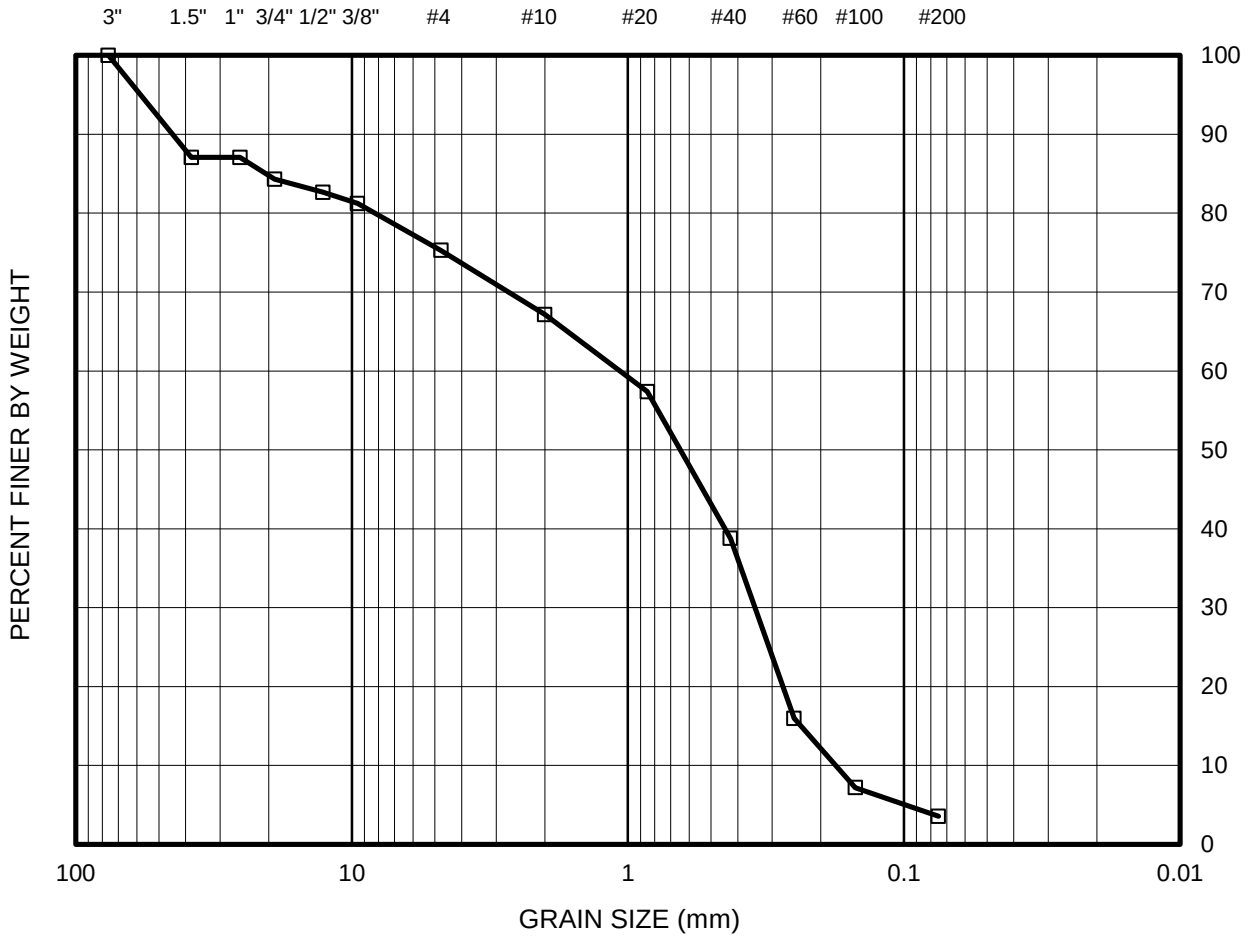
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-7
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-8	4	20.0	CAL	SW	N/A	N/A

Gravel:	24.7%
Sand:	71.7%
Fine:	3.6%

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Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

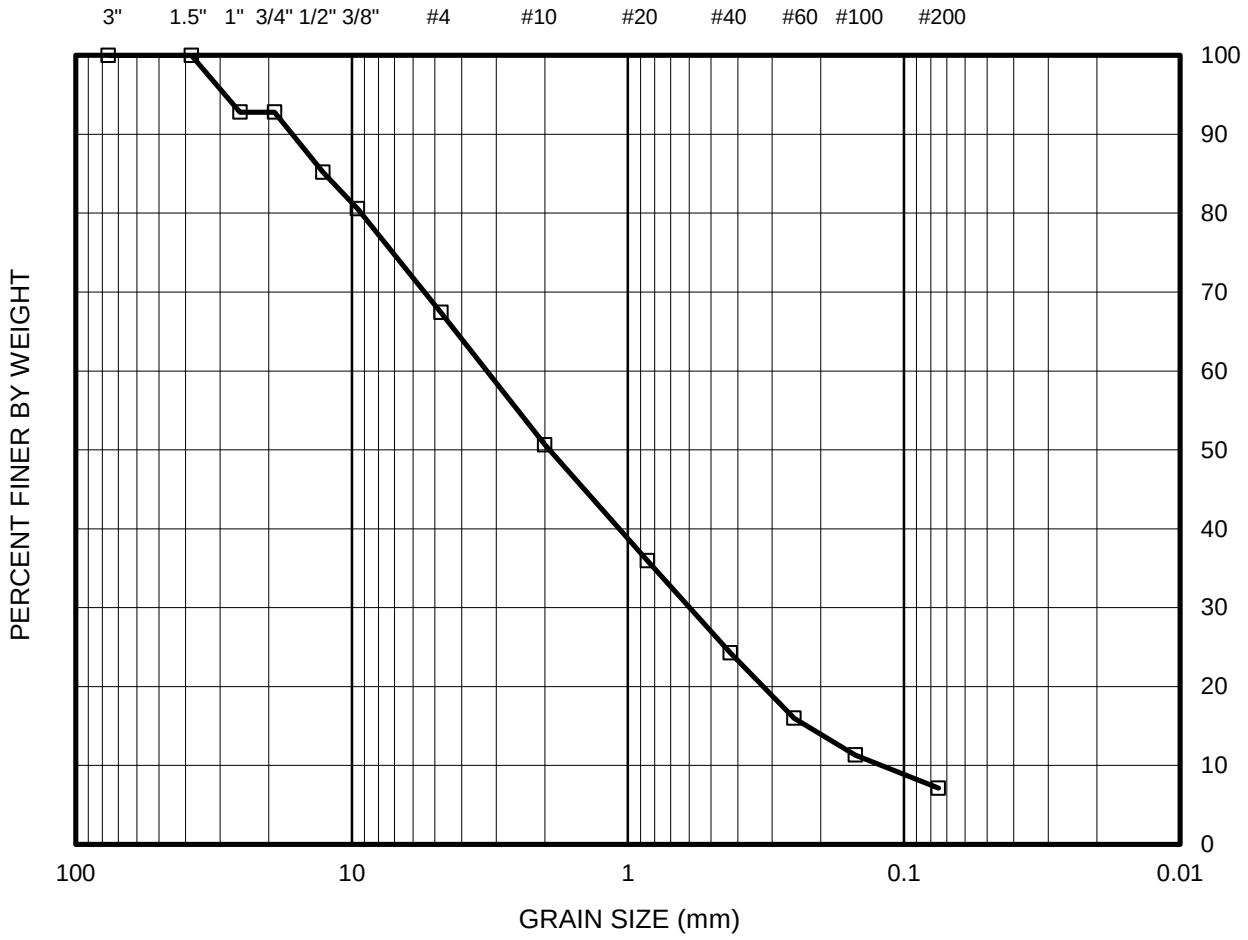
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-8
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-9	1	5.0	CAL	SW-SM	N/A	N/A

Gravel:	32.6%
Sand:	60.3%
Fine:	7.1%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

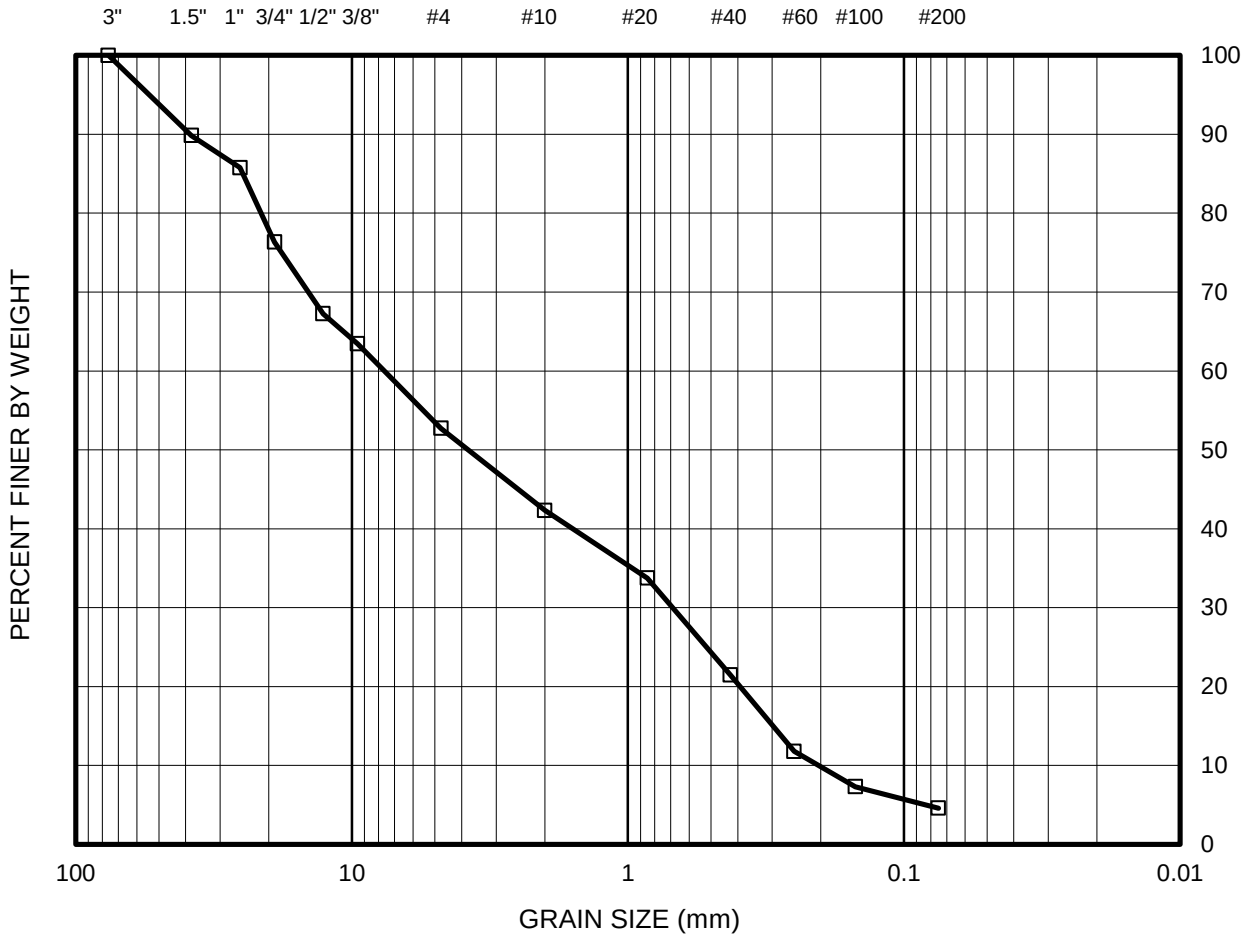
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-9
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-10	3	10.0	CAL	SW	N/A	N/A

Gravel:	47.3%
Sand:	48.1%
Fine:	4.6%

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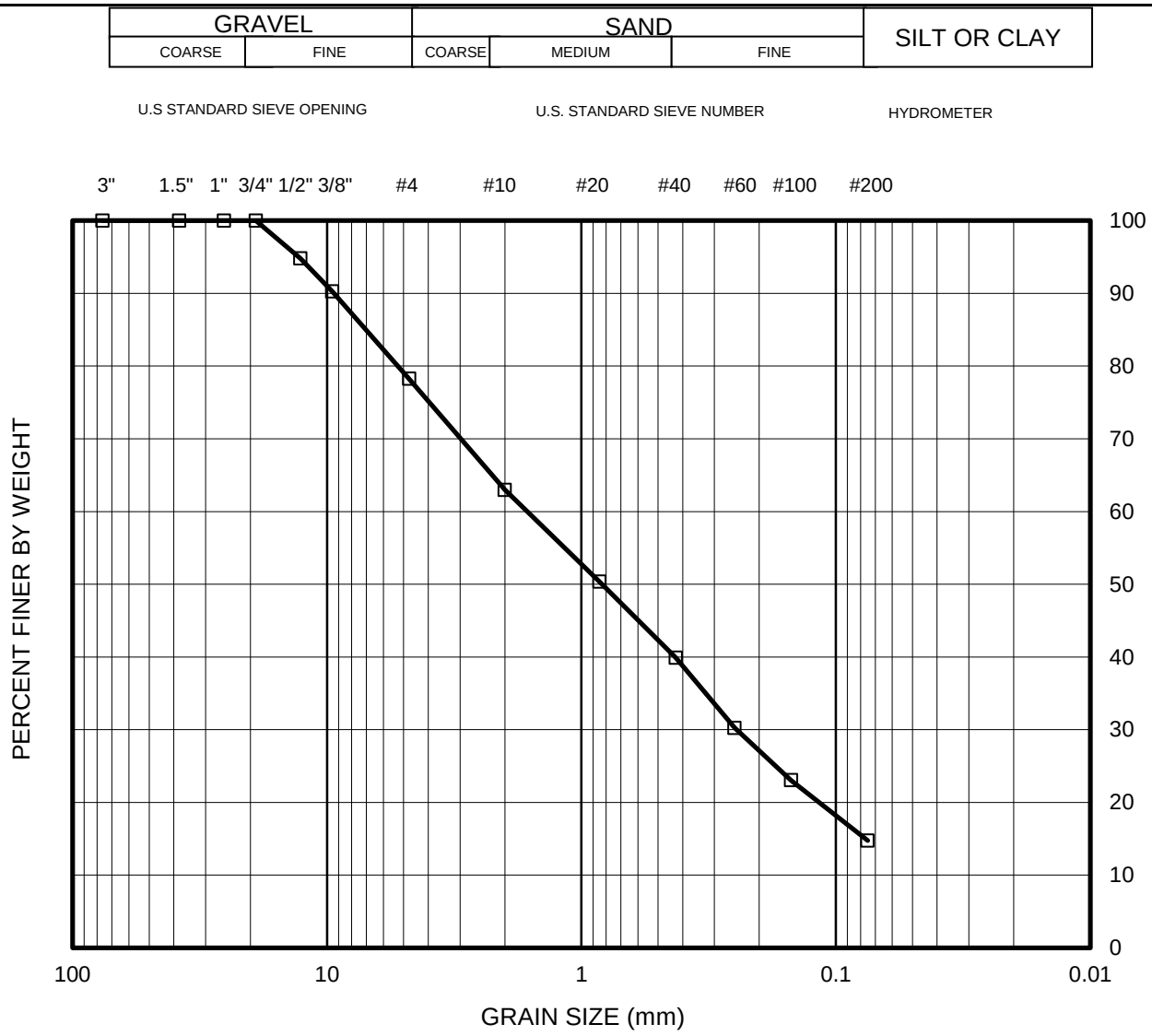
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-10
FIGURE



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-11	1	5.0	CAL	SM	N/A	N/A

Gravel:	21.8%
Sand:	63.5%
Fine:	14.7%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

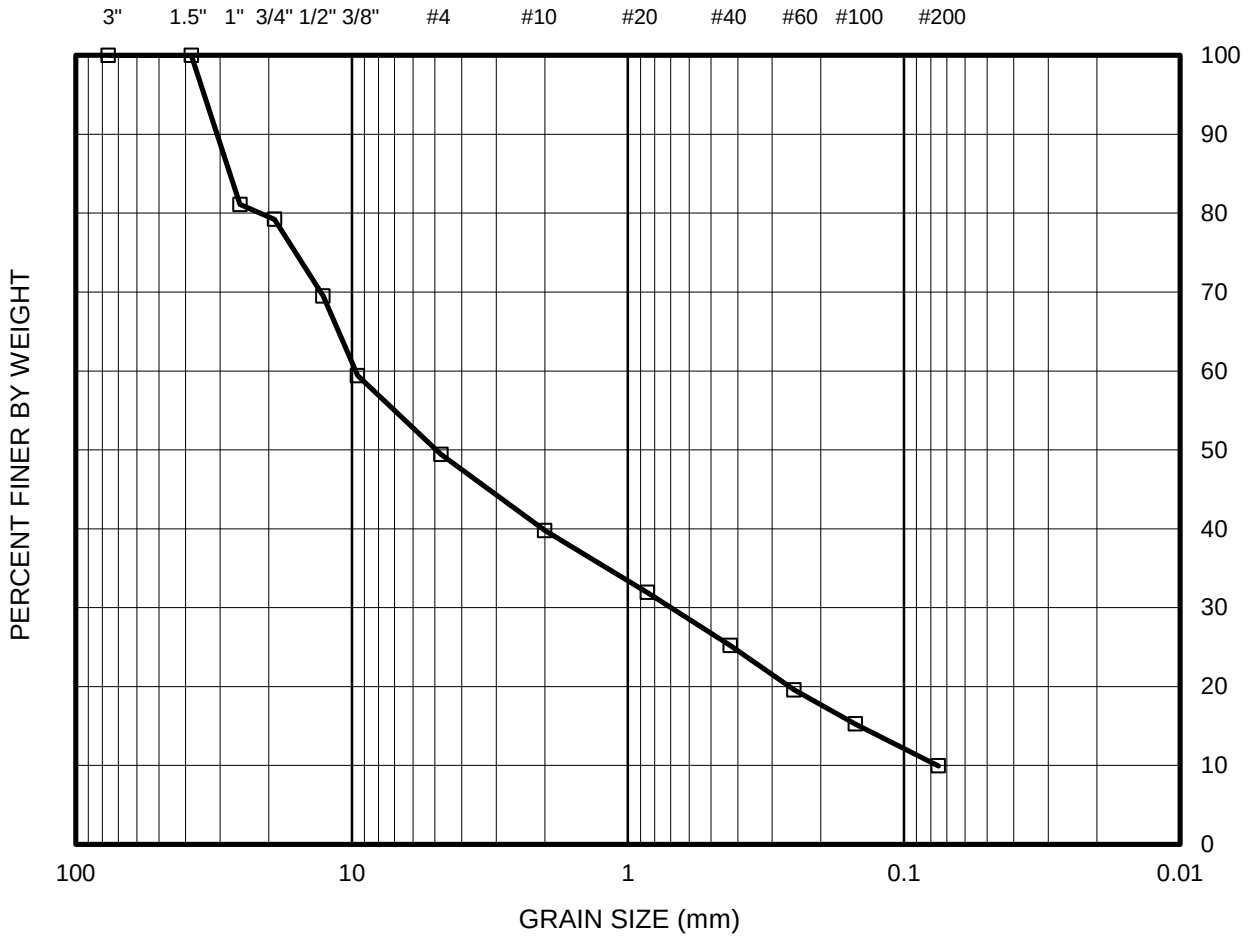
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-11
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-12	2	10.0	CAL	GW-GM	N/A	N/A

Gravel:	50.6%
Sand:	39.5%
Fine:	9.9%

EGLAB, INC.

Project Name: Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-12
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-13	2	5.0	CAL	SM	N/A	N/A

Gravel:	5.0%
Sand:	70.0%
Fine:	25.0%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

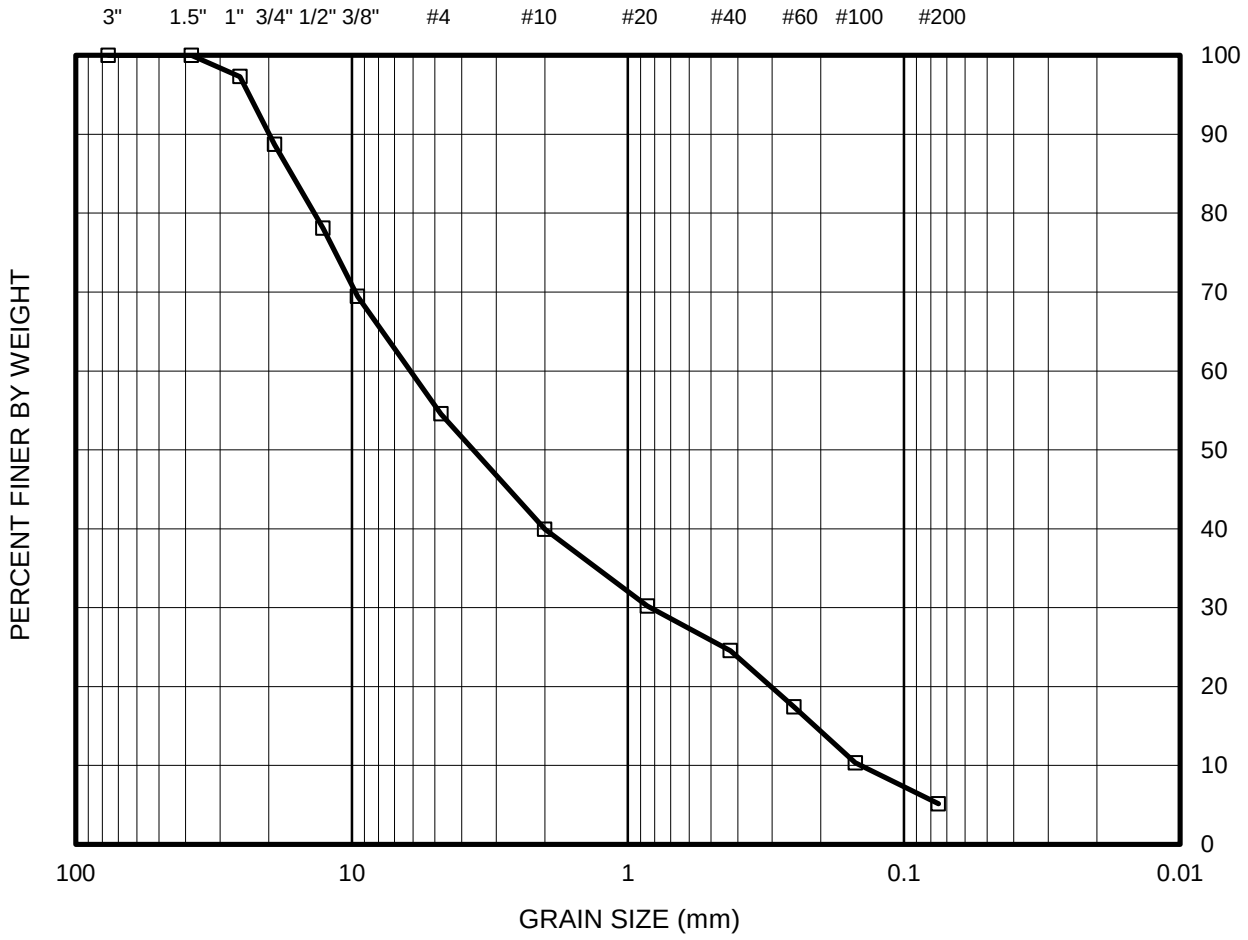
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-13
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-15	2	10.0	CAL	SW-SM	N/A	N/A

Gravel:	45.5%
Sand:	49.4%
Fine:	5.1%

EGLAB, INC.

Project Name: Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

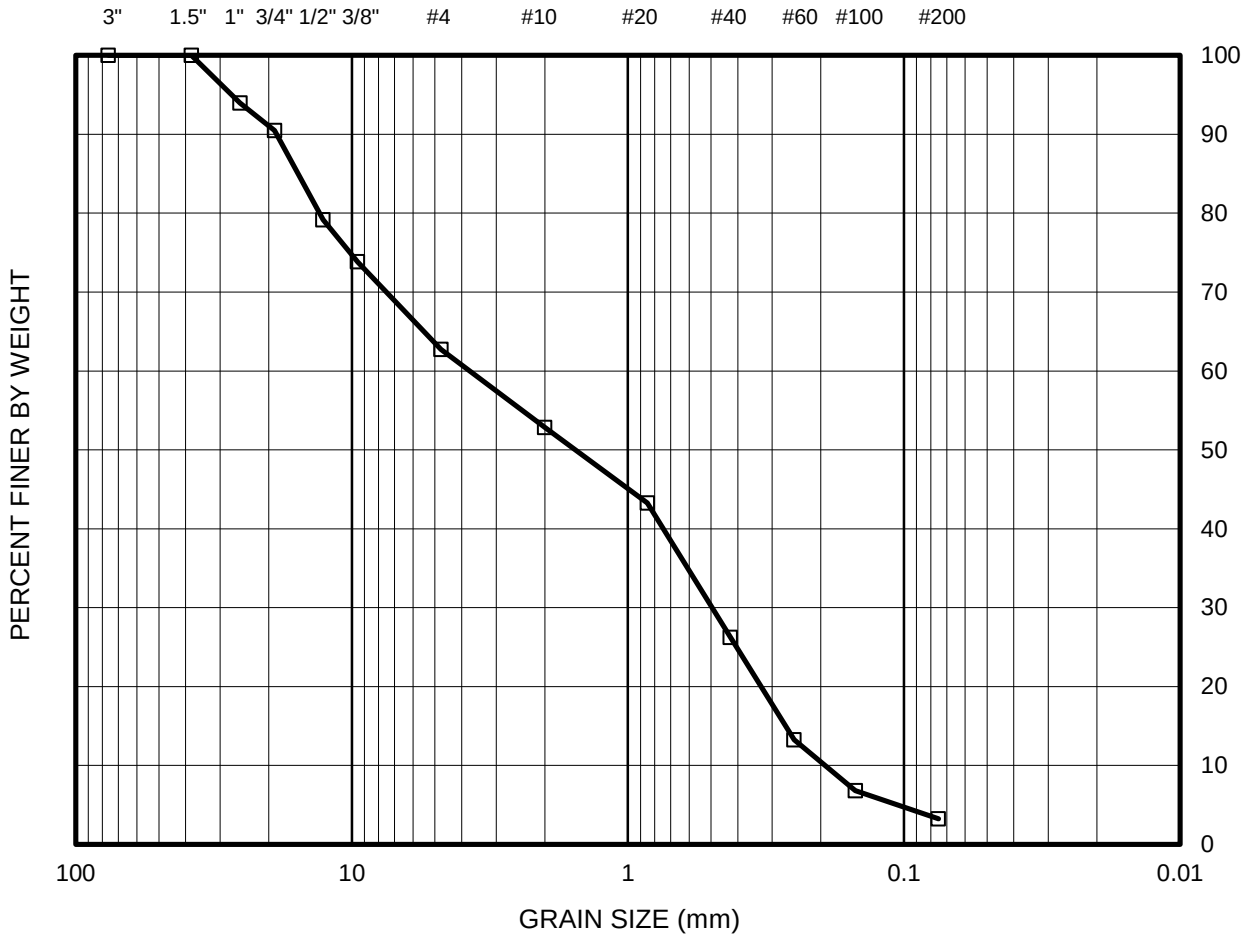
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-14
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-16	1	1.0-5.0	Bulk	SW	N/A	N/A

Gravel:	37.3%
Sand:	59.5%
Fine:	3.2%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

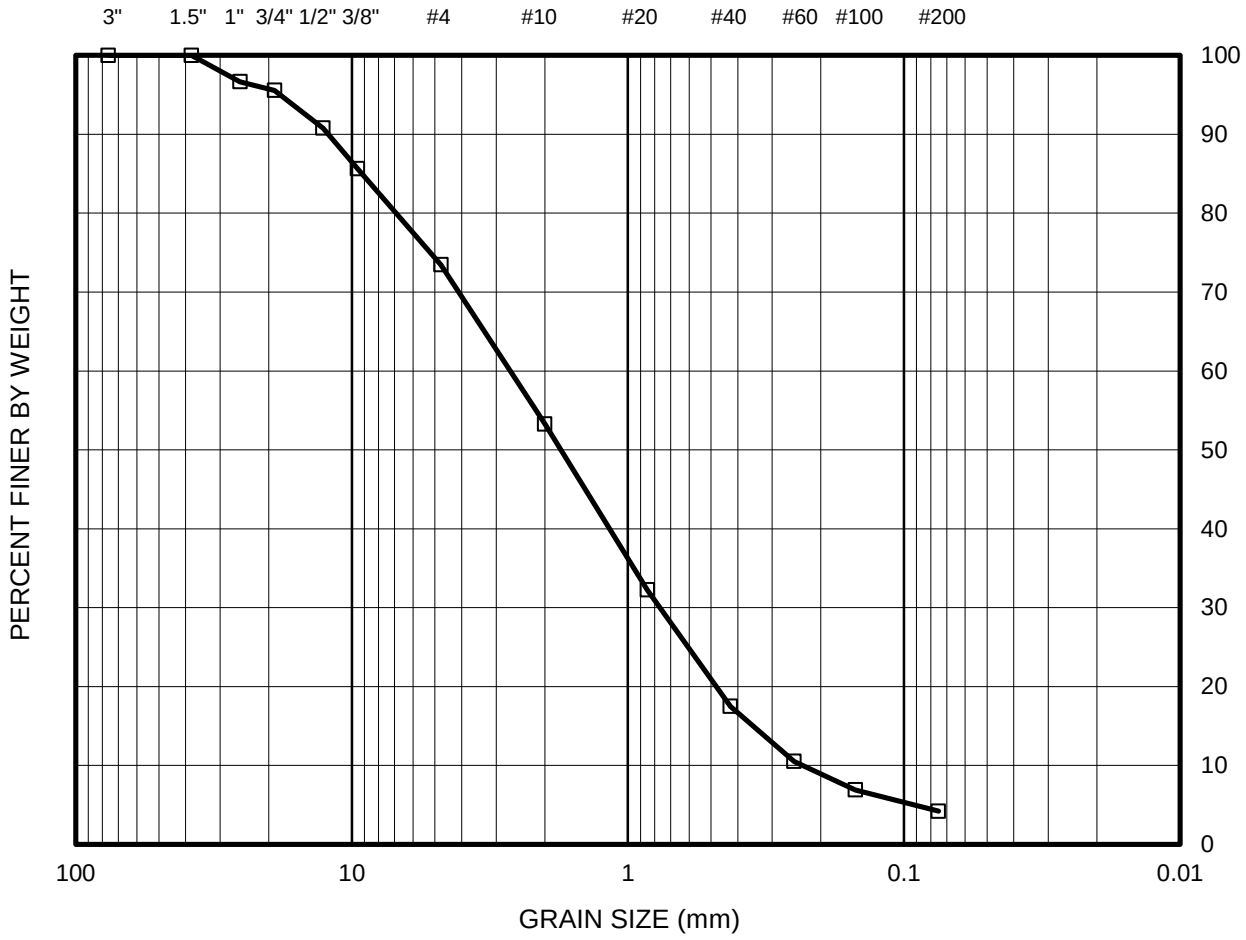
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-15
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-18	2	10.0	CAL	SW	N/A	N/A

Gravel:	26.5%
Sand:	69.3%
Fine:	4.2%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

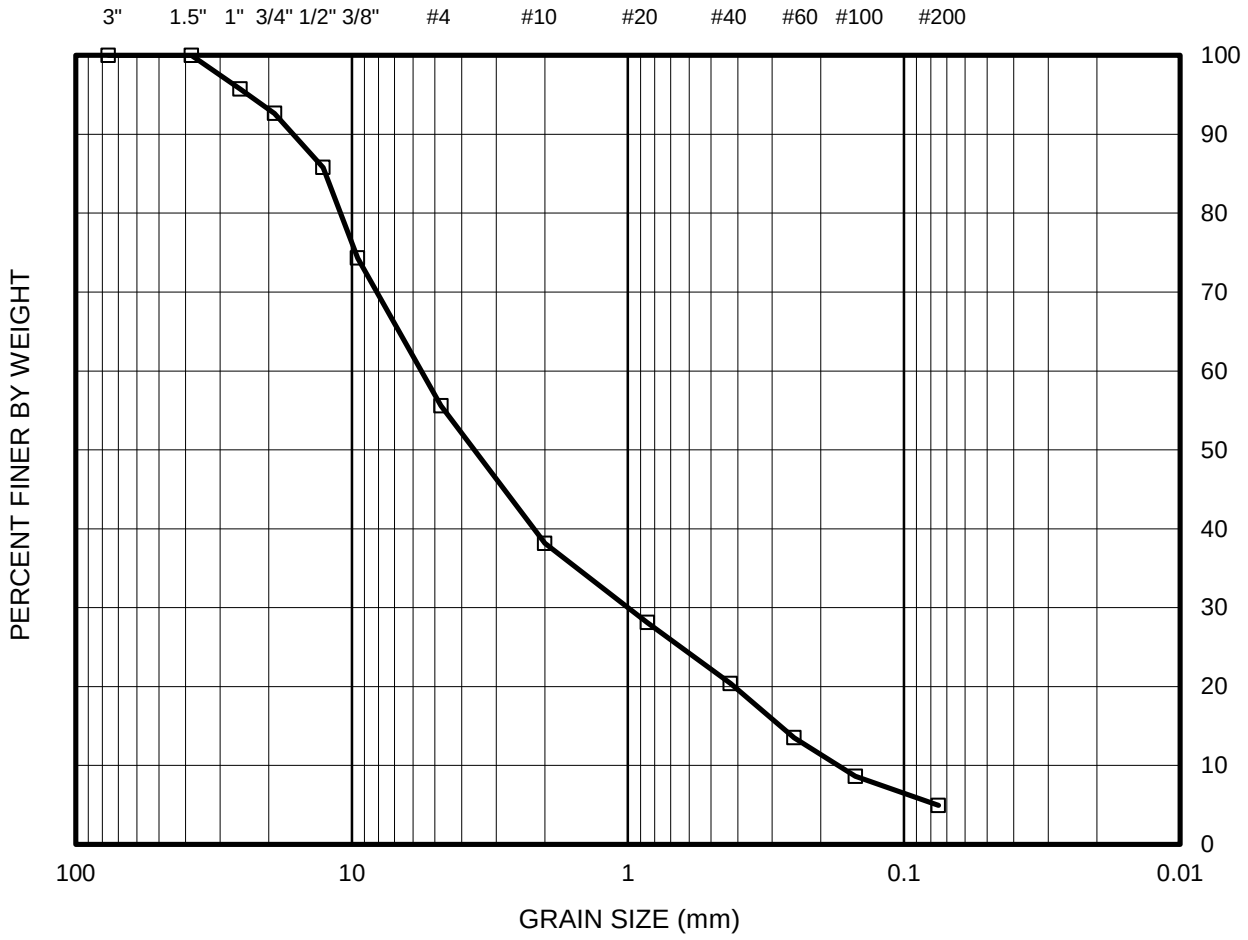
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/14/21

B-16
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-20	2	5.0	CAL	SW	N/A	N/A

Gravel:	44.4%
Sand:	50.7%
Fine:	4.9%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
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Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

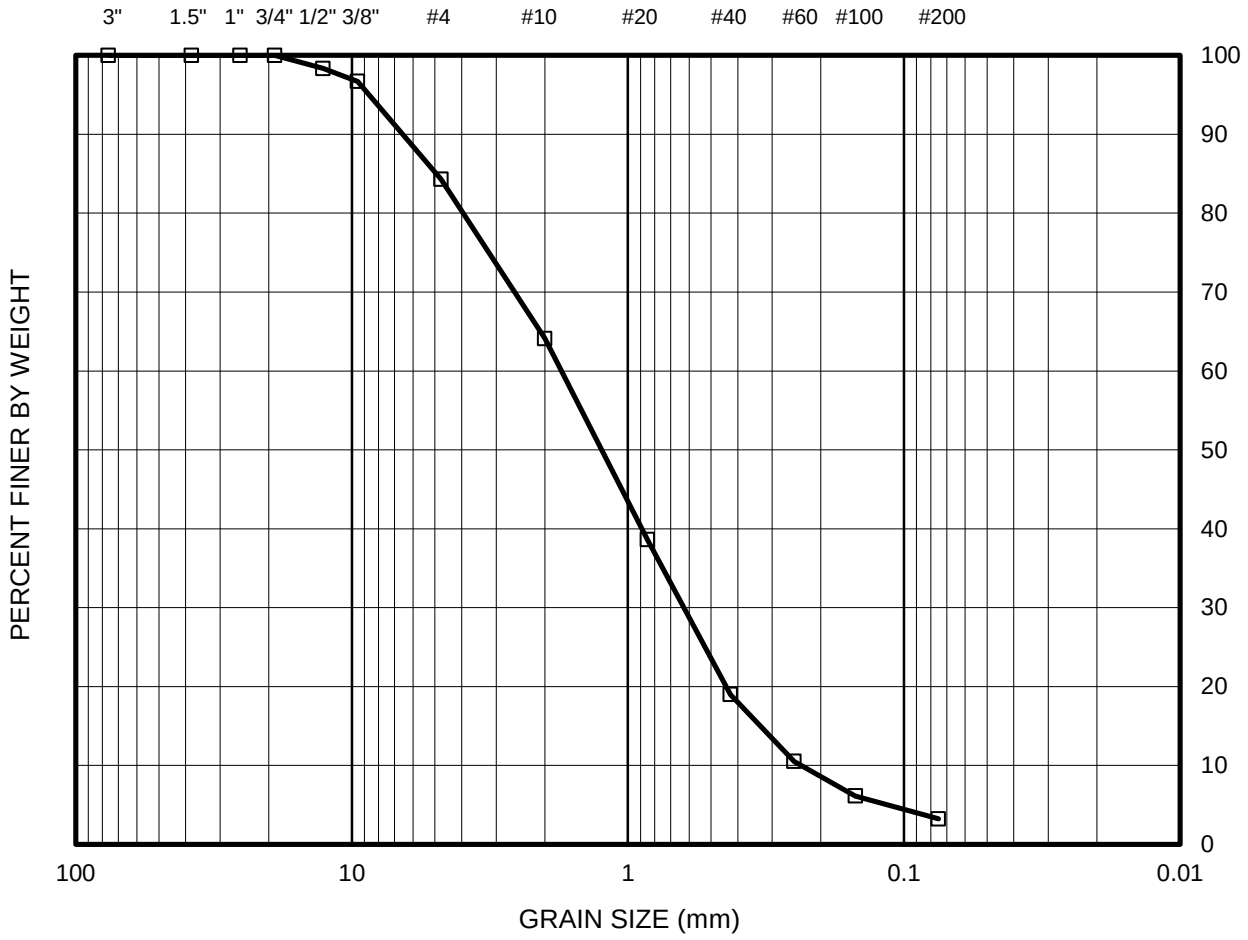
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/15/21

B-17
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-21	4	15.0	CAL	SW	N/A	N/A

Gravel:	15.7%
Sand:	81.1%
Fine:	3.2%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
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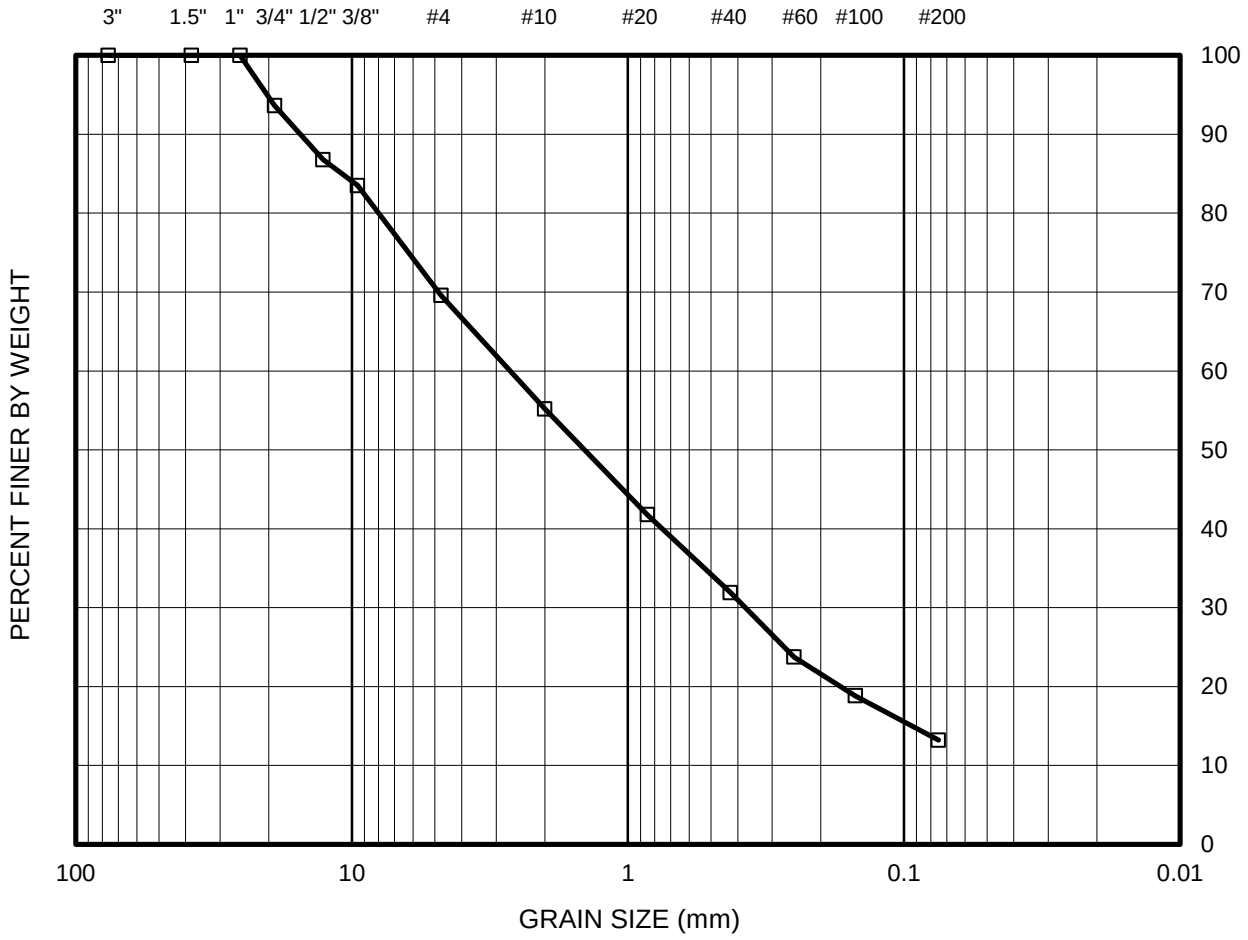
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/15/21

B-18
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-22	1	5.0	CAL	SM	N/A	N/A

Gravel:	30.4%
Sand:	56.4%
Fine:	13.2%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

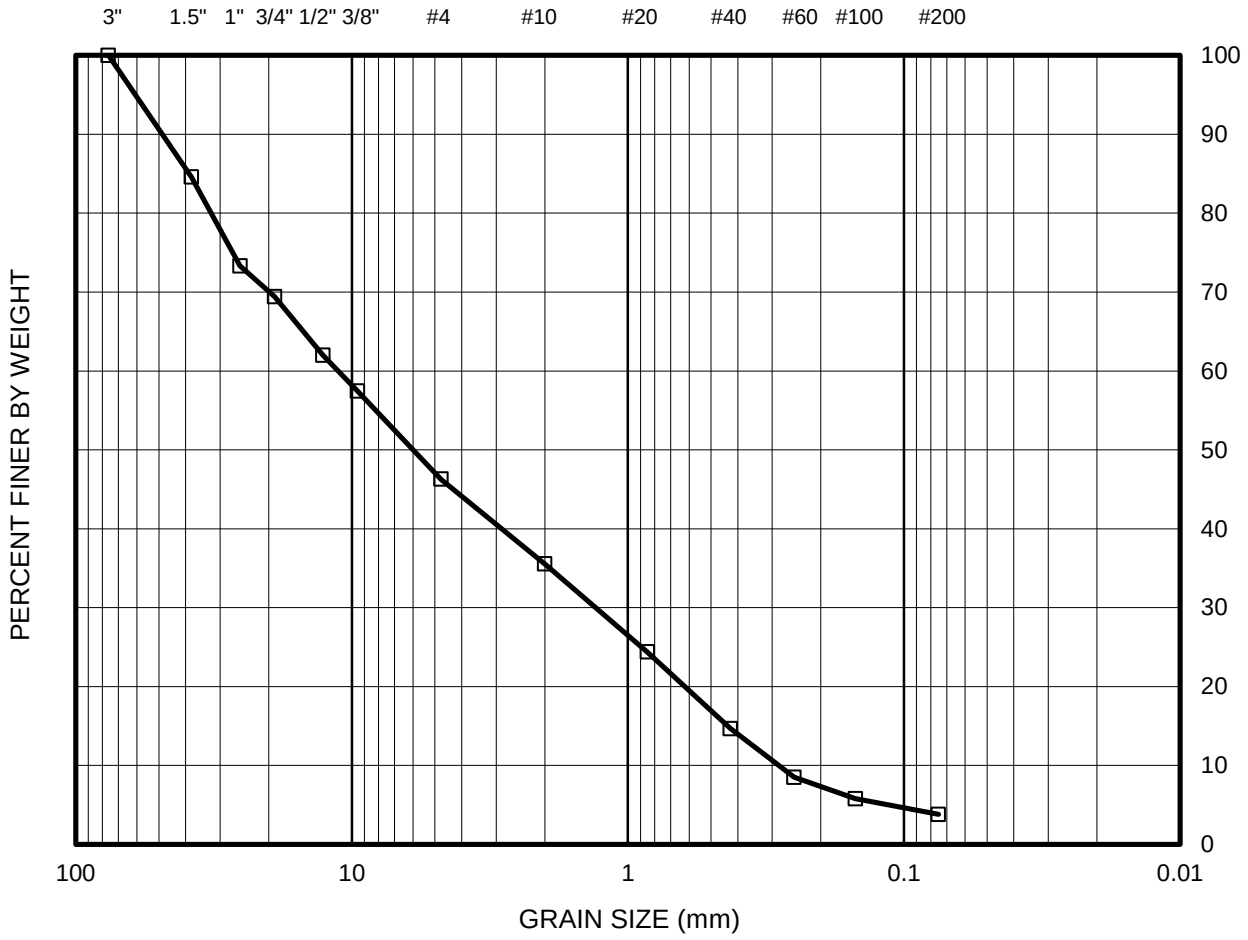
GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/15/21

B-19
FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-23	1	10.0	CAL	GW	N/A	N/A

Gravel:	53.7%
Sand:	42.5%
Fine:	3.8%

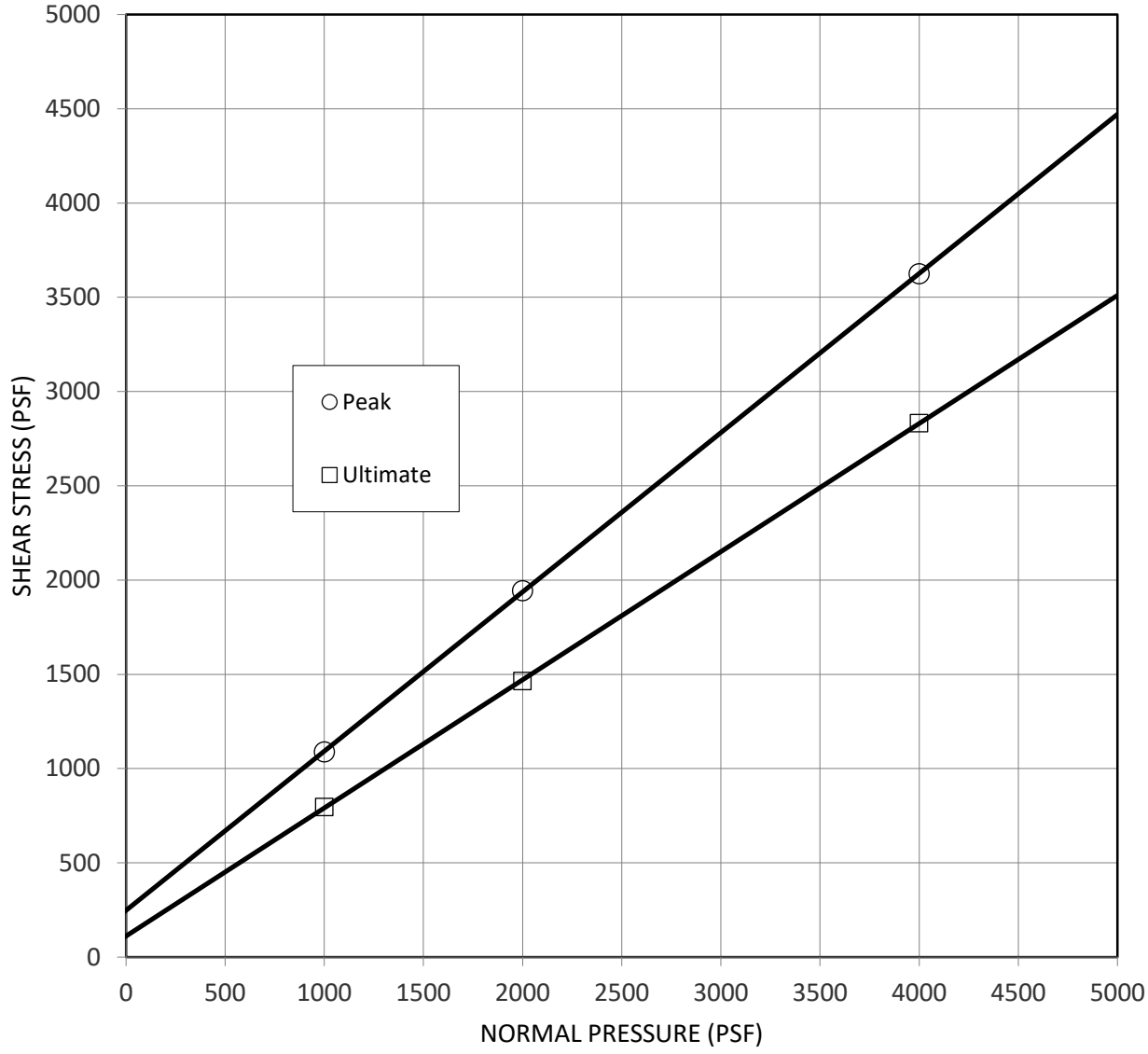
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE
(ASTM D422)

10/15/21

B-20
FIGURE



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-1	1	1.0-5.0	Bulk	GW w/ sand	○	248	40
					□	112	34

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **137.5 pcf** Optimum Moisture: **7.0 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	7.0	14.2
2000	7.0	13.7
4000	7.0	13.4

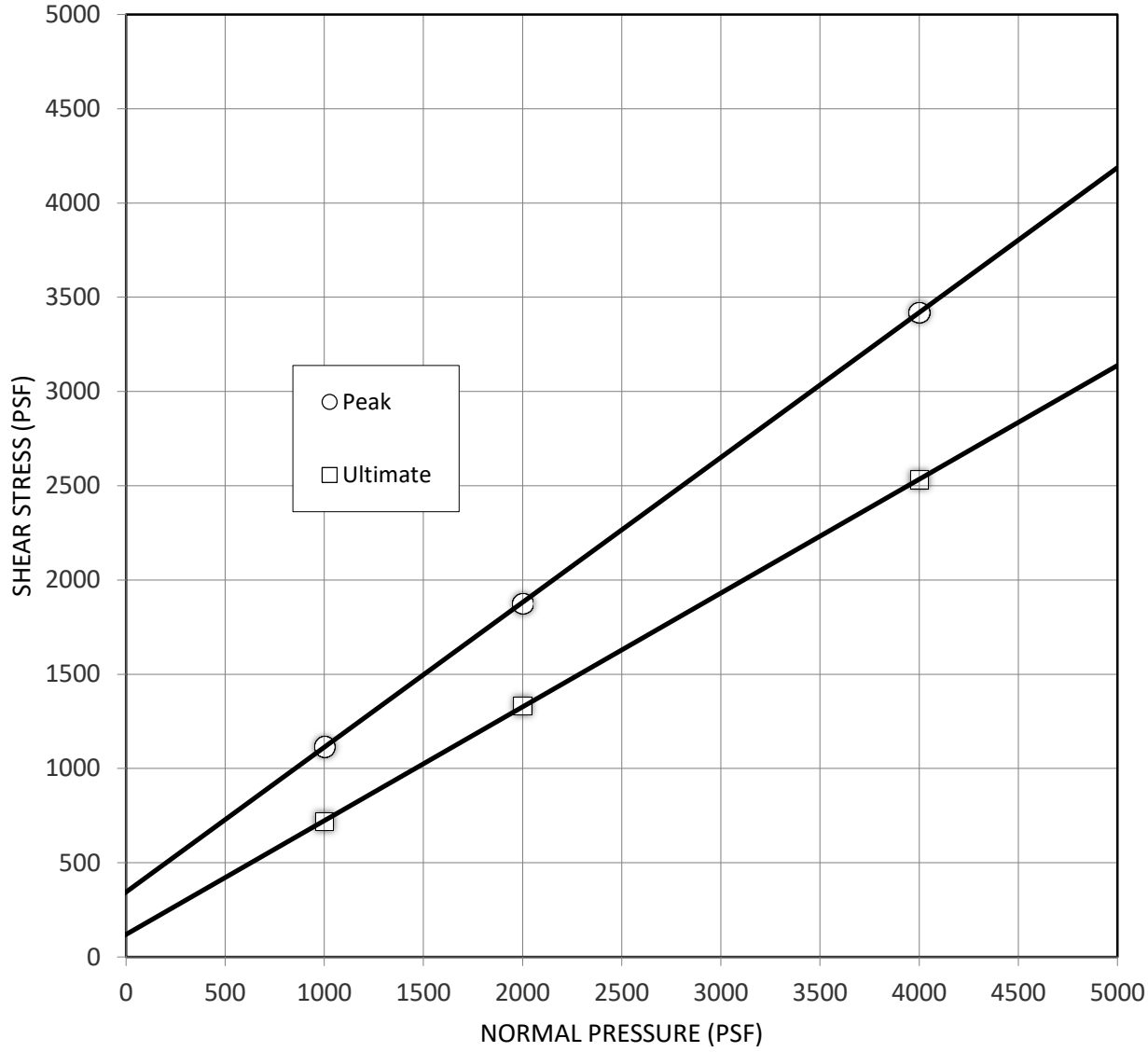
EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

B-21

10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-3	1	1.0-5.0	Bulk	GW w/ sand	○	344	38
					□	120	31

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **135.5 pcf** Optimum Moisture: **7.5 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	7.5	15.1
2000	7.5	14.4
4000	7.5	13.8

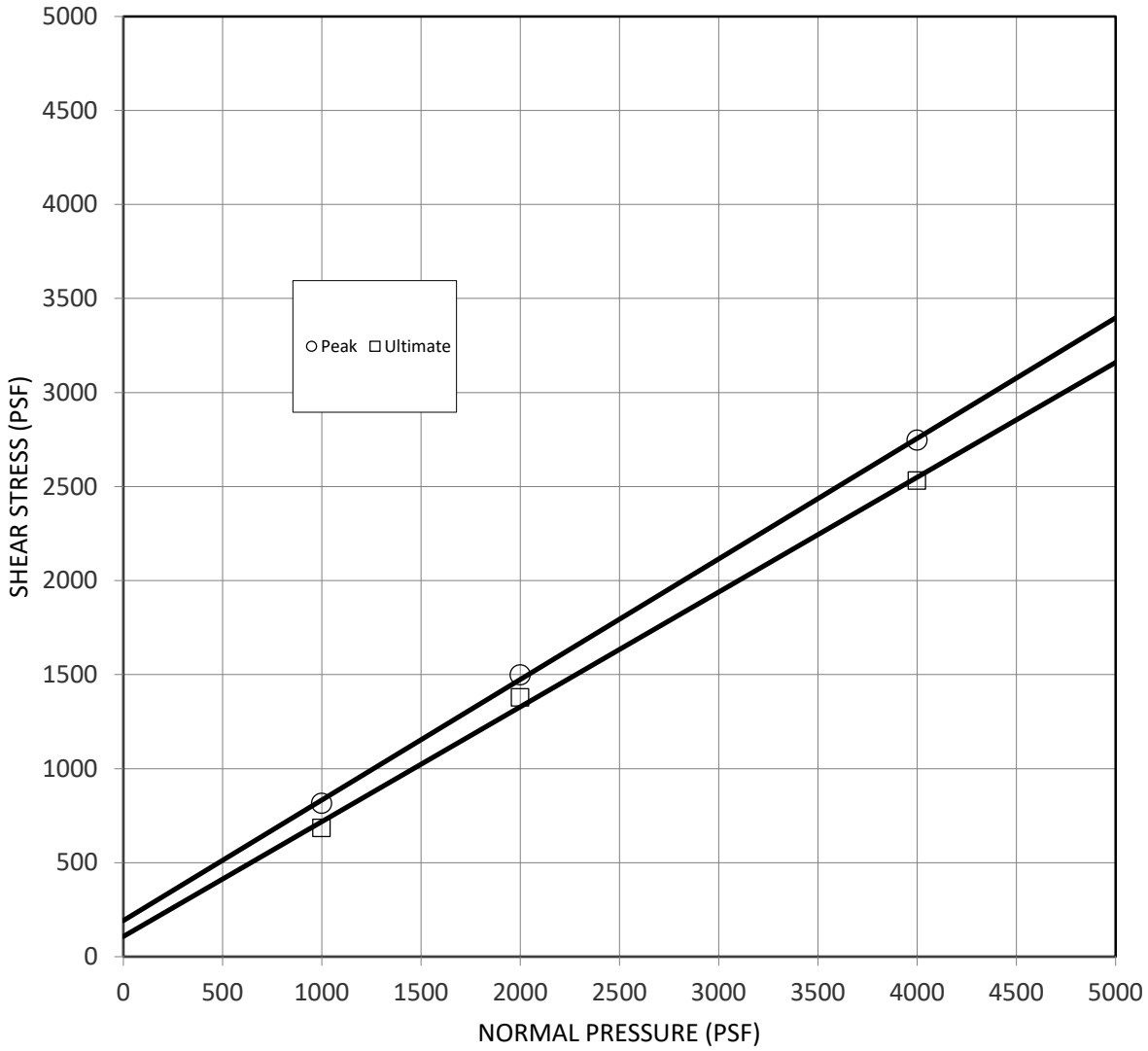
EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

B-22

10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-4	1	5.0	CAL	SM	○	192	33
					□	107	31

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)	γ_d (pcf)	S (%)
1000	9.6	16.0	119.8	100
2000	9.6	15.5	120.4	100
4000	9.6	14.3	120.6	97

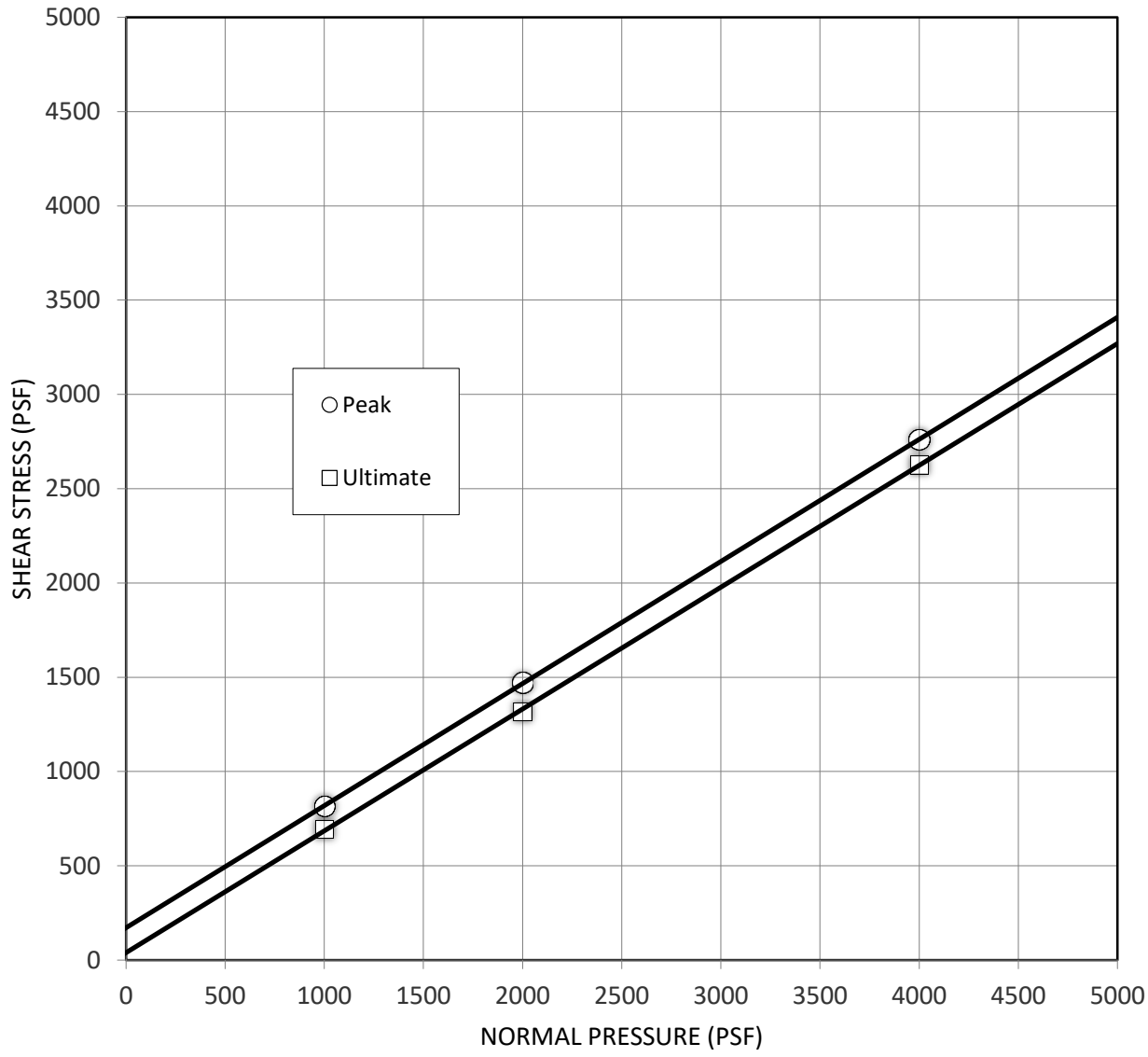
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

B-23

10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-5	1	3.0-5.0	Bulk	SM	○	172	33
					□	39	33

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **131.5 pcf** Optimum Moisture: **9.4 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	9.4	16.9
2000	9.4	16.4
4000	9.4	15.8

EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

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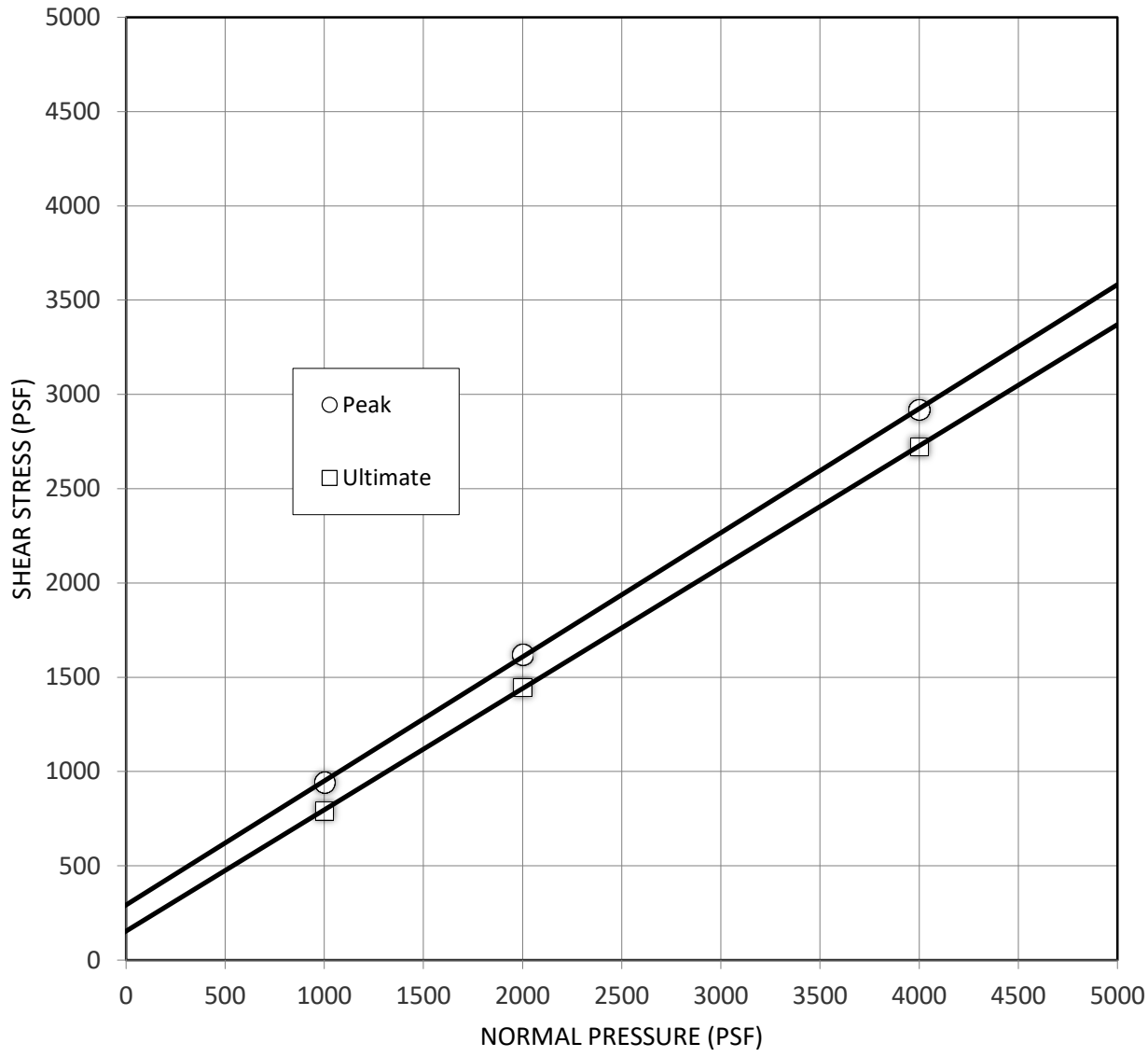
10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-10	1	1.0-5.0	Bulk	SM	○	292	33
					□	153	33

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **134.0 pcf** Optimum Moisture: **8.0 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	8.0	16.9
2000	8.0	16.7
4000	8.0	16.3

EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

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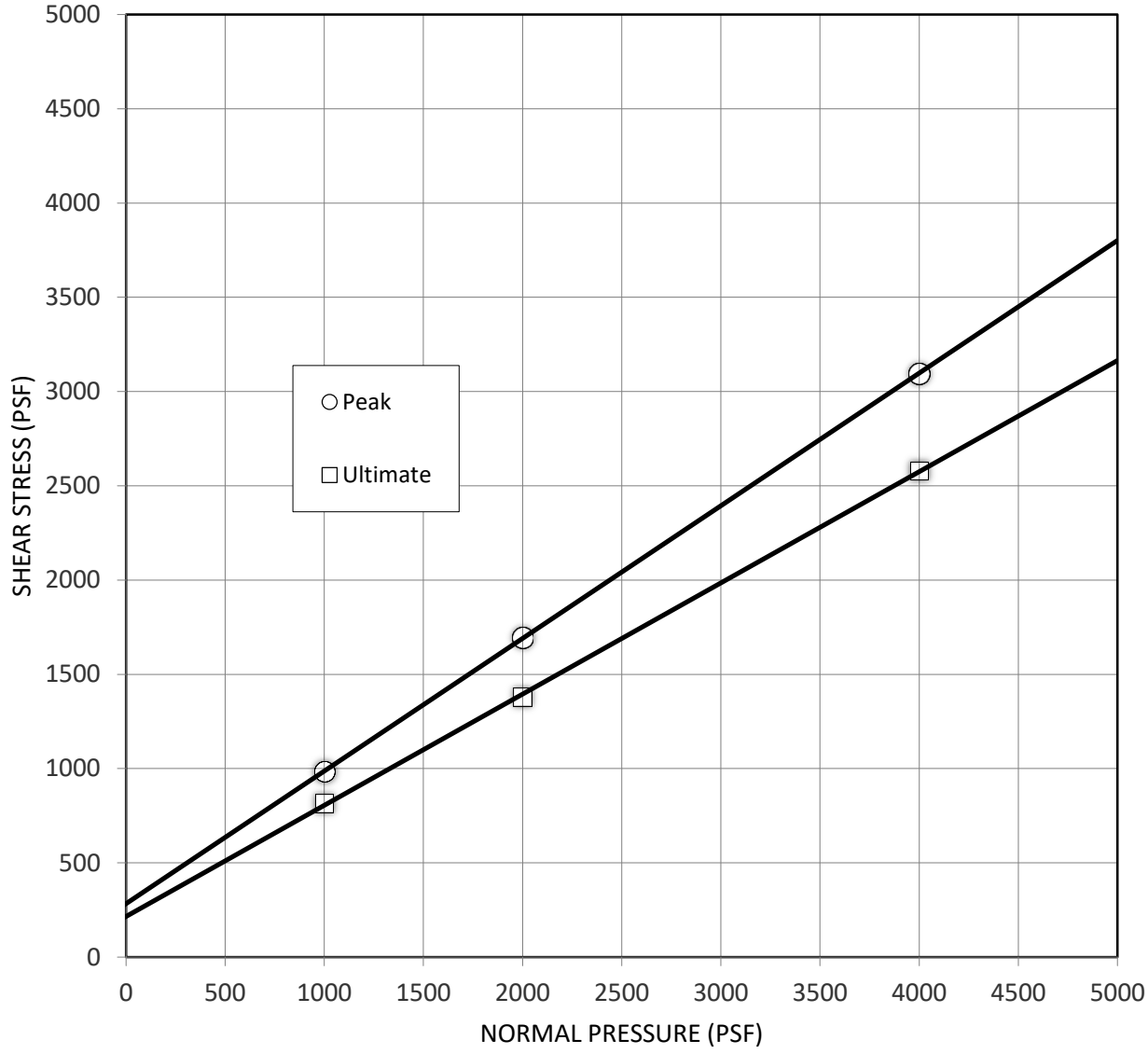
10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-16	1	1.0-5.0	Bulk	SW	○	283	35
					□	216	31

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **130.0 pcf** Optimum Moisture: **8.0 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	8.0	16.8
2000	8.0	16.3
4000	8.0	15.6

EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

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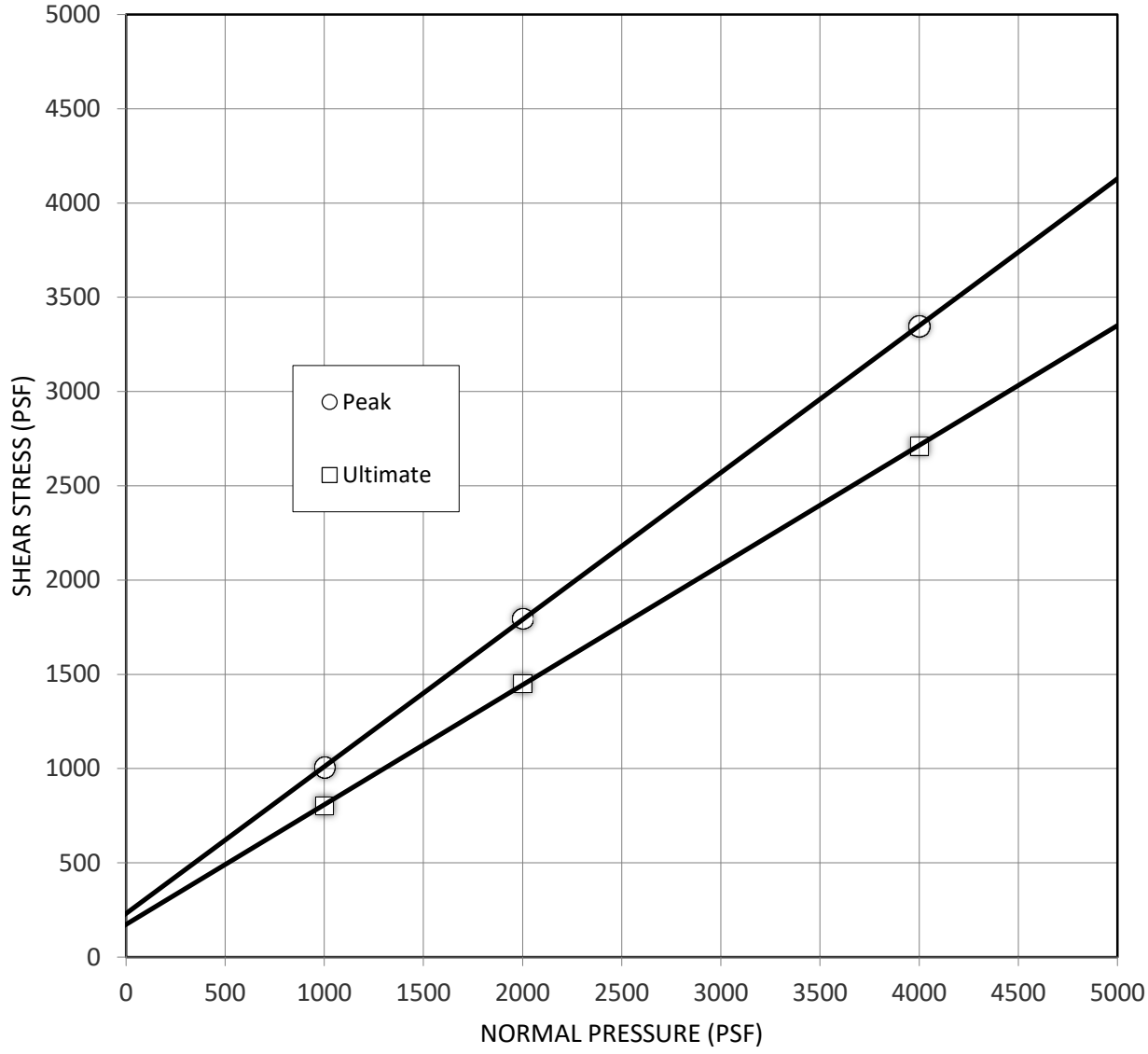
10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-19	1	0-4.0	Bulk	SM	○	232	38
					□	174	32

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **139.5 pcf** Optimum Moisture: **6.5 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	6.5	13.6
2000	6.5	13.1
4000	6.5	12.7

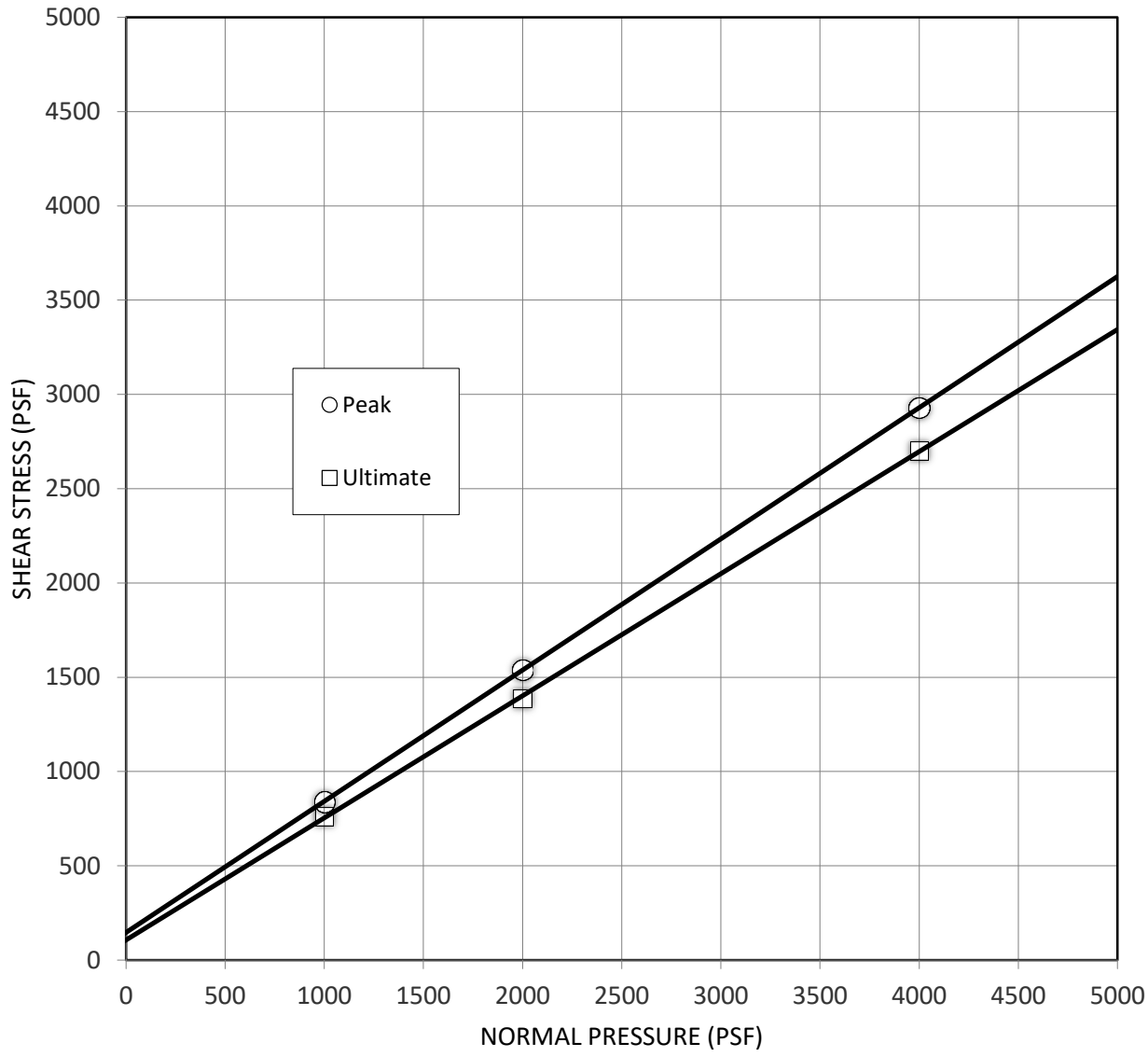
EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

B-27

10/21 (ASTM D3080) Figure



Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Type	Symbol	Cohesion (PSF)	Friction Angle
KLF-21	1	1.0-5.0	Bulk	SM	○	146	35
					□	106	33

Note: Sample was remolded to **90 %** maximum relative density and optimum moisture

Maximum Dry Density: **143.0 pcf** Optimum Moisture: **5.6 %**

Normal Stress (psf)	Initial Moisture (%)	Final Moisture (%)
1000	5.6	13.8
2000	5.6	13.6
4000	5.6	13.2

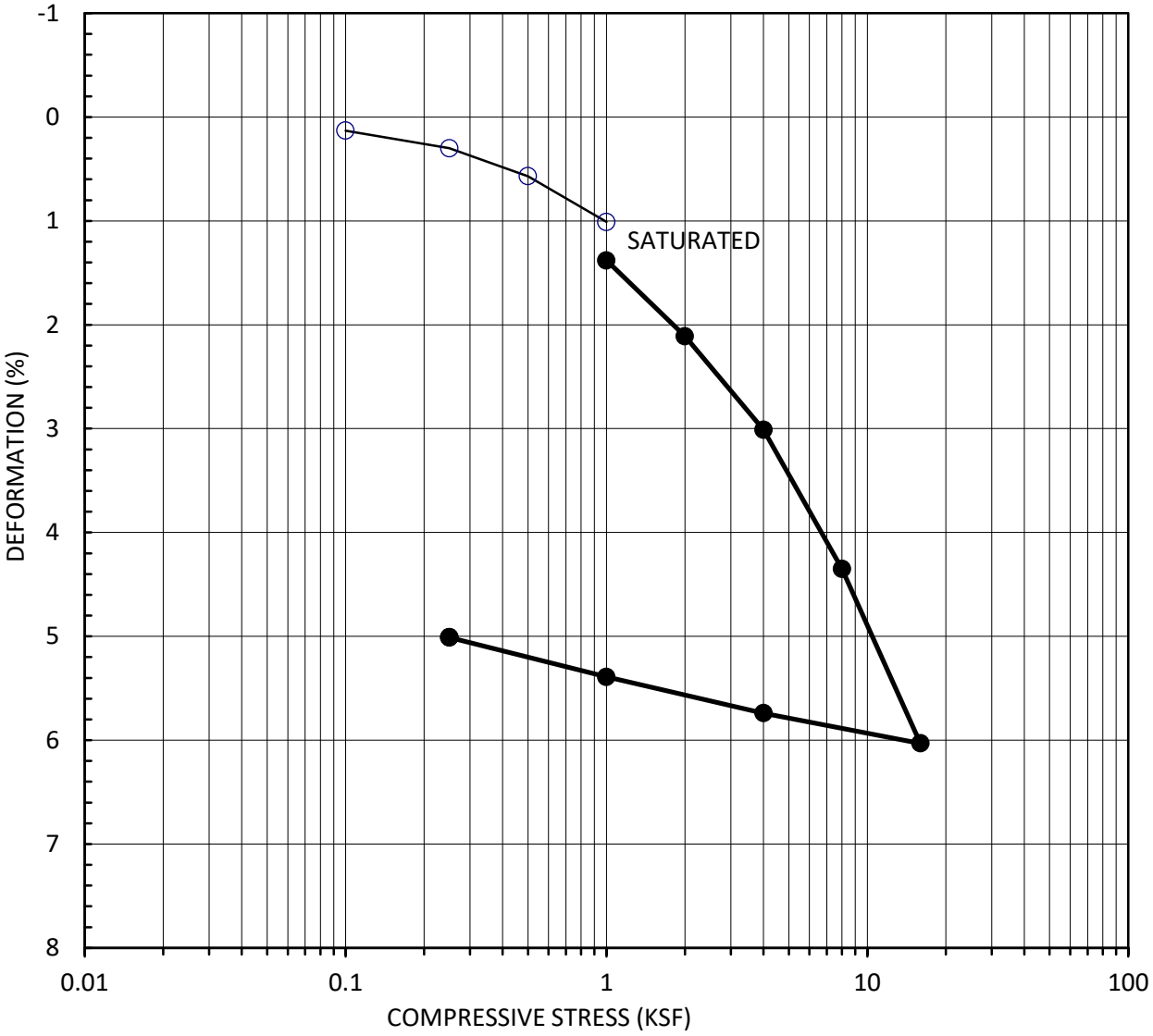
EGLAB, INC.

Project Address:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Project No.: 20221328.002A
EGLAB Project No.: 21-067-001

DIRECT SHEAR

B-28

10/21 (ASTM D3080) Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-1	3	10.0	SM	7.0	99.8	0.688

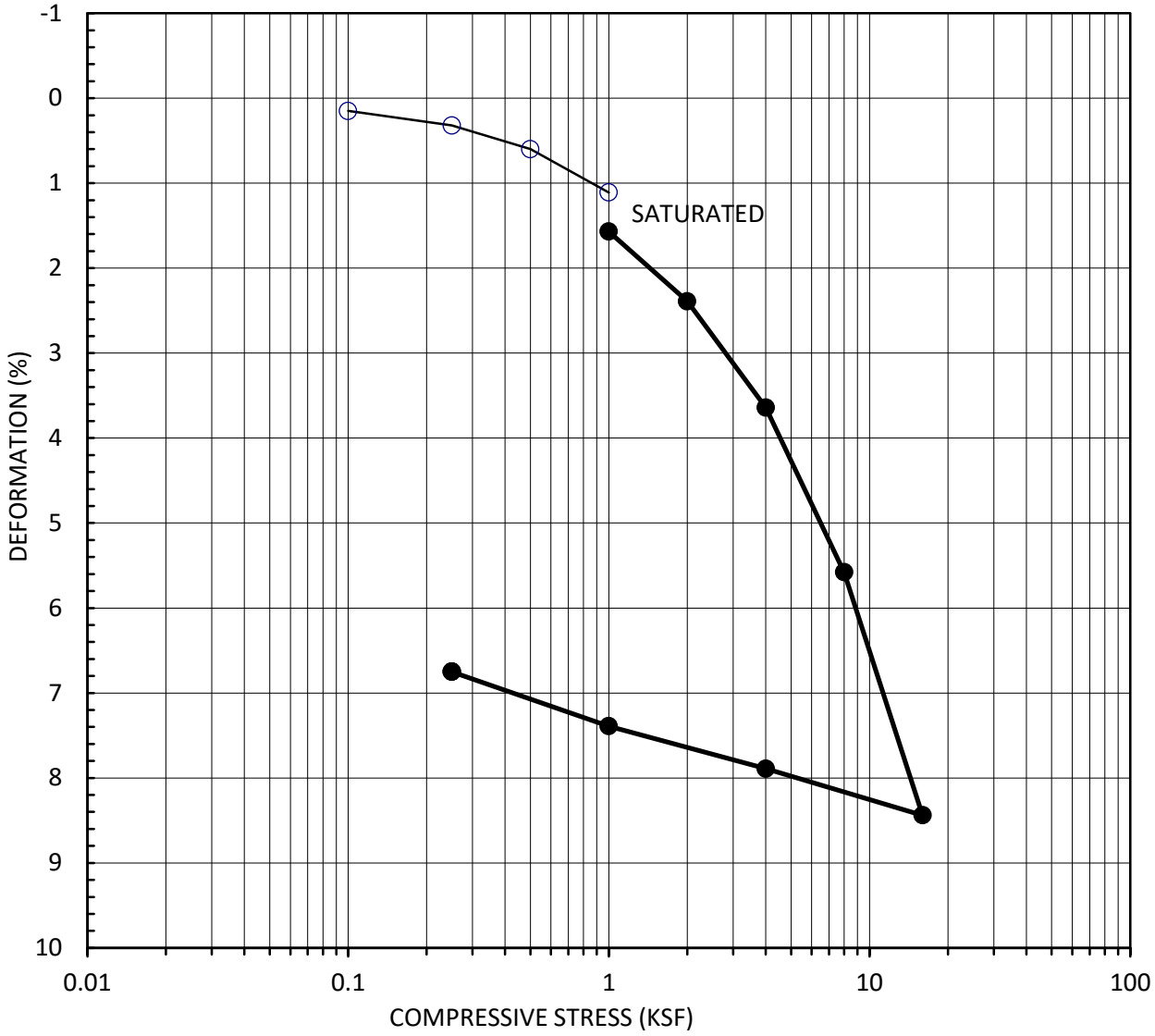
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-29
Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-5	4	15.0	CL	12.4	99.3	0.697

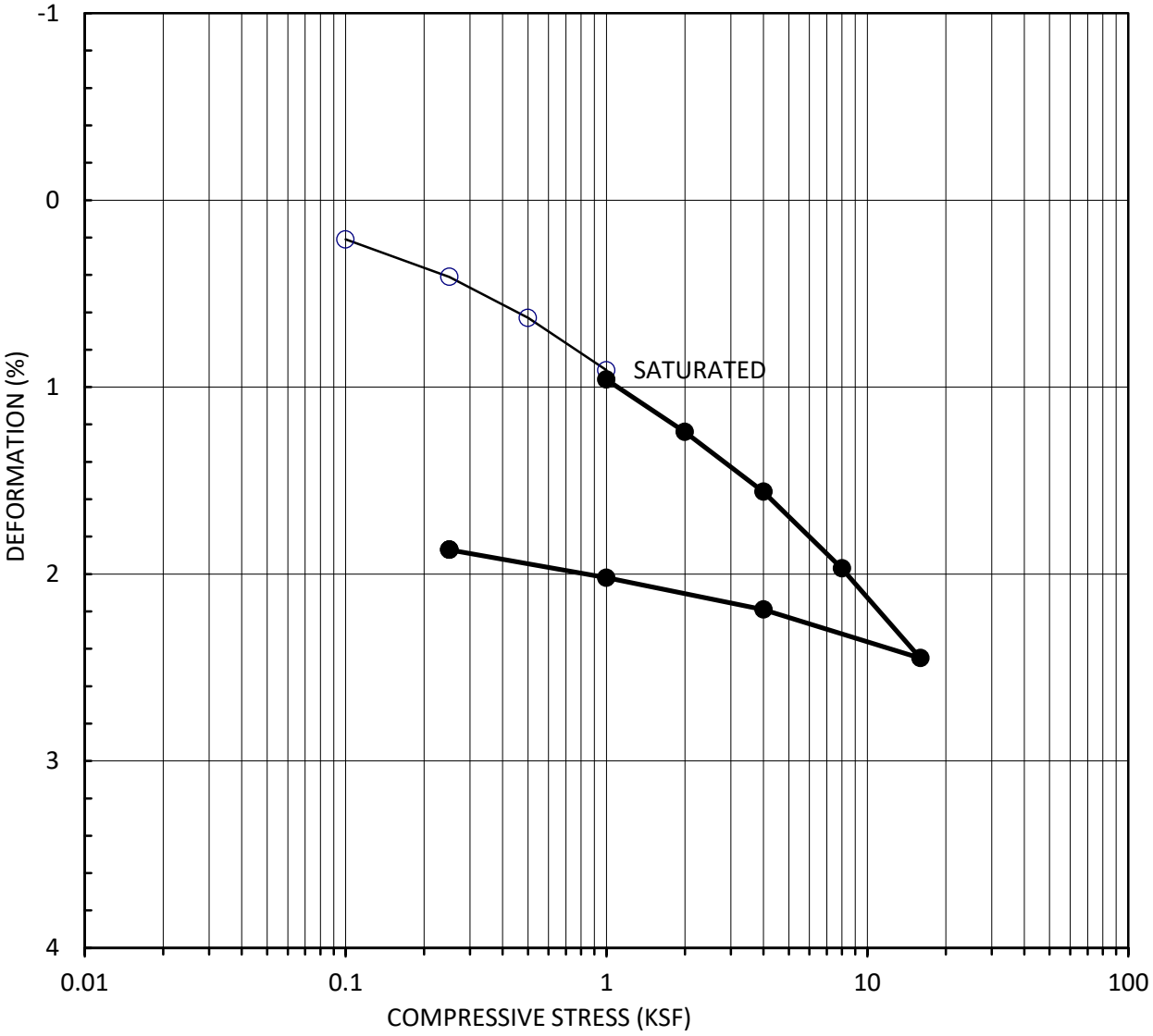
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-30
Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-3	1	1.0-5.0	GW w/ gravel	7.5	121.9	0.382

Note: Sample was remolded to 90 % maximum relative density and optimum moisture

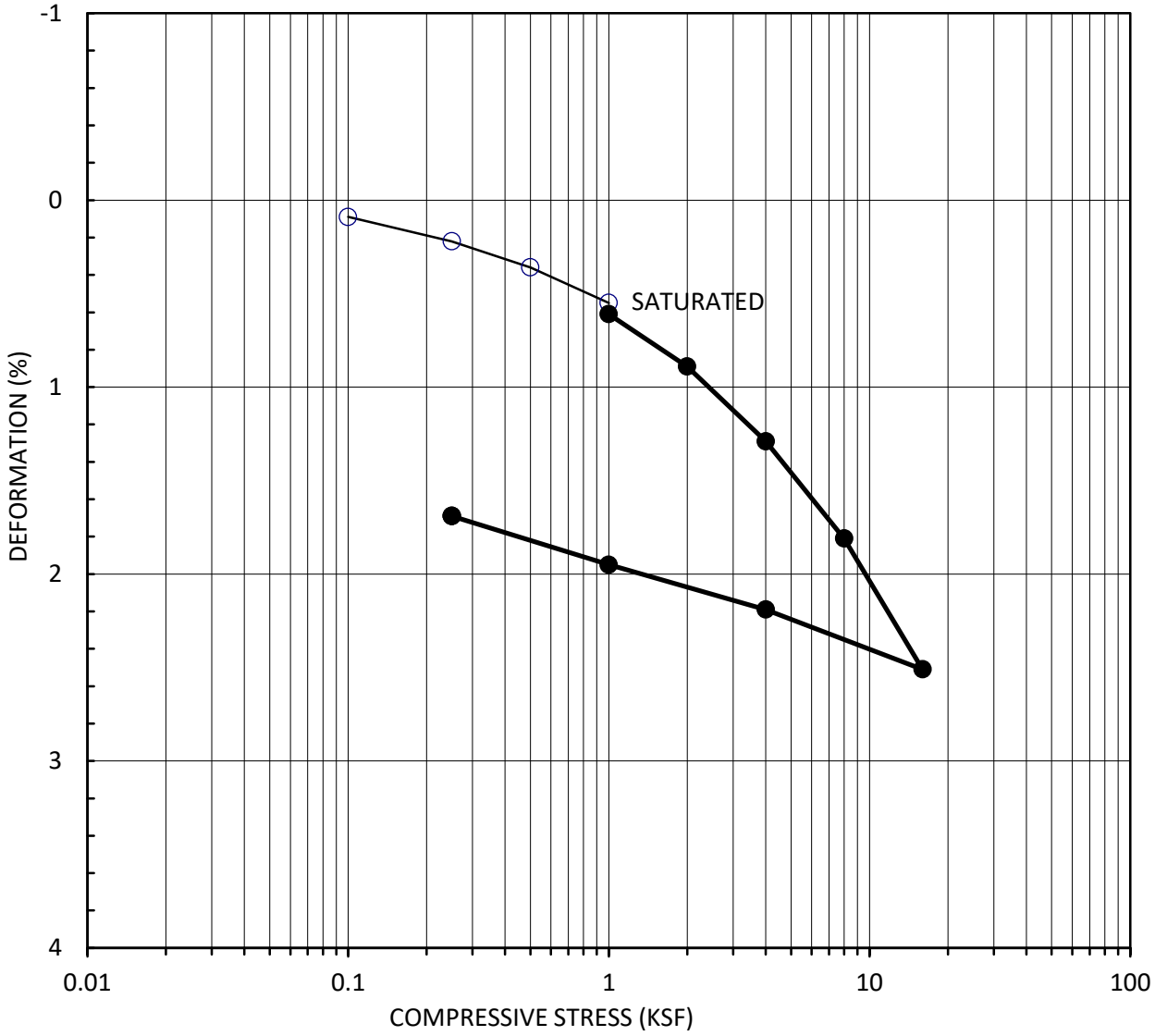
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-31
Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-10	1	1.0-5.0	SM	8.0	120.6	0.397

Note: Sample was remolded to 90 % maximum relative density and optimum moisture

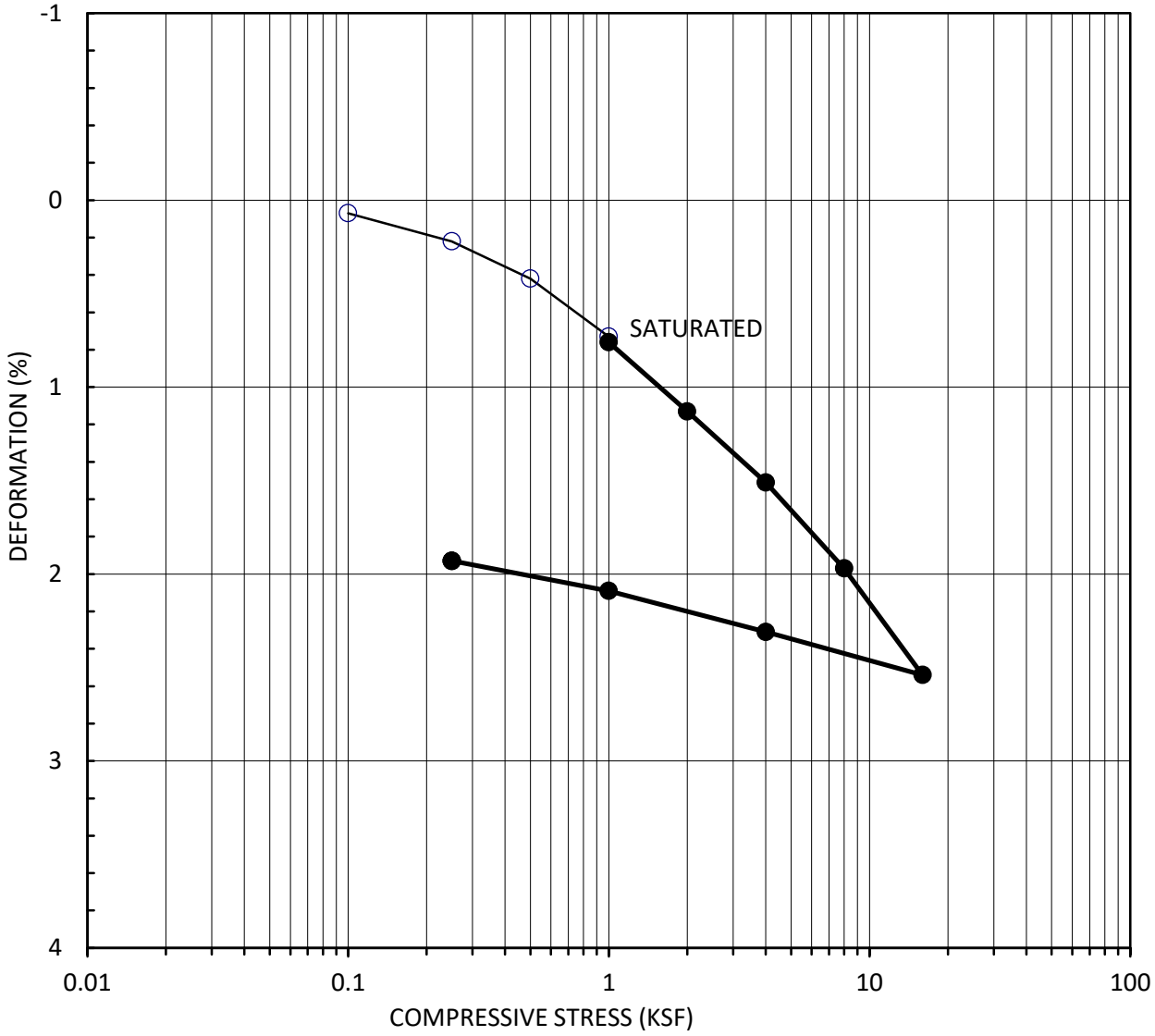
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-32
Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-16	1	1.0-5.0	SW	8.0	117.0	0.440

Note: Sample was remolded to 90 % maximum relative density and optimum moisture

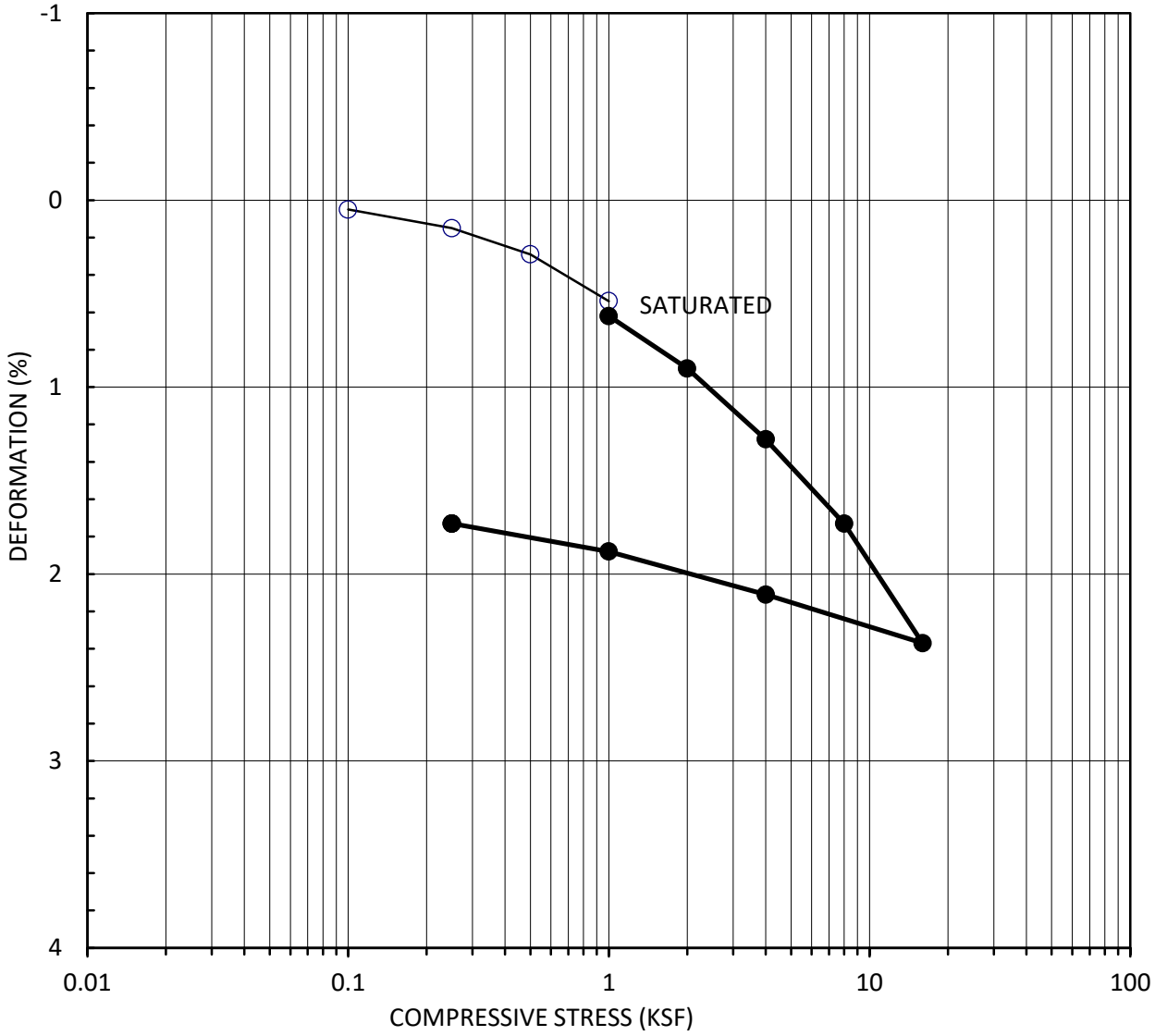
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-33
Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-19	1	0-4.0	SM	6.5	125.6	0.342

Note: Sample was remolded to 90 % maximum relative density and optimum moisture

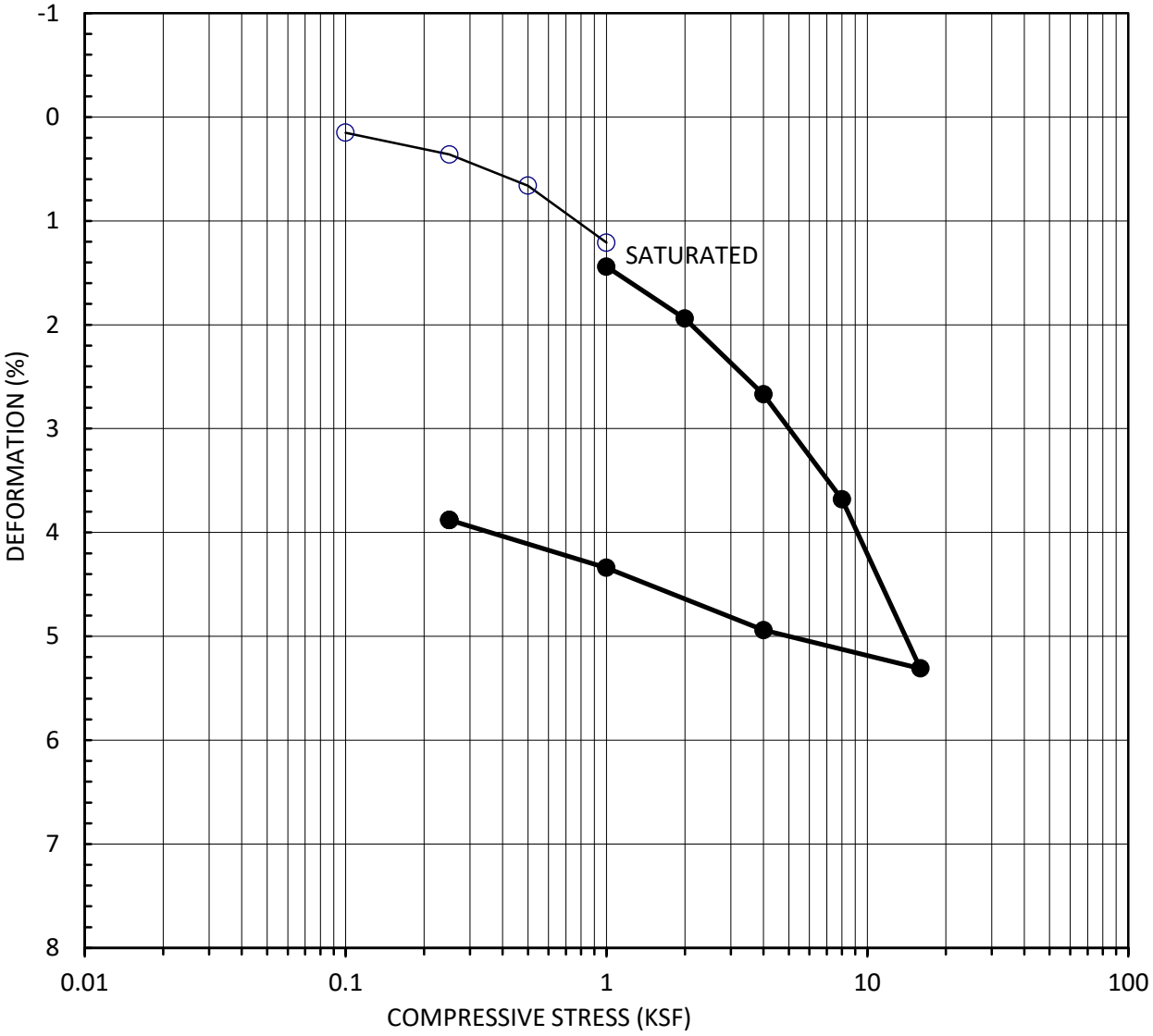
EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-34
Figure



Symbol	Boring No.	Sample No.	Depth (Ft.)	Soil Type	Init. Moisture Content (%)	Init. Dry Density (PCF)	Init. Void Ratio
○	KLF-20	5	20.0	SC	15.6	102.2	0.649

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client: KLEINFELDER
Job No.: 20221328.002A
EGLAB Project No.: 21-067-001

CONSOLIDATION

10/21 (ASTM D2435)

B-35
Figure

APPENDIX C
SEISMIC REFRACTION SURVEY RESULTS

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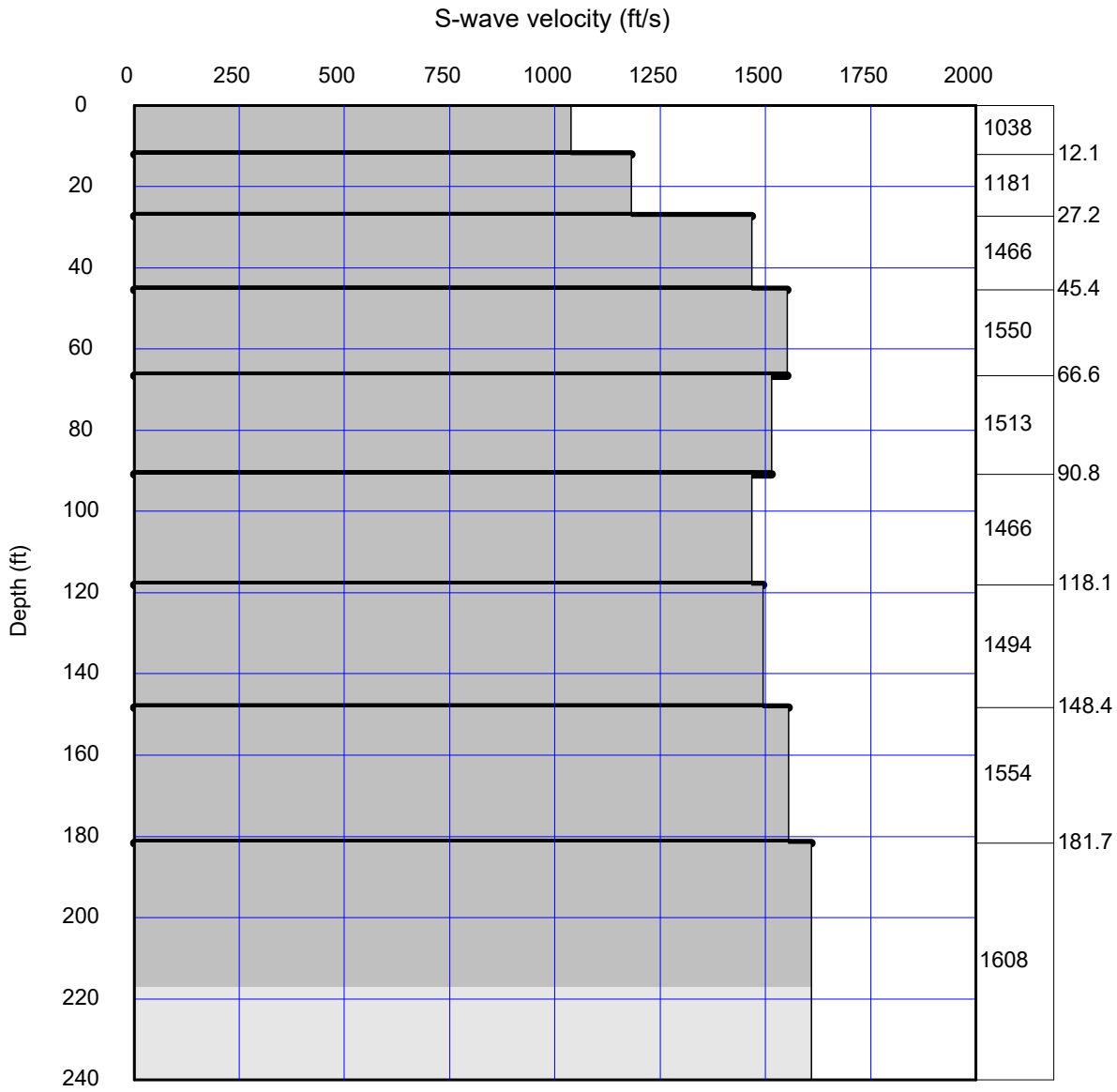
SEISMIC LINE SW-1



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,373.9 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328 Project**

Name: Next Gen Commerce Center - Building 1

Survey Line End Coordinates: 34.086185, -117.493190 / 34.086471, -117.492689

Date: 9/21/21



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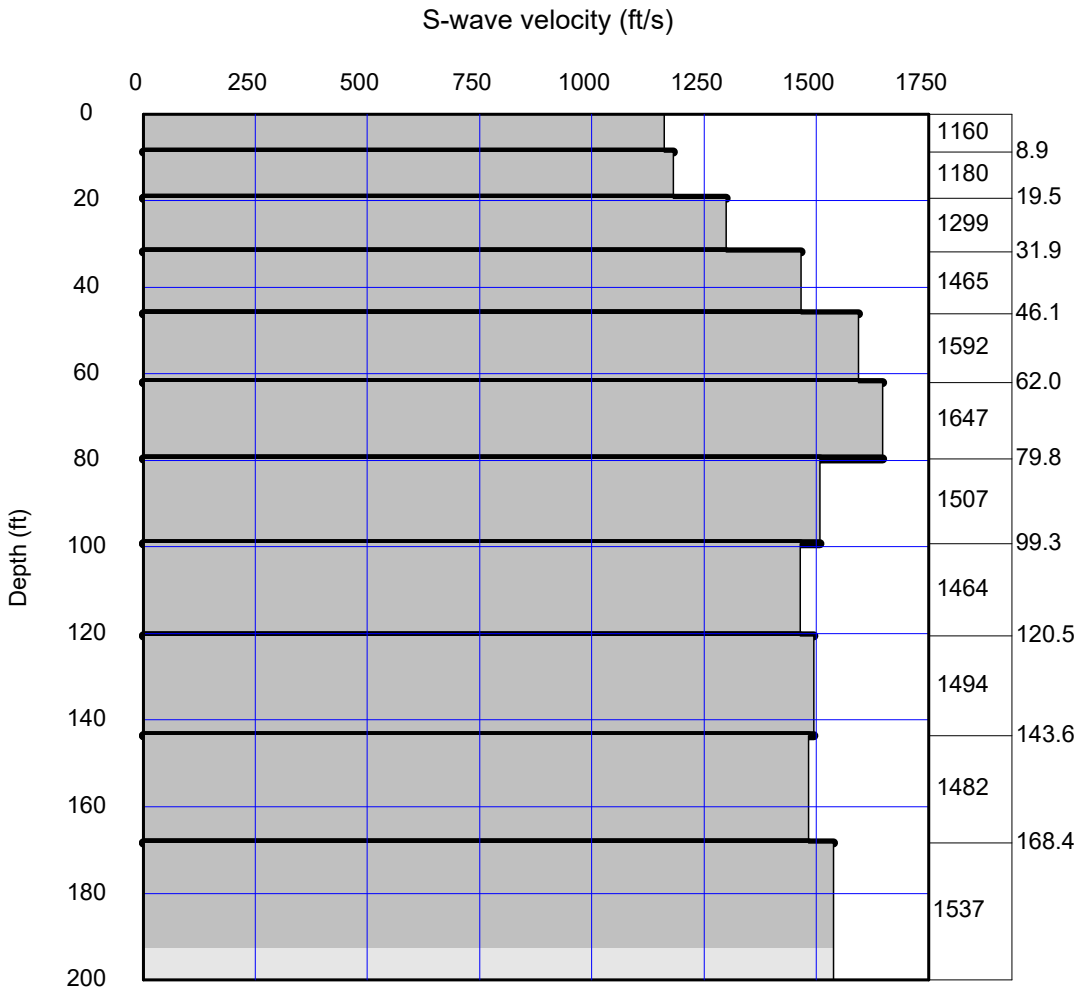
Loma Linda, CA 92354

TG Project No. 213717-1

SEISMIC LINE SW-2



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,426.8 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328**

Project Name: Next Gen Commerce Center - Building 2

Survey Line End Coordinates: 34.088661, -117.492897 / 34.089165, -117.492897

Date: 9/30/21



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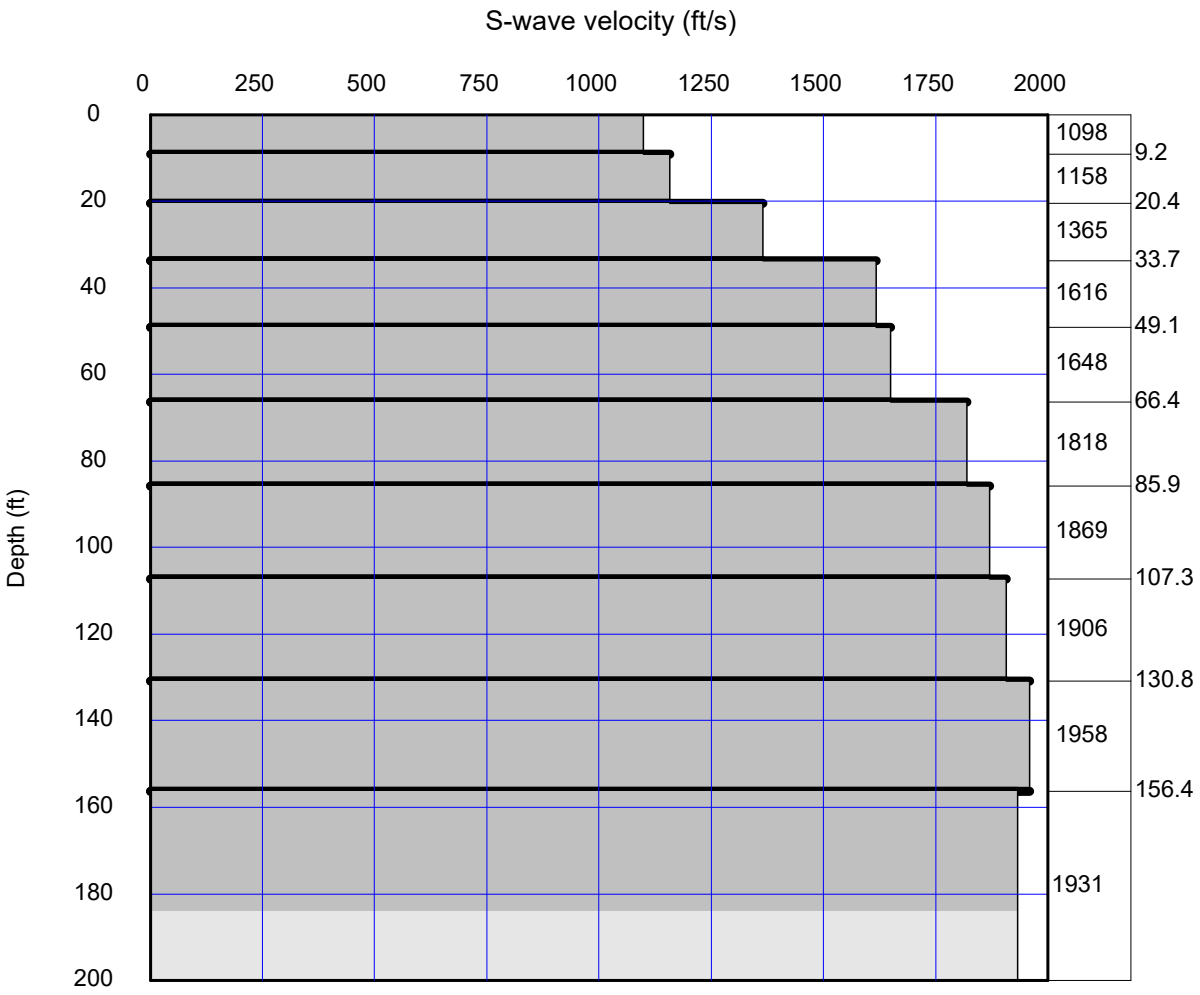
P.O. Box 1090
Loma Linda, CA 92354

TG Project No. 213717-2

SEISMIC LINE SW-3



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,513.1 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328**

Project Name: Next Gen Commerce Center - Building 3

Survey Line End Coordinates: 34.090810, -117.492700 / 34.091315, -117.492700

Date: 9/30/21

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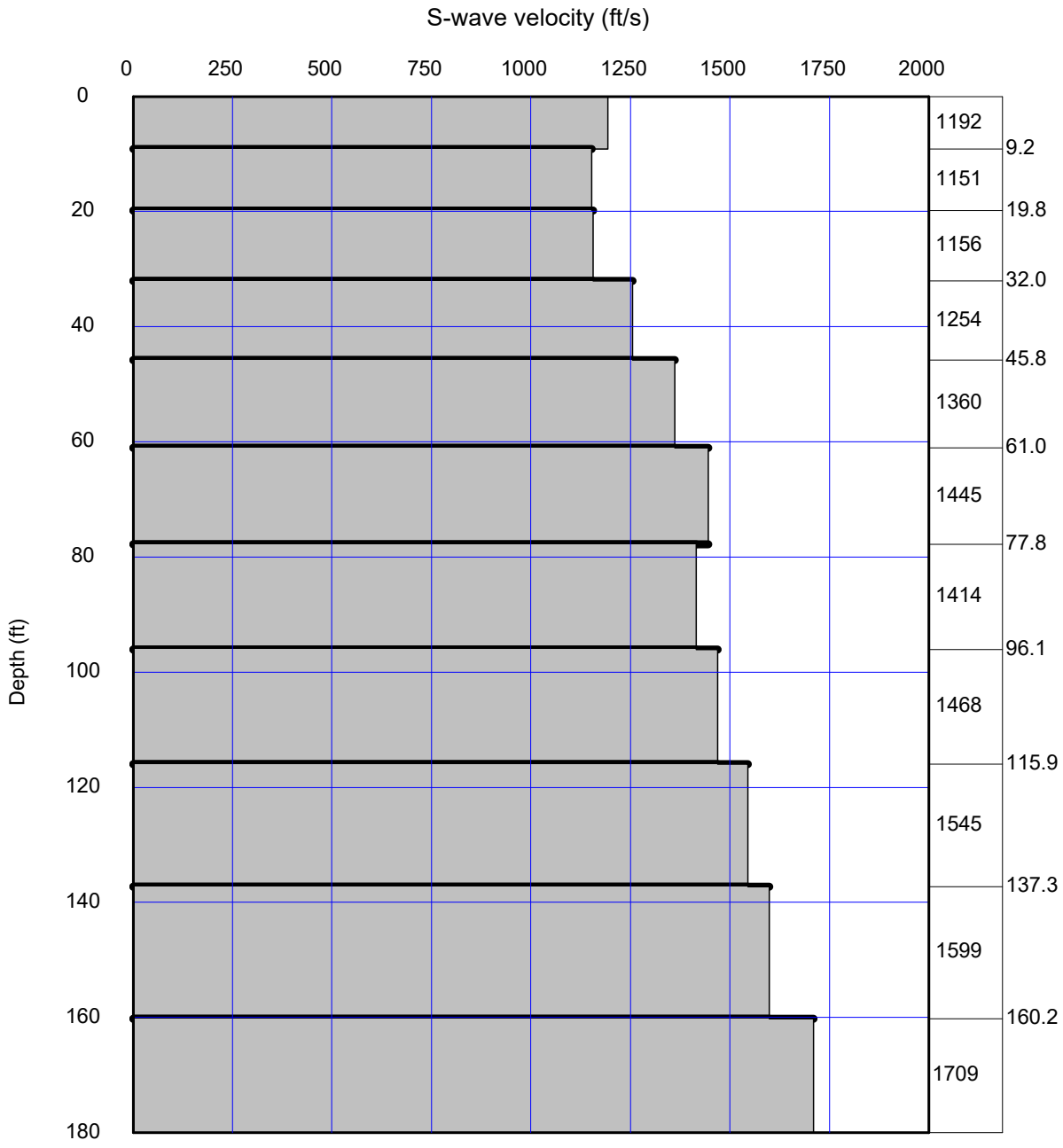
P.O. Box 1090
Loma Linda, CA 92354

PROFESSIONAL GEOPHYSICIST
DONN C. SCHWARTZKOPF
No. 1002
STATE OF CALIFORNIA

TG Project No. 213717-3

SEISMIC LINE SW-4



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,1301.2 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328**

Project Name: Next Gen Commerce Center - Building 4

Survey Line End Coordinates: 34.091532, -117.499104 / 34.091532, -117.498498

Date: 10/1/21

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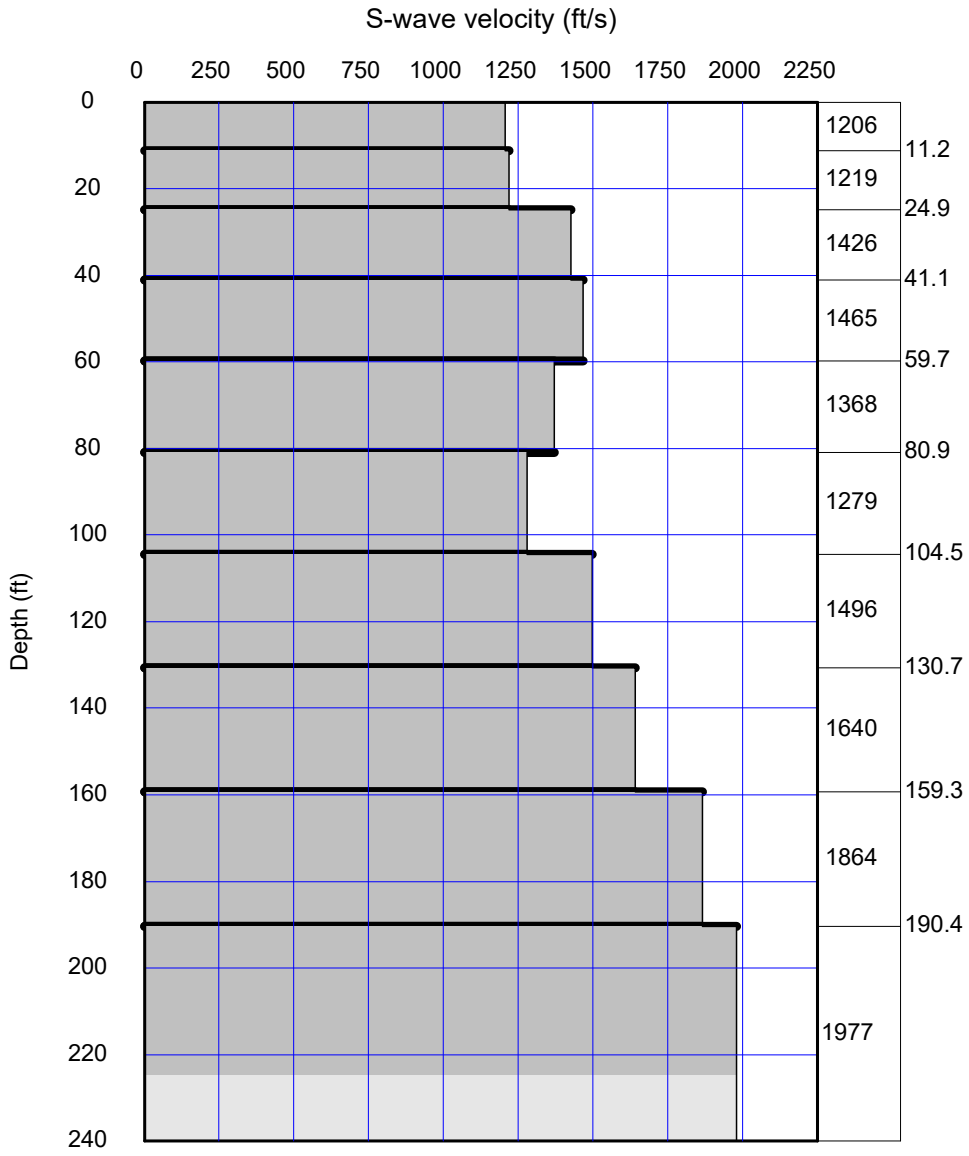
STATE OF CALIFORNIA

TERRA GEOSCIENCES
P.O. Box 1090
Loma Linda, CA 92354

TG Project No. 213717-4

SEISMIC LINE SW-5



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,333.6 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328**

Project Name: Speedway Commerce Center II - Building 5

Survey Line End Coordinates: 34.091386, -117.504371 / 34.091386, -117.503764

Date: 10/1/21

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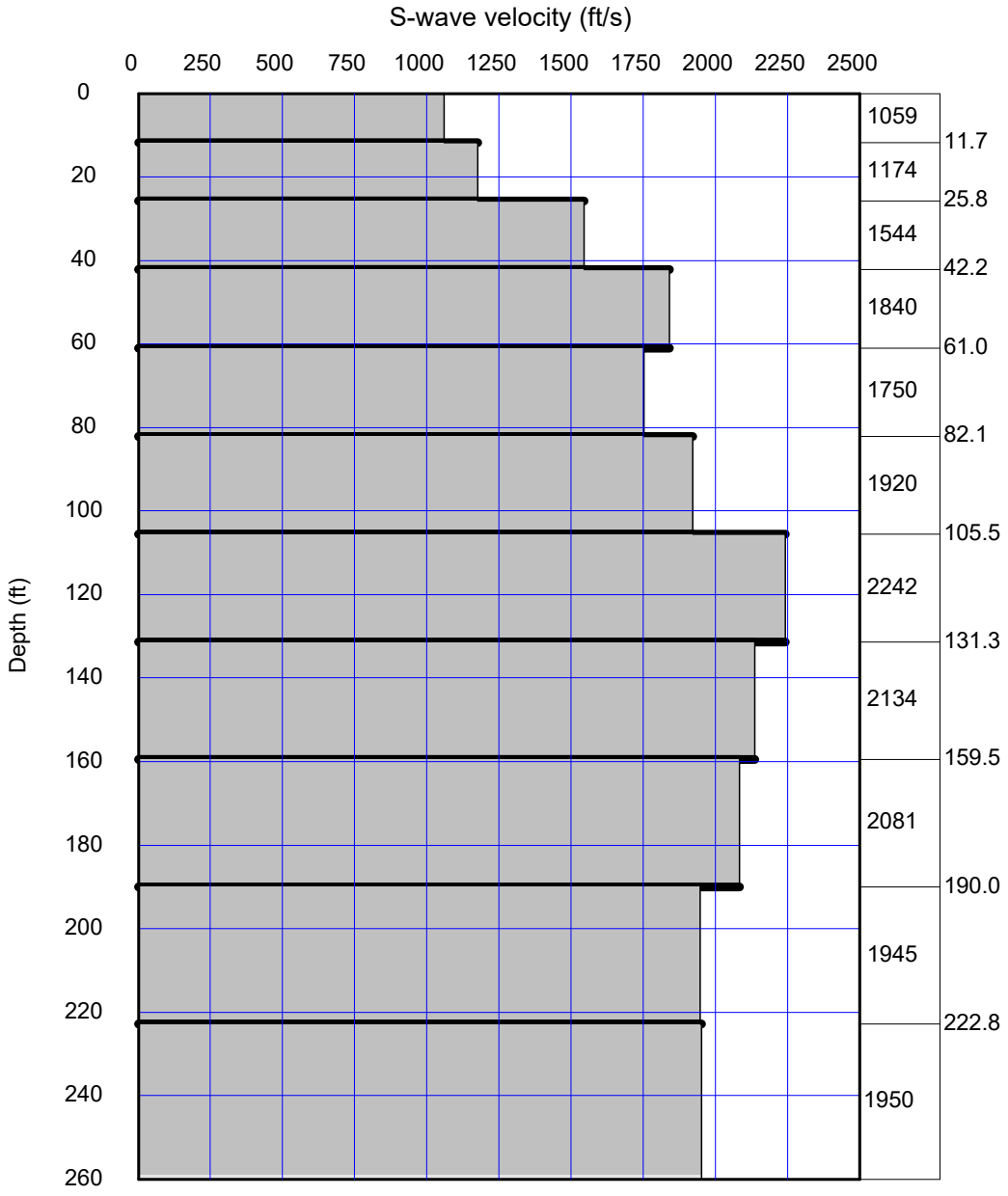
Loma Linda, CA 92354

PROFESSIONAL GEOPHYSICIST
DONN C. SCHWARTZKOPF
No. 1002
STATE OF CALIFORNIA

TG Project No. 213717-5

SEISMIC LINE SW-6



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,532.3 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328**

Project Name: Speedway Commerce Center II - Building 6

Survey Line End Coordinates: 34.086800, -117.507378 / 34.086294, -117.507378

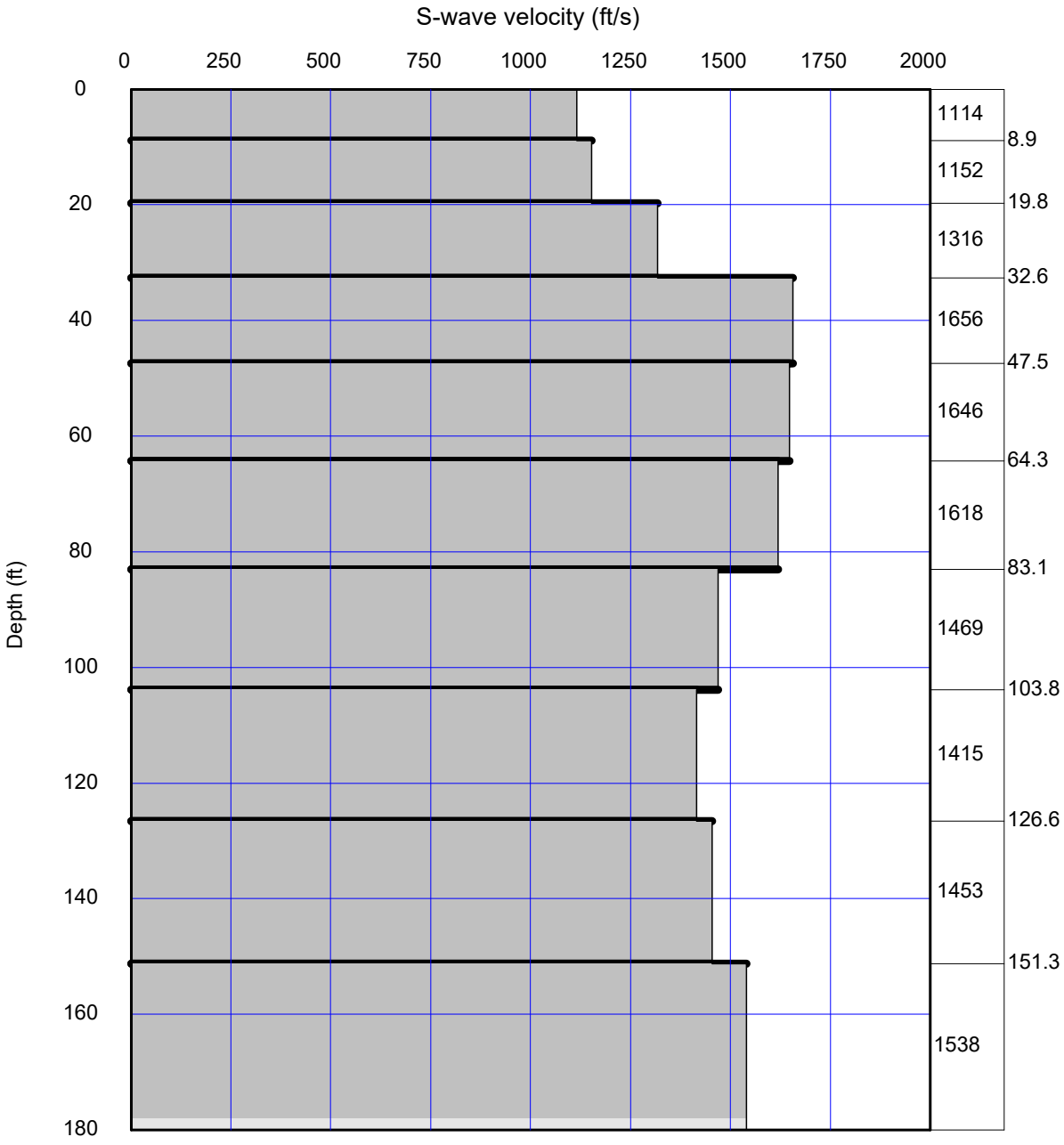
Date: 10/4/21



TERRA GEOSCIENCES
P.O. Box 1090
Loma Linda, CA 92354

TG Project No. 213717-6

SEISMIC LINE SW-7



SHEAR-WAVE VELOCITY MODEL: Average Vs 100ft = 1,439.3 ft/sec

Site Classification (ASCE 7-16 Ch. 20)- "C" (Very Dense Soil and Soft Rock profile)

Client: Kleinfelder **Project No. 20221328**

Project Name: Speedway Commerce Center II - Building 7

Survey Line End Coordinates: 34.085912, -117.511311 / 34.085912, -117.511311

Date: 10/4/21

PROFESSIONAL GEOPHYSICIST
DONN C. SCHWARTZKOPF
No. 1002
STATE OF CALIFORNIA

TERRA GEOSCIENCES
P.O. Box 1090
Loma Linda, CA 92354

TG Project No. 213717-7

APPENDIX D
SITE SPECIFIC GROUND MOTION HAZARD ANALYSIS

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APPENDIX D
SITE-SPECIFIC GROUND MOTION HAZARD ANALYSIS

SUBJECT: Proposed Speedway Commerce Center
Fontana, California 92335

PRJ. NO.: 20221328.002A

FROM: Minxing Zhao, PhD, PE, GE; Zia Zafir, PhD, PE, GE

INTRODUCTION

This document presents the results of Kleinfelder's site-specific ground motion hazard analysis (GMHA) for the proposed Speedway Commerce Center, Building 1, located in Fontana, California. The purpose of this GMHA is to develop site-specific ground motion parameters in terms of peak ground accelerations and response spectral accelerations for the subject site, and in accordance with our proposal dated August 31, 2021. This document has been prepared consistent with the requirements of the 2019 California Building Code (CBC) which adopts the procedures outlined in ASCE 7-16 for site-specific analyses. The scope of this analysis includes:

- Development of a site-specific earthquake source model for conformance with the current code requirements and current state of the practice.
- Performing site-specific ground motion hazard analyses per Section 21.2 of ASCE 7-16 consisting of probabilistic and deterministic seismic hazard analyses (PSHA and DSHA).
- Developing site-specific response spectra for the Risk-Targeted Maximum Considered Earthquake (MCE_R) and the Design Earthquake (DE) and obtaining seismic design parameters per Sections 21.4 and 21.5 of ASCE 7-16.
- Preparation of this document presenting the results of the site-specific seismic hazard analyses.

This document is intended to support our current geotechnical study for the subject site and is subject to the same limitations as contained in the main report.

PROJECT LOCATION

The project site is located in Fontana, California. We have used the approximate coordinates of the site as the control point for the ground motion hazard analysis at:

Latitude: 34.0863° N
Longitude: 117.4929° W

SEISMOTECTONIC SETTING AND SEISMICITY

A brief discussion of the seismotectonic setting and historic seismicity is provided below. The regional seismotectonic setting and historic seismicity inform the selection of an appropriate seismic source model and provide context for the likely potential for future earthquakes to impact the site.

Seismotectonic Setting

The site is located within the northern portion of the Perris Block in the Peninsular Ranges geomorphic province in the Western United States (WUS) along the predominantly right lateral transform margin between the Pacific and North American Plates. The Perris Block is bounded on the east by the San Jacinto fault zone, on the west by the Elsinore fault zone, and on the north by the Sierra Madre-Cucamonga fault zone. According to Meigs and Oskin (2002), to the south of ~34°N latitude, the Peninsular Ranges structural province is characterized by northwest-trending strike-slip faulting, northwest motion of crustal blocks relative to stable North America, and negligible vertical-axis block rotation. In contrast, the Transverse Ranges province to the north of ~34°N latitude is characterized by west-trending oblique-slip faulting and a significant component of north-south crustal shortening contemporaneous with northwestward motion and vertical-axis block rotation relative to stable North America. A structurally complex transition zone between 33.75°N and 34.25°N latitude defines the boundary separating these two provinces.

Regional Faulting and Historic Seismicity

Based on the information provided in CGS (2018), the site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone where site-specific studies addressing the potential for surface fault rupture are required and no known active faults are mapped traversing the site. However, the site is located close to several active faults where historic seismic activities have been observed in the past.

The nearest fault to the site is the Fontana (Seismicity) fault located approximately 1.0 km to the southeast of the site. Other nearby major fault sources include the Cucamonga fault (10.4 km to the north), the San Jacinto (Lytle Creek connector) fault (11.2 km to the northeast), the San Jacinto fault zone (14.4 km to the northeast), and the S. San Andreas fault zone (19.2 km to the northeast). The above distances are measured from the site to the surface or projected surface trace using the USGS Earthquake Scenario Map (BSSC 2014). Any seismic activity on these faults could cause significant ground shaking at the site. These and other potential seismogenic sources are identified on Figure D1.

Patterns of historic seismicity are used to identify potentially active sources, develop on- and off-fault recurrence rates, and understand the historic impacts from seismicity at a site. A catalog of events is typically used, such as those developed and used by the Uniform Earthquake Rupture Forecast version 3 (UCERF3, Field et al., 2013). For this study, we compiled and reviewed data from the USGS ANSS Comprehensive Earthquake Catalog which contains data from multiple sources from 1800 to 2021 within 300 km of the site. We also reviewed the catalog of historic events developed and used by the UCERF3 project. Comparison of these two catalogs indicates generally good agreement. In addition, we obtained information about California earthquakes having M≥5 from CGS Map Sheet 49 (Toppozada et al., 2000).

The closest recorded significant event (M_w>5) in the above referenced catalogs is the 1892 Rancho Cucamonga (M_w 5.5) earthquake, located approximately 12.6 km north to the site. The historic seismicity along the San Jacinto fault zone may also be significant due to proximity of this fault zone to the site, such as the 1858 San Bernardino (M_w 6.0) earthquake, the 1923 Loma Linda (M_w 6.0) earthquake, and the 1899 San Jacinto (M_w 6.7) earthquake. Other significant regional seismicity has included the 1812 San Bernardino (M_w 7.5) earthquake, the 1952 Grapevine (M_w 7.5) earthquake, the 1992 Landers (M_w 7.3) earthquake, the 1999 Hector Mine (M_w 7.1) earthquake, and the 1994 Northridge (M_w 6.7) earthquake. Historic seismicity within 100 km of the site is depicted on Figure D1.

A publication prepared by the U.S. Geological Survey regarding earthquake probabilities in the Los Angeles Area (Working Group on California Earthquake Probabilities, 2014) concludes that there is a 60 percent chance that one of the major faults within the Los Angeles Area will experience a major (M 6.7+) earthquake during the period of 2014 to 2043. This publication also shows that there is a 46 percent chance of M 7+ earthquake and 31 percent chance of M 7.5+ happening before 2043. These probabilities are significant and require mitigation. As has been seen in the past earthquakes such as the 1994 (M 6.7) Northridge earthquake, that this level of shaking could cause significant damage to the built environment.

SUBSURFACE SITE CONDITIONS FOR SEISMIC STUDY

Site effects are typically modeled in GMHA based on the average shear wave velocity in the upper 100 feet (V_{S30}). From the geotechnical investigations completed by Kleinfelder in 2021, the interpreted soil profile at the proposed Building 1 generally consists of sands, silty sands and sandy silts with varying amounts of gravels and cobbles. Based on the shear wave velocities measured from the seismic line, SW-1, completed by Kleinfelder in 2021, the V_{S30} value is estimated to be approximately 419 meters per second (m/s). Therefore, for our analysis we have selected V_{S30} of 419 m/s (1374 feet per second) consistent with a Site Class C profile per Table 20.3-1 of ASCE 7-16.

SITE-SPECIFIC GROUND MOTION HAZARD ANALYSIS

A site-specific ground motion hazard analysis (GMHA) is a useful tool in evaluation of potential ground motion hazard at a site. The analysis generally includes a representative seismic source model (geometry, style of faulting, magnitude, etc.), appropriate recurrence relationships, and appropriate ground motion models (aka. attenuation relationships). The analysis can be used to quantify the potential for strong ground shaking at a site including the site-modified peak ground acceleration (PGA) and spectral accelerations (S_a). For this work, the analysis was performed consistent with the requirements of Section 21.2 of ASCE 7-16 and the 2019 CBC. Details of the analysis used in this study are described below.

Seismic Source Model

Based on our review of the seismotectonic setting and nearby active sources we have selected the Petersen et al. (2014) source model, which has been used in USGS 2014 National Seismic Hazard Mapping program, as the base model for our evaluations. The Petersen et al. (2014) source model generally uses the sources developed by the UCERF3 project within California (which utilizes two alternative fault models, FM 3.1 and 3.2) to model on-fault seismicity. Off-fault seismicity (e.g. background seismicity) is modeled using gridded seismic sources from UCERF3. The UCERF3 source model has been used in developing the 2014 USGS National Seismic Hazard Maps and is appropriate for use in modeling seismicity based on the 2019 CBC.

Shallow crustal fault sources from the regional model within 300 km of the site have been included in the model, with subduction earthquake sources included out to 1000 km as recommended by the USGS (Petersen et al., 2014). Based on review of the nearby and significant sources it was felt that the existing UCERF3 model generally adequately captured the seismicity in the region. The source model used for this work is shown on Figure D2 with significant fault sources within 30 km listed in Table D-1.

TABLE D-1: SIGNIFICANT INDEPENDENT SEISMOGENIC FAULT SOURCES WITHIN 30 KM

Segment Name	Closest Distance (km)	Length (km)	Avg Dip (deg.)	FM 3.1	FM 3.2	M_{max}
Fontana (Seismicity)	1.0	24	80	TRUE	TRUE	6.8
Cucamonga	9.0	29	45	TRUE	TRUE	6.9
San Jacinto (Lytle Creek connector)	11.0	23	90	TRUE	TRUE	6.8
San Jacinto (San Bernardino)	14.2	37	90	TRUE	TRUE	7.0
San Jose	18	20	74	TRUE	TRUE	6.7
San Andreas (San Bernardino N)	19	35	90	TRUE	TRUE	6.9
San Andreas (North Branch Mill Creek)	23	106	76	TRUE	TRUE	7.5
Sierra Madre	23	57	53	TRUE	TRUE	7.2
San Gabriel (Extension)	23	63	61	TRUE	TRUE	7.2
Chino alt 2	24	29	65	FALSE	TRUE	6.8
Chino alt 1	24	24	50	TRUE	FALSE	6.7
Cleghorn	24	26	90	TRUE	TRUE	6.8
San Jacinto (San Jacinto Valley) rev	25	18	90	TRUE	TRUE	6.7
San Andreas (San Bernardino S)	26	43	90	TRUE	TRUE	6.9
San Andreas (Mojave S)	26	98	90	TRUE	TRUE	7.4
North Frontal (West)	27	49	49	TRUE	TRUE	7.2
Yorba Linda	27	18	90	TRUE	TRUE	6.6
Whittier alt 2	29	46	75	FALSE	TRUE	7.0
Whittier alt 1	29	46	70	TRUE	FALSE	7.0
Elsinore (Glen Ivy) rev	30	26	90	TRUE	TRUE	6.7

Notes:

1. Values shown are representative values presented in UCERF3 “fault section data” table.
2. Distances shown are to the modeled fault surface or projected surface trace in UCERF3.
3. Magnitudes are approximate maximum magnitudes based on the relationships of Ellsworth B, Hanks and Bakun, and Shaw (see Field et al., 2013, Appendix E) using values presented in UCERF3 documentation. Actual PSHA run with range of values representing uncertainty in hazard, relaxation of segmentation, and multi-fault ruptures. Multi-fault and multi-segment ruptures result in larger (but typically less probable) events. For example:
    a. Whittier-Elsinore – CM+J+T+s+GI+W Magnitude 7.8 (BSSC, 2014)
    b. San Jacinto – SBV+SJV+s+A+CC+B+SM Magnitude 7.8 (BSSC, 2014)
    c. S. San Andreas – PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO Magnitude 8.2 (BSSC, 2014)
4. Less significant and/or distant faults are not shown for clarity. See Figure D2 for full fault model to 300 km.

‘Grand Inversion’ and Recurrence Rates

The earthquake recurrence rates used within the source model used for this project were derived from work completed for UCERF3 as implemented by Petersen et al. (2014) using the branch averaged solutions of the ‘grand inversion’. The ‘grand inversion’ scheme used by the UCERF3 project team ‘solved’ the on-fault and off-fault recurrence rates at a system level using a set of defined constraints including the spatial probability density of off-fault seismicity, slip rate balancing, paleoseismic event rate matching, fault smoothness constraint, regional magnitude frequency distribution constraints, and fault section specific magnitude frequency distribution constraints. In simple terms the ‘grand inversion’ solves for three things: large on-fault (supra-seismogenic) event rates; small, near-fault (subseismogenic) event rates; and truly off-fault (unassociated) event rates. The supra-seismogenic ‘on-fault’ events are ultimately

modeled using linear fault sources; while the latter two categories (subseismogenic and off-fault) are considered 'background seismicity' and are modeled using spatially smoothed 'grid' of evenly spaced cells (aka. gridded seismicity). The combined on-fault and off-fault solution set (fault system solution) used the logic tree solution framework shown in a generalized form on Figure D3; and our model implemented the branch averaged solutions.

In the source model used for this work, the on-fault seismicity considers two potential alternative fault models, equally weighted, identified as fault model 3.1 (FM 3.1) and fault model 3.2 (FM 3.2). These fault models each contain a slightly different collection of fault traces that are broken into 'segments' for modeling purposes, with individual 'segments' strung together to create hundreds of thousands of potential fault-based ruptures or multi-rupture events. In our model, fault segments are modeled using a 'characteristic' magnitude frequency distribution (originally described by Schwartz and Coppersmith, 1984) with the recurrence rates constrained during the 'grand inversion' by the UCERF2 'characteristic' inversion branch. Fault slip rates (deformations) are constrained by a combination of a 'pure' geologic deformation model and three other models that consider geologic and geodetic data including the average fault block model, NeoKinema model, and Zeng-Shen model. The magnitude-area relationships used along with the associated slip-length models as well as other solution constraints applied are shown with weights on Figure D3 and discussed in detail in Field et al. (2013).

Off-fault seismicity (e.g. background seismicity) recurrence rates are solved for simultaneously by the 'grand inversion'. This off-fault background seismicity is intended to include all smaller earthquakes (M_w<~6.5) on major faults and earthquakes of all sizes that are not associated with known faults. The off-fault background seismicity considers spatial smoothing of a 'grid' of evenly spaced cells using the spatial probability density function (PDF) grids of off-fault seismicity from UCERF2 and UCERF3 (equally weighted), considering the regional constraints on the model including the total regional magnitude-frequency distribution (e.g. Gutenberg-Richter distribution), maximum off-fault magnitude (7.3, 7.6, or 7.9 weighted as 0.1, 0.8 and 0.1 respectively), number of regional events per year greater than a magnitude 5 (considered between 6.5 and 9.6) and other constraints as shown on the logic tree (see Figure D3). The branch averaged gridded seismicity solution for each fault model, as implemented by Petersen et al. (2014), is used in the source model for this work.

Ground Motion Models

Site-specific ground motions can be influenced by the styles of faulting, magnitudes of the earthquakes, and local soil conditions. Other effects such as near source or basin effects can also influence the ground motions. The ground motion models (GMMs) used to estimate ground motion from an earthquake source need to directly or indirectly consider these effects. Many GMMs have been developed to estimate the variation of spectral acceleration with earthquake magnitude and distance from the site to the source of an earthquake.

We have used four of the Next Generation Attenuation (NGA) West 2 relationships including Abrahamson et al. (2014), Boore et al. (2014), Chiou and Youngs (2014), and Campbell and Bozorgnia (2014) with equal weights applied for all crustal faults (e.g. reverse, strike-slip, normal) included in the fault model. Idriss (2014) GMM has not been used as the seismic source distances used in our analyses are outside the limits of Idriss (2014) GMM and the V_{S30} for our site is outside the range of this relationship. These GMMs also need values of $Z_{1.0}$ (depth to the layer in km where Vs is 1 km/s) and $Z_{2.5}$ (depth to the layer in km where Vs is 2.5 km/s) in addition to the V_{S30} value. We used NGA West 2 relationships based on V_{S30} to estimate $Z_{1.0}$ and $Z_{2.5}$ as 0.34 km and 1.20 km, respectively.

Spectral acceleration values were obtained by averaging the individual hazard results. These GMMs provide 'mean' (RotD50) values of ground motions associated with magnitude, distance, site soil conditions, and mechanism of faulting.

GROUND MOTION HAZARD ANALYSIS

Preceding sections described the development of the source model used in this work. This section describes the use of the source models for the current study and the resulting application to development of design ground motion parameters.

According to ASCE 7-16, the Risk-Targeted Maximum Considered Earthquake (MCE_R) is the most severe earthquake load considered by that standard and is considered at the orientation that results in the maximum response to horizontal ground motions with adjustment for targeted risk as defined by that standard. The site-specific MCE_R is developed in accordance with Section 21.2 of ASCE 7-16 using a site-specific ground motion hazard analysis procedure and is the lesser of: (1) the probabilistic MCE_R ground motion taken as the five percent damped uniform hazard spectrum for a 2 percent probability of exceedance in 50 years (i.e., return period of about 2,475 years) adjusted for risk factors and for the maximum direction; and (2) the deterministic MCE_R ground motion taken as the 84th percentile (median + 1 standard deviation) deterministic values (adjusted for the maximum direction) from the controlling fault(s) factored as required by Section 21.2.2 of ASCE 7-16. The Design Earthquake (DE) spectrum is defined as two-thirds of the MCE_R spectrum. The resulting site-specific DE spectrum may not be less than the 80 percent of the code spectrum developed in accordance with Chapter 11 of ASCE 7-16.

Both probabilistic and deterministic seismic hazard analyses should be used to estimate the spectral accelerations used to develop the site-specific MCE_R unless the deterministic spectrum need not be calculated per Section 21.2.2 of ASCE 7-16 Supplement 1. Details of our evaluation are provided below.

Probabilistic Seismic Hazard Analysis

For this work, a probabilistic seismic hazard analysis (PSHA) procedure was used to estimate the ground motion parameters (e.g. peak and spectral ground accelerations). The PSHA approach uses a logic tree approach to appropriately account for epistemic and aleatoric uncertainty in the model. The logic tree includes information about uncertainties in the source models, ground motion models, and other items impacting the results. Important source characteristics include such items as magnitude and recurrence interval of potential seismic events, distance from the site to the causative source, and other parameters. The effects of site soil conditions and other considerations such as basin effects can be accounted for using ground motion models (GMMs).

The theory behind the empirical probabilistic approach to seismic risk analysis has been developed over many years (Cornell, 1968, 1971; Merz and Cornell, 1973; SSHAC, 1997), and is based on the "total probability theorem". Generally, this work uses an assumption that earthquake events are independent of time and space from one another (e.g. time-independent models). According to this approach, the probability of exceedance $P_E(z)$ at a given level of ground motion, z, at the site within a specified time period, t, is related to the annual frequency of exceedance v(z) by:

$$P_E(z) = 1 - \exp(-v(z) * t)$$

Different probabilities of exceedance may be selected, depending on the level of performance required. The return period is essentially equivalent to the reciprocal of v(z).

The PSHA is conducted using three generalized steps: 1) development of an appropriate seismic source model including source characterization, development of recurrence relationships, and appropriately capturing uncertainty, 2) selection of appropriate ground motion models (and site amplification models if appropriate), and 3) conducting the calculation and processing the results. The annual frequency of exceedance of a certain ground motion level can be found by summing the rates for all sources, N, with the rate for each source determined by summing over all magnitudes and source to site distances, and so forth. The annual frequency of occurrence of earthquakes of magnitude, m_i, on seismic source, n, is $\lambda(m_i)$. The probability of an earthquake of magnitude m_i on source n occurring at a certain distance, r_j, from the site is $P(R = r_j \mid m_i)$ while the probability that the ground motion level, z, will be exceeded is given as $P(Z>z \mid m_i, r_j)$. Thus, mathematically the basic formulation for the annual frequency of exceedance, v(z), is given by:

$$v(z) = \sum_N \left[\sum_M \lambda(m_i) * \sum_R P\left(R = r_j \middle| m_i\right) * P\left(Z > z \middle| m_i, r_j\right) \right]$$

Modern computers make the above calculation, while computationally expensive, easily implementable. We have used the computer program HAZ (Powers, 2017) for our probabilistic analysis which implements the above general equation and evaluations of the probability of exceedance. Uncertainties are accounted for within the source model using the logic tree approach and source model discussed previously.

Deterministic Seismic Hazard Analysis

The deterministic seismic hazard analysis (DSHA) approach is also based on the characteristics of the earthquake and the causative fault associated with the earthquake. These characteristics include such items as magnitude of the earthquake and distance from the site to the causative fault. The effects of site soil conditions and mechanism of faulting are also accounted for in the GMMs. Per ASCE 7-16, the 84th percentile deterministic site-specific spectral acceleration values should be used for DSHA with the exception that the deterministic spectrum need not be calculated when the largest spectral acceleration from the probabilistic spectrum is less than $1.2*F_a$. If the largest spectral acceleration from the resulting deterministic 84th percentile maximum horizontal spectrum is less than $1.5*F_a$ then the spectrum is scaled by a single factor such that the maximum spectral value equals $1.5*F_a$. The value of F_a is taken from either Table 11.4.1 (Site Classes A to D) with a value of S_s equal to 1.5, or set equal to 1.0 (Site Class E) for purposes of these comparisons.

Since the site is located close to several significant faults in the region, for the deterministic evaluations, we used the NGA West 2 spreadsheet (PEER, 2015) to calculate deterministic values for some of the nearby faults, and used the USGS Earthquake Scenario Map (BSSC 2014) (from https://earthquake.usgs.gov/scenarios/catalog/) in determining the contributing faults and their parameters for deterministic analysis. The faults include the Fontana (Seismicity), Cucamonga, and San Jacinto (Lytle Creek connector) faults, and the San Jacinto and S. San Andreas fault zones. The three faulting mechanisms, reverse, normal and strike-slip, were considered for the Fontana (Seismicity) fault, as the faulting mechanism is unassigned for this fault. The computed deterministic spectra from the above-mentioned nearby faults are shown in Figure D4. Figure D4 shows that the Fontana (Seismicity) reverse fault at a distance to the surface trace of about 1.0 km (R_{RUP}, R_{JB} and R_X of about 1.0 km, 0.0 km and 1.0 km, respectively) and with a moment magnitude of about 6.8 controlled the deterministic values for all periods except

for periods greater than about 3.6 seconds, where the S. San Andreas fault zone at a distance to the surface trace of about 19.2 km (R_{RUP}, R_{JB} and R_X all of about 19.2 km) and with a moment magnitude of about 8.2 controlled the deterministic values.

Site-Specific MCE_R and Design Response Spectra

To develop the site-specific spectral response accelerations, we first obtained the general seismic design parameters, as presented in Table D-2, based on the site class, site coordinates, and the risk category based on Chapter 11 of ASCE 7-16 using the OSHPD online tool (https:/seismicmaps.org) which accesses the USGS database.

TABLE D-2: GENERAL GROUND MOTION PARAMETERS BASED ON ASCE 7-16

Parameter	Value	ASCE 7-16 Reference
S_S	1.829g	Fig 22-1
S_1	0.686g	Fig 22-2
Site Class	C	Table 20.3-1
F_a	1.2	Table 11.4-1
F_v	1.4	Table 11.4-2
S_{MS}	2.195g	Eq. 11 4-1
S_{M1}	0.96g	Eq. 11 4-2
S_{DS}	1.463g	Eq. 11.4-3
S_{D1}	0.64g	Eq. 11.4-4
C_{RS}	0.932	Fig 22-18A
C_{R1}	0.909	Fig 22-19A
PGA	0.782g	Fig 22-9
F_{pga}	1.2	Table 11.8-1
PGA_M	0.938g	Eq. 11.8-1
T_L	12 seconds	Fig 22-14

The MCE_R response spectrum is generally developed by comparing probabilistic, deterministic, and 80% of the general procedure code spectrum. The NGA West 2 GMMs present the spectral accelerations in terms of 'mean' (RotD50) values of the rotated two horizontal components of ground motion. To estimate spectral accelerations in the direction of the maximum horizontal response (e.g. RotD100) at each period from geometric mean values, we have used the scaling factors of Shahi and Baker (2014). These values were used as they more accurately represent the appropriate factors to apply using the NGA West 2 relationships. These factors are shown in Table D-3. In addition, the probabilistic spectrum was adjusted for targeted risk using risk coefficients C_{RS} and C_{R1} (e.g. Method 1 of Section 21.2.1 of ASCE 7-16). C_{RS} and C_{R1} were estimated from Figures 22-18A and 22-19A of ASCE 7-16 and are listed in Table D-2. C_{RS} is applied on periods of 0.2s or less and C_{R1} is applied on periods of 1.0s or greater and linear interpolation in between as shown in Table D-3.

TABLE D-3: RISK COEFFICIENTS AND ROTATION FACTORS

Period (second)	Risk Coefficient (ASCE 7-16)	Shahi and Baker (2014) Max Rotation Factor
0.010	0.932	1.190
0.200	0.932	1.210
0.300	0.929	1.220
0.500	0.923	1.230
1.000	0.909	1.240
2.000	0.909	1.240
5.000	0.909	1.260

As mentioned earlier, the geometric mean 84th percentile deterministic values were estimated for the nearby faults and the largest values were then adjusted for the maximum direction. Since the maximum deterministic spectral acceleration is greater than 1.5*F_a, as shown in Figure D5, there is no need to scale it up to estimate the deterministic lower limit and this spectrum is the governing deterministic spectrum.

Probabilistic and deterministic spectral values are compared in Table D-4 for some specific periods and the two spectra are compared in Figure D6. Figure D6 and Table D-4 show that the probabilistic spectrum is lower than the deterministic spectrum for the periods less than about 2.6 seconds, and the deterministic spectrum is lower than the probabilistic spectrum for the periods beyond 2.6 seconds. Therefore, the site-specific MCE_R spectrum is governed by both the probabilistic and deterministic spectra. The DE spectrum was developed by taking two-thirds of the MCE_R spectrum. Spectral values for the site-specific MCE_R and DE spectra are listed in Table D-5 for some periods, which also compares the DE spectrum with the 80% of the code DE spectrum at those periods. Figure D7 shows the comparison of the DE spectrum with the 80% of the code DE spectrum. Figure D7 and Table D-5 show that the DE spectrum is higher than the 80% of the code DE spectrum for all periods, except for the period of 0.05 second. Therefore, the site-specific DE spectrum is the enveloping spectrum of both the site-specific and 80% code DE spectra. The site-specific MCE_R spectrum is taken as 1.5 times the site-specific DE spectrum. The recommended site-specific DE and MCE_R spectra are shown on Figure D8. Spectral acceleration values for the recommended DE and MCE_R spectra are listed in Table D-6.

TABLE D-4: RESULTS FROM SITE-SPECIFIC GMHA

Period (second)	84th-Percentile Deterministic Geometric Mean Sa (g)	Max Dir Deterministic Sa (g)	2% in 50 Year Probabilistic Geometric Mean Sa (g)	Risk-Targeted Max Dir Probabilistic Sa (g)
0.010	1.034	1.231	0.890	0.987
0.200	2.364	2.860	2.121	2.392
0.300	2.603	3.175	2.143	2.429
0.500	2.171	2.670	1.735	1.971
1.000	1.284	1.592	1.046	1.179
2.000	0.517	0.642	0.521	0.587
5.000	0.159	0.200	0.213	0.244

TABLE D-5: COMPARISON OF DESIGN EARTHQUAKE AND 80% CODE SPECTRA

Period (second)	Site-Specific MCE_R Sa (g)	Site-Specific DE Sa (g)	80% Code DE Sa (g)
0.010	0.987	0.658	0.468
0.200	2.392	1.595	1.171
0.300	2.429	1.620	1.171
0.500	1.971	1.314	1.024
1.000	1.179	0.786	0.512
2.000	0.587	0.391	0.256
5.000	0.200	0.133	0.102

TABLE D-6: SITE-SPECIFIC HORIZONTAL SPECTRAL ACCELERATIONS

Period (second)	DE Sa (g)	MCE_R Sa (g)
	5% Damping	
0.010	0.658	0.987
0.020	0.668	1.002
0.030	0.713	1.069
0.050	0.869	1.304
0.075	1.092	1.638
0.100	1.258	1.887
0.150	1.475	2.213
0.200	1.595	2.392
0.250	1.639	2.459
0.300	1.620	2.429
0.400	1.452	2.178
0.500	1.314	1.971
0.750	1.011	1.517
1.000	0.786	1.179
1.500	0.529	0.794
2.000	0.391	0.587
3.000	0.246	0.370
4.000	0.169	0.254
5.000	0.133	0.200

SITE-SPECIFIC GROUND MOTION PARAMETERS

Site-specific ground motion parameters were estimated using the site-specific design response spectrum presented above. According to Section 21.4 of ASCE 7-16, the S_{DS} value should be taken as 90 percent of the maximum spectral acceleration at any period between 0.2 and 5 seconds. For this site, S_{DS} value is controlled by the spectral acceleration value at 0.25 second. Since the site's V_{S30} value is greater than 1,200 ft/s (366 m/s), the S_{D1} value is taken as the maximum value of T^*S_a between periods of 1 and 2 seconds, where T is the period and S_a is the corresponding spectral acceleration. For this site, S_{D1} value is controlled by the spectral acceleration value at 1.5 seconds. The parameters S_{MS} and S_{M1} are taken as 1.5 times S_{DS} and S_{D1}. These spectral accelerations shall not be taken as less than 80 percent of the code-based values as determined by Sections 11.4.4 and 11.4.5 of ASCE 7-16. Site-specific values of S_{DS}, S_{D1}, S_{MS}, and S_{M1} are presented below in Table D-7.

TABLE D-7: SITE-SPECIFIC DESIGN ACCELERATION PARAMETERS

Parameter	Value (5% Damping)
S_{DS}	1.475g
S_{D1}	0.794g
S_{MS}	2.213g
S_{M1}	1.191g

Site-Specific PGA_M and Earthquake Magnitude

According to Section 21.5 of ASCE 7-16, the probabilistic Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration is taken as the geometric mean peak ground acceleration with a 2% probability of exceedance in 50 years. The deterministic MCE_G peak ground acceleration is the largest 84th percentile geometric mean peak ground acceleration for the characteristic earthquakes on all known active faults in the region, but not less than $0.5*F_{PGA}$, where the value of F_{PGA} is taken as 1.2. The site-specific MCE_G peak ground acceleration, PGA_M, is the lesser of the probabilistic and deterministic values, but not less than 80 percent of the value obtained from equation 11.8-1 of ASCE 7-16.

The site-specific PGA_M was developed as described above and is 0.890g and controlled by the probabilistic value. According to the United States Geological Survey (USGS) Unified Hazard Tool deaggregation results, there are several faults significantly and almost equally contributing to the hazard associated with PGA including Fontana (Seismicity) fault, San Jacinto fault zone and S. San Andreas fault zone. The earthquake magnitudes associated with these faults are 6.8, 7.8, and 8.2, respectively. Based on this we recommend a magnitude of 8.0 associated with the PGA for this site, and this magnitude may be used in any geotechnical evaluations at the site.

SEISMIC DESIGN CATEGORY

The Seismic Design Category is determined as specified in the 2019 California Building Code Section 1613.2.5. We understand that the structure is classified as a Risk Category II structure. Based on this and the site-specific seismic design parameters developed above the structure is classified as a Seismic Design Category D.

Attachments: Figure D1 – Regional Faulting and Seismicity
Figure D2 – Seismic Source Model
Figure D3 – UCERF3 Source Model Logic Tree
Figure D4 – Comparison of Deterministic Geomean Response Spectra
Figure D5 – Comparison of Deterministic Spectrum and Lower Limit
Figure D6 – Comparison of Probabilistic and Deterministic Spectra
Figure D7 – Comparison of DE and 80% of Code Spectra
Figure D8 – Site-Specific Horizontal Spectra

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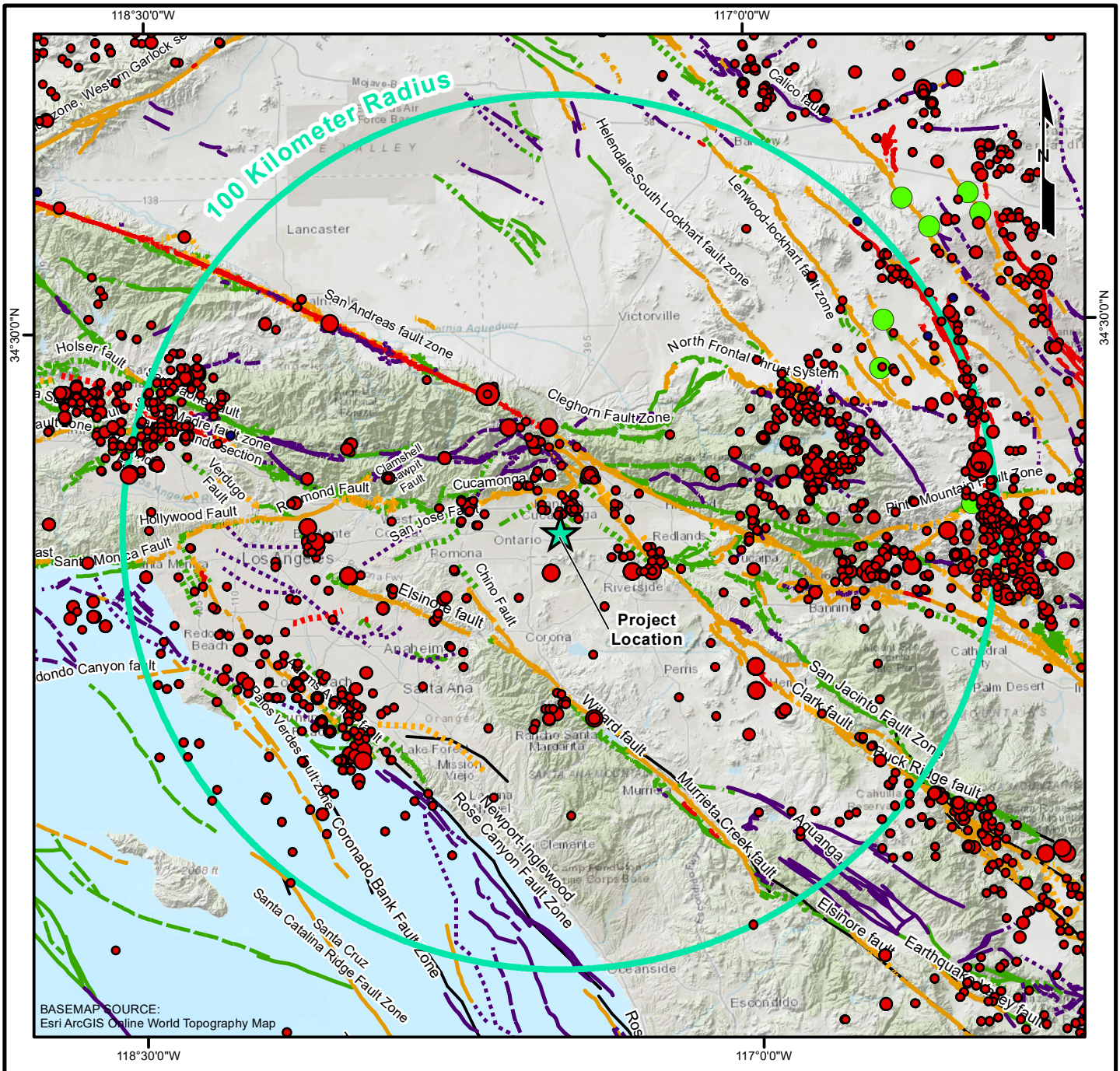

Quaternary Faults (Bryant, 2005; USGS, 2018)

Historic displacement (< 150 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Late Quaternary displacement (< 750,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

ANSS Earthquakes
Magnitude
- 4.0 - 4.9
- 4.9 - 5.9
- 5.9 - 6.9
- 6.9 - 7.9
- 7.9 - 8.9

Holocene displacement (< 15,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Quaternary & unspecified displacement (< 1,600,000 years)
- undifferentiated Quaternary Inferred
- undifferentiated Quaternary Moderately Constrained
- undifferentiated Quaternary Well Constrained

0 17 34 68 Kilometers

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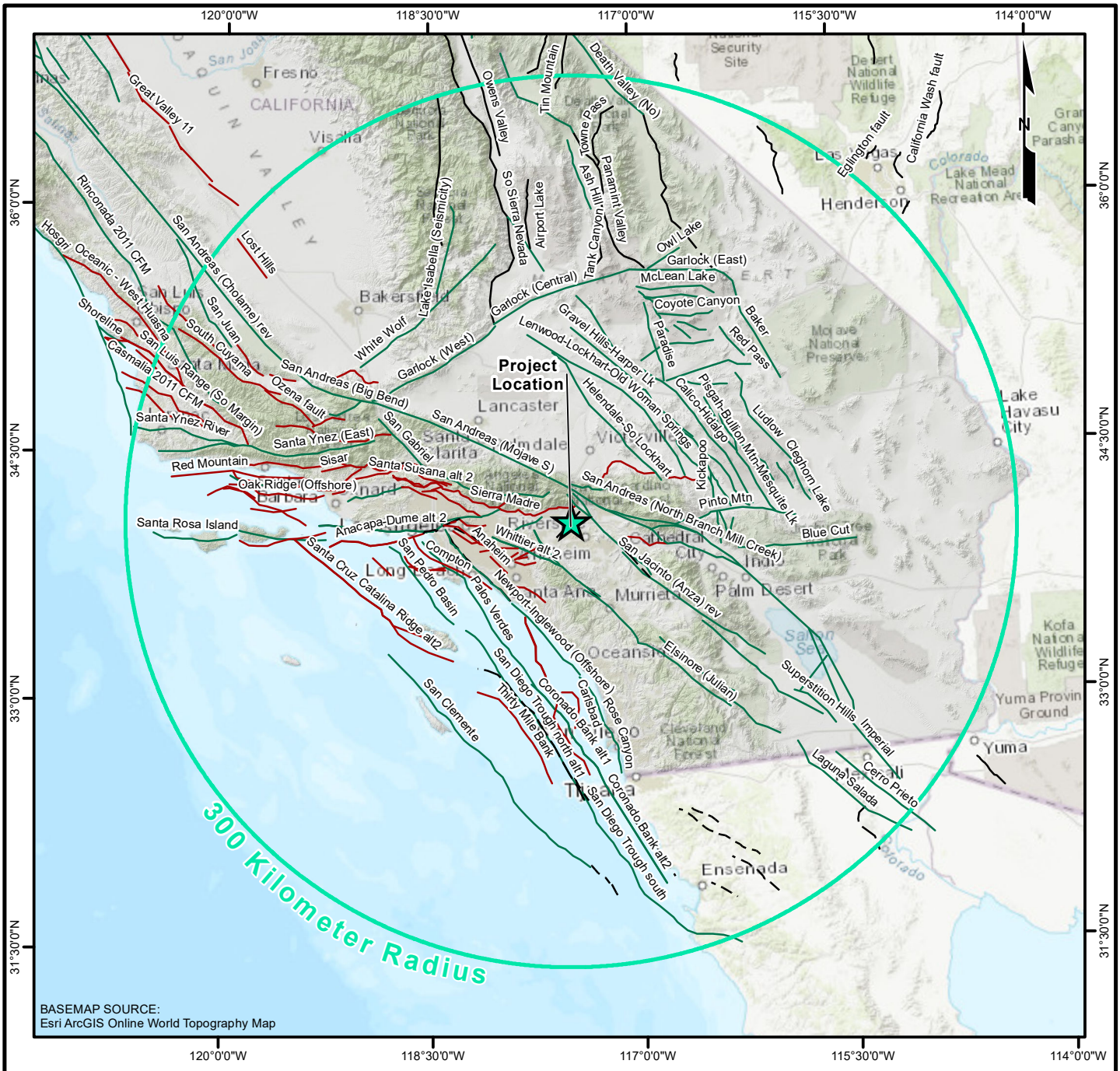
REGIONAL FAULTING AND SEISMICITY 1800 TO PRESENT

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
Fontana, California

FIGURE
D1



Faults, National Seismic Hazard Map (NSHM), 2014

- normal
- strike slip
- thrust
- unassigned

0 50 100 200 Kilometers

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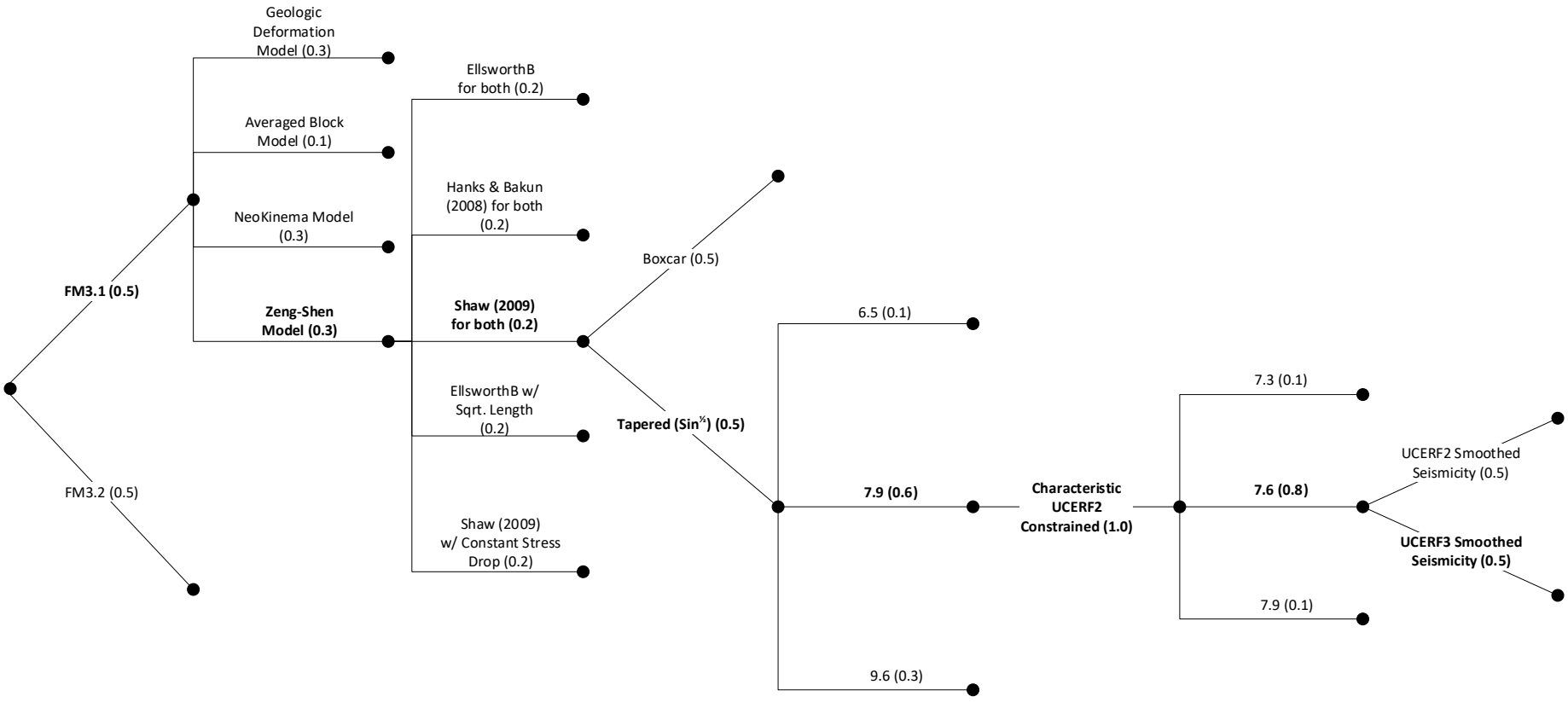
SEISMIC SOURCE MODEL BASED ON UCERF3

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
Fontana, California

FIGURE

D2

Fault Models	Deformation Models	Scaling Relationships (mag-area & slip-length relationships)	Slip Along Rupture (Dsr)	Total M ≥5 Event Rate (yr^{-1})	Inversion Model	$M_{max}^{off\text{-}fault}$	Off-Fault Spatial Seismicity PDF (aka SpatialPDF)



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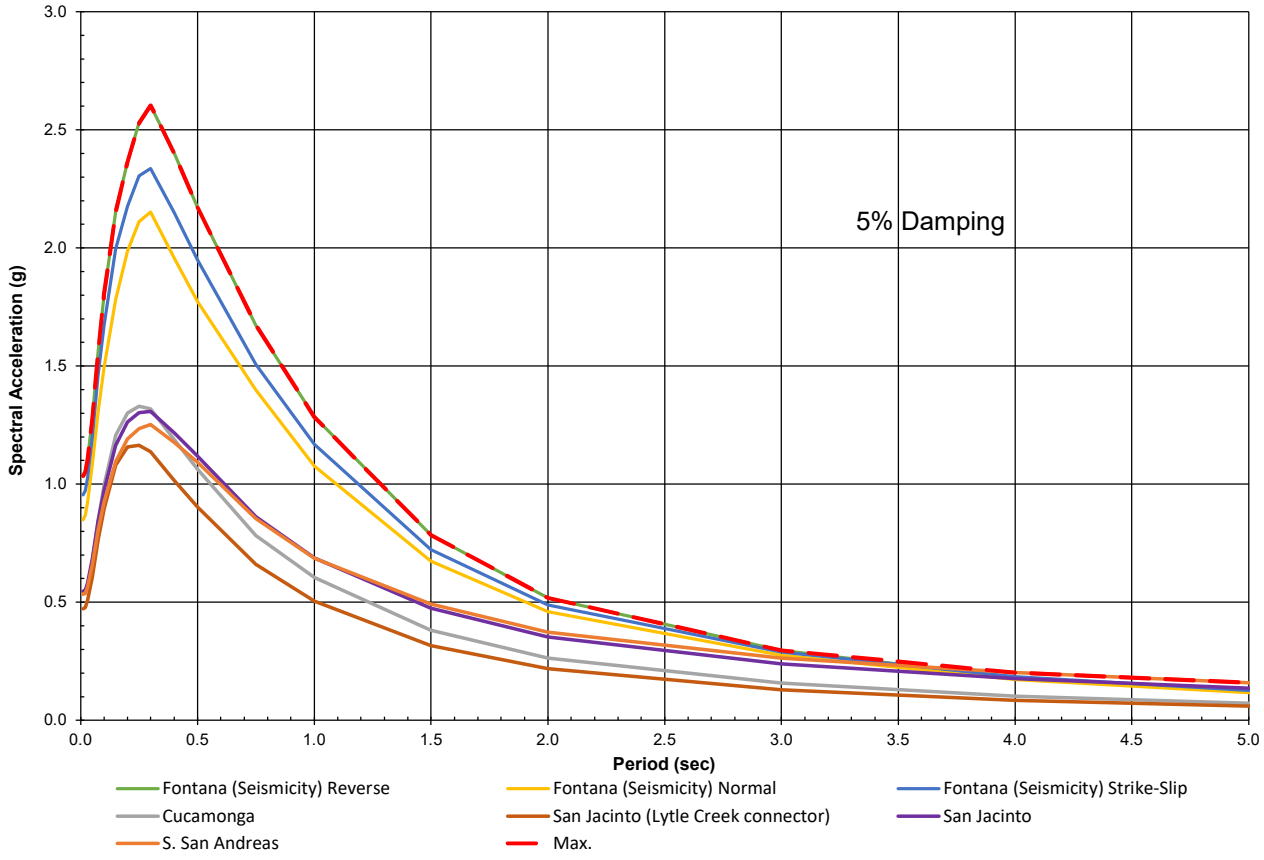
UCERF3 SOURCE MODEL LOGIC TREE

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
Fontana, California 92335

FIGURE:

D3

Comparison of 84th-Percentile Deterministic Geometric Mean Response Spectra



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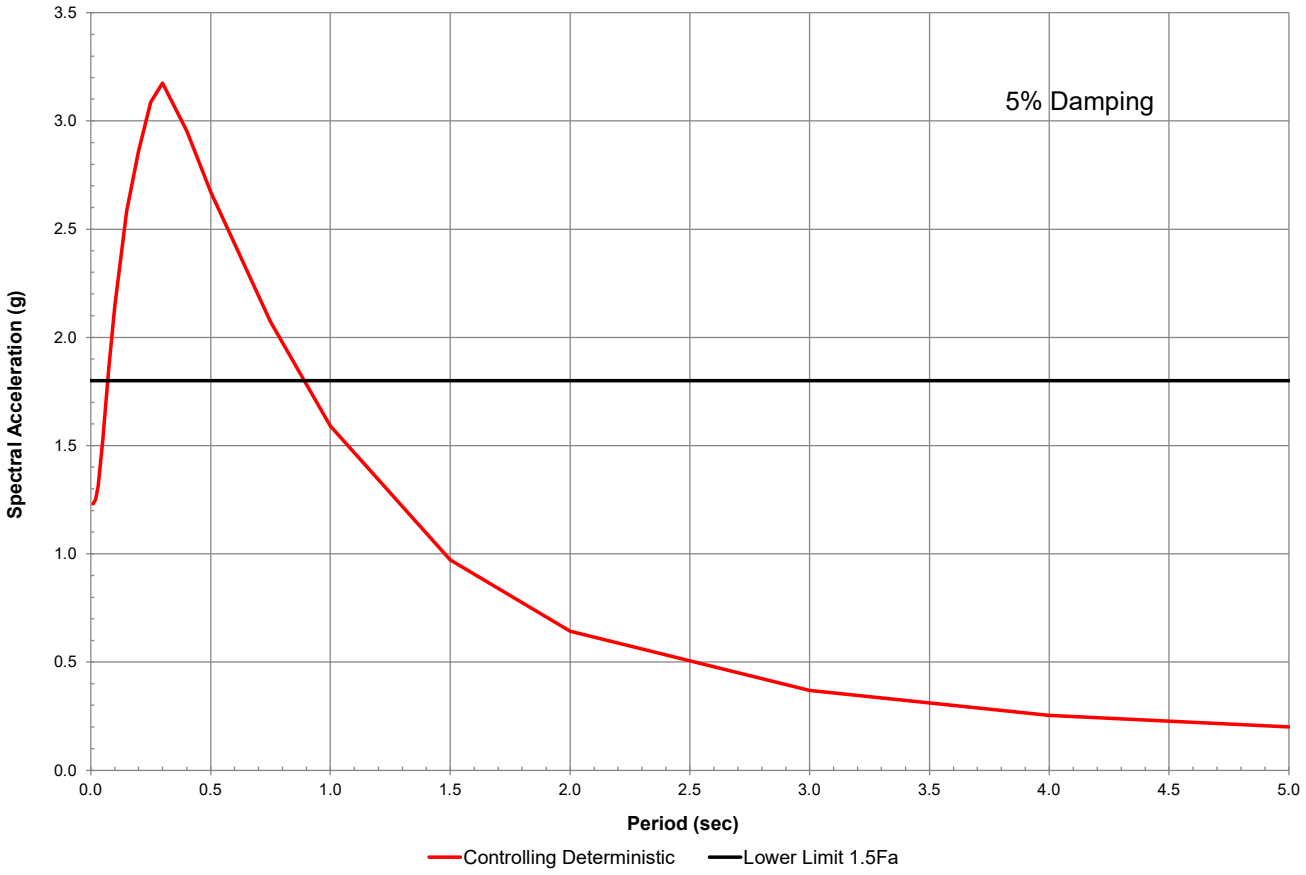
COMPARISON OF DETERMINISTIC RESPONSE SPECTRA

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
Fontana, California 92335

FIGURE

D4

Comparison of Controlling Deterministic Response Spectrum and Lower Limit 1.5*Fa



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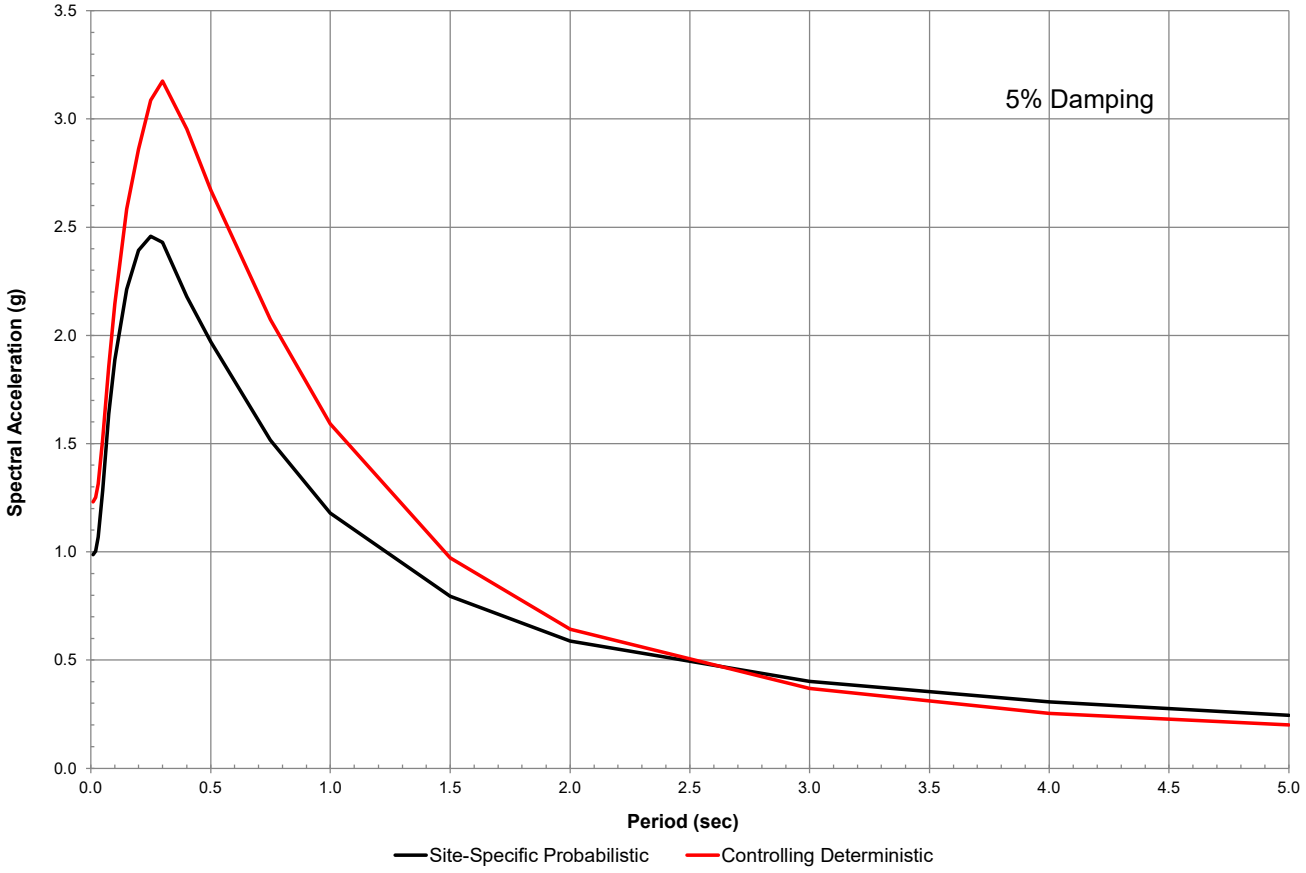
COMPARISON OF DETERMINISTIC SPECTRUM AND LOWER LIMIT

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
Fontana, California 92335

FIGURE

D5

Comparison of Site-Specific Probabilistic and Controlling Deterministic Response Spectra



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COMPARISON OF PROBABILISTIC AND DETERMINISTIC SPECTRA

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
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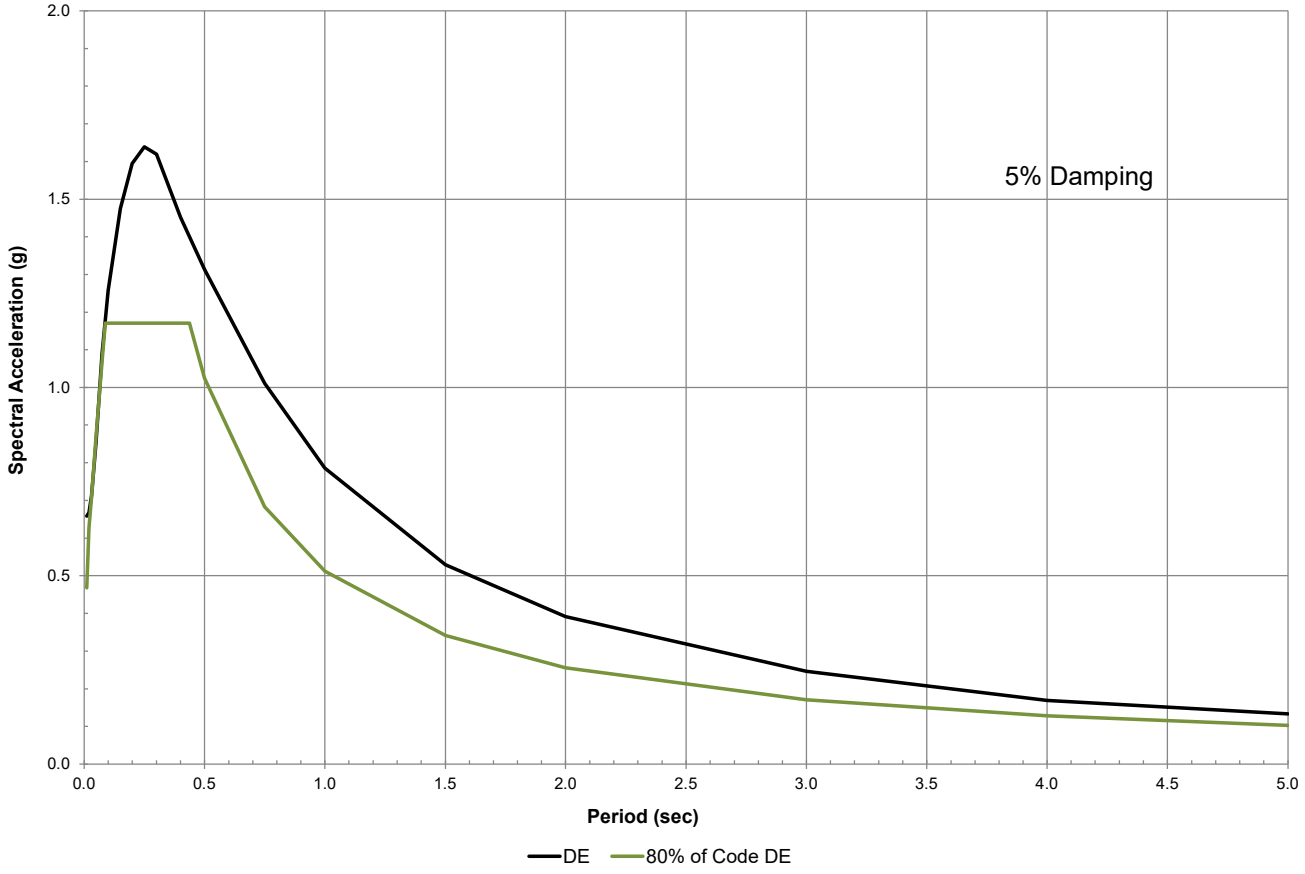
FIGURE

D6

Comparison of Site-Specific Design Earthquake and 80% of Code Response Spectra



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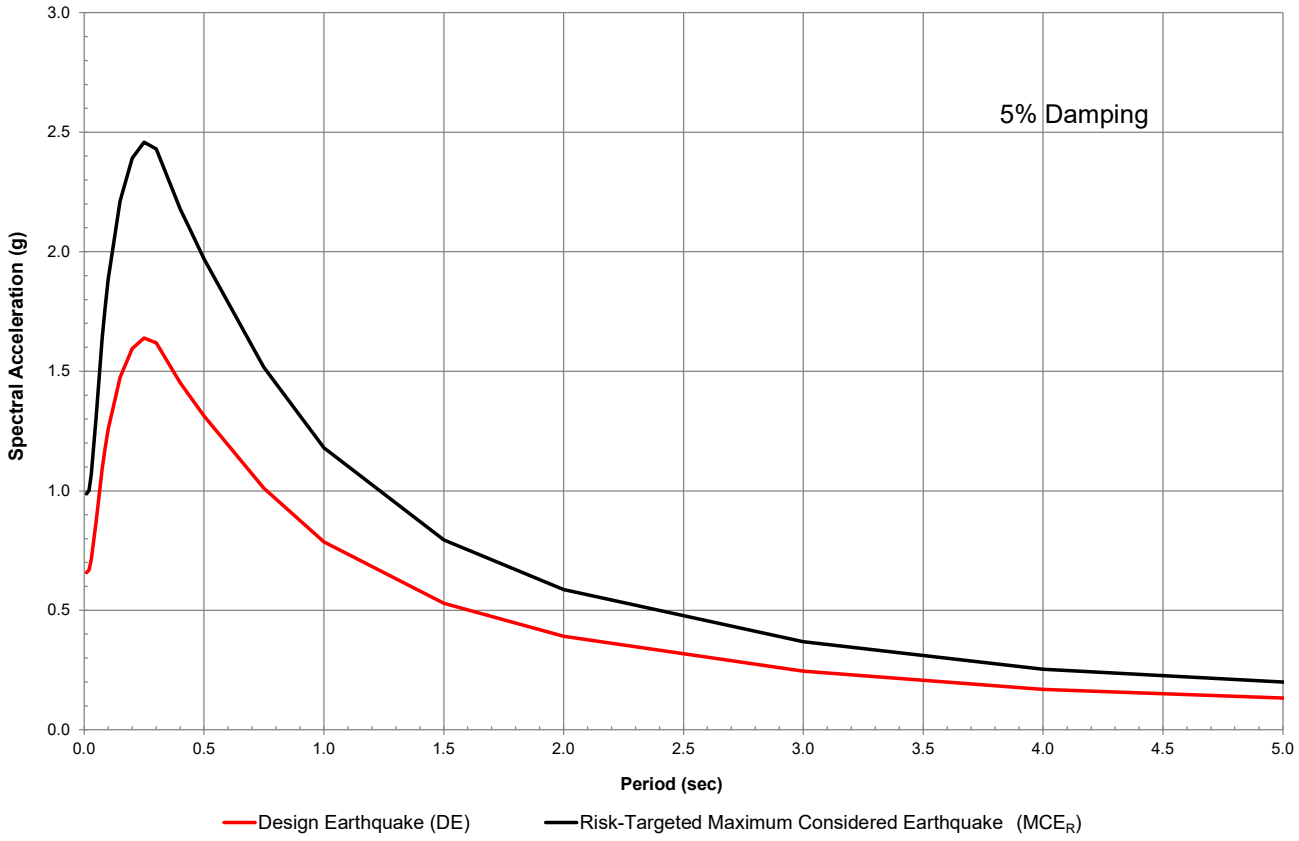
COMPARISON OF SITE-SPECIFIC DE AND 80% OF CODE SPECTRA

Site-Specific Ground Motion Hazard Analysis
Proposed Speedway Commerce Center
Fontana, California 92335

FIGURE

D7

Site-Specific DE and MCE_R Response Spectra



KLEINFELDER Bright People. Right Solutions.	Project No: 20221328.002A Date: 10/26/2021 Drawn By: MZ Checked By: ZZ File Name: DE vs MCE_R	**SITE-SPECIFIC DE AND MCE_R RESPONSE SPECTRA** Site-Specific Ground Motion Hazard Analysis Proposed Speedway Commerce Center Fontana, California 92335	**FIGURE** **D8**

APPENDIX E
SOIL CORROSIVITY EVALUATION

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Soil Corrosivity Evaluation Report for Fontana Speedway Commerce Center

October 26, 2021

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Project X Job #: S211015Z
Client Job or PO #: 20221328.002A

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1 Executive Summary

A corrosion evaluation of the soils at Fontana Speedway Commerce Center was performed to provide corrosion control recommendations for general construction materials. The site is located at **9300 Cherry Avenue, Fontana, CA**. Sixteen (16) samples were tested to a depth of 50.0 ft. Site ground water and topography information was provided by Kleinfelder Inc. Groundwater depth was determined to be 300 feet below finished grade.

Every material has its weakness. Aluminum alloys, galvanized/zinc coatings, and copper alloys do not survive well in very alkaline or very acidic pH environments. Copper and brasses do not survive well in high nitrate or ammonia environments. Steels and irons do not survive well in low soil resistivity and high chloride environments. High chloride environments can even overcome and attack steel encased in normally protective concrete. Concrete does not survive well in high sulfate environments. And nothing survives well in high sulfide and low redox potential environments with corrosive bacteria. This is why Project X tests for these 8 factors to determine a soil's corrosivity towards various construction materials. **Depending solely on soil resistivity or Caltrans corrosion guidelines (which concentrate on concrete/steel highways), will over-simplify descriptions as corrosive or non-corrosive. This approach will not detect these other factors attacking other metals because it is possible to have bad levels of corrosive ions and still have greater than 1,100 ohm-cm soil resistivity. We have observed this fact on thousands of soil samples tested in our laboratory.**

It should not be forgotten that import soil should also be tested for all factors to avoid making your site more corrosive than it was to begin with.

The recommendations outlined herein are not a substitute for any design documents previously prepared for the purpose of construction and apply only to the depth of samples collected.

Soil samples were tested for minimum resistivity, pH, chlorides, sulfates, ammonia, nitrates, sulfides and redox.

As-Received soil resistivities ranged between - ohm-cm and - ohm-cm. This data would be similar to a Wenner 4 pin test in the field and used in the design of a cathodic protection or grounding bed system. This resistivity can change seasonally depending on the weather and moisture in the ground. This reading alone can be misleading because condensation or minor water leaks will occur underground along pipe surfaces creating a saturated soil environment in the trench on infrastructure surfaces. This is why minimum or saturated soil resistivity measurements are more important than as-received resistivities.

Saturated soil resistivities ranged between 720 ohm-cm to 37,000 ohm-cm. The worst of these values is considered to be severely corrosive to general metals but only found in one sample at building 3.The remaining samples are considered to be corrosive to general metals.

PH levels ranged between 4.5 to 10.7 pH. The average pH of these samples is alkaline and can cause accelerated corrosion of copper and aluminum alloys.

Chlorides ranged between 110 mg/kg to 305 mg/kg. Chloride levels in these samples are low and may cause insignificant corrosion of metals.

Sulfates ranged between 10 mg/kg to 2,220 mg/kg. Two buildings (3 & 4) would require Type V concrete due to the high sulfide concentrations while the rest of the buildings can use any type concrete.

Ammonia and Nitrate levels were not tested thus the corrosion probability for copper and brass due to these elements is unknown.

Sulfides presence was determined was not tested thus probability of corrosive bacteria presence is unknown.

2 Corrosion Control Recommendations

The following recommendations are based upon the results of soil testing.

2.1 Cement

The highest reading for sulfates was 2,220 mg/kg or 0.2220 percent by weight.

Per ACI 318-14, Table 19.3.1.1, sulfate levels in these samples categorized as S0 and are negligible for corrosion of metals and cement. Per ACI 318-14 Table 19.3.2.1 any type of cement not containing steel or other metal can be used.

For buildings 3 & 4: Per ACI 318-14, Table 19.3.1.1, sulfate levels in these samples categorized as S2 and are severe for corrosion of metals and cement. Type V, IP(HS), IS(HS), or IT(HS) cement should be used, with a maximum water/cement ratio of 0.45, and minimum strength of 4,500 psi per applicable code.

2.2 Steel Reinforced Cement/ Cement Mortar Lined & Coated (CML&C)

Chlorides in soil can overcome the corrosion inhibiting property of cement for steel, as it can also break through passivated surfaces of aluminum and stainless steels.[1,2] The highest concentration of chlorides was 305 mg/kg.

Chloride levels in these samples are not significantly corrosive to metals not in tension. Standard cement cover may be used in these soils.

Though soils at some locations are significantly corrosive to various metals, per ACI 318-14 Chapter 19 Table 19.3.1.1, all slabs on this site exposure categories and class for **Corrosion Protection of Reinforcement (C) would be considered C1** as Concrete exposed to moisture [mud/rain] (slab sides and bottom) but not to an external source of chlorides. Though there are chlorides in the soil, ACI 318's definition of "external source of chlorides" consists of deicing chemicals, salt, brackish water, seawater, or spray from these sources. The chloride levels in seawater are typically over 19,000 mg/L or 19,000 ppm.

When concrete is tested for water-soluble chloride ion content, the tests should be made at an age of 28 to 42 days. The limits in Per ACI 318-14 Table 5.3.2.1 are to be applied to chlorides contributed from the concrete ingredients, not those from the environment surrounding the concrete.[3]

[1] Design Manual 303: Cement Cylinder Pipe. Ameron. p.65
[2] *Chapter 19, Table 1904.2.2(1), 2012 International Building Code*

[3] ACI 381-14., BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) AND COMMENTARY (ACI 318R-14)

2.3 Stainless Steel Pipe/Conduit/Fittings

Stainless steels derive their corrosion resistance from their chromium content and oxide layer which needs oxygen to regenerate if damaged. Thus stainless steel is not good for deep soil applications where oxygen levels are extremely low. Stainless steels should not be installed deeper than a plant root zone. Stainless steels typically have the same nobility as copper on the galvanic series and can be connected to copper. If stainless steel must be used, it must be backfilled with soil having greater than 10,000 ohm-cm resistivity and excellent drainage. 304 Stainless steel will also corrode if in contact with carbon materials such as activated carbon. Stainless steel welds should be pickled.

The soil at this site has low probability for anaerobic corrosive bacteria and low chloride levels. Per Nickel Institute guidelines, 304 or 316 Stainless steels can be used in these soils.

2.4 Steel Post Tensioning Systems

The proper sealing of stressing holes is of utmost importance in PT Systems. Cut off excess strand 1/2" to 3/4" back in the hole. Coat or paint exposed anchorage, grippers, and stub of strands with "Rust-o-leum" or equal. After tendons have been coated, the cement contractor shall dry pack blockouts within ten (10) days. A non-shrink, non-metallic, non-porous moisture-insensitive grout (Master EMACO S 488 or equivalent), or epoxy grout shall be used for this purpose. If an encapsulated post-tension system is used, regular non-shrink grout can be used.

Due to the low chloride concentrations measured on samples obtained from this site, post-tensioned slabs should be protected in accordance with soil considered normal (non-corrosive).[4,5] Addition of grease caps to the cut strand at live end anchors can deter construction defect accusations but are not needed.

2.5 Steel Piles

Steel piles are most susceptible to corrosion in disturbed soil where oxygen is available. Further, a dissimilar environment corrosion cell would exist between the steel embedded in cement, such as pile caps and the steel in the soil. In the cell, the steel in the soil is the anode (corroding metal), and the steel in cement is the cathode (protected metal). This cell can be minimized by coating the part of the steel piles that will be embedded in cement to prevent contact with cement and reinforcing steel.

Piles driven into soils without disturbing soils will avoid oxygen introduction and low corrosion rates unless there is a probability for corrosive anaerobic bacteria. Galvanized steel's zinc coating can provide significant protection for driven piles. In corrosive soils in which normal zinc coatings are not enough, the life of piles can be extended by increasing zinc coating thickness, using sacrificial metal, or providing a combination of epoxy coatings and cathodic protection. Corrosion has been observed to be extremely localized even at and below underground water tables. Pit depths of this magnitude do not have an appreciable effect on the strength or useful life of piling structures because the reduction in pile cross section is not

[4] *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils, PTI DC10.5-12,Table 4.1, pg 16*
[5] *Specification for Unbonded Single Strand Tendons. Post-tensioning Institute (PTI), Phoenix, AZ, 2000.*

significant.[6] Pitting is of more importance to pipes transporting liquids or gases which should not be leaked into the ground.

The following recommendations are recommended to achieve desired life. We defer to structural engineers to use our estimated corrosion rates and to choose from the corrosion control options listed below.

1) Sacrificial metal by use of thicker piles per non-disturbed soil corrosion rates, or
2) Galvanized steel piles per non-disturbed soil corrosion rates, or
3) Combination of galvanized and sacrificial metal per non-disturbed soil corrosion rates, or
4) For no loss of metal, coat entire pile with abrasion resistant epoxy coating such as 3M Scotchkote 323, or PowercreteDD, or equivalent, or
5) Use high yield steel which will corrode at the same rate as mild steel but have greater yield strength and thus be able to suffer more material loss than mild steel.

2.5.1 Expected Corrosion Rate of Steel and Zinc in disturbed soil

In general, the corrosion rate of metals in soil depends on the electrical resistivity, the elemental composition, and the oxygen content of the soil. Soils can vary greatly from one acre to the next, especially at earthquake faults. The better a soil is for farming; the easier it will be for corrosion to take place. Expansive soils will also be considered disturbed simply because of their nature from dry to wet seasons.

In Melvin Romanoff's NBS Circular 579, the corrosion rates of carbon steels and various metals was studied over long term periods. Various metals were placed in various soil types to gather corrosion rate data of all metals in all soil types. Samples were collected and material loss measured over the course of 20 years in some sites. The following corrosion rates were estimated by comparing the worst results of soils tested with similar soils in Romanoff's studies and Highway Research Board's publications.[7] The corrosion rate of zinc in disturbed soils is determined per Romanoff studies and King Nomograph.[8]

Expected Corrosion Rate for Steel = 0.79 mils/year for one sided attack

Expected Corrosion Rate for Zinc = 0.17 mils/year for one sided attack.

Note: 1 mil = 0.001 inch

In undisturbed soils, a corrosion rate of 1 mil/year for steel is expected with little change in the corrosion rate of zinc due to it's low nobility in the galvanic series.

Per CTM 643: Years to perforation of corrugated galvanized steel culverts

- 65.8 Years to Perforation for a 18 gage metal culvert
- 85.5 Years to Perforation for a 16 gage metal culvert

[6] Melvin Romanoff, Corrosion of Steel Pilings in Soils, National Bureau of Standards Monograph 58, pg 20.

[7] Field test for Estimating Service Life of Corrugated Metal Culverts, J.L. Beaton, Proc. Highway Research Board, Vol 41, P. 255, 1962

[8] King, R.A. 1977, Corrosion Nomograph, TRRC Supplementary Report, British Corrosion Journal

- 105.2 Years to Perforation for a 14 gage metal culvert
- 144.7 Years to Perforation for a 12 gage metal culvert
- 184.1 Years to Perforation for a 10 gage metal culvert
- 223.6 Years to Perforation for a 8 gage metal culvert

2.5.2 Expected Corrosion Rate of Steel and Zinc in Undisturbed soil

Expected Corrosion Rate for Steel = 0.79 mils/year for one sided attack

Expected Corrosion Rate for Zinc = 0.17 mils/year for one sided attack.

Note: 1 mil = 0.001 inch

2.6 Steel Storage tanks

Underground fuel tanks must be constructed and protected in accordance with California Underground Storage Tank Regulations, CCR, Title 23, Division 3, Chapter 16. Metals should be protected with cathodic protection or isolated from backfill material with an epoxy coating.

2.7 Steel Pipelines

Though a site may not be corrosive in nature at the time of construction, **installation of corrosion test stations and electrical continuity joint bonding should be performed during construction** so that future corrosion inspections can be performed. If steel pipes with gasket joints or other possibly non-conductive type joints are installed, their joints should be bonded across by welding or pin brazing a #8 AWG copper strand bond cable. Electrical continuity is necessary for corrosion inspections and for cathodic protection.

Corrosion test stations should be installed every 1,000 feet of pipeline.

Test stations shall have two #8 HMWPE copper strand wire test leads welded or pin brazed to the underground pipe, brought up into the test station hand hole and marked CTS. Wires should be brought into test station hand hole at finished grade with 12 inches of wire coiled within test station.

At isolation joints and pipe casings, 4 wire test stations shall be installed using #8 HMWPE copper strand wire test leads. Use different color wires to distinguish which wires are bonded to one side of isolation joint or to casing. Wires should be brought into test station hand hole at finished grade with 12 inches of wire coiled within test station.

Prevent dissimilar metal corrosion cells per NACE SP0286:

1) Electrically isolate dissimilar metal connections
2) Electrically isolate dissimilar coatings (Epoxy vs CML&C) segments connections
3) Electrically isolate river crossing segments
4) Electrically isolate freeway crossing segments
5) Electrically isolate old existing pipelines from new pipelines

6) Electrically isolate aboveground and underground pipe segments with flange isolation joint kits per NACE SP0286 to avoid galvanic corrosion cells. **These are especially important for fire risers.**

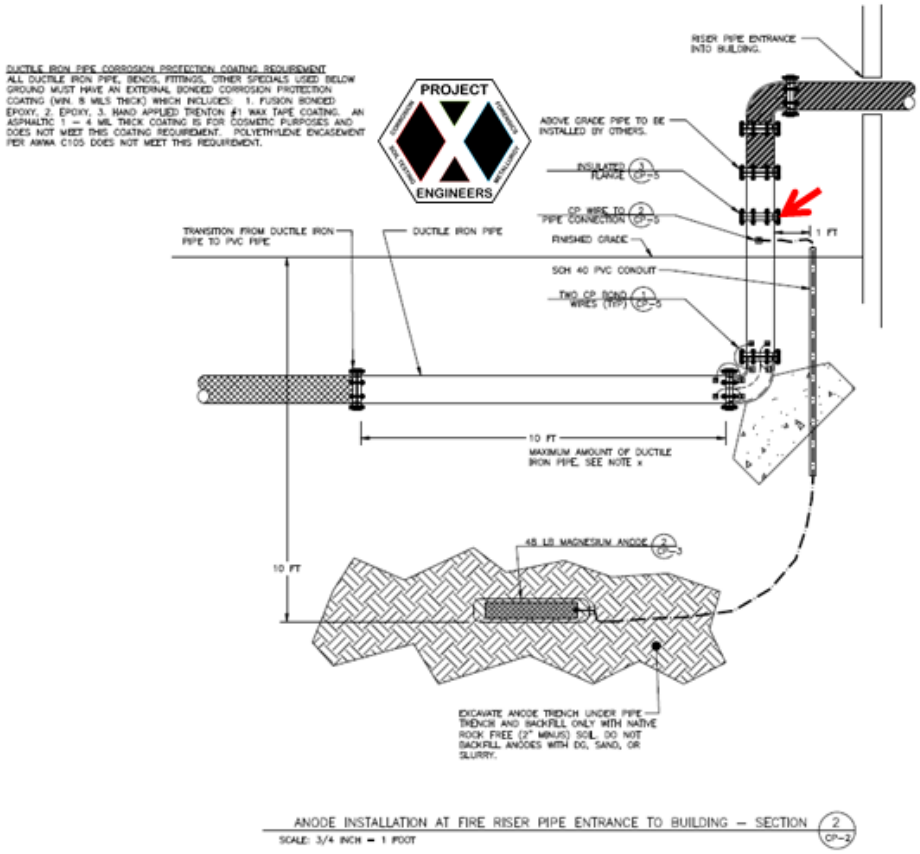


Figure 1- Fire Riser Detail: Install Isolation joint at red arrow

The corrosivity at this site is corrosive to steel. Any piping that must be jack-bored should use abrasion resistant epoxy coating such as 3M Scotchkote 323, or PowercreteDD, or equivalent. The corrosion control options for this site are as follows:

1) Apply impermeable dielectric coating such as minimum 10 mil thick polyethylene, and install cathodic protection system per NACE SP0169, or
2) Wax tape per AWWA C217, or
3) Coal tar enamel per AWWA C203, or
4) Fusion bonded epoxy per AWWA C213, or
5) For bare steel surfaces, such as welded pipe joints, apply 3 inch thick field coating of Type II cement or high pH slurry that will maintain pH higher than 12. Cement is both a corrosion inhibitor and a coating for ferrous metals. Cement naturally holds a pH of 12 or higher for many years if not exposed to high levels of carbon dioxide. (For CML&C pipes, CML&C factory applied 3/4 inch thick coating is equivalent and needs no extra thickness added.)

It is critical for the life of the pipe that the protective wrap contains no openings or holes. Prevent damage to the protective sleeve during backfilling of the pipe trench. Penetrations of any kind within these or other protective materials generally leads to accelerated corrosion failure due to the fact that the corrosion attack is concentrated at the location of these penetrations. Cathodic protection will protect these defects. The better the coating, the less expensive a cathodic protection system will be in anode material and power requirement if needed.

2.8 Steel Fittings

The corrosivity at this site is corrosive to steel. The corrosion control options for this site are as follows:

1) Apply impermeable dielectric coating such as minimum 10 mil thick polyethylene, and install cathodic protection system per NACE SP0169, or
2) Tape coating system per AWWA C214, or
3) Wax tape per AWWA C217, or
4) Coal tar enamel per AWWA C203, or
5) Fusion bonded epoxy per AWWA C213
6) Apply 3 inch coating of Type II cement or high pH slurry that will maintain pH higher than 12. Cement is both a corrosion inhibitor and a coating for ferrous metals. Cement naturally holds a pH of 12 or higher for many years if not exposed to high levels of carbon dioxide.

It is critical for the life of the metal that the protective wrap contains no openings or holes. Prevent damage to the protective sleeve during backfilling of the pipe trench. Penetrations of any kind within these or other protective materials generally leads to accelerated corrosion failure due to the fact that the corrosion attack is concentrated at the location of these penetrations. Cathodic protection will protect these defects. The better the coating, the less expensive a cathodic protection system will be in anode material and power requirement if needed.

2.9 Ductile Iron (DI) & Cast Iron Fittings

AWWA C105 developed a 10 point system to classify sites as aggressive or non-aggressive to ductile iron materials. The 10-point system does not, and was never intended to, quantify the corrosivity of a soil. It is a tool used to distinguish nonaggressive from aggressive soils relative to iron pipe. Soils <10 points are considered nonaggressive to iron pipe, whereas soils ≥10 points are considered aggressive. A 15 and a 20 point soil are both considered aggressive to iron pipe, however, because of the nature of the soil parameters measured, the 20 point soil may not necessarily be more aggressive than the 15 point soil. The criterion is based upon soil resistivities, soil drainage, pH, sulfide presence, and reduction-oxidation (REDOX) potential. The soil samples tested for this site resulted in a score of 16 out of 25.5. A score greater or equal

to 10 points classifies soils as aggressive to iron materials. The black coating on iron pipes is purely for aesthetic purposes and should not be relied upon for corrosion protection.[9]

The corrosivity at this site is corrosive to iron. The corrosion control options for this site are as follows:

1) Apply impermeable dielectric coating such as minimum 10 mil thick polyethylene, and install cathodic protection system per NACE SP0169, or
2) Wax tape per AWWA C217, or
3) Coal tar enamel per AWWA C203, or
4) Fusion bonded epoxy per AWWA C213
5) Apply standard concrete cover of Type II cement or high pH slurry that will maintain pH higher than 12. Cement is both a corrosion inhibitor and a coating for ferrous metals. Cement naturally holds a pH of 12 or higher for many years if not exposed to high levels of carbon dioxide.

It is critical for the life of the metal that the protective wrap contains no openings or holes. Prevent damage to the protective sleeve during backfilling of the pipe trench. Penetrations of any kind within these or other protective materials generally leads to accelerated corrosion failure due to the fact that the corrosion attack is concentrated at the location of these penetrations. Cathodic protection will protect these defects. The better the coating, the less expensive a cathodic protection system will be in anode material and power requirement if needed.

2.10 Ductile Iron & Cast Iron Pipe

AWWA C105 developed a 10 point system to classify sites as aggressive or non-aggressive to ductile iron materials. The 10-point system does not, and was never intended to, quantify the corrosivity of a soil. It is a tool used to distinguish nonaggressive from aggressive soils relative to iron pipe. Soils <10 points are considered nonaggressive to iron pipe, whereas soils ≥10 points are considered aggressive. A 15 and a 20 point soil are both considered aggressive to iron pipe, however, because of the nature of the soil parameters measured, the 20 point soil may not necessarily be more aggressive than the 15 point soil. The criterion is based upon soil resistivities, soil drainage, pH, sulfide presence, and reduction-oxidation (REDOX) potential. The soil samples tested for this site resulted in a score of 16 out of 25.5. A score greater or equal to 10 points classifies soils as aggressive to iron materials. The black coating on iron pipes is purely for aesthetic purposes and should not be relied upon for corrosion protection.[10]

Though a site may not be corrosive in nature at the time of construction, **installation of corrosion test stations and electrical continuity joint bonding should be performed during construction** so that future corrosion inspections can be performed. If steel pipes with gasket joints or other possibly non-conductive type joints are installed, their joints should be bonded across by welding or pin brazing a #8 AWG copper strand bond cable. Electrical continuity is necessary for corrosion inspections and for cathodic protection. **If using thermite, perform one**

[9] https://www.dipra.org/ductile-iron-pipe-resources/frequently-asked-questions/corrosion-control

[10] https://www.dipra.org/ductile-iron-pipe-resources/frequently-asked-questions/corrosion-control

test bond using a half-charge then pressure test to confirm excess heat and pinholes were not created.

Pea gravel is used by plumbers to lay pipes and establish slopes. If the gravel has more than 200 ppm chlorides or is not tested, a 25 mil plastic should be placed between the gravel and pipe to avoid corrosion.

Corrosion test stations should be installed every 1,000 feet of pipeline.

Test stations shall have two #8 HMWPE copper strand wire test leads welded or pin brazed to the underground pipe, brought up into the test station hand hole and marked CTS. Wires should be brought into test station hand hole at finished grade with 12 inches of wire coiled within test station.

At isolation joints and pipe casings, 4 wire test stations shall be installed using #8 HMWPE copper strand wire test leads. Use different color wires to distinguish which wires are bonded to one side of isolation joint or to casing. Wires should be brought into test station hand hole at finished grade with 12 inches of wire coiled within test station.

Prevent dissimilar metal corrosion cells per NACE SP0286:

1) Electrically isolate dissimilar metal connections
2) Electrically isolate dissimilar coatings (Epoxy vs CML&C) segments connections
3) Electrically isolate river crossing segments
4) Electrically isolate freeway crossing segments
5) Electrically isolate old existing pipelines from new pipelines
6) Electrically isolate aboveground and underground pipe segments with flange isolation joint kits per NACE SP0286**. These are especially important for fire risers.**

The corrosivity at this site is corrosive to iron. Any piping that must be jack-bored should use abrasion resistant epoxy coating such as 3M Scotchkote 323, or PowercreteDD, or equivalent. The corrosion control options for this site are as follows:

1) Apply impermeable dielectric coating such as minimum 10 mil thick polyethylene, and install cathodic protection system per NACE SP0169, or
2) Wax tape per AWWA C217, or
3) Coal tar enamel per AWWA C203, or
4) Fusion bonded epoxy per AWWA C213
5) Apply 3 inch coating of Type II cement or high pH slurry that will maintain pH higher than 12. Cement is both a corrosion inhibitor and a coating for ferrous metals. Cement naturally holds a pH of 12 or higher for many years if not exposed to high levels of carbon dioxide.

It is critical for the life of the metal that the protective wrap contains no openings or holes. Prevent damage to the protective sleeve during backfilling of the pipe trench. Penetrations of any kind within these or other protective materials generally leads to accelerated corrosion failure due to the fact that the corrosion attack is concentrated at the location of these penetrations. Cathodic protection will protect these defects. The better the coating, the less

expensive a cathodic protection system will be in anode material and power requirement if needed.

2.11 Copper Materials

Copper is an amphoteric material which is susceptible to corrosion at very high and very low pH. It is one of the most noble metals used in construction thus typically making it a cathode when connected to dissimilar metals. Copper's nobility can change with temperature, similar to the phenomenon in zinc. When zinc is at room temperature, it is less noble than steel and can provide cathodic protection to steel. But when zinc is at a temperature above 140F such as in a water heater, it becomes more noble than the steel and the steel becomes the sacrificial anode. This is why zinc is not used in steel water heaters or boilers. Cold copper has one native potential, but when heated it develops a more electronegative electro-potential aka open circuit potential. Thus hot and cold copper pipes should be electrically isolated from each other to avoid creation of a thermo-galvanic corrosion cell. Unfortunately ammonia and nitrates were not tested and recommendations cannot be provided.

It is critical for the life of the metal that the protective wrap contains no openings or holes. Prevent damage to the protective sleeve during backfilling of the pipe trench. Penetrations of any kind within these or other protective materials generally leads to accelerated corrosion failure due to the fact that the corrosion attack is concentrated at the location of these penetrations. Cathodic protection will protect these defects. The better the coating, the less expensive a cathodic protection system will be in anode material and power requirement if needed.

2.11.1 Brass Fittings

Brass fittings should be electrically isolated from dissimilar metals by use of dielectric unions or isolation joint kits per NACE SP0286.

It is critical for the life of the metal that the protective wrap contains no openings or holes. Prevent damage to the protective sleeve during backfilling of the pipe trench. Penetrations of any kind within these or other protective materials generally leads to accelerated corrosion failure due to the fact that the corrosion attack is concentrated at the location of these penetrations. Cathodic protection will protect these defects. The better the coating, the less expensive a cathodic protection system will be in anode material and power requirement if needed.

2.12 Aluminum Pipe/Conduit/Fittings

Aluminum is an amphoteric material prone to pitting corrosion in environments that are very acidic or very alkaline or high in chlorides.

Conditions at this site are unsafe for aluminum. Soils at this site were determined to be too alkaline for aluminum. Soil contact with aluminum alloys should be avoided at this site. This can be achieved with:

1) Impermeable minimum 20 mil polyethylene coatings, or
2) Epoxy coatings with minimum 20 mil thickness free of scratches and defects, or

3) Wax tape

Aluminum derives its corrosion resistance from its oxide layer which needs oxygen to regenerate if damaged, similar to stainless steels. Thus aluminum is not good for deep soil applications. Since aluminum corrodes at very alkaline environments, it cannot be encased or placed against cement or mortar such as brick wall mortar up against an aluminum window frame.

Aluminum is also very low on the galvanic series scale making it most likely to become a sacrificial anode when in contact with dissimilar metals in moist environments. Avoid electrical continuity with dissimilar metals by use of insulators, dielectric unions, or isolation joints per NACE SP0286. Pooling of water at post bottoms or surfaces should be avoided by integrating good drainage.

2.13 Carbon Fiber or Graphite Materials

Carbon fiber or other graphite materials are extremely noble on the galvanic series and should always be electrically isolated from dissimilar metals. They can conduct electricity and will create corrosion cells if placed in contact within a moist environment with any metal.

2.14 Plastic and Vitrified Clay Pipe

No special precautions are required for plastic and vitrified clay piping from a corrosion viewpoint.

Protect all metallic fittings and pipe restraining joints with wax tape per AWWA C217, cement if previously recommended, or epoxy.

3 CLOSURE

In addition to soils chemistry and resistivity, another contributing influence to the corrosion of buried metallic structures is stray electrical currents. These electrical currents flowing through the earth originate from buried electrical systems, grounding of electrical systems in residences, commercial buildings, and from high voltage overhead power grids. Therefore, it is imperative that the application of protective wraps and/or coatings and electrical isolation joints be properly applied and inspected.

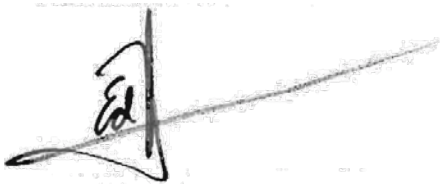
It is the responsibility of the builder and/or contractor to closely monitor the installation of such materials requiring protection in order to assure that the protective wraps or coatings are not damaged.

The recommendations outlined herein are in conformance with current accepted standards of practice that meet or exceed the provisions of the Uniform Building Code (UBC), the International Building Code (IBC), California Building Code (CBC), the American Cement Institute (ACI), Nickel Institute, National Association of Corrosion Engineers (NACE International), Post-Tensioning Institute Guide Specifications and State of California Department of Transportation, Standard Specifications, American Water Works Association (AWWA) and the Ductile Iron Pipe Research Association (DIPRA).

Our services have been performed with the usual thoroughness and competence of the engineering profession. No other warranty or representation, either expressed or implied, is included or intended.

Please call if you have any questions.

Respectfully Submitted,





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4 SOIL ANALYSIS LAB RESULTS BY OTHERS

SUMMARY OF CORROSION TEST RESULTS

PROJECT NAME:	Proposed Speedway Commerce Center	EGLAB JOB NO.:	21-067-001	
PROJECT NO.:	20221328.002A	CLIENT:	KLEINFELDER	
DATE:	10/15/2021	Summarized By:	JT	

Building NO.	BORING NO.	SAMPLE NO.	DEPTH (ft)	pH CalTrans 643	Chloride Content CalTrans 422 (ppm)	Sulfate Content CalTrans 417 (% by weight)	Minimum Resistivity CalTrans 643 (ohm-cm)	Concrete Type	ACI C Category
Building 7	KLF-3	1	1.0-50	8.15	115	0.001	14,000	TYPE II	C1
Building 7	KLF-6	2	5.0	8.23	125	0.001	16,000	TYPE II	C1
Building 6	KLF-1	1	1.0-50	9.16	135	0.037	3,100	TYPE II	C1
Building 6	KLF-7	1	5.0	7.63	195	0.001	13,000	TYPE II	C1
Building 5	KLF-4	2	10.0	8.05	130	0.001	21,000	TYPE II	C1
Building 5	KLF-10	1	1.0-50	9.68	135	0.122	1,500	TYPE II	C1
Building 4	KLF-5	1	3.0-5.0	10.66	135	0.013	3,800	TYPE II	C1
Building 4	KLF-12	2	10.0	8.87	155	0.216	1,400	TYPE V Cement	C1
Building 3	KLF-13	1	1.0-50	10.11	245	0.222	720	TYPE V Cement	C1
Building 3	KLF-16	1	1.0-50	7.66	125	0.001	19,000	TYPE II	C1
Building 3	KLF-17	2	10.0	7.63	215	0.001	8,500	TYPE II	C1
Building 2	KLF-18	1	5.0	8.3	305	0.017	3,600	TYPE II	C1
Building 2	KLF-19	2	5.0	4.48	275	0.001	14,000	TYPE II	C1
Building 1	KLF-20	1	1.0-5.0	7.62	205	0.001	11,000	TYPE II	C1
Building 1	KLF-21	1	1.0-5.0	8.67	110	0.023	2,200	TYPE II	C1
Building 1	KLF-23	1	10.0	7.55	130	0.001	37,000	TYPE II	C1

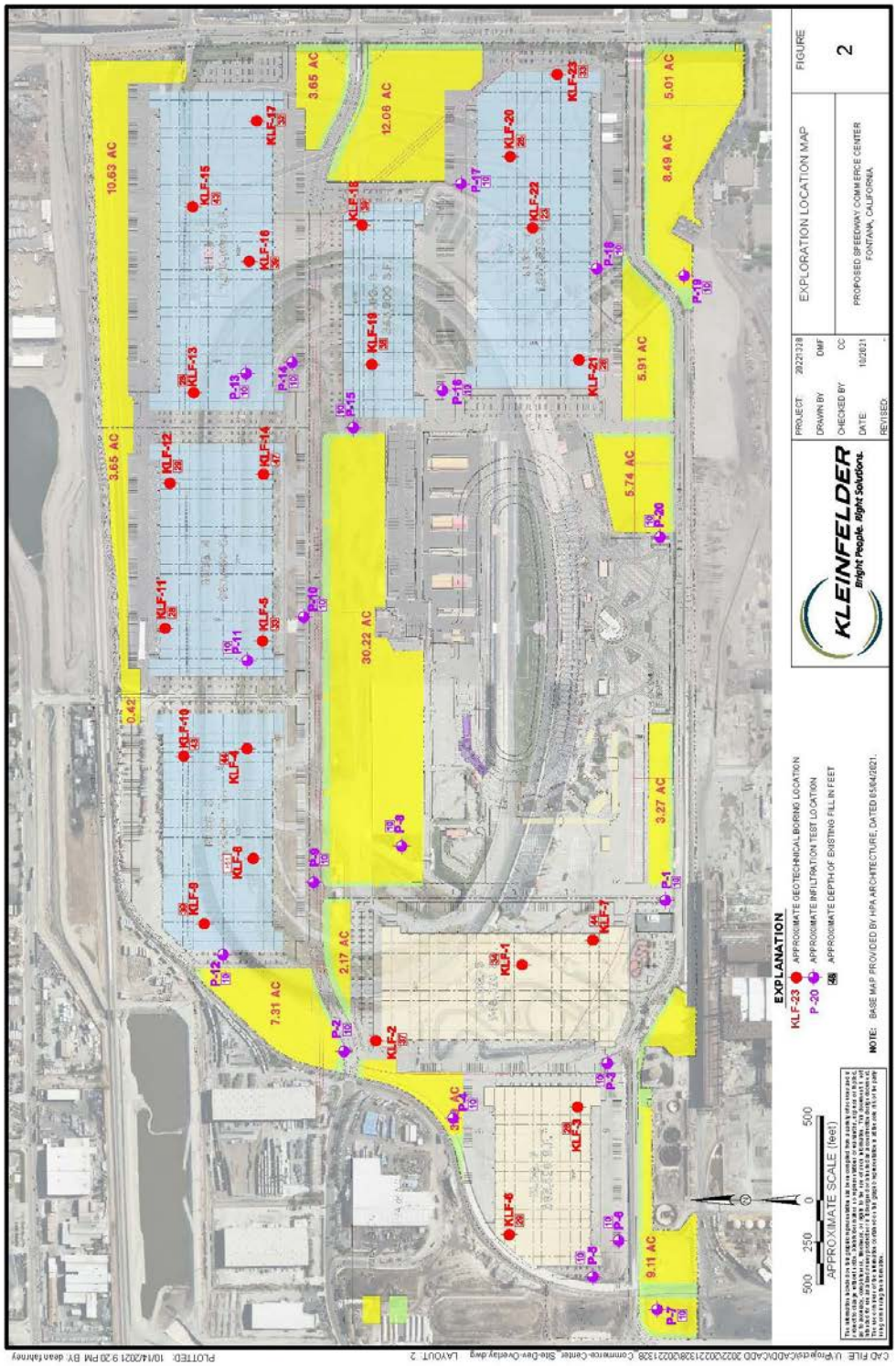


Figure 2- Soil Sample Locations, 9300 Cherry Avenue, Fontana, CA



Figure 3- Vicinity Map, 9300 Cherry Avenue, Fontana, CA

5 Corrosion Basics

In general, the corrosion rate of metals in soil depends on the electrical resistivity, the elemental composition, and the oxygen content of the soil. Soils can vary greatly from one acre to the next, especially at earthquake faults. The better a soil is for farming; the easier it will be for corrosion to take place. Expansive soils should be considered disturbed simply because of their nature from dry to wet seasons.

5.1 Pourbaix Diagram – In regards to a material's environment

All metals are unique and have a weakness. Some metals do not like acidic (low pH) environments. Some metals do not like alkaline (high pH) environments. Some metals don't like either high or low pH environments such as aluminum. These are called amphoteric materials. Some metals become passivated and do not corrode at high pH environments such as steel. These characteristics are documented in Marcel Pourbaix's book "Atlas of electrochemical equilibria in aqueous solutions"

In the mid 1900's, Marcel Pourbaix developed the Pourbaix diagram which describes a metal's reaction to an environment dependent on pH and voltage conditions. It describes when a metal remains passive (non-corroding) and in which conditions metals become soluble (corrode). Steels are passive in pH over 12 such as the condition when it is encased in cement. If the cement were to carbonate and its pH reduce to below 12, the cement would no longer be able to act as a corrosion inhibitor and the steel will begin to corrode when moist.

Some metals such as aluminum are amphoteric, meaning that they react with acids and bases. They can corrode in low pH and in high pH conditions. Aluminum alloys are generally passive within a pH of 4 and 8.5 but will corrode outside of those ranges. This is why aluminum cannot be embedded in cement and why brick mortar should not be laid against an aluminum window frame without a protective barrier between them.

5.2 Galvanic Series – In regards to dissimilar metal connections

All metals have a natural electrical potential. This electrical potential is measured using a high impedance voltmeter connected to the metal being tested and with the common lead connected to a copper copper-sulfate reference electrode (CSE) in water or soil. There are many types of reference electrodes. In laboratory measurements, a Standard Hydrogen Electrode (SHE) is commonly used. When different metal alloys are tested they can be ranked into an order from most noble (less corrosion), to least noble (more active corrosion). When a more noble metal is connected to a less noble metal, the less noble metal will become an anode and sacrifice itself through corrosion providing corrosion protection to the more noble metal. This hierarchy is known as the galvanic series named after Luigi Galvani whose experiments with electricity and muscles led Alessandro Volta to discover the reactions between dissimilar metals leading to the early battery. The greater the voltage difference between two metals, the faster the corrosion rate will be.

Table 1- Dissimilar Metal Corrosion Risk

	Zinc	Galvanized Steel	Aluminum	Cast Iron	Lead	Mild Steel	Tin	Copper	Stainless Steel
Zinc	None	Low	Medium	High	High	High	High	High	High
Galvanized Steel	Low	None	Medium	Medium	Medium	High	High	High	High
Aluminum	Medium	Medium	None	Medium	Medium	Medium	Medium	High	High
Cast Iron	High	Medium	Medium	None	Low	Low	Low	Medium	Medium
Lead	High	Medium	Medium	Low	None	Low	Low	Medium	Medium
Mild Steel	High	High	Medium	Low	Low	None	Low	Medium	Medium
Tin	High	High	Medium	Low	Low	Low	None	Medium	Medium
Copper	High	High	High	Medium	Medium	Medium	Medium	None	Low
Stainless Steel	High	High	High	Medium	Medium	Medium	Medium	Low	None

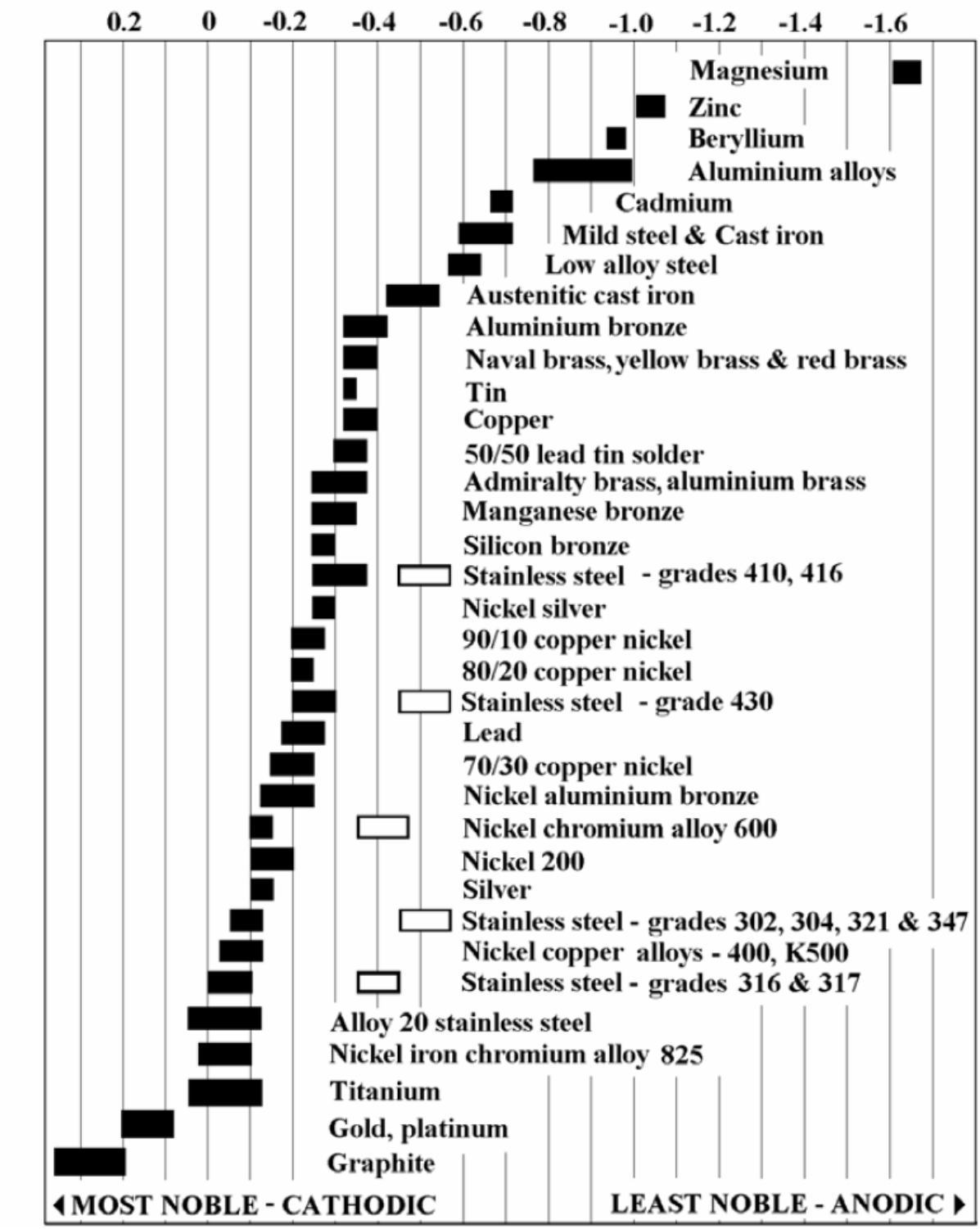
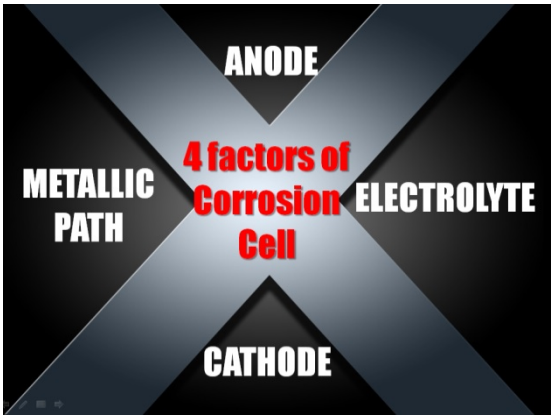


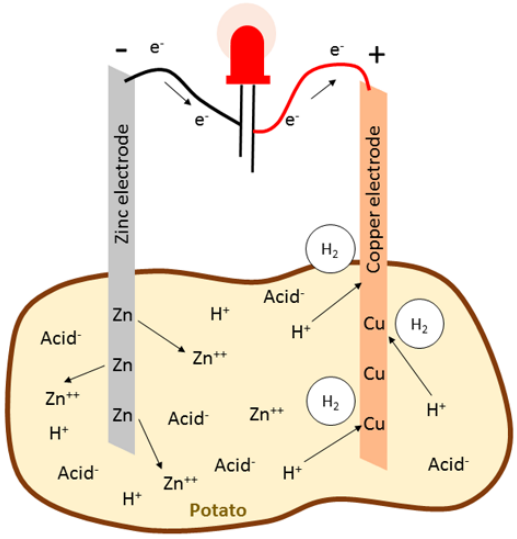
Figure 4 - Galvanic series of metals relative to CSE half cell.

5.3 Corrosion Cell

In order for corrosion to occur, four factors must be present. (1) The anode (2) the cathode (3) the electrolyte and (4) the metallic or conductive path joining the anode and the cathode. If any one of these is removed, corrosion activity will stop. This is how a simple battery produces electricity. An example of a non-metallic yet conductive material is graphite. Graphite is similar in nobility to gold. Do not connect graphite to anything in moist environments.



The anode is where the corrosion occurs, and the cathode is the corrosion free material. Sometimes the anode and cathode are different materials connected by a wire or union. Sometimes the anode and cathode are on the same pipe with one area of the pipe in a low oxygen zone while the other part of the pipe is in a high oxygen zone. A good example of this is a post in the ocean that is repeatedly splashed. Deep underwater, corrosion is minimal, but at the splash zone, the corrosion rate is greatest.



Low oxygen zones and crevices can also harbor corrosive bacteria which in moist environments will lead to corrosion. This is why pipes are laid on backfill instead of directly on native cut soil in a trench. Filling a trench slightly with backfill before installing pipe then finishing the backfill creates a uniform environment around the entire surface of the pipe.

The electrolyte is generally water, seawater, or moist soil which allows for the transfer of ions and electrical current. Pure water itself is not very conductive. It is when salts and minerals dissolve into pure water that it becomes a good conductor of electricity and chemical reactions. Metal ores are turned into metal alloys which we use in construction. They naturally want to return to their natural metal ore state but it requires energy to return to it. The corrosion cell, creates the energy needed to return a metal to its natural ore state.

The metallic or conductive path can be a wire or coupling. Examples are steel threaded into a copper joint, or an electrician grounding equipment to steel pipes inadvertently connecting electrical grid copper grounding systems to steel or iron underground pipes.

The ratio of surface area between the anode and the cathode is very important. If the anode is very large, and the cathode is very small, then the corrosion rate will be very small and the anode may live a long life. An example of this is when short copper laterals were connected to a large and long steel pipeline. The steel had plenty of surface area to spread the copper's attack, thus corrosion was not

noticeable. But if the copper was the large pipe and the steel the short laterals, the steel would corrode at an amazing rate.

5.4 Design Considerations to Avoid Corrosion

The following recommendations are based upon typical observations and conclusions made by forensic engineers in construction defect lawsuits and NACE International (Corrosion Society) recommendations.

5.4.1 Testing Soil Factors (Resistivity, pH, REDOX, SO, CL, NO3, NH3)

As previously mentioned, different factors can cause corrosion. The most useful and common test for categorizing a soil's corrosivity has been the measure of soil resistivity which is typically measured in units of (ohm-cm) by corrosion engineers and geologists. Soil resistivity is the ability of soil to conduct or resist electrical currents and ion transfer. The lower the soil resistivity, the more conductive and corrosive it is. The following are "generally" accepted categories but keep in mind, the question is not "Is my soil corrosive?", the question should be, "What is my soil corrosive to?" and to answer that question, soil resistivity and chemistry must be tested. Though **soil resistivity is a good corrosivity indicator for steel materials, high chlorides or other corrosive elements do not always lower soil resistivity, thus if you don't test for chlorides and other water soluble salts, you can get an unpleasant surprise.** The largest contributing factor to a soil's electrical resistivity is its clay, mineral, metal, or sand make-up.

Table 2 - Corrosion Basics- An Introduction, NACE, 1984, pg 191

(Ohm-cm)	Corrosivity Description
0-500	Very Corrosive
500-1,000	Corrosive
1,000-2,000	Moderately Corrosive
2,000-10,000	Mildly Corrosive
Above 10,000	Progressively less corrosive

Testing a soil's pH provides information to reference the Pourbaix diagram of specific metals. Some elements such as ammonia and nitrates can create localized alkaline conditions which will greatly affect amphoteric materials such as aluminum and copper alloys.

Excess sulfates can break-down the structural integrity of cement and high concentrations of chlorides can overcome cement's corrosion inhibiting effect on encased ferrous metals and break down protective passivated surface layers on stainless steels and aluminum.

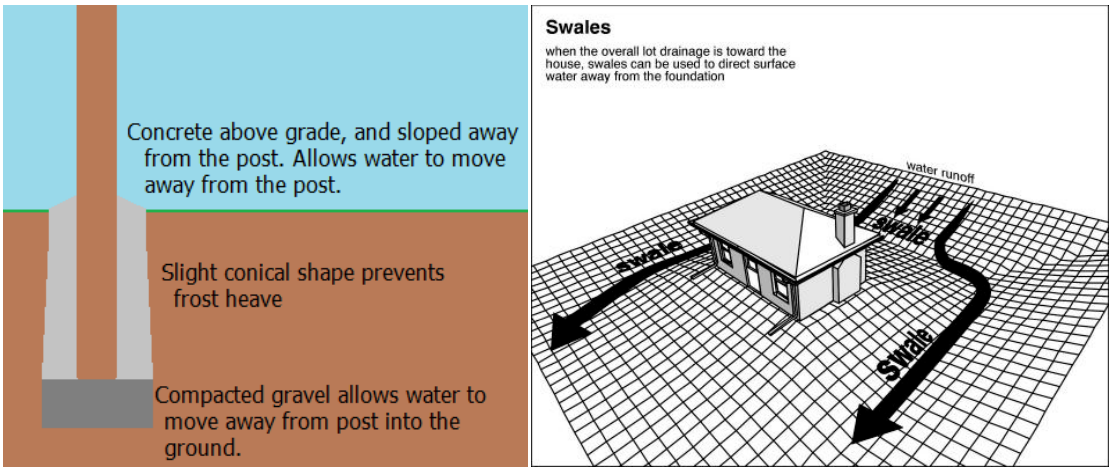
Corrosive bacteria are everywhere but can multiply significantly in anaerobic conditions with plentiful sulfates. The bacteria themselves do not eat the metal but their by-products can form corrosive sulfuric acids. The probability of corrosive bacteria is tested by measuring a soil's oxidation-reduction (REDOX) electro-potential and by testing for the presence of sulfides.

Only by testing a soil's chemistry for minimum resistivity, pH, chlorides, sulfates, sulfides, ammonia, nitrate, and redox potential can one have the information to evaluate the corrosion risk to construction materials such as steel, stainless steel, galvanized steel, iron, copper, brass, aluminum, and concrete.

5.4.2 Proper Drainage

It cannot be emphasized enough that pooled stagnant water on metals will eventually lead to corrosion. This stands for internal corrosion and external corrosion situations. In soils, providing good drainage will lower soil moisture content reducing corrosion rates. Attention to properly sealing polyethylene wraps around valves and piping will avoid water intrusion which would allow water to pool against metals. Above ground structures should not have cupped or flat surfaces that will pond water after rain or irrigation events.

Buildings typically are built on pads and have swales when constructed to drain water away from buildings directing it towards an acceptable exit point such as a driveway where it continues draining to a local storm drain. Many homeowners, landscapers and flatwork contractors appear to not be aware of this and destroy swales during remodeling. The majority of garage floor and finished grade elevations are governed by drainage during design.[11,12]



5.4.3 Avoiding Crevices

Crevices are excellent locations for oxygen differential induced corrosion cells to begin. Crevices can also harbor corrosive bacteria even in the most chemically treated waters. Crevices will also gather salts. If water's total alkalinity is low, its ability to maintain a stable pH can also become more difficult within a crevice allowing the pH to drop to acidic levels continuing a pitting process. Welds in extremely corrosive environments should be complete and well filleted without sharp edges to avoid crevices. Sharp edges should be avoided to allow uniform coating of protective epoxy. Detection of crevices in welds should be treated immediately. If pressures and loads are low, sanding and rewelding or epoxy patching can be suitable repairs. Damaged coatings can usually be repaired with Direct to Metal paints. **Scratches and crevice corrosion are like infections, they should not be left to fester or the infection will spread making things worse.**

[11] https://www.fencedaddy.com/blogs/tips-and-tricks/132606467-how-to-repair-a-broken-fence-post

[12] http://southdownstudio.co.uk/problme-drainage-maison.html

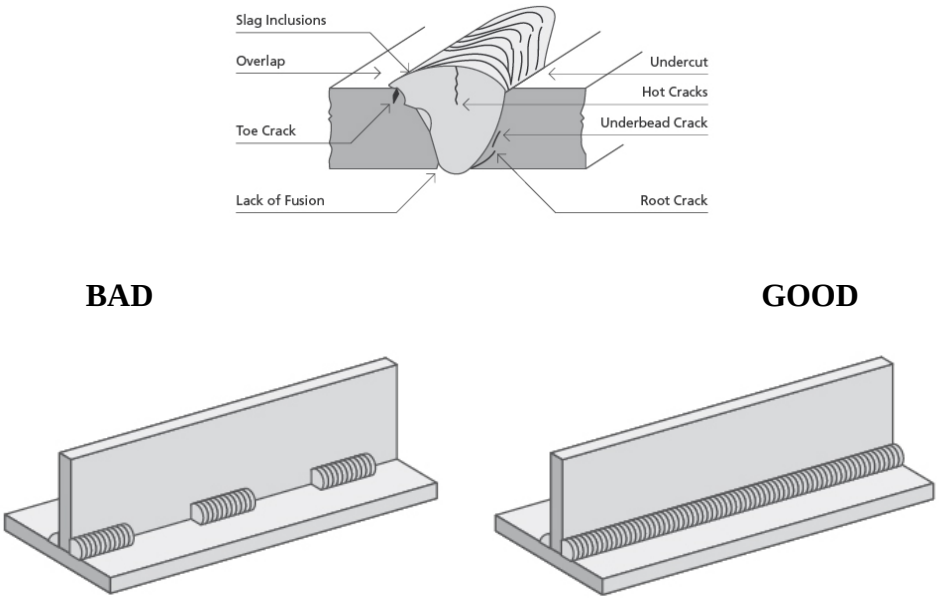


Figure 5 Defects which form weld crevices[13]

5.4.4 Coatings and Cathodic Protection

When faced with a corrosive environment, the best defense against corrosion is removing the electrolyte from the corrosion cell by applying coatings to separate the metal from the soil. During construction and installation, there is always some scratch or damage made to a coating. NACE training recommends that coatings be used as a first line of defense and that sacrificial or impressed current cathodic protection is used as a 2nd line of defense to protect the scratched areas. Use of a good coating dramatically reduces the amount of anodes a CP system would need. If CP is not installed as a 2nd line of defense in an extremely corrosive environment, the small scratched zones will suffer accelerated corrosion. CP details such as anode installation instructions must be designed by corrosion engineers or vessel manufacturers on a per project basis because it depends on electrolyte resistivity, surface area of infrastructure to be protected, and system geometry.

There are two types of cathodic protection systems, a Galvanic Anode Cathodic Protection (GACP) system and an Impressed Current Cathodic Protection (ICCP) system. A Galvanic Anode Cathodic Protection (GACP) system is simpler to install and maintain than an Impressed Current Cathodic Protection (ICCP) system. To protect the metals, they must all be electrically continuous to each other. In a GACP system, sacrificial zinc or magnesium anodes are then buried at locations per the CP design and connected by wire to a structure at various points in system. At the connection points, a wire connecting to the structure and the wire from the anode are joined in a Cathodic Protection Test Station hand hole which looks similar in size and shape to an irrigation valve pull box. By coating the underground structures, one can reduce the number of anodes needed to provide cathodic protection by 80% in many instances.

An ICCP system requires a power source, a rectifier, significantly more trenching, and more expensive type anodes. These systems are typically specified when bare metal is requiring protection

[13] http://www.daroproducts.co.uk/makes-good-weld/

in severely corrosive environments in which galvanic anodes do not provide enough power to polarize infrastructure to -850 mV structure-to-soil potential or be able to create a 100 mV potential shift as required by NACE SP169 to control corrosion. In severely corrosive environments, a GACP system simply may not last a required lifetime due to the high rate of consumption of the sacrificial anodes. ICCP system rectifiers must be inspected and adjusted quarterly or at a minimum bi-annually per NACE recommendations. Different anode installations may be possible but for large sites, anodes are placed evenly throughout the site and all anode wires must be trenched to the rectifier. For a large site, it may be beneficial to use two or more rectifiers to reduce wire lengths or trenching.

To simplify, a GACP system can be installed and practically forgotten with minor trenching because the anodes can be installed very close to the structures. An ICCP system must be inspected annually and anode wires run back to the rectifier which itself connects to the pile system. If any type of trenching or development is expected to occur at the site during the life of the site, it is a good idea to inspect the anode connections once a year to make sure wires are not cut and that the infrastructure is still being provided adequate protection. A common situation that occurs with ICCP systems is that a contractor accidently cuts the wires during construction then reconnects them incorrectly, turning the once cathode, into a sacrificing anode.

Design of a cathodic protection system protecting against soil side corrosion requires that Wenner Four Pin ground resistance measurements per ASTM G57 be performed by corrosion engineers at various locations of the site to determine the best depths and locations for anode installations. Ideally, a sample pile is installed and experiments determining current requirement are conducted. Using this data, the decision is made whether a GACP system is feasible or if an ICCP must be used.

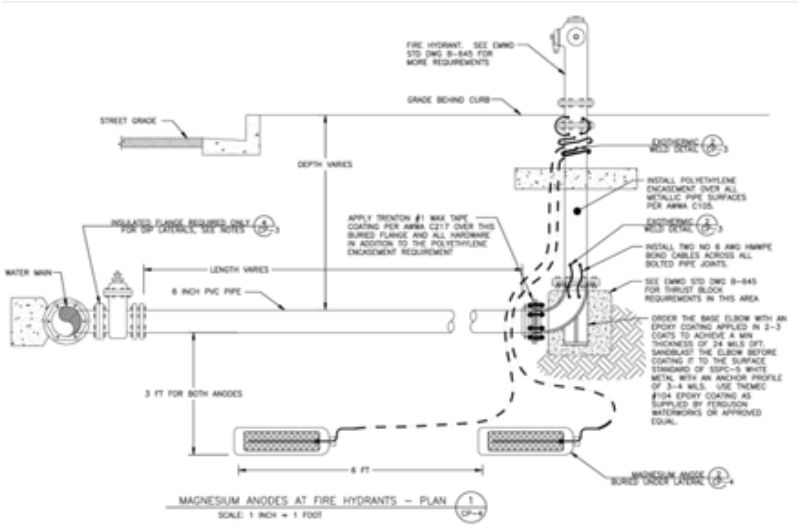


Figure 6 Sample anode design for fire hydrant underground piping

Vessels such as water tanks will have protective interior coatings and anodes to protect the interior surfaces. Anodes can also be buried on site and connected to system skid supports to protect the metal in contact with soil. A good example of a vessel cathodic protection system exists in all home water heaters which contain sacrificial aluminum or magnesium anodes. In environments that exceed 140F, zinc anodes cannot be used with carbon steel because they become the aggressor (Cathodic) to

the steel instead of sacrificial (anodic). Anodes in vessels containing extremely brackish water with chloride levels over 2,000 ppm should inspect or change out their anodes every 6 months.

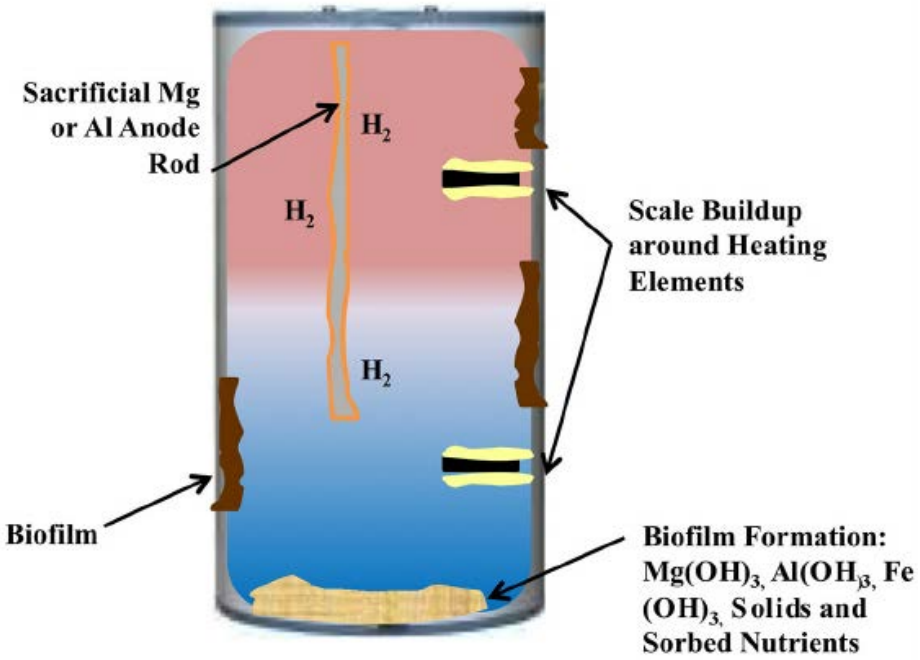


Figure 7 Cross section of boiler with anode

Cathodic protection can only protect a few diameters within a pipeline thus it is not recommended for small diameter pipelines and tubing internal corrosion protection. Anodes are like a lamp shining light in a room. They can only protect along their line of sight.

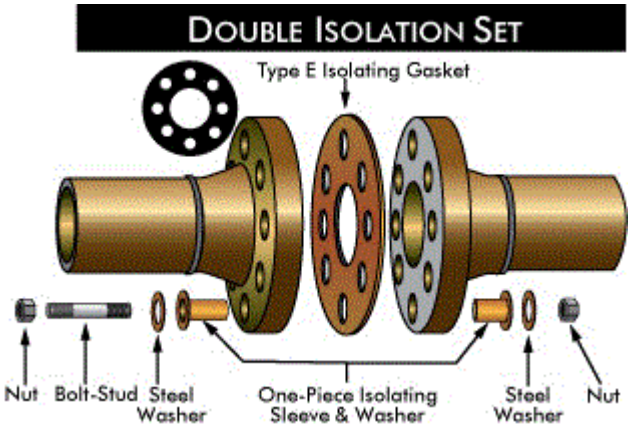
5.4.5 Good Electrical Continuity

In order for cathodic protection to protect a long pipeline or system of pipes from external soil side corrosion, they must all be electrically continuous to each other so that the electric current from the anode can travel along the pipes, then return through the earth to the anode. Electrical continuity is achieved by welding or pin brazing #8 AWG copper strand bond cable to the end of pipe sticks which have rubber gaskets at bell and spigots. If steel pipes are joined by full weld, bonding wires are not needed.

Electrical continuity between dissimilar metals is not desirable. Isolation joints or di-electric unions should be installed between dissimilar metals, such as steel pipes connecting to a brass valve per NACE SP0286. Bonding wires should then be welded onto the steel pipes by-passing the brass valve so that the cathodic protection system's current can continue to travel along the steel piping but isolate the brass valve from the steel pipeline. Another option would be to provide a separate cathodic protection system for steel pipes on both sides of the brass valve.

Typically, water heater inlets and outlets, gas meters and water meters have dielectric unions installed in them to separate utility property from homeowner property. This also protects them in the case that a home owner somehow electrically connects water pipes or gas pipes to a neighborhood electrical grounding system which can potentially have less noble steel in soil now connected to much

more noble copper in soil which will then create a corrosion cell. This is exactly how a lemon powered clock works when a galvanized zinc nail and a steel nail are inserted into a lemon then connected to a clock. The clock is powered by the corrosion cell created.



5.4.6 Bad Electrical Continuity

Bad electrical continuity is when two different materials or systems are made electrically continuous (aka shorted) when they were not designed to be electrically continuous. Examples of this would be when gas lines are shorted to water lines or to electrical grounding beds. Very often, fire risers are shorted to electrical grounding systems, and water pipes at business parks. Since fire risers usually have a very short ductile iron pipe in the ground which connects to PVC pipe systems, they tend to experience leaks after 7 to 10 years of being attacked by underground copper systems.

It is absolutely imperative that any copper water piping or other metal conduits penetrating cement slab or footings, not come in contact with the reinforcing steel or post-tensioning tendons to avoid creation of galvanic corrosion cells.

5.4.7 Corrosion Test Stations

Corrosion test stations should be installed every 1,000 feet along pipelines in order to measure corrosion activity in the future. For a simple pipeline, two #8 AWG copper strand bond cable welded or pin brazed onto the pipeline are run up to finished grade and left in a hand hole. Corrosion test stations are used to measure pipe-to-soil electro potential relative to a copper copper-sulfate reference electrode to determine if the pipe is experiencing significant corrosion activity. By measuring test stations along a pipeline, hot spots can be determined, if any. The wires also allow for electrical continuity testing, condition assessment, and a multitude of other types of tests.

At isolation joints and pipe casings, two wires should be welded to either side of the isolation joint for a total of 4 wires to be brought up to the hand hole. This allows for future tests of the isolation joint, casing separation confirmation, and pipe-to-soil potential readings during corrosion surveys.

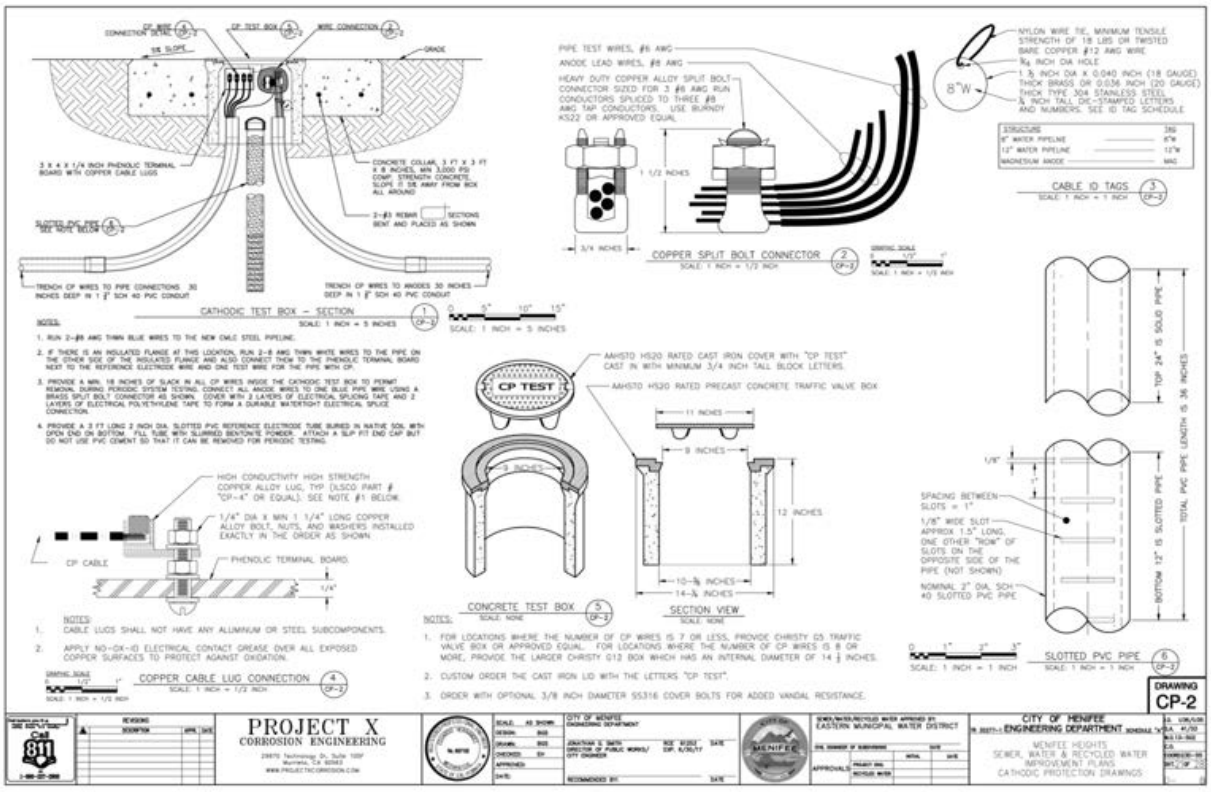


Figure 8 Sample of corrosion test station specification drawing

5.4.8 Excess Flux in Plumbing

Investigations of internal corrosion of domestic water plumbing systems almost always finds excess flux to be the cause of internal pitting of copper pipes. Some people believe that there is no such thing as too much flux. Flux runs have been observed to travel up to 20 feet with pitting occurring along the flux run. Flushing a soldered plumbing system with hot water for 15 minutes can remove significant amounts of excess flux left in the pipes. If a plumbing system is expected to be stagnant for some time, it should be drained to avoid stagnant water conditions that can lead to pitting and dezincification of yellow brasses.

5.4.9 Landscapers and Irrigation Sprinkler Systems

A significant amount of corrosion of fences is due to landscaper tools scratching fence coatings and irrigation sprinklers spraying these damaged fences. Recycled water typically has a higher salt content than potable drinking water, meaning that it is more corrosive than regular tap water. The same risk from damage and water spray exists for above ground pipe valves and backflow preventers. Fiber glass covers, cages, and cement footings have worked well to keep tools at an arm's length.

5.4.10 Roof Drainage splash zones

Unbelievably, even the location where your roof drain splashes down can matter. We have seen drainage from a home's roof valley fall directly down onto a gas meter causing it's piping to corrode at an accelerated rate reaching 50% wall thickness within 4 years. It is the same effect as a splash

zone in the ocean or in a pool which has a lot of oxygen and agitation that can remove material as it corrodes.

5.4.11 Stray Current Sources

Stray currents which cause material loss when jumping off of metals may originate from direct-current distribution lines, substations, or street railway systems, etc., and flow into a pipe system or other steel structure. Alternating currents may occasionally cause corrosion. The corrosion resulting from stray currents (external sources) is similar to that from galvanic cells (which generate their own current) but different remedial measures may be indicated. In the electrolyte and at the metal-electrolyte interfaces, chemical and electrical reactions occur and are the same as those in the galvanic cell; specifically, the corroding metal is again considered to be the anode from which current leaves to flow to the cathode. Soil and water characteristics affect the corrosion rate in the same manner as with galvanic-type corrosion.

However, stray current strengths may be much higher than those produced by galvanic cells and, as a consequence, corrosion may be much more rapid. Another difference between galvanic-type currents and stray currents is that the latter are more likely to operate over long distances since the anode and cathode are more likely to be remotely separated from one another. Seeking the path of least resistance, the stray current from a foreign installation may travel along a pipeline causing severe corrosion where it leaves the line. Knowing when stray currents are present becomes highly important when remedial measures are undertaken since a simple sacrificial anode system is likely to be ineffectual in preventing corrosion under such circumstances.[14] Stray currents can be avoided by installing proper electrical shielding, installation of isolation joints, or installation of sacrificial jump off anodes at crossings near protected structures such as metal gas pipelines or electrical feeders.

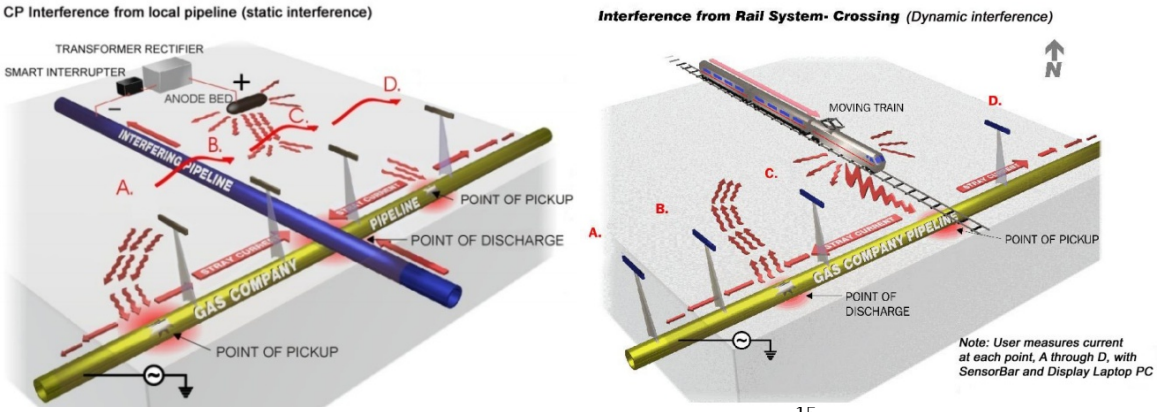


Figure 9 Examples of Stray Current[15]

[14] http://corrosion-doctors.org/StrayCurrent/Introduction.htm

[15] http://www.eastcomassoc.com/

APPENDIX H

Greenhouse Gas Emissions Assessment
Speedway Commerce Center II Specific Plan Project
San Bernardino County, California

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APPENDIX
Appendix A: Greenhouse Gas Emissions Data

LIST OF ABBREVIATED TERMS

AB	Assembly Bill
CARB	California Air Resource Board
CCR	California Code of Regulations
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CALGreen Code	California Green Building Standards Code
CPUC	California Public Utilities Commission
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CFC	Chlorofluorocarbon
CCSP	Climate Change Scoping Plan
cy	cubic yard
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
FR	Federal Register
GHG	greenhouse gas
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
LCFS	Low Carbon Fuel Standard
CH_4	Methane
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	metric tons of carbon dioxide equivalent
NHTSA	National Highway Traffic Safety Administration
NF_3	nitrogen trifluoride
N_2O	nitrous oxide
PFC	Perfluorocarbon
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Government
Sf	square foot
SF_6	sulfur hexafluoride
TAC	toxic air contaminants

1 INTRODUCTION

This report documents the results of a Greenhouse Gas (GHG) Emissions Assessment completed for the Speedway Commerce Center II Specific Plan Project (Project). The purpose of this GHG Emissions Assessment is to evaluate the potential construction and operational emissions associated with the Project and determine the level of impact the Project would have on the environment.

1.1 Project Location

The Project site is in an unincorporated area of southwestern San Bernardino County and within the City of Fontana Sphere of Influence (SOI). The Project site is approximately 40 miles east of downtown Los Angeles, 20 miles west of downtown San Bernardino, and 30 miles northeast of central Orange County. The approximately 522.30-acre site is located north of the San Bernardino Freeway (I-10) and San Bernardino Avenue and is bounded by Cherry Avenue to the east, the Burlington Northern and Santa Fe (BNSF) Railroad to the north, the West Valley Materials Recycling Facility to the west, and California Steel Industries to the south.

The City of Fontana is located to the north, east, and south of the site. The City of Rancho Cucamonga is located to the west and northwest and the City of Ontario is located to the southwest, as shown in Exhibit 1: Regional Vicinity and Exhibit 2: Site Vicinity.

1.2 Project Description

The Project encompasses approximately 433 acres of the approximately 522-acre site that is currently developed with the Auto Club Speedway (ACS), formerly known as the California Speedway, in the County. The Project proposes conceptual land uses that include, but are not limited to, up to 6.6 million square feet of high cube warehouse and e-commerce uses with approximately 12 acres (261,360 sf) of accessory commercial uses. The Project site would also be developed with greenbelts, public roads, other support amenity features, and water detention areas. The Project would surround the separate Next Gen in California Project, which was approved by the County on June 7, 2021; see Exhibit 3: Conceptual Site Plan. Construction of the Project, including recordation of final subdivision map(s) and design review may be progressively implemented in stages, provided that vehicular access, public facilities, and infrastructure are constructed to adequately service the development, or as needed for public health and safety. However, the actual phasing sequence and time-frame may vary depending on market conditions.

The current county land use category is C-Commercial and the zoning for the Project site is SD-COM-Special Development-Commercial. Table 1 shows the summary of the proposed land uses and attributed areas. Parking would be scattered throughout the site and located on the north, west, east, south, and center portions of the Project site. The proposed Project would dedicate 78.5 acres to Parking Fields/Drop Lots.

Table 1: Proposed Land Uses

Land Use	Speedway Commerce SP	Planning Area(s)
Warehouse	280.2 acres/approximately 6.6 million sq. ft.	PA 1a, PA 2a, PA 3a and PA 4a
Accessory Commercial (with Drop Lot)	27.1[1] acres/261,360 sq. ft.	PA 5a, PA 1c, PA 2c
Parking Field/Drop Out	82.5 acres	PA 1b, PA 2b, PA 3b, PA 4c, PA 5b, PA 6a, PA 6b, PA 6c
Open Space/Basin	9.4 acres	PA 4b and PA 5c
Public Right-of-Way	33.7 acres	NA
Total	432.9 acres	NA

Source: Kimley-Horn, *Speedway Commerce Center II Specific Plan,* Table 3-1: Land Use, 2021.
1. Includes approximately 23.5 acres of parking field/drop lot. Total potential parking/drop lot areas is 101 acres.

Exhibit 1: Regional Vicinity



Exhibit 2: Site Vicinity

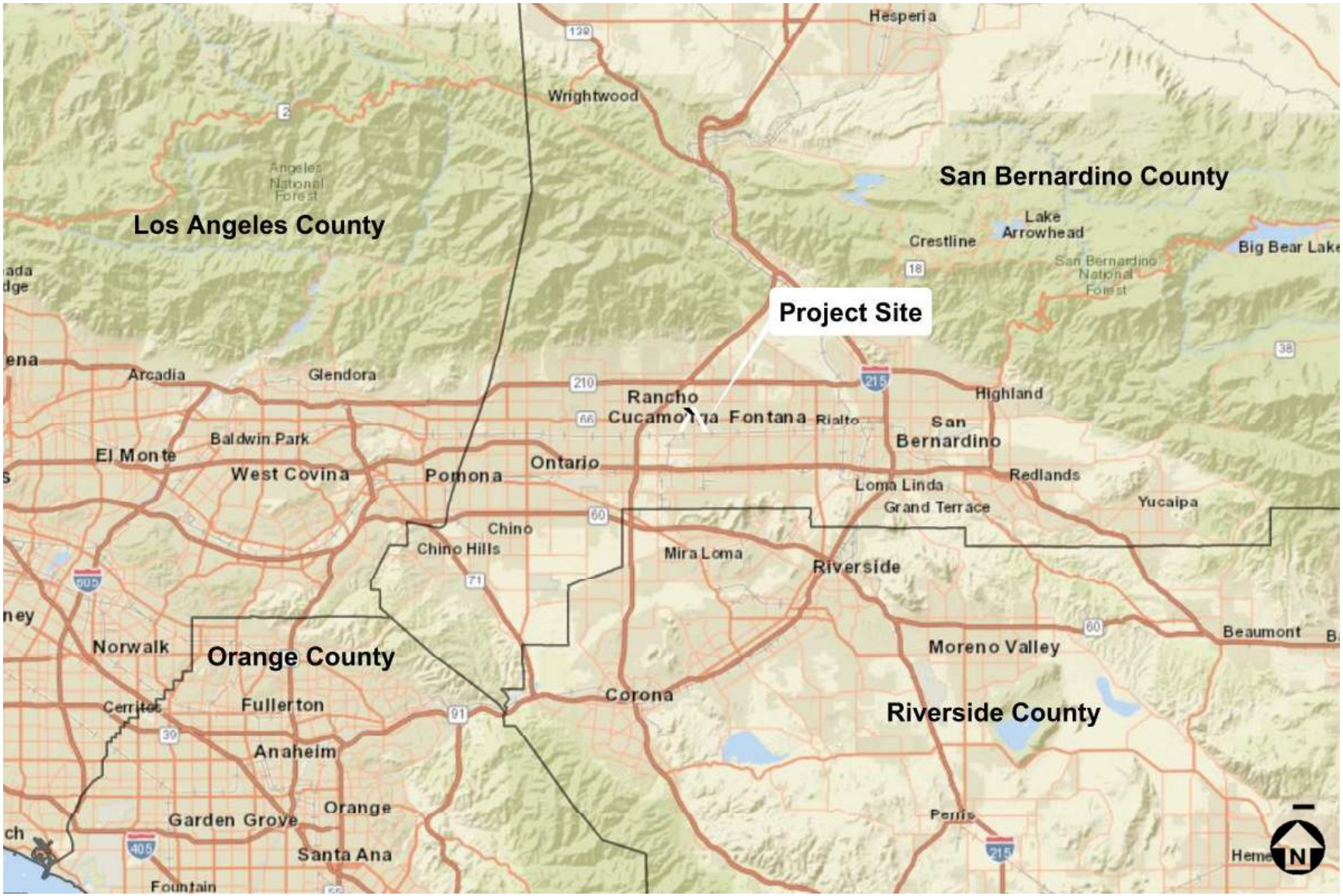
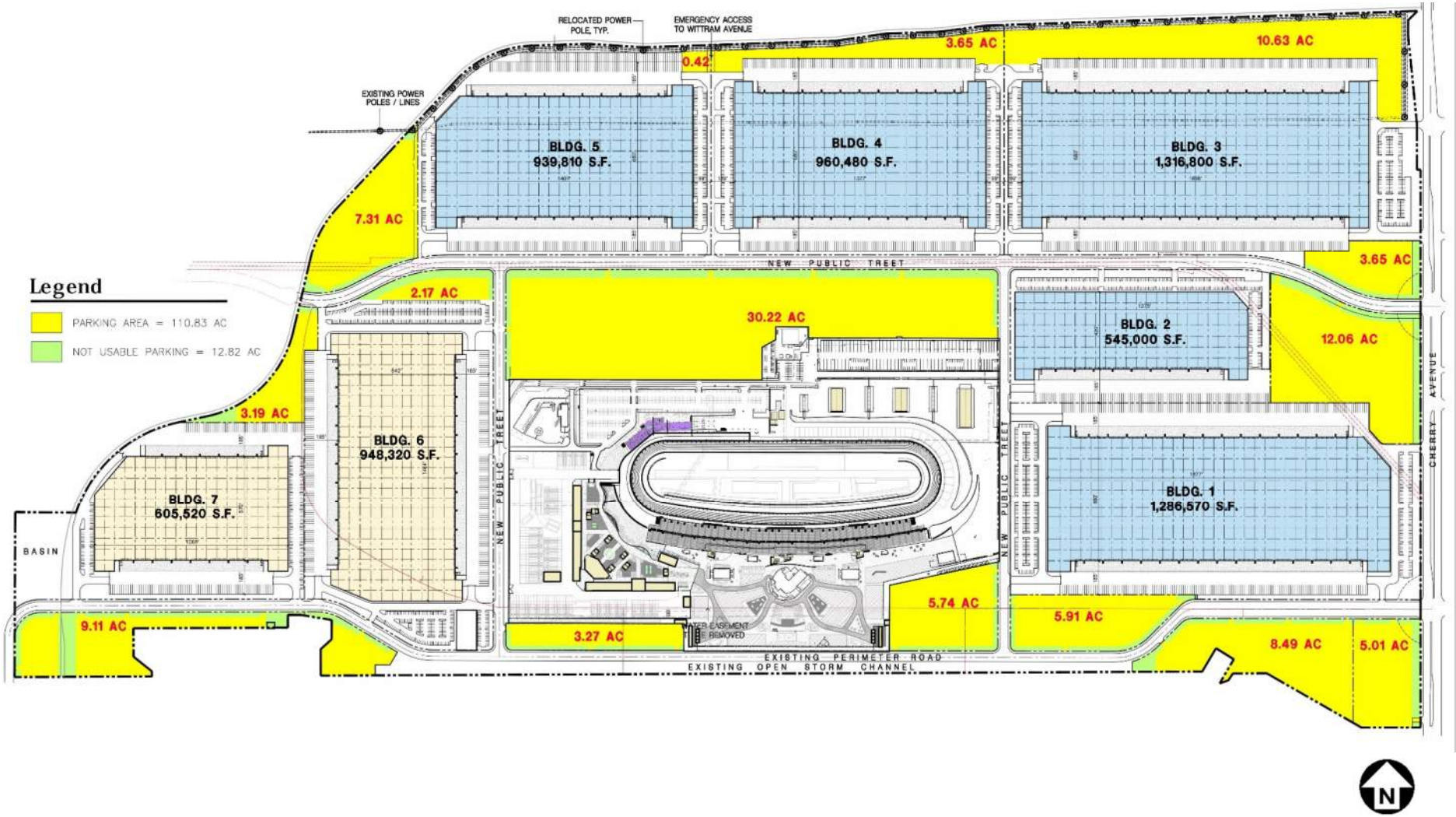


Exhibit 3: Conceptual Site Plan



2 ENVIRONMENTAL SETTING

2.1 Greenhouse Gases and Climate Change

Certain gases in the earth's atmosphere classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of a GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere[1]. Table 2: Description of Greenhouse Gases describes the primary GHGs attributed to global climate change, including their physical properties.

[1] Intergovernmental Panel on Climate Change, *Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis*, *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. http://www.climatechange2013.org/ images/report/WG1AR5_ALL_FINAL.pdf.

Table 2: Description of Greenhouse Gases

Greenhouse Gas	Description
Carbon Dioxide (CO_2)	CO_2 is a colorless, odorless gas that is emitted naturally and through human activities. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. The atmospheric lifetime of CO_2 is variable because it is readily exchanged in the atmosphere. CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
Nitrous Oxide (N_2O)	N_2O is largely attributable to agricultural practices and soil management. Primary human-related sources of N_2O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N_2O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years. The Global Warming Potential of N_2O is 298.
Methane (CH_4)	CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Methane is the major component of natural gas, about 87 percent by volume. Human-related sources include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Natural sources of CH_4 include wetlands, gas hydrates, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. The atmospheric lifetime of CH_4 is about 12 years and the Global Warming Potential is 25.
Hydrofluorocarbons (HFCs)	HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase out of CFCs and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 124 for HFC-152 to 14,800 for HFC-23.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Global Warming Potentials range from 6,500 to 9,200.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987. Global Warming Potentials for CFCs range from 3,800 to 14,400.
Sulfur Hexafluoride (SF_6)	SF_6 is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas. The Global Warming Potential of SF_6 is 23,900.
Hydrochlorofluoro-carbons (HCFCs)	HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, HCFCs are subject to a consumption cap and gradual phase out. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.
Nitrogen Trifluoride (NF_3)	NF_3 was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. This gas is used in electronics manufacture for semiconductors and liquid crystal displays. It has a high global warming potential of 17,200.

Source: Compiled from U.S. EPA, *Overview of Greenhouse Gases*, (https://www.epa.gov/ghgemissions/overview-greenhouse-gases), accessed 2-5-2020; U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019*, 2021; Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis*, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. EPA, *Methane and Nitrous Oxide Emission from Natural Sources*, April 2010.

3 REGULATORY SETTING

3.1 Federal

To date, national standards have not been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding

The U.S. Environmental Protection Agency (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Federal Clean Air Act (FCAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency.

In 2018, the President and the EPA stated their intent to halt various federal regulatory activities to reduce GHG emission, including the phase two program. California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. On September 27, 2019, the EPA and the NHTSA published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program." (84 Fed. Reg. 51,310 (Sept. 27, 2019.) The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. On March 31, 2020, the EPA and NHTSA finalized rulemaking for SAFE Part Two sets CO_2 emissions standards and corporate average fuel economy (CAFE) standards for passenger vehicles and light duty trucks, covering model years 2021-2026. The current U.S. EPA administration has repealed SAFE Rule Part One, effective January 28, 2022 and is reconsidering Part Two pursuant to Presidential Executive Order 13390 issued on January 20, 2021 as discussed below.

Presidential Executive Orders 13990 and 14008

On January 20, 2021, President Biden issued Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis". Executive Order 13990 directs Federal agencies to immediately review and take action to address the promulgation of Federal regulations and other actions that conflict with these important national objectives and to immediately commence work to confront the climate crisis. Executive Order 13990 directs the Council on Environmental Quality (CEQ) to review CEQ's 2020 regulations implementing the procedural requirements of the National Environmental Policy Act (NEPA) and identify necessary changes or actions to meet the objectives of Executive Order 13990.

Executive Order 13390 also directs the EPA to consider whether to propose suspending, revising, or rescinding the standards previously revised under the "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks," promulgated in April 2020.

On January 27, 2021, President Biden signed Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," to declare the Administration's policy to move quickly to build resilience, both at home and abroad, against the impacts of climate change that are already manifest and will continue to intensify according to current trajectories. In line with these Executive Order directives, CEQ is reviewing the 2020 NEPA regulations and plans to publish a notice of proposed rulemaking (NPRM) to identify necessary revisions in order to comply with the law; meet the environmental, climate change, and environmental justice objectives of Executive Orders 13990 and 14008; ensure full and fair public involvement in the NEPA process; provide regulatory certainty to stakeholders; and promote better decision making consistent with NEPA's statutory requirements. This phase 1 rulemaking will propose a narrow set of changes to the 2020 NEPA regulations to address these goals.

3.2 State of California

California Air Resources Board

The California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant emitter of CO_2 equivalents (CO_2e) in the world and produced 459 million gross metric tons of CO_2e in 2013. In the State, the transportation sector is the largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark Assembly Bill (AB) 32, *California Global Warming Solutions Act of 2006*, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

AB 32 instructs the CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. AB 32 also directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. It set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

California Air Resource Board Scoping Plan

CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business-as-usual")[2]. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates early actions and additional GHG reduction measures by both CARB and the State's Climate Action Team, identifies additional measures to be pursued as regulations, and outlines the adopted role of a cap-and-trade program[3]. Additional development of these measures and adoption of the appropriate regulations occurred through the end of 2013. Key elements of the Scoping Plan include:

[2] CARB defines business-as-usual (BAU) in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

[3] The Climate Action Team, led by the secretary of the California Environmental Protection Agency, is a group of State agency secretaries and heads of agencies, boards, and departments. Team members work to coordinate statewide efforts to implement global warming emissions reduction programs and the State's Climate Adaptation Strategy.

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
- Achieving a statewide renewables energy mix of 33 percent by 2020.
- Developing a California cap-and-trade program that links with other programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions (adopted in 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several sustainable community strategies have been adopted).
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, heavy-duty truck measures, the Low Carbon Fuel Standard (amendments to the Pavley Standard adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009).
- Creating targeted fees, including a public goods charge on water use, fees on gasses with high global warming potential, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.
- The California Sustainable Freight Action Plan was developed in 2016 and provides a vision for California's transition to a more efficient, more economically competitive, and less polluting freight transport system. This transition of California's freight transport system is essential to supporting the State's economic development in coming decades while reducing pollution.
- CARB's Mobile Source Strategy demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years. The mobile Source Strategy includes increasing ZEV buses and trucks.

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relied on emissions projections updated in light of current economic forecasts that accounted for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This update reduced the projected 2020 emissions from 596 million metric tons of CO_2e ($MMTCO_2e$) to 545 $MMTCO_2e$. The reduction in forecasted 2020 emissions means that the revised business-as-usual reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 21.7 percent, down from 29 percent. CARB also provided a lower 2020 inventory forecast that incorporated State-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from business-as-usual needed to achieve the goals of AB 32 is approximately 16 percent.

CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG emissions reductions necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. By 2016, California had reduced GHG emissions below 1990 levels, achieving AB 32's 2020 goal four years ahead of schedule.

In 2016, the Legislature passed Senate Bill (SB) 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017 CARB adopted a second update to the Scoping Plan[4]. The 2017 Scoping Plan details how the State will reduce GHG emissions to meet the 2030 target set by Executive Order B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and support the Clean Power Plan and other Federal actions.

Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit)

Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

SB 375 (The Sustainable Communities and Climate Protection Act of 2008)

Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established by AB 32. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies.

AB 1493 (Pavley Regulations and Fuel Efficiency Standards)

AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009–2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions. In 2019 the EPA published the SAFE Rule that revoked California's waiver. However, the EPA is currently reconsidering the SAFE rule pursuant to Presidential Executive Order 13390.

SB 1368 (Emission Performance Standards)

SB 1368 is the companion bill of AB 32, which directs the California Public Utilities Commission (CPUC) to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The CPUC adopted the regulations required by SB 1368 on August 29, 2007.

[4] California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed May 9, 2018.

The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, for 1,100 pounds of CO_2 per megawatt-hour.

SB 1078 and SBX1-2 (Renewable Electricity Standards)

SB 1078 requires California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Executive Order S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2, which codified the 33 percent by 2020 goal.

SB 350 (Clean Energy and Pollution Reduction Act of 2015)

Signed into law on October 7, 2015, SB 350 implements the goals of Executive Order B-30-15. The objectives of SB 350 are to increase the procurement of electricity from renewable sources from 33 percent to 50 percent (with interim targets of 40 percent by 2024, and 25 percent by 2027) and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator to develop more regional electricity transmission markets and improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

AB 398 (Market-Based Compliance Mechanisms)

Signed on July 25, 2017, AB 398 extended the duration of the Cap-and-Trade program from 2020 to 2030. AB 398 required CARB to update the Scoping Plan and for all GHG rules and regulations adopted by the State. It also designated CARB as the statewide regulatory body responsible for ensuring that California meets its statewide carbon pollution reduction targets, while retaining local air districts' responsibility and authority to curb toxic air contaminants and criteria pollutants from local sources that severely impact public health. AB 398 also decreased free carbon allowances over 40 percent by 2030 and prioritized Cap-and-Trade spending to various programs including reducing diesel emissions in impacted communities.

SB 150 (Regional Transportation Plans)

Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with State targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires the CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identify effective reduction strategies.

SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases)

Signed into Law in September 2018, SB 100 increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

AB 1346 (Air Pollution: Small Off-Road Engines)

Signed into Law in October 2021, AB 1346 requires CARB, to adopt cost-effective and technologically feasible regulations to prohibit engine exhaust and evaporative emissions from new small off-road engines, consistent with federal law, by July 1, 2022. The bill requires CARB to identify and, to the extent feasible, make available funding for commercial rebates or similar incentive funding as part of any updates to existing applicable funding program guidelines to local air pollution control districts and air quality management districts to implement to support the transition to zero-emission small off-road equipment operations.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs using executive orders. Although not regulatory, they set the tone for the State and guide the actions of state agencies.

Executive Order S-3-05. Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07. Issued on January 18, 2007, Executive Order S 01-07 mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. CARB adopted the LCFS on April 23, 2009.

Executive Order S-13-08. Issued on November 14, 2008, Executive Order S-13-08 facilitated the California Natural Resources Agency development of the 2009 California Climate Adaptation Strategy. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order S-14-08. Issued on November 17, 2008, Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the Renewable Electricity Standard on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-21-09. Issued on July 17, 2009, Executive Order S-21-09 directs CARB to adopt regulations to increase California's RPS to 33 percent by 2020. This builds upon SB 1078 (2002), which

established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Executive Order B-30-15. Issued on April 29, 2015, Executive Order B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO_2e (MMTCO2e). The 2030 target acts as an interim goal on the way to achieving reductions of 80 percent below 1990 levels by 2050, a goal set by Executive Order S-3-05. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. With the enactment of SB 32 in 2016, the Legislature codified the goal of reducing GHG emissions by 2030 to 40 percent below 1990 levels.

Executive Order B-55-18. Issued on September 10, 2018, Executive Order B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The executive order requires CARB to work with relevant state agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The executive order also requires state agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

Executive Order N-79-20. Signed in September 2020, Executive Order N-79-20 establishes as a goal that where feasible, all new passenger cars and trucks, as well as all drayage/cargo trucks and off-road vehicles and equipment, sold in California, will be zero-emission by 2035. The executive order sets a similar goal requiring that all medium and heavy-duty vehicles will be zero-emission by 2045 where feasible. It also directs CARB to develop and propose rulemaking for passenger vehicles and trucks, medium-and heavy-duty fleets where feasible, drayage trucks, and off-road vehicles and equipment "requiring increasing volumes" of new zero emission vehicles (ZEVs) "towards the target of 100 percent." The executive order directs the California Environmental Protection Agency, the California Geologic Energy Management Division (CalGEM), and the California Natural Resources Agency to transition and repurpose oil production facilities with a goal toward meeting carbon neutrality by 2045. Executive Order N-79-20 builds upon the CARB Advanced Clean Trucks regulation, which was adopted by CARB in July 2020.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Regulations. The appliance efficiency regulations (California Code of Regulations [CCR] Title 20, Sections 1601-1608) include standards for new appliances. Twenty-three categories of appliances are included in the scope of these regulations. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

Title 24 Building Energy Efficiency Standards. California's Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR Title 24, Part 6) was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow

consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards approved on January 19, 2016 went into effect on January 1, 2017. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and took effect on January 1, 2020. Under the 2019 standards, homes will use about 53 percent less energy and nonresidential buildings will use about 30 percent less energy than buildings under the 2016 standards.

Title 24 California Green Building Standards Code. The California Green Building Standards Code (CCR Title 24, Part 11 code) commonly referred to as the CALGreen Code, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics.

On August 11, 2021, the CEC adopted the 2022 Energy Code. In December, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. Among other updates like strengthened ventilation standards for gas cooking appliances, the 2022 Energy Code includes updated standards in three major areas:

- New electric heat pump requirements for residential uses, schools, offices, banks, libraries, retail, and grocery stores.
- The promotion of electric-ready requirements for new homes including the addition of circuitry for electric appliances, battery storage panels, and dedicated infrastructure to allow for the conversion from natural gas to electricity.
- The expansion of solar photovoltaic and battery storage standards to additional land uses including high-rise multifamily residences, hotels and motels, tenant spaces, offices, (including medical offices and clinics), retail and grocery stores, restaurants, schools, and civic uses (including theaters auditoriums, and convention centers)

Projects whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code.[5]

CARB Advanced Clean Truck Regulation. CARB adopted the Advanced Clean Truck Regulation in June 2020 requiring truck manufacturers to transition from diesel trucks and vans to electric zero-emission trucks beginning in 2024. By 2045, every new truck sold in California is required to be zero-emission. This rule directly addresses disproportionate risks and health and pollution burdens and puts California on the path for an all zero-emission short-haul drayage fleet in ports and railyards by 2035, and zero-emission "last-mile" delivery trucks and vans by 2040. The Advanced Clean Truck Regulation accelerates the transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. The regulation has two components including a manufacturer sales requirement, and a reporting requirement:

[5] California Energy Commission. 2022. *2022 Building Energy Efficiency Standards*, https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency (accessed April 2022).

- Zero-Emission Truck Sales: Manufacturers who certify Class 2b through 8 chassis or complete vehicles with combustion engines are required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales.

- Company and Fleet Reporting: Large employers including retailers, manufacturers, brokers and others would be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, would be required to report about their existing fleet operations. This information would help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

3.3 Regional

South Coast Air Quality Management District Rule 2305 (Warehouse Indirect Source Rule)

Rule 2305 was adopted by the SCAQMD Governing Board on May 7, 2021 to reduce NOX and particulate matter emissions associated with warehouses and mobile sources attracted to warehouses. However, Rule 2305 would also reduce GHG emissions. This rule applies to all existing and proposed warehouses over 100,000 square feet located in the SCAQMD. Rule 2305 requires warehouse operators to track annual vehicle miles traveled associated with truck trips to and from the warehouse. These trip miles are used to calculate the warehouses WAIRE (Warehouse Actions and Investments to Reduce Emissions) Points Compliance Obligation. WAIRE Points are earned based on emission reduction measures and warehouse operators are required to submit an annual WAIRE Report which includes truck trip data and emission reduction measures. Reduction strategies listed in the WAIRE menu include acquire zero emission (ZE) or near zero emission (NZE) trucks; require ZE/NZE truck visits; require ZE yard trucks; install on-site ZE charging/fueling infrastructure; install onsite energy systems; and install filtration systems in residences, schools, and other buildings in the adjacent community. Warehouse operators that do not earn a sufficient number of WAIRE points to satisfy the WAIRE Points Compliance Obligation would be required to pay a mitigation fee. Funds from the mitigation fee will be used to incentivize the purchase of cleaner trucks and charging/fueling infrastructure in communities nearby.

South Coast Air Quality Management District Thresholds

The South Coast Air Quality Management District (SCAQMD) formed a GHG California Environmental Quality Act (CEQA) Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. This working group was formed to assist SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the State Office of Planning and Research, CARB, the Attorney General's Office, a variety of city and county planning departments in the South Coast Air Basin (SCAB), various utilities such as sanitation and power companies throughout the SCAB, industry groups, and environmental and professional organizations. The Working Group has proposed a tiered approach to evaluating GHG emissions for development projects where SCAQMD is not the lead agency, wherein projects are evaluated sequentially through a series of "tiers" to determine whether the project is likely to result in a potentially significant impact due to GHG emissions.

With the tiered approach, a project is compared against the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. The SCAQMD has adopted a threshold of 10,000 metric tons of CO_2e ($MTCO_2e$) per year for industrial projects and a 3,000 $MTCO_2e$ threshold was proposed for non-industrial projects but has not been adopted. During Working Group Meeting #7 it was explained that this threshold was derived using a 90 percent capture rate of a large sampling of industrial facilities. During Meeting #8, the Working Group defined industrial uses as production, manufacturing, and fabrication activities or storage and distribution (e.g., warehouse, transfer facility, etc.). The Working Group indicated that the 10,000 $MTCO_2e$ per year threshold applies to both emissions from construction and operational phases plus indirect emissions (electricity, water use, etc.). The SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three decision tree options. Under the Tier 4 first option, SCAQMD initially outlined that a project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. However, the Working Group did not provide a recommendation for this approach. The Working Group folded the Tier 4 second option into the third option. Under the Tier 4 third option, a project would be excluded if it was below an efficiency-based threshold of 4.8 $MTCO_2e$ per service population per year. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

Tier 3 Screening Thresholds

When the tiered approach is applied to a proposed project, and the project is found not to comply with Tier 1 or Tier 2, the project's emissions are compared against a screening threshold, as described above, for Tier 3. The screening threshold formally adopted by SCAQMD is an "interim" screening threshold for stationary source industrial projects where the SCAQMD is the lead agency under CEQA. The threshold was termed "interim" because, at the time, SCAQMD anticipated that CARB would be adopting a statewide significance threshold that would inform and provide guidance to SCAQMD in its adoption of a final threshold. However, no statewide threshold was ever adopted, and the interim threshold remains in effect.

For projects for which SCAQMD is not a lead agency, no screening thresholds have been formally adopted. However, the SCAQMD Working Group has recommended a threshold of 10,000 $MTCO_2e$/year for industrial projects and 3,000 $MTCO_2e$/year for residential and commercial projects. SCAQMD determined that these thresholds would "capture" 90 percent of GHG emissions from these sectors, "capture" meaning that 90 percent of total emissions from all new projects would be subject to some type of CEQA analysis (i.e., found potentially significant).[6]

[6] SCAQMD, "Staff Report: Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans," December 5, 2008, Attachment E: "Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold," October 2008, p. 3-2.

Southern California Association of Governments

On September 3, 2020, SCAG's Regional Council adopted Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy [2020 RTP/SCS]). The RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The strategy was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The RTP/SCS is a long-range vision plan that balances future mobility and housing needs with economic, environmental, and public health goals. The SCAG region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions.

3.4 Local

County of San Bernardino Countywide Plan

The project site is within an unincorporated area of the non-desert portion of southwestern San Bernardino County, which is part of the South Coast Air Basin (SCAB) and is under the jurisdiction of the SCAQMD. The San Bernardino Countywide General Plan includes the following goals and policies to reduce GHG emissions within the county boundaries:

Goal NR-1 **Air Quality. Air quality that promotes health and wellness of residents in San Bernardino County through improvements in locally-generated emissions.**

Policy NR-1.1 **Land use.** Promote compact and transit-oriented development countywide and regulate the types and locations of development in unincorporated areas to minimize vehicle miles traveled and greenhouse gas emissions.

Policy NR-1.7 **Greenhouse gas reduction targets**. Strive to meet the 2040 and 2050 greenhouse gas emission reduction targets in accordance with state law.

Policy NR-1.9 **Building design and upgrades**. Use the CALGreen Code to meet energy efficiency standards for new buildings and encourage the upgrading of existing buildings to incorporate design elements, building materials, and fixtures that improve environmental sustainability and reduce emissions.

Goal RE-1 **Energy Conservation and Efficiency. The County will pursue energy efficiency tools and conservation practices that optimize the benefits of renewable energy.**

Policy RE-1.1 **GHG Reduction Plan.** Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan.

Policy RE-1.2 **Optimized efficiency.** Optimize energy efficiency in the built environment

Policy RE-1.4 **Energy conservation.** Encourage residents and businesses to conserve energy.

Goal RE-2 **Renewable Energy Systems. The County will be home to diverse and innovative renewable energy systems that provide reliable and affordable energy to our unique Valley, Mountain, and Desert regions.**

Policy RE-2.1 **Types of renewable energy systems**. Support solar energy generation, solar water heating, wind energy and bioenergy systems that are consistent with the orientation, siting and environmental compatibility policies of the General Plan.

San Bernardino County Greenhouse Gas Reduction Plan

The County adopted a GHG Reduction Plan in September 2011 and updated their GHG Development Review Process in March 2015, and most recently in September 2021 (GHG Reduction Plan). The GHG Reduction Plan provides a means of implementing state regulations, including AB 32, AB 1493, Executive Order S-3-05, SB 375, Executive Order B-30-15, SB 32, AB 398, and SB 97, at the County level. The 2021 GHG Reduction Plan Update provides a target and comprehensive set of actions for GHG emission reductions for the year 2030 (i.e., an emissions reduction 40 percent below 2007 levels). This reduction would be consistent with the State's long-term goal to achieve statewide carbon neutrality (zero net emissions) by 2045.

GHG emissions impacts are assessed through the GHG Development Review Process by applying appropriate reduction requirements as part of the discretionary approval of new development projects. Through its development review process, the County will implement CEQA requiring new development projects to quantify project GHG emissions and adopt feasible mitigation to reduce project emissions below a level of significance.

A review standard of 3,000 $MTCO_2e$ per year is used to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions. The purpose of the Screening Tables is to provide guidance in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated into development projects.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 CEQA Thresholds and Significance Criteria

Based upon the criteria derived from Appendix G of the CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Addressing GHG emissions generation impacts requires an agency to determine what constitutes a significant impact. The amendments to the CEQA Guidelines specifically allow lead agencies to determine thresholds of significance that illustrate the extent of an impact and are a basis from which to apply mitigation measures. This means that each agency is left to determine whether a project's GHG emissions will have a "significant" impact on the environment. The guidelines direct that agencies are to use "careful judgment" and "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" the project's GHG emissions[7].

GHG Thresholds

On December 5, 2008, the SCAQMD Governing Board adopted a 10,000 $MTCO_2e$ industrial threshold for projects where SCAQMD is the lead agency. The SCAQMD GHG CEQA Significance Threshold Working Group defined industrial uses as production, manufacturing, and fabrication activities or storage and distribution (e.g., warehouse, transfer facility, etc.) during Meeting #8. Additionally, the SCAQMD GHG Significance Threshold Stakeholder Working Group has specified that a warehouse is considered to be an industrial project.[8] During the GHG CEQA Significance Threshold Working Group Meeting #15, the SCAQMD noted that it was considering extending the industrial GHG significance threshold for use by all lead agencies. Furthermore, the Working Group indicated that the 10,000 $MTCO_2e$ per year threshold applies to both emissions from construction and operational phases plus indirect emissions (electricity, water use, etc.). The SCAQMD has not announced when staff is expecting to present GHG thresholds for land use projects where the SCAQMD is not the lead agency to the governing board.

As noted above, the County's GHG Reduction Plan includes review standard of 3,000 $MTCO_2e$ per year to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions. The purpose of the Screening Tables is to provide guidance in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated into development projects. Projects that exceed the 3,000 $MTCO_2e$/year are required to either achieve a minimum 100 points per the Screening Tables or a 31 percent reduction over 2007 emissions levels.

According to the County's 2021 GHG Emissions Reduction Plan Update, any project that adopts at least 100 points of GHG performance standards listed in the proposed 2021 Screening Tables, would be

[7] 14 California Code of Regulations, Section 15064.4a

[8] South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #8*, 2009.

consistent with the County's GHG Emissions Reduction Plan to reduce emissions to 40 percent below 2007 levels. Meeting this reduction would be consistent with the State's long-term goal to achieve statewide carbon neutrality (zero net emissions) by 2045, and therefore, would result in a less than significant impact related to GHG emissions.

4.2 Methodology

Global climate change is, by definition, a cumulative impact of GHG emissions. Therefore, there is no project-level analysis. The baseline against which to compare potential impacts of the project includes the natural and anthropogenic drivers of global climate change, including world-wide GHG emissions from human activities which almost doubled between 1970 and 2010 from approximately 27 gigatonnes (Gt) of CO_2/year to nearly 49 $GtCO_2$/year.[9] As such, the geographic extent of climate change and GHG emissions cumulative impact discussion is worldwide.

The Project's construction and operational emissions were calculated using the California Emissions Estimator Model version 2020.4.0 (CalEEMod). Details of the modeling assumptions and emission factors are provided in Appendix A: Greenhouse Gas Emissions Data. For construction, CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. GHG emissions during construction were forecasted based on the proposed construction schedule and applying the mobile-source and fugitive dust emissions factors derived from CalEEMod. The Project's construction-related GHG emissions would be generated from off-road construction equipment, on-road hauling, vendor (material delivery) trucks, and worker vehicles. Construction was modeled generally according to the following timeline[10]:

- Phase 1a: Commence in 2023 with a 12-month duration.
- Phase 1b: Commence in 2024 with a 12-month duration.
- Phase 2: Commence in 2025 with a 12-month duration.
- Commercial Parcel: Commence in 2026 with an 11-month duration.

The Project's operational GHG emissions would be generated by vehicular traffic, off-road equipment, area sources (e.g., landscaping maintenance, consumer products), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste. These emissions categories are discussed below.

- **Area Sources**. Area source emissions occur from hearths, architectural coatings, landscaping equipment, and consumer products. The Project involves warehouse uses and would not include hearths. Landscaping and consumer products would be limited. Negligible quantities of consumer

[9] Intergovernmental Panel on Climate Change, *Climate Change 2014 Mitigation of Climate Change Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014.

[10] As the Project development is speculative, a conservative worst-case construction timeline has been modeled for analysis purposes. This involves modeling emissions at the earliest feasible date. Emissions in future years (i.e., due to a later construction start date or operational opening year) would be lower due to phased-in emissions standards, inspection and maintenance requirements, and fleet turnover). Project construction that occurs at a later date than what was modeled impacts would result in lower emissions than those analyzed due to the use of more energy-efficient and cleaner burning construction vehicle fleet mix, pursuant to state regulations that require vehicle fleet operators to phase-in less polluting heavy-duty equipment. As a result, Project-related construction emissions would be lower than the impacts disclosed herein. For emissions modeling purposes, conservatively analyzing the emissions using an earlier construction start date provides for a worst-case analysis and full disclosure of potential air quality impacts, as required by CEQA.

products (i.e., personal care products, home, lawn, and garden products, disinfectants, sanitizers, polishes, cosmetics, and floor finishes) would be used.

- **Energy Consumption**. Energy consumption consists of emissions from project consumption of electricity and natural gas. Primary uses of electricity and natural gas by the Project would be for miscellaneous warehouse equipment, space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. Energy emissions are calculated based on consumption rates and emissions factors in CalEEMod.
- **Solid Waste**. Solid waste releases GHG emissions in the form of methane when these materials decompose. Solid waste emissions are calculated based on generation rates and emissions factors in CalEEMod.
- **Water and Wastewater**. Project GHG emissions would be generated from energy consumption associated with water and wastewater conveyance and treatment. Water and wastewater emissions are calculated based on consumption rates and emissions factors in CalEEMod.
- **Off-Road Equipment**. Operational off-road emissions would be generated by off-road cargo handling equipment used during operational activities at the warehouses (off-road equipment would not be needed for the operational activities at the commercial development). Off-road emissions were calculated with emissions rates derived from CARB's OFFROAD database. For this project it was assumed that the warehouses would including the following off-road equipment per SCAQMD data[11]:
    - Phase 1a: 63 forklifts and 11 yard trucks
    - Phase 1b: 38 forklifts and 7 yard trucks
    - Phase 2: 31 forklifts and 6 yard trucks
- **Transport Refrigeration Units**. Transport Refrigeration Units (TRUs) are refrigeration systems powered by diesel internal combustion engines designed to refrigerate or heat perishable products that are transported in various containers, including semi-trailers and truck vans. TRU emissions were quantified with CARB's OFFROAD database. All trucks associated with the refrigerated building space were assumed to have TRUs for modeling purposes to provide a worst-case scenario.
- **Emergency Backup Generators**. As the Project warehouses are speculative, it is unknown whether emergency backup generators would be used. Backup generators would only be used in the event of a power failure and would not be part of the Project's normal daily operations. Nonetheless, emissions associated with this equipment were included to be conservative. Emissions from an emergency backup generator for each warehouse building were calculated separately from CalEEMod; refer to Appendix A. However, CalEEMod default emissions rates were used. If backup generators are required, the end user would be required to obtain a permit from the SCAQMD prior to installation. Emergency backup generators must meet SCAQMD's Best Available Control Technology (BACT) requirements and comply with SCAQMD Rule 1470 (Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines), which would minimize emissions.

Mobile Sources. Mobiles source emissions were calculated with CalEEMod based on the trip generation from the Project Traffic Study prepared by Kimley-horn and Associates (January 2022).

[11] SCAQMD, *High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results*, June 2014.

The Project land use assumptions and trip generation from the Traffic Study is summarized in Table 3: CalEEMod Land Use and Trip Generation. Project trip generation is based on Institute of Transportation Engineers (ITE) land use categories or specific counts where ITE categories were not available. Truck mix percentages are based on the SCAQMD Truck Trip Generation Study applied to ITE truck percentages and data from other similar facilities. Other operational emissions from area, energy, and stationary sources were quantified in CalEEMod based on land use activity data.

Table 3: CalEEMod Land Use and Trip Generation

Land Use Type	Building Area Modeled (Thousand Square Feet)[7]	Modeled Acreage[8]	Total Daily Trips[9]	Truck %	Trucks[10]
Phase 1a					
E-Commerce Warehouse with Office[1, 2]	2,773.050	63.7	13,595	13.4%	1,828
Additional Warehouse for modeling purposes only[3]	250.320	5.7			
Refrigerated Warehouse (ITE 157 High-Cube Cold Storage)	125.000	2.9			
Truck Storage and Streets/Utilities[4]	--	71.6	3,359	84.4%	2,836
Parking Lot	--	60.7	--	--	--
Phase 1a Total	**3,148.370**	**204.6**	**16,954**	**27.5%**	**4,664**
Phase 1b					
Unrefrigerated Warehouse (ITE 154 High-Cube Short-Term Storage)[5]	1,053.530	24.2	10,512	10.4%	1,098
Additional Warehouse for modeling purposes only[3]	721.770	16.6			
Refrigerated Warehouse (ITE 157 High-Cube Cold Storage)	125.000	2.8			
Truck Storage and Streets/Utilities[4]	--	61.7	2,895	84.4%	2,444
Parking Lot	--	36.5	--	--	--
Phase 1b Total	**1,900.300**	**141.8**	**13,407**	**26.4%**	**3,542**
Phase 2					
Refrigerated Warehouse (ITE 157 High Cube Cold Storage)	250.000	5.7	1,060	34.9%	370
Unrefrigerated Warehouse (ITE 154 High Cube Short-Term Storage)[6]	1,087.470	25.0	1,429	15.8%	225
Additional Warehouse for modeling purposes only[3, 6]	216.370	5.0			
Truck Storage and Streets/Utilities[4]	--	17.7	833	84.4%	703
Parking Lot	--	33.1	--	--	--
Phase 2 Total	**1,553.840**	**86.5**	**3,322**	**39.1%**	**1,298**
Commercial Uses					
General Commercial (ITE 820) and Associated Parking[11]	261.360	12.0	9,866	3.7%	361
Commercial Total	**522.720**	**12.0**	**9,866**	**3.7%**	**361**

Table 3: CalEEMod Land Use and Trip Generation

Land Use Type	Building Area Modeled (Thousand Square Feet)[7]	Modeled Acreage[8]	Total Daily Trips[9]	Truck %	Trucks[10]
E-Commerce/Warehouse Building Area Total (All Phases)	**6,602.510**	**151.6**	**26,596**	**13%**	**3,521**
Truck Storage/Street/Utilities/Parking Lot Total (All Phases)	**--**	**281.3**	**7,087**	**84%**	**5,983**
Total (All Phases)	***6,863.810***	***432.9***	***43,549***	***22.65%***	***9,865***

1. Trip generation based on trip counts for similar uses; refer to the Traffic Study.
2. Includes 50 thousand square feet (KSF) of office and 2,723.050 KSF unrefrigerated warehouse.
3. Additional warehouse building area is modeled to be conservative and provide flexibility between phases. The overall building area is conservative and additional building area (refrigerated and non-refrigerated) has also been included in the initial phases.
4. As indicated in the Traffic Study, truck storage trips rates provided by the City of San Bernardino based on data from similar facilities; refer to the Traffic Study.
5. Includes 40 KSF office and 1,735.3 KSF unrefrigerated warehouse.
6. Includes 30 KSF office and 1,273.84 KSF unrefrigerated warehouse.
7. Total square footage includes high cube/e-commerce warehouse and commercial building sizes used in the CalEEMod modeling.
8. The total acreage for the Project site is 432.9 acres. However, for modeling purposes an additional 12 acres was included to conservatively capture the commercial uses.
9. Per the TIA, the project would generate are 34,489 total daily trips (34,150 net trips). For emissions modeling purposes, this analysis evaluates the daily trip generation based on the maximum building area of 6.6 million square feet to conservatively capture the maximum potential passenger car and truck trips even though this trip scenario may not be feasible due to site constraints.
10. The TIA trip generation includes 8,468 non-passenger car equivalent daily truck trips and 25,681 net passenger car trips for a total of 34,150 net trips. As noted above, a greater number of daily trips was analyzed for emissions modeling purposes.
11. Of the total acreage noted for proposed parking lots, 12 acres are identified with a commercial overlay that could support up to 261,300 sf of commercial uses. Due to the speculative nature of the commercial development and in order to represent a worst case scenario, the analysis assumes that all 130.3 acres of parking (including the 12 acres with commercial overlay) would be developed in Phases 1a, 1b, and 2 as parking lots. Furthermore, the analysis assumes that the commercial uses would be developed after the parking lots were constructed and would require re-purposing of the parking lots into a commercial use. Therefore, the model includes an additional 12 acres of re-development of the parking lots to support the 261,300 sf of commercial. The total modeled acreage is 432.9 acres plus the additional 12 acres, for a total of 444.9 acres modeled. The total site does not exceed 432.9 acres.

The Project site would consist of up to approximately 6.6 million square feet of high-cube logistics and e-commerce uses with 261,360 square feet of ancillary commercial uses, and approximately 98 acres of parking fields/drop lot areas as well as ancillary open space. However, for purposes of trip generation and associated air quality analysis, a conservative approach was used in the trip generation which assumes 2,641,000 million square feet of high-cube logistics and 2,773,050 million square feet of e-commerce uses, for a total of 5,414,050 million sf of combined high-cube logistics and e-commerce uses. This scenario provides for the maximum number of trips and related air quality impacts that could be associated with the Project. For instance, if the Project were to develop with 6.6 million square feet of high-cube logistics uses only, the number of trips associated with the project would be less than if the project were to develop with the assumed 2,641,000 million square feet of high-cube logistics and 2,773,050 million square feet of e-commerce uses due to the higher intensity of trips generated with e-commerce uses. Potential tenants and end users are unknown at this time; therefore, the exact square footage allocation between high-cube logistics and e-commerce uses cannot be determined at the time this EIR was prepared. Therefore, future development of high-cube logistics and e-commerce uses within the Project site would occur in a combination that would not exceed the maximum number of vehicle trips analyzed within this EIR, which represents a conservative, worst-case scenario. For purposes of construction emissions modeling, the maximum potential development of approximately 6.6 million square feet building area was modeled to reflect the maximum square footage of building construction potential.

Emissions reductions from mitigation measures were applied in CalEEMod are derived from methodologies compiled in the CAPCOA report Quantifying GHG Measures[12]. Each measure was assessed to determine its consistency with CAPCOA criteria for the use of the measure. The following mitigation measure were applied in CalEEMod include:

- Transportation Demand Management Measures: TRT-1 (Implement Trip Reduction Program), TRT-7 (Market Commute Trip Reduction Option), and TRT-11 (Employee Vanpool/Shuttle).
- A-1 – Electric Handheld Landscape Equipment.
- BE-1 – Exceed Title 24. The project would be required to comply with CALGreen Tier 2, which requires a 30 percent improvement.
- SW-1 – 75 Percent Reduction in Solid Waste Disposal.

Additionally, the following design feature was quantified outside of CalEEMod:

- **Zero Emission Cargo Handling Equipment**. Zero emission/electric cargo handling equipment (see Mitigation Measure (MM) AQ-9, below) emissions from energy consumption were calculated based on 132 forklifts and 24 yard trucks operating for 12 hours per day and the Southern California Edison (SCE) electricity CO_2e emissions factor from CalEEMod. As noted above, the assumptions for the equipment are based on the SCAQMD *High Cube Warehouse Truck Trip Study White Paper* (2014).

4.3 Project Design Features

The Master Developer proposes the following Project Design Features (PDFs) that would be incorporated into the Project design and constructed or implemented as part of the Project. PDFs are specific design and/or operational characteristics proposed by the Master Developer that are incorporated into the Project and part of the Project description and Specific Plan. Because PDFs are incorporated into the Project, they do not constitute mitigation measures. PDFs relevant to GHG emissions are provided in the Project Air Quality Assessment.

For example, PDF AQ-8 requires all heavy-duty vehicles registered in California entering or operated on the Project site shall be model year 2010 or later. To promote the use of alternative fuels and clean fleets and facilitate future installation of electric vehicle supply equipment, PDF AQ-9 requires that all heavy-duty trucks to be zero emissions beginning in 2030 if such trucks are widely available and economically feasible and PDF AQ-10 requires tenants/facility operators to use zero-emission light- and medium-duty trucks as part of business operations, if such trucks are widely available and economically feasible. PDF AQ-11 requires tenants/facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of trucks. PDF AQ-12 and PDF AQ-13 requires future tenants/facility operators to attend CARB training for record keeping and ensuring vehicles comply with CARB regulations and are in good condition. PDF AQ-14 requires site enforcement staff to be certified in diesel health effects and technologies by attending CARB training and PDF AQ-15 requires compliance with all current air quality regulations for on-road trucks. PDF AQ-16 and PDF AQ-17 requires charging infrastructure and conduit, and PDF AQ-18 requires necessary infrastructure to allow solar photovoltaic systems to be installed in the future. PDF AQ-19 enroll in the EPA's SmartWay program and PDF AQ-20 provide information on CARB's Carl Moyer Voucher Incentive Program to upgrade fleets. PDF AQ-21 requires signage for truck routes and PDF AQ-22 requires check-in points to be located inside the

[12] California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, August 2010.

facility to ensure truck queues do not occur outside of the facility. It should be noted that these PDFs facilitate compliance with regulations and latest best practices. Emissions benefits from implementation of PDF AQ-1 through PDF AQ-23 are not directly quantifiable and conservatively not quantified; no credit is taken for these measures. Quantifiable reduction measures are incorporated below as mitigation measures, which would be supported by these PDFs.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 Greenhouse Gas Emissions

Threshold 5.1 Would the Project generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment?

Construction Emissions

Project construction would result in direct emissions of CO_2, N_2O, and CH_4 from construction equipment and the transport of materials and construction workers to and from the Project site. The GHG emissions only occur during temporary construction activities and would cease once construction is complete. The total GHG emissions generated during all phases of construction were combined as CO_2e and are shown in Table 4: Construction-Related Greenhouse Gas Emissions.

Table 4: Construction-Related Greenhouse Gas Emissions

Construction Phase	$MTCO_2e$
Phase 1a (2023)	14,828
Phase 1b (2024)	10,765
Phase 2 (2025)	11,453
Commercial Phase (2026)	578
Total Construction Emissions	*37,624*
30-Year Amortized Construction	1,254

Source: CalEEMod version 2020.4.0. Refer to Appendix A for model outputs.

As shown, the Project would result in the generation of approximately 37,624 $MTCO_2e$ over the course of construction. Construction GHG emissions are typically summed and amortized over a 30-year period, then added to the operational emissions[13]. The amortized Project construction emissions would be 1,254 $MTCO_2e$ per year. Once construction is complete, the generation of these GHG emissions would cease.

Operational Greenhouse Gas Emissions

Operational or long-term emissions occur over the life of the Project. GHG emissions would result from direct emissions such as Project generated vehicular traffic, on-site combustion of natural gas, and operation of any landscaping equipment. Operational GHG emissions would also result from indirect sources, such as off-site generation of electrical power, the energy required to convey water to, and wastewater from the Project, the emissions associated with solid waste generated from the Project, and any fugitive refrigerants from air conditioning or refrigerators.

As noted above in Section 4.3, several PDFs and standard conditions of approval applicable to the Project would help to reduce GHG emissions. In addition, prior to issuance of a building permit, San Bernardino

[13] The project lifetime is based on the standard 30-year assumption of the South Coast Air Quality Management District (South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13,* August 26, 2009).

County would review and verify that the Project plans demonstrate compliance with the current version of the Building and Energy Efficiency Standards. The Project would also be required to adhere to the provisions of CALGreen, which establishes planning and design standards for sustainable site development, and energy efficiency. Construction activities would be required to monitor air quality emissions using applicable regulatory guidance such as the SCAQMD Rules. GHG emissions associated with the Project are summarized in Table 5: Project Greenhouse Gas Emissions.

Table 5: Project Greenhouse Gas Emissions

Emissions Source	$MTCO_2e$ per Year				
	Phase 1a	Phase 1b	Phase 2	Commercial	Total
Unmitigated					
Construction Amortized Over 30 Years	494	359	382	19	1,254
Area Sources	0.09	0.05	0.04	0.01	0.19
Energy[1]	2,753	2,051	2,856	499	8,158
Mobile - Passenger Cars	9,458	7,406	2,371	6,355	25,590
Mobile - Trucks	78,081	56,615	20,370	N/A	155,067
Mobile - Vans	4,657	3,565	N/A	N/A	8,222
Off-Road - Forklifts	2,602	1,569	1,280	N/A	5,451
Off-Road - Yard Trucks	1,885	1,200	1,028	N/A	4,113
Backup Generators	133	39	286	N/A	458
Transport Refrigeration Units	1,218	727	975	N/A	2,920
Waste	1,488	898	734	138	3,259
Water and Wastewater[3]	2,475	1,468	1,179	81	5,203
Unmitigated Total	**105,244**	**75,898**	**31,462**	**7,092**	**219,696**
Mitigated					
Construction Amortized Over 30 Years	494	359	382	19	1,254
Area Sources	0.05	0.03	0.02	0.01	0.10
Energy[1]	2,296	1,772	2,614	358	7,040
Mobile - Passenger Cars	9,349	7,321	2,344	6,286	25,300
Mobile - Trucks	78,081	56,615	20,370	N/A	155,067
Mobile - Vans	4,603	3,524	N/A	N/A	8,127
Off-Road - Forklifts	573	336	266	N/A	1,175
Off-Road - Yard Trucks	470	291	242	N/A	1,003
Backup Generators	133	39	286	N/A	458
Transport Refrigeration Units	1,218	727	975	N/A	2,920
Waste	372	225	184	35	815
Water and Wastewater[3]	1,981	1,175	944	68	4,168
Mitigated Total	**99,571**	**72,385**	**28,607**	**6,765**	**207,327**

1. Mitigation Measure GHG-2 requires the installation of photovoltaic solar panels to offset energy emissions. Mitigation Measure GHG-3 requires the buildings to meet or exceed CalGreen Tier 2 standards.
2. Mitigation Measure AQ-3 (refer to the Projects Air Quality Assessment) requires implementation of a TDM program.
3. Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and the County's Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. These are regulatory measures have been incorporated into the CalEEMod mitigation module.

Source: CalEEMod version 2020.4.0. Refer to Appendix A for model outputs.

Table 5 shows that the Project's unmitigated emissions would be approximately 219,696 $MTCO_2e$ annually from operations with amortized construction. Project-related GHG emissions would exceed the County's 3,000 $MTCO_2e$ per year review standard. It should be noted that the majority of the unmitigated GHG emissions (86 percent) are associated with non-construction related mobile sources. Emissions of motor vehicles are controlled by State and Federal standards, and the Project has no control over these standards.

The Project includes numerous PDFs that would minimize emissions as described above. Additionally, Standard Conditions (SC) GHG-1 through SC GHG-9 would provide designated parking to promote the use of alternative fuels and clean fleets, facilitate future installation of electric vehicle supply equipment, and limit idling times.

Furthermore, the Project's Air Quality Assessment includes numerous mitigation measures that would also reduce GHG emissions. For example, Mitigation Measure (**MM) AQ-3** through **MM AQ-10** have been identified to reduce operational emissions. **MM AQ-3** requires the implementation of a Transportation Demand Management (TDM) program to reduce single occupant vehicle trips and encourage transit. **MM AQ-4** requires the buildings to be designed to accommodate electric vehicle (EV) infrastructure, **MM AQ-5** requires tenant installation of conduit at select loading bays, and **MM AQ-6** prohibits idling when engines are not in use. Given the state's clean truck rules and regulations aiming to accelerate the utilization and market penetration of ZE and NZE trucks, **MM AQ-7** requires energy efficient vendor trucks, **MM AQ-8** requires EV charging stations and carpool parking, and **MM AQ-9** requires electric outdoor cargo handling equipment (i.e., forklifts and yard trucks). **MM AQ-10** requires compliance with SCAQMD's Warehouse Indirect Source Rule (Rule 2305). It should be noted that as the nature, timing, and extent of the incorporation of ZE and NZE vehicles cannot be determined at this time, conservatively no emissions reduction credits from **MM AQ-7** through **MM AQ-10** are applied.

In addition, the Project would be required to comply with SCAQMD Rule 2305 which would directly reduce emissions or to otherwise facilitate emissions reductions. Alternatively, warehouse operators can choose to pay a mitigation fee. Funds from the mitigation fee will be used to incentivize the purchase of cleaner trucks and charging/fueling infrastructure in communities nearby. Although Rule 2305 focuses on air quality pollutant emissions, the rule would facilitate cleaner vehicles and supporting infrastructure that would also result in GHG benefits.

Warehouse owners and operators are required to earn Warehouse Actions and Investments to Reduce Emissions (WAIRE) Points each year. WAIRE points are a menu-based system earned by emission reduction measures. Warehouse operators are required to submit an annual WAIRE Report which includes truck trip data and emission reduction measures. WAIRE points can be earned by completing actions from a menu that can include acquiring and using natural gas, Near-Zero Emissions and/or Zero-Emissions on-road trucks, zero-emission cargo handling equipment, solar panels or zero-emission charging and fueling infrastructure, or other options.

A preliminary WAIRE calculation has been conducted for the proposed Project. The Project would include rooftop solar (refer to **MM GHG-2**) and 24 zero emission yard trucks that would operate for approximately 12 hours per day, 365 days per year. Based on the SCAQMD WAIRE User Calculator the Project would have

a Warehouse Points Compliance Obligation (WPCO) of 13,510 and would earn 41,999 points. As a result, the Project more than fulfill its WPCO and would bank 28,489 points.[14]

The County uses a review standard of 3,000 $MTCO_2e$ per year to identify projects that require the use of the Screening Tables. The County's GHG Development Review Process specifies a two-step approach in quantifying GHG emissions. First, a screening threshold of 3,000 $MTCO_2e$/year is used to determine if additional analysis is required. Projects that exceed the 3,000 $MTCO_2e$/year are required to either achieve a minimum 100 points per the Screening Tables or a 31 percent reduction over 2007 emissions levels.

According to the County's 2021 GHG Emissions Reduction Plan Update, any project that adopts at least 100 points of GHG performance standards listed in the proposed 2021 Screening Tables, would be consistent with the County's GHG Emissions Reduction Plan to reduce emissions to 40 percent below 2007 levels. Meeting this reduction would be consistent with the State's long-term goal to achieve statewide carbon neutrality (zero net emissions) by 2045, and therefore, would result in a less than significant impact related to GHG emissions.

Table 6: San Bernardino County GHG Reduction Measures Screening Table shows that each building would potentially earn 104 points on the County's GHG Screening Tables, which would exceed the minimum 100 points required to be consistent with the County's GHG Emissions Reduction Plan. Mitigation Measure **(MM) GHG-1** has been included to ensure application of the GHG reduction measures. Additionally, as stipulated by **MM GHG-1**, individual projects can utilize different measures than those chosen in Table 6 as longs as the total of the measures utilized meet 100 points.

Additionally, **MM GHG-2** requires the Project to offset energy demand with solar PV infrastructure, **MM GHG-3** requires the Project to meet or exceed CALGreen Tier 2 standards (which exceeds code requirements), **MM GHG-4** requires the project to divert at least 75 percent of solid waste from landfills, and **MM GHG-5** requires handheld landscape equipment to be 100 percent electric. Note that credit for solar PV was conservatively not taken in Table 6 as these renewable energy systems may be installed subsequent to occupancy permit issuance.
The project would achieve more than 100 points from the County's GHG Reduction Plan Screening tables and would not conflict with the County's GHG Reduction Plan. However, due to the size of the Project, the magnitude of the Project's emissions could be considered significant. Additionally, 86 percent of the total emissions are from mobile sources. Mitigation measures would be required to reduce emissions to the maximum extent feasible; however, emissions of motor vehicles are controlled by State and Federal standards and the Project has no control over these standards. CARB is addressing emissions from heavy duty vehicles through various regulatory programs including lower emission standards, restrictions on idling, the use of post-combustion filter and catalyst equipment, and retrofits for diesel truck fleets. Additionally, as described above, the SCAQMD is addressing mobile source emissions through the implementation of the Warehouse Indirect Source Rule (Rule 2305)., which would reduce the Projects emissions. Nonetheless, impacts related to GHG emissions are conservatively considered significant and unavoidable despite the implementation of all feasible mitigation.

[14] Note that this calculation is preliminary and provided for informational purposes. The WAIRE Points Compliance Obligation is determined by the actual number of truck trips to the facility based on logs of truck trips submitted on January 1 after the first year of operation. The trip rates that SCAQMD uses in the WAIRE User Calculator would be slightly different than what is used in the Project's Traffic Study.

Table 6: San Bernardino County GHG Reduction Measures Screening Table			
Feature	**Description**	**Assigned Point Values**	**Project Points**
Reduction Measure Energy: Exceed Energy Efficiency Standards in New Commercial Units			
Building Envelope			
Insulation	• 2019 Title 24 Requirements (walls R-8, roof/attic R-30) • Modestly Enhanced Insulation (walls R-15, roof/attic R-38) • **Enhanced Insulation (rigid wall insulation R-13, roof/attic R-38)** • Greatly Enhanced Insulation (spray foam wall insulated walls R-18 or higher, roof/attic R-38 or higher)	0 points 9 points **11 points** 12 points	**11**
Windows	• 2019 Title 24 Windows (0.57 U-factor, 0.4 SHGC) • **Modestly Enhanced Window Insulation (0.4 U-factor, 0.32 SHGC)** • Enhanced Window Insulation (0.32 U-factor, 0.25 SHGC) • Greatly Enhanced Window Insulation (0.28 or less U-factor, 0.22 or less SHGC)	0 points **4 points** 5 points 7 points	**4**
Cool Roofs	• **Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance)** • Greatly Enhanced Cool Roof (CRRC Rated 0.35 aged solar reflectance, 0.75 thermal emittance)	**8 points** 10 points	**8**
Air Filtration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage. • **Air barrier applied to exterior walls, caulking, and visual inspection such as the HERS Verified Quality Insulation Installation (QII or equivalent)** • Blower Door HERS Verified Envelope Leakage or equivalent	**7 points** 6 points	**7**
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls. • **Modest Thermal Mass (10% of floor or 10% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)** • Enhanced Thermal Mass (20% of floor or 20% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials) • Enhanced Thermal Mass (80% of floor or 80% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)	**2 points** 4 points 14 points	**2**
Indoor Space Efficiencies			
Heating/ Cooling Distribution System	• Modest Duct insulation (R-6 required) • **Enhanced Duct Insulation (R-8)** • Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	0 points **6 points** 8 points	**6**
Space Heating/ Cooling Equipment	• 2019 Title 24 Minimum HVAC Efficiency (SEER 13/75% AFUE or 7.7 HSPF) • Improved Efficiency HVAC (SEER 14/78% AFUE or 8 HSPF) • **High Efficiency HVAC (SEER 15/80% AFUE or 8.5 HSPF)**	0 points 4 points **5 points**	**5**

Table 6: San Bernardino County GHG Reduction Measures Screening Table

Feature	Description	Assigned Point Values	Project Points
	• Very High Efficiency HVAC (SEER 16/82% AFUE or 9 HSPF)	7 points	
Commercial Heat Recovery Systems	Heat recovery strategies employed with commercial laundry, cooking equipment, and other commercial heat sources for reuse in HVAC air intake or other appropriate heat recovery technology. Point values for these types of systems will be determined based upon design and engineering data documenting the energy savings.	TBD	N/A
Water Heaters	• 2019 Title 24 Minimum Efficiency (0.57 Energy Factor) • Improved Efficiency Water Heater (0.675 Energy Factor) • **High Efficiency Water Heater (0.72 Energy Factor)** • Very High Efficiency Water Heater (0.92 Energy Factor) • Solar Pre-heat System (0.2 Net Solar Fraction) • Enhanced Solar Pre-heat System (0.35 Net Solar Fraction)	0 points 8 points **10 points** 11 points 2 points 5 points	**10**
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. • All peripheral rooms within building have at least one window or skylight • **All rooms within building have daylight (through use of windows, solar tubes, skylights, etc.)** • All rooms daylighted	0 points **1 point** 1 point	**1**
Artificial Lighting	• **Efficient Lights (25% of in-unit fixtures considered high efficiency. High efficiency is defined as 40 lumens/watt for 15 watt or less fixtures; 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40 watt)** • High Efficiency Lights (50% of in-unit fixtures are high efficiency) • Very High Efficiency Lights (100% of in-unit fixtures are high efficiency	**5 points** 7 points 8 points	**5**
Appliances	• Energy Star Commercial Refrigerator (new) • Energy Star Commercial Dishwasher (new) • Energy Star Commercial Clothes Washer (new)	2 points 2 points 2 points	0
Miscellaneous Commercial Building Efficiencies			
Building Placement	**North/south alignment of building or other building placement such that the orientation of the buildings optimizes conditions for natural heating, cooling, and lighting.**	**4 points**	**4**
Shading	**At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21st.**	**6 points**	**6**
Other	This allows innovation by the applicant to provide design features that increase the energy efficiency of the project not provided in the table. Note that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD	0
Existing Commercial Buildings Retrofits	The applicant may wish to provide energy efficiency retrofit projects to existing commercial buildings to further the point value of their project. Retrofitting existing commercial buildings within the County is a key reduction measure that is needed to reach the reduction goal. The potential for an applicant to take advantage of this program will be decided on a case-by-case basis and shall have the approval from the County of San Bernardino Planning Department. The decision to allow	TBD	0

Table 6: San Bernardino County GHG Reduction Measures Screening Table

Feature	Description	Assigned Point Values	Project Points
	applicants to participate in this program will be evaluated based upon, but not limited to the following: • Will the energy efficiency retrofit project benefit low income or disadvantaged communities? • Does the energy efficiency retrofit project provide co-benefits important to the County? • Point value will be determined based upon engineering and design criteria of the energy efficiency retrofit project.		
Reduction Measure Energy-3: All Electric Buildings			
All-Electric Buildings	All electric buildings reduce GHG emissions, as the grid electricity they use is generated using less carbon over time. Grid electricity in California will be 60 percent renewable energy by 2030 and 100 percent renewable energy by 2040.	15 points	0
Reduction Measure Energy-7: Clean Energy			
Commercial/Industrial Renewable Energy Generation			
Photovoltaic	Solar Photovoltaic panels installed on commercial buildings or in collective arrangements within a commercial development such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	 8 points 12 points 16 points 19 points 23 points 26 points 30 points 34 points	0
Wind Turbines	Some areas of the County lend themselves to wind turbine applications. Analysis of the areas capability to support wind turbines should be evaluated prior to choosing this feature. Wind turbines as part of the commercial development such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	 8 points 12 points 16 points 19 points 23 points 26 points 30 points 34 points	0
Off-site Renewable Energy Project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing residential or existing commercial/industrial. These off-site renewable energy retrofit project proposals will be determined on a case-by-case basis accompanied by a detailed plan documenting the quantity of renewable energy the proposal will generate. Point values will be based upon the energy generated by the proposal.	TBD	0
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other	TBD	0

Table 6: San Bernardino County GHG Reduction Measures Screening Table			
Feature	**Description**	**Assigned Point Values**	**Project Points**
	renewable energy and the point values allowed would be decided based upon engineering data documenting the ability to generate electricity.		
Reduction Measure Water 1-3: Exceed Water Efficiency Standards			
Commercial Irrigation and Landscaping			
Water Efficient Landscaping	• Eliminate conventional turf from landscaping • Only moderate water using plants • **Only low water using plants** • Only California Native landscape that requires no or only supplemental irrigation	0 point 2 points **3 points** 5 points	**3**
Water Efficient Irrigation Systems	• Low precipitation spray heads< 0.75”/hr or drip irrigation • **Weather based irrigation control systems combined with drip irrigation (demonstrate 20% reduced water use)**	1 point **3 points**	**3**
Storm Water Reuse Systems	Innovative on-site storm water collection, filtration, and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	TBD	0
Commercial Potable Water			
Showers	Water Efficient Showerheads (2.0 gpm)	2 points	0
Toilets	• **Water Efficient Toilets/Urinals (1.5 gpm)** • Waterless Urinals (note that commercial buildings having both waterless urinals and high efficiency toilets will have a combined point value of 6 points)	**3 points** 3 points	**3**
Faucets	**Water Efficient faucets (1.28 gpm)**	**2 points**	**2**
Commercial Dishwashers	Water Efficient dishwashers (20% water savings)	2 points	0
Commercial Laundry Washers	• Water Efficient laundry (15% water savings) • High Efficiency laundry equipment that captures and reuses rinse water (30% water savings)	2 points 4 points	0
Commercial Water Operations Program	Establish an operational program to reduce water loss from pools, water features, etc., by covering pools, adjusting fountain operational hours, and using water treatment to reduce draw down and replacement of water. Point values for these types of plans will be determined based upon design and engineering data documenting the water savings.	TBD	0
Increase Commercial/Industrial Reclaimed Water Use			
Recycled Water	Graywater (purple pipe) irrigation system on site	5 points	0
Reduction Measure On Road: Alternative Transportation Options			
Mixed-Use Development			
Mixed-Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed-use projects will be determined based upon traffic	TBD	0

Table 6: San Bernardino County GHG Reduction Measures Screening Table

Feature	Description	Assigned Point Values	Project Points
	studies that demonstrate trip reductions and/or reductions in vehicle miles traveled.		
Local Retail Near Residential (Commercial only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled.	TBD	0
Preferential Parking			
Parking	• **Provide reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles.** • **Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools and include adequate passenger waiting/loading areas.**	**1 point** **1 point**	**1** **1**
Signal Synchronization and Intelligent Traffic Systems			
Signal Improvements	Techniques for improving traffic flow include: traffic signal coordination to reduce delay, incident management to increase response time to breakdowns and collisions, Intelligent Transportation Systems (ITS) to provide real-time information regarding road conditions and directions, and speed management to reduce high free-flow speeds. • Synchronize signals along arterials used by project. • Connect signals along arterials to existing ITS.	 1 point/signal 3 points/signal	0
Increase Public Transit			
Public Transit	The point value of a project's ability to increase public transit use will be determined based upon a Transportation Impact Analysis (TIA) demonstrating decreased use of private vehicles and increased use of public transportation. • Increased transit accessibility (1–15 points)	TBD	0
Reduction Measure: Install Electric Vehicle Chargers			
Worker and Customer Based Electric Vehicle Chargers	Installation of Electric Vehicle (EV) Chargers for passenger EVs: • **Level 2 240 volt AC Fast Chargers** • Level 3 480 volt DC Rapid Chargers	**5 points/charger** 8 points/charger	**10**
Electric Commercial Truck Chargers	Installation of electric chargers for medium duty and heavy duty trucks: • Level 1 AC Chargers for EV Medium Duty Trucks • Level 1 AC Chargers for EV Class 8 (Heavy Duty) Trucks • Level 2 AC Chargers for EV Medium Duty Trucks • Level 2 AC Chargers for EV Class 8 (Heavy Duty) Trucks • Level 3 DC Fast Chargers for EV Class 8 (Heavy Duty) Trucks	 3 points/charger 5 points/charger 8 points/charger 12 points/charger 16 points/charger	0
Reduction Measure: Adopt and Implement a Bicycle Master Plan to Expand Bike Routes around the County			
Sidewalks	• Provide sidewalks on both sides of the street (required) • Provide pedestrian linkage between commercial and residential land uses within 1 mile	0 points 3 points	0
Bicycle Paths	• **Provide bicycle paths within project boundaries** • Provide bicycle path linkages between commercial and other land uses • Provide bicycle path linkages between commercial and transit	**1 point** 2 points 5 points	**1**

Table 6: San Bernardino County GHG Reduction Measures Screening Table			
Feature	**Description**	**Assigned Point Values**	**Project Points**
Reduction Measure: Reduce Waste to Landfills			
Recycling	County initiated recycling program diverting 80% of waste requires coordination with commercial development to realize this goal. The following recycling features will help the County fulfill this goal: • **Provide separated recycling bins within each commercial building/floor and provide large external recycling collection bins at central location for collection truck pick-up** • **Provide commercial/industrial recycling programs that fulfills an on- site goal of 80% diversion of solid waste** • **Recycle construction waste**	**2 points** **5 points** **4 points**	**2** **5** **4**
Other GHG Reduction Feature Implementation			
Other GHG Emissions Reduction Features	This allows innovation by the applicant to provide commercial design features that the GHG emissions from construction and/or operation of the project not provided in the table. Note that engineering data will be required documenting the GHG reduction amount and point values given based upon emission reductions calculations using approved models, methods, and protocols.	TBD	0
Total Points Earned by Project:			**104**

Standard Conditions and Requirements:

Standard Conditions are existing requirements and standard conditions that are based on local, state, or federal regulations or laws that are frequently required independently of CEQA review. Typical standard conditions and requirements include compliance with the provisions of the Building Code, SCAQMD Rules, etc. The City may impose additional conditions during the approval process, as appropriate. Because Standard Conditions are neither Project specific nor a result of development of the Project, they are not considered to be either PDFs or Mitigation Measures.

SC GHG-1 Require diesel-powered construction equipment to turn off when not in use per Title 13 of the California Code of Regulations, Section 2449.

SC GHG-2 In accordance with California Title 24 Standards, buildings will be designed to have 15 percent of the roof area "solar ready" that will structurally accommodate later installation of rooftop solar panels. If future building operators pursue providing rooftop solar panels, they will submit plans for solar panels prior to occupancy.

SC GHG-3 Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls and sensors for landscaping according to the County's Water Efficient Landscape Requirements (Chapter 22, Section 63.2201 of the County's Code).

SC GHG-4 Design buildings to be water-efficient. Install water-efficient fixtures in accordance with Section 5.303 of the California Green Building Standards Code Part 11.

SC GHG-5 Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with Section 5.408.1 of the California Green Building Standards Code Part 11.

SC GHG-6 Provide storage areas for recyclables and green waste and adequate recycling containers located in readily accessible areas in accordance with Section 5.410.1 of the California Green Building Standards Code Part 11.

SC GHG-7 Provide designated parking for any combination of low-emitting, fuel efficient and carpool/van pool vehicles. At least eight percent of the total parking spaces are required to be designated in accordance with Section 5.106.5.2, Designated Parking for Clean Air Vehicles, of the California Green Building Standards Code Part 11.

SC GHG-8 Provide at least six percent of the total parking spaces to facilitate future installation of electric vehicle supply equipment in accordance with Section 5.106.5.3.2, Multiple Charging Space Requirements, of the California Green Building Standards Code Part 11.

SC GHG-9 Limit idling time for commercial vehicles to no more than five minutes per Title 13 of the California Code of Regulations, Section 2485.

Mitigation Measures: Refer to MM AQ-1 through MM AQ-10 in the Air Quality Assessment. The following additional mitigation is also required.

MM GHG-1 Project development proposals with building permit applications for tenant improvements shall implement Screening Table Measures that demonstrate that each building achieve at least 100 points per the Screening Tables. The County shall verify that Screening Table Measures achieving the 100-point performance standard are incorporated in development plans prior to the issuance of building permit(s) and/or site plans (as applicable). The County shall verify implementation of the selected Screening Table Measures prior to the issuance of Certificate(s) of Occupancy. At the discretion of the County, measures that provide GHG reductions equivalent to GHG emissions reductions achieved via the Screening Table Measures may be implemented. Multiple development proposals may, at the discretion of the County, be allowed to collectively demonstrate achievement of at least 100 points per the Screening Tables. This mitigation measure applies only to tenant permits and not the building shell approvals.

MM GHG-2 As part of the building permit for tenant improvements, the project shall install solar photovoltaic (PV) panels or other source of renewable energy generation on-site, or otherwise acquire energy from the local utility that has been generated by renewable sources, that would provide at least 50 percent of the expected total building load. On-site solar PV or other clean energy systems shall be installed within two years of commencing operations. Each building shall include an electrical system and other infrastructure sufficiently sized to accommodate the PV arrays. The electrical system and infrastructure must be clearly labeled with noticeable and permanent signage. This mitigation measure applies only to tenant permits and not the building shell approvals.

MM GHG-3 Prior to the issuance of a building permit for tenant improvements, the tenant or successor in interest shall provide documentation to the San Bernardino County demonstrating that the Project is designed to achieve Leadership in Energy and Environmental Design (LEED) standards or meet or exceed CALGreen Tier 2 standards in effect at the time of building permit application. This mitigation measure applies only to tenant permits and not the building shell approvals.

MM GHG-4 The development shall divert a minimum of 75 percent of landfill waste. Prior to issuance of certificate of tenant occupancy permits, a recyclables collection and load area shall be constructed in compliance with County standards for Recyclable Collection and Loading Areas. This mitigation measure applies only to tenant permits and not the building shell approvals.

MM GHG-5 Prior to the issuance of tenant occupancy permits, the Planning Department shall confirm that tenant lease agreements include contractual language that all handheld landscaping equipment used onsite shall be 100 percent electrically powered. This mitigation measure applies only to tenant permits and not the building shell approvals.

Level of Significance: Significant and unavoidable impact. No additional feasible mitigation measures are available that can reduce impacts to less than significant. As explained above, the Project incorporates all feasible mitigation measures that could be implemented to further reduce the Project's GHG emissions. There are no additional measures available that would further reduce emissions because the majority of the Project's emissions come from mobile sources which are regulated by the State and not the County of San Bernardino.

5.2 Greenhouse Gas Reduction Plan Compliance

Threshold 5.2 Would the Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions?

County of San Bernardino Greenhouse Gas Reduction Plan Update

As discussed above, the County's GHG Reduction Plan includes a review standard of 3,000 $MTCO_2e$ per year to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions. The purpose of the Screening Tables is to provide guidance in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated into development projects. As noted above, projects that exceed 3,000 $MTCO_2e$/year of GHG emissions, the applicant may choose to either utilize the Screening Tables. Table 6 shows that each building within the proposed Project would earn 104 points on the County's GHG Screening Tables, which would exceed 100 points. Therefore, the Project would be consistent with the County's GHG emissions reduction plan.

The GHG Reduction Plan Update as discussed in Section 3.7.1 GHG Performance Standards for New Development states "This determination of consistency can be used in a CEQA climate change analysis of the development, with provides a legally defensible and streamlined CEQA process for the project." As such the additional discussion provided for RTP and CARB Scoping Plan is provided optionally and further demonstrates the project consistency with applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions.

Regional Transportation Plan/Sustainable Communities Strategy Consistency

On September 3, 2020, SCAG's Regional Council adopted Connect SoCal (*2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy* [2020 RTP/SCS]). The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders in the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. SCAG's RTP/SCS establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 as well as an overall GHG target for the Project region consistent with both the target date of AB 32 and the post-2020 GHG reduction goals of Executive Orders 5-03-05 and B-30-15.

The RTP/SCS contains over 4,000 transportation projects, ranging from highway improvements, railroad grade separations, bicycle lanes, new transit hubs and replacement bridges. These future investments were included in county plans developed by the six county transportation commissions and seek to reduce traffic bottlenecks, improve the efficiency of the region's network, and expand mobility choices for everyone. The RTP/SCS is an important planning document for the region, allowing project sponsors to qualify for federal funding.

The plan accounts for operations and maintenance costs to ensure reliability, longevity, and cost effectiveness. The RTP/SCS is also supported by a combination of transportation and land use strategies that help the region achieve state GHG emissions reduction goals and Federal Clean Air Act (FCAA) requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry, and utilize resources more efficiently. GHG emissions resulting from development-related mobile sources are the most potent source of emissions, and therefore Project comparison to the RTP/SCS is an appropriate indicator of whether the Project would inhibit the post-2020 GHG reduction goals promulgated by the state. The Project's consistency with the RTP/SCS goals is analyzed in detail in Table 7: Regional Transportation Plan/Sustainable Communities Strategy Consistency.

Table 7: Regional Transportation Plan/Sustainable Communities Strategy Consistency

SCAG Goals		Compliance	
GOAL 1:	Encourage regional economic prosperity and global competitiveness.	N/A:	This is not a project-specific policy and is therefore not applicable. However, the Project is located on a vacant site and development of the site would contribute to regional economic prosperity.
GOAL 2:	Improve mobility, accessibility, reliability, and travel safety for people and goods.	Consistent:	Although this Project is not a transportation improvement project, the Project is located near existing transit routes such as Omnitrans Route 61 along San Bernardino Avenue and Route 66 along Foothill Boulevard.
GOAL 3:	Enhance the preservation, security, and resilience of the regional transportation system.	N/A:	This is not a transportation improvement project and is therefore not applicable.
GOAL 4:	Increase person and goods movement and travel choices within the transportation system.	N/A:	This is not a transportation improvement project and is therefore not applicable. However, the Project includes warehouses and related uses that would support goods movement.

Table 7: Regional Transportation Plan/Sustainable Communities Strategy Consistency

SCAG Goals		Compliance	
GOAL 5:	Reduce greenhouse gas emissions and improve air quality.	Consistent:	The Project is located within an industrial area in proximity to existing truck routes and freeways. The project is surrounded by existing industrial development. Location of the project within a developed area would reduce trip lengths, which would reduce GHG and air quality emissions.
GOAL 6:	Support healthy and equitable communities	Consistent:	The Project is located in an industrial area that is away sensitive receptors. Although the Project exceeds regional thresholds for criteria pollutants, the Project does not exceed localized thresholds. Based on the Friant Ranch decision, projects that do not exceed the SCAQMD's LSTs would not violate any air quality standards or contribute substantially to an existing or projected air quality violation and result in no criteria pollutant health impacts.
GOAL 7:	Adapt to a changing climate and support an integrated regional development pattern and transportation network.	N/A:	This is not a project-specific policy and is therefore not applicable.
GOAL 8:	Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	N/A:	This is not a project-specific policy and is therefore not applicable.
GOAL 9:	Encourage development of diverse housing types in areas that are supported by multiple transportation options.	N/A:	The Project involves development of warehouses and related uses and does not include housing.
GOAL 10:	Promote conservation of natural and agricultural lands and restoration of habitats.	N/A:	This Project is located on previously disturbed/developed land and is not located on agricultural lands.

Source: Southern California Association of Governments, *Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy,* 2020.

The goals stated in the RTP/SCS were used to determine consistency with the planning efforts previously stated. As shown in Table 6, the Project would be consistent with the stated goals of the RTP/SCS. Therefore, the Project would not result in any significant impacts or interfere with SCAG's ability to achieve the region's post-2020 mobile source GHG reduction targets.

California Air Resource Board Scoping Plan Consistency

The California State Legislature adopted Assembly Bill (AB) 32 in 2006. AB 32 focuses on reducing GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, CARB adopted the *Climate Change Scoping Plan* (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan provides a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as the cap-and-trade program, and an AB 32 implementation fee to fund the program.

The 2017 Scoping Plan Update identifies additional GHG reduction measures necessary to achieve the 2030 target. These measures build upon those identified in the first update to the Scoping Plan in 2013.

Although a number of these measures are currently established as policies and measures, some measures have not yet been formally proposed or adopted. It is expected that these actions to reduce GHG emissions will be adopted as required to achieve statewide GHG emissions targets. As shown in Table 8: Project Consistency with Applicable CARB Scoping Plan Measures, the Project is consistent with most of the strategies, while others are not applicable to the Project. As such, impacts related to consistency with the Scoping Plan would be less than significant.

Table 8: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
Transportation	California Cap-and-Trade Program Linked to Western Climate Initiative	Regulation for the California Cap on GHG Emissions and Market-Based Compliance Mechanism October 20, 2015 (CCR 95800)	**Consistent.** The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. However, the regulation indirectly affects people who use the products and services produced by these industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.
	California Light-Duty Vehicle GHG Standards	Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles	**Consistent**. This measure applies to all new vehicles starting with model year 2012. The Project would not conflict with its implementation as it would apply to all new passenger vehicles purchased in California. Passenger vehicles, model year 2012 and later, associated with construction and operation of the Project would be required to comply with the Pavley emissions standards.
		2012 LEV III California GHG and Criteria Pollutant Exhaust and Evaporative Emission Standards	**Consistent.** The LEV III amendments provide reductions from new vehicles sold in California between 2017 and 2025. Passenger vehicles associated with the site would comply with LEV III standards.
	Low Carbon Fuel Standard	2009 readopted in 2015. Regulations to Achieve GHG Emission Reductions Subarticle 7. Low Carbon Fuel Standard CCR 95480	**Consistent.** This measure applies to transportation fuels utilized by vehicles in California. The Project would not conflict with implementation of this measure. Motor vehicles associated with construction and operation of the Project would utilize low carbon transportation fuels as required under this measure.
	Regional Transportation-Related GHG Targets.	SB 375. Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28	**Consistent**. The Project would provide development in the region that is consistent with the growth projections in the RTP/SCS.
	Goods Movement	Goods Movement Action Plan January 2007	**Not applicable**. The Project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
	Medium/Heavy-Duty Vehicle	2010 Amendments to the Truck and Bus	**Consistent**. This measure applies to medium and heavy-duty vehicles that operate in the state. The

Table 8: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
		Regulation, the Drayage Truck Regulation and the Tractor-Trailer GHG Regulation	Project would not conflict with implementation of this measure. Medium and heavy-duty vehicles associated with construction and operation of the Project would be required to comply with the requirements of this regulation.
	High Speed Rail	Funded under SB 862	**Not applicable**. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency.
Electricity and Natural Gas	Energy Efficiency	Title 20 Appliance Efficiency Regulation	**Consistent.** The Project would not conflict with implementation of this measure. The Project would comply with the latest energy efficiency standards.
		Title 24 Part 6 Energy Efficiency Standards for Residential and Non-Residential Building	
		Title 24 Part 11 California Green Building Code Standards	
	Renewable Portfolio Standard/Renewable Electricity Standard.	2010 Regulation to Implement the Renewable Electricity Standard (33% 2020)	**Consistent**. The Project would obtain electricity from the electric utility, Southern California Edison (SCE). SCE obtained 36 percent of its power supply from renewable sources in 2019. Therefore, the utility would provide power when needed on site that is composed of a greater percentage of renewable sources.
	Million Solar Roofs Program	SB 350 Clean Energy and Pollution Reduction Act of 2015 (50% 2030)	
	Million Solar Roofs Program	Tax Incentive Program	**Consistent.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The program provides incentives that are in place at the time of construction.
Water	Water	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The Project would comply with the CalGreen standards, which requires a 20 percent reduction in indoor water use. The Project would also comply with the City's Water-Efficient Landscaping Regulations (Chapter 22, Section 63.2201 of the County's Code).
		SBX 7-7—The Water Conservation Act of 2009	
		Model Water Efficient Landscape Ordinance	
Green Buildings	Green Building Strategy	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The State is to increase the use of green building practices. The Project would implement required green building strategies through existing regulation that requires the Project to comply with various CalGreen requirements. The Project includes sustainability design features that support the Green Building Strategy.
Industry	Industrial Emissions	2010 CARB Mandatory Reporting Regulation	**Not applicable.** The Mandatory Reporting Regulation requires facilities and entities with more than 10,000 $MTCO_2e$ of combustion and process emissions, all facilities belonging to certain industries, and all electric power entities to submit an annual GHG emissions data report directly to CARB. As shown above, although total Project GHG emissions would exceed

Table 8: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
			10,000 $MTCO_2e$, the majority of these emissions are from mobile sources. Therefore, this regulation would not apply.
Recycling and Waste Management	Recycling and Waste	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The Project would not conflict with implementation of these measures. The Project is required to achieve the recycling mandates via compliance with the CALGreen code. The City has consistently achieved its state recycling mandates.
		AB 341 Statewide 75 Percent Diversion Goal	
Forests	Sustainable Forests	Cap and Trade Offset Projects	**Not applicable.** The Project is in an area designated for urban uses. No forested lands exist on-site.
High Global Warming Potential	High Global Warming Potential Gases	CARB Refrigerant Management Program CCR 95380	**Consistent**. The regulations are applicable to refrigerants used by large air conditioning systems and large commercial and industrial refrigerators and cold storage system. The Project would not conflict with the refrigerant management regulations adopted by CARB.
Agriculture	Agriculture	Cap and Trade Offset Projects for Livestock and Rice Cultivation	**Not applicable**. The Project site is designated for urban development. No grazing, feedlot, or other agricultural activities that generate manure occur currently exist on-site or are proposed to be implemented by the Project.

Source: California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, November 2017 and CARB, *Climate Change Scoping Plan*, December 2008.

As seen in Table 7 and Table 8, the Project would be consistent with all applicable plan goals. In addition, the Project would include several sustainable design features that would help reduce GHG emissions. Table 5 shows that with mitigation the Project at buildout with mitigation is estimated to emit approximately 207,327 $MTCO_2e$ per year in the opening year directly from on-site activities and indirectly from off-site motor vehicles.

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the proposed Project would benefit from the implementation of current and potential future regulations (e.g., improvements in vehicle emissions, SB 100/renewable electricity portfolio improvements, CARB's Mobile Source Strategy, etc.) enacted to meet an 80 percent reduction below 1990 levels by 2050.

The majority of the GHG reductions from the Scoping Plan would result from continuation of the Cap-and-Trade regulation. Assembly Bill 398 (2017) extends the state's Cap-and-Trade program through 2030 and the Scoping Plan provide a comprehensive plan for the state to achieve its GHG targets through a variety of regulations enacted at the state level. Additional reductions are achieved from electricity sector standards (i.e., utility providers to supply 60 percent renewable electricity by 2030 and 100 percent renewable by 2045), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the Mobile Source Strategy and Sustainable Freight Action Plan.

As noted above, mobile sources comprise approximately 82 percent of the Project's unmitigated GHG emissions and approximately 92 percent of the mitigated emissions. CARB is directly responsible for regulating mobile and transportation source emissions in the State. Regarding mobile sources, California

addresses emissions control technology through a variety of legislation and regulatory schemes, including the state's Low Carbon Fuel Standard (Executive Order S-01-07) (LCFS), a regulatory program designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. The regulatory standards are expressed in terms of the "carbon intensity" of gasoline and diesel fuel and their substitutes. Different types of fuels are evaluated to determine their "life cycle emissions" which include the emissions associated with producing, transporting, and using the fuels. Each fuel is then given a carbon intensity score and compared against a declining carbon intensity benchmark for each year. Providers of transportation fuels must demonstrate that the mix of fuels they supply for use in California meets these declining benchmarks for each annual compliance period. In 2018, CARB approved amendments to the LCFS, which strengthened the carbon intensity benchmarks through 2030 to ensure they are in-line with California's 2030 GHG emission reduction target enacted through SB 32. This ensures that the transportation sector is meeting its obligations to achieve California's GHG reduction targets. The state is also implementing legislation and regulations to address the second parameter affecting transportation related GHG emissions by controlling for VMT. Examples of this include SB 375, which links land use and transportation funding and provides one incentive for regions to achieve reductions in VMT, and SB 743, which discourages VMT increases for passenger car trips above a region-specific benchmark. San Bernardino County has no regulatory control over emissions control technology and therefore limited ability to control or mitigate emissions associated with truck emissions associated with this Project.

In addition to the LCFS, the State includes numerous plans and policies that would contribute to a reduction in mobile source emissions from the Project. These include the following:

- **CARB's Advanced Clean Truck Regulation**: Adopted in June 2020, CARB's Advanced Clean Truck Regulation requires truck manufacturers to transition from diesel trucks and vans to electric zero-emission trucks beginning in 2024. By 2045, every new truck sold in California is required to be zero-emission. The Advanced Clean Truck Regulation accelerates the transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8.

- **Executive Order N-79-20**: Executive Order N-79-20 establishes the goal for all new passenger cars and trucks, as well as all drayage/cargo trucks and off-road vehicles and equipment, sold in California, will be zero-emission by 2035 and all medium and heavy-duty vehicles will be zero-emission by 2045. It also directs CARB to develop and propose rulemaking for passenger vehicles and trucks, medium-and heavy-duty fleets where feasible, drayage trucks, and off-road vehicles and equipment "requiring increasing volumes" of new ZEVs "towards the target of 100 percent."

- **CARB's Mobile Source Strategy**: CARB's Mobile Source Strategy takes an integrated planning approach to identify the level of transition to cleaner mobile source technologies needed to achieve all of California's targets by increasing the adoption of ZEV buses and trucks.

- **CARB's Sustainable Freight Action Plan**: The Sustainable Freight Action Plan which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks. This Plan applies to all trucks accessing the Project site and may include existing trucks or new trucks that are part of the statewide goods movement sector.

- **CARB's Emissions Reduction Plan for Ports and Goods Movement**: CARB's Emissions Reduction Plan for Ports and Goods Movement identifies measures to improve goods movement efficiencies

such as advanced combustion strategies, friction reduction, waste heat recovery, and electrification of accessories.

While these measures are not directly applicable to the Project, any commercial activity associated with goods movement would be required to comply with these measures as adopted. As such, the Project would not interfere with their implementation.

The Project would not obstruct or interfere with efforts to increase ZEVs or state efforts to improve system efficiency. As described above, the Project would be consistent with all applicable plan goals. Compliance with applicable State standards (e.g., continuation of the Cap-and-Trade regulation; CARB's Mobile Source Strategy, Sustainable Freight Action Plan, and Advanced Clean Truck Regulation; Executive Order N-79-20; SB 100/renewable electricity portfolio improvements that require 60 percent renewable electricity by 2030 and 100 percent renewable by 2045, etc.) would ensure consistency with State and regional GHG reduction planning efforts.

As discussed above, extensive PDFs and **MM AQ-3** through **MM AQ-10** as identified in the Project's Air Quality Assessment, would reduce mobile source emissions and would support the State's transition to ZEVs by requiring electrical hookups at all loading bays, promoting the use of alternative fuels and clean fleets, requiring electric vehicle charging stations and/or infrastructure to support the future installation of truck charging stations. The Project would also benefit from implementation of the State programs for ZEVs and goods movement efficiencies that reduce future GHG emissions from trucks.

SC GHG-1 through SC GHG-9, as required by the California Building Code, address non-mobile source emissions, and would provide designated parking to promote the use of alternative fuels and clean fleets, facilitate future installation of electric vehicle supply equipment, and limit idling times. The Project's PDFs also address non-mobile emissions by designing buildings to provide environmental design features, incorporate energy and water conservation measures, and provide electrical, heating, ventilation, lighting, and power systems that meet CALGreen Standards. Additionally, **MM GHG-3** requires the Project to meet or exceed CALGreen Tier 2 standards, which exceeds code requirements). Further, the Project would offset energy demand with solar PV infrastructure (**MM GHG-2**), divert 75 percent of solid waste from landfills (**MM GHG-4**) and require landscape equipment to be 100 percent electric (**MM GHG-5**). Additionally, **MM AQ-9** in the Project's Air Quality Assessment requires the Project use electric cargo handling equipment.

In conclusion, the Project does not conflict with the applicable plans that are discussed above and therefore with respect to this threshold, impacts are less than significant.

Mitigation Measures: Refer to **MM AQ-3** through **MM AQ-10** in the Air Quality Assessment and **MM GHG-1** through **MM GHG-5**, above.

Level of Significance: Less than significant impact with mitigation.

5.3 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects

have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe.

Cumulative Impacts

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. As discussed above, the Project-related GHG emissions would exceed the County's 3,000 $MTCO_2e$ review standard. As such, the Project is required to achieve a minimum 100 points per the County's GHG Emissions Reduction Plan Screening Tables. According to the County's 2021 GHG Emissions Reduction Plan Update, any project that adopts at least 100 points of GHG performance standards listed in the proposed 2021 Screening Tables would be consistent with the County's GHG Emissions Reduction Plan to reduce emissions to 40 percent below 2007 levels. Meeting this reduction would be consistent with the State's long-term goal to achieve statewide carbon neutrality (zero net emissions) by 2045, and therefore, would result in a less than significant impact related to GHG emissions. As discussed above, and shown in Table 6, each building within the proposed Project would earn 104 points on the County's GHG Screening Tables, which would exceed 100 points. **MM GHG-1** through **MM GHG-5** have been included to ensure application of the GHG reduction measures. As such, the Project would be consistent with the Stat's long-term goal to achieve statewide carbon neutrality by 2045. However, as discussed above, due to the magnitude of Project emissions and the fact that 86 percent of the emissions are from mobile sources, the Project's GHG emissions would be cumulatively considerable. As noted above, mobile sources are regulated at the State and Federal level and the Project has no control over these standards. The reduction of mobile source and warehouse emissions are being addressed by various CARB and SCAQMD regulations. Mitigation measures would be required to reduce Project emissions to the maximum extent feasible. However, despite Project Design Features, Standard Conditions, Mitigation Measures and CARB and SCAQMD efforts to reduce mobile source emissions, the Project would result in a potentially significant cumulative GHG impact.

Mitigation Measures: Refer to **MM AQ-3** through **MM AQ-10** in the Air Quality Assessment and **MM GHG-1** through **MM GHG-5**, above.

Level of Significance: Despite consistency with the County's GHG Reduction Plan and compliance with various CARB and SCAQMD emissions reduction programs, the magnitude of the Project's emissions would be considered cumulatively significant unavoidable.

6 REFERENCES

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Appendix A

Greenhouse Gas Emissions Data

Speedway Commerce Center (Phase 1a Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 1a Passenger Cars) (*Includes Construction)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	50.00	1000sqft	1.15	50,000.00	0
Refrigerated Warehouse-Rail	125.00	1000sqft	2.87	125,000.00	0
Unrefrigerated Warehouse-Rail	2,973.37	1000sqft	68.26	2,973,370.00	0
Other Asphalt Surfaces	71.55	Acre	71.55	3,116,718.00	0
Parking Lot	60.73	Acre	60.73	2,645,398.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	345	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 factor per RPS

Land Use -

Construction Phase - per construction schedule

Off-road Equipment - Anticipated equipment

Off-road Equipment - Per construction equipment list

Off-road Equipment - Per construction equipment list

Off-road Equipment - Per Construction equipment list

Speedway Commerce Center (Phase 1a Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - anticipated construction equipment

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

Vehicle Trips - Phase 1a passenger car run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products -

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase 1a passenger car run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	54.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	18.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	90.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	29.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	300.00	109.00
tblConstructionPhase	NumDays	180.00	109.00
tblConstructionPhase	NumDays	4,650.00	89.00
tblConstructionPhase	NumDays	330.00	86.00
tblConstructionPhase	NumDays	330.00	86.00
tblConstructionPhase	NumDays	465.00	63.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	HHD	0.02	0.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LHD2	7.1040e-003	0.00
tblFleetMix	LHD2	7.1040e-003	0.00
tblFleetMix	MH	4.8300e-003	0.00
tblFleetMix	MH	4.8300e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5400e-004	0.00
tblFleetMix	OBUS	5.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5100e-004	0.00
tblFleetMix	UBUS	2.5100e-004	0.00
tblGrading	MaterialExported	0.00	587,715.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	54.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	16.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	21.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	345
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblTripsAndVMT	HaulingTripLength	20.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	23,664.00
tblTripsAndVMT	HaulingTripNumber	0.00	11,522.00
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	8.65	5.33
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.1330e-003	1.3420e-003
tblVehicleEF	HHD	1,402.40	830.08
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.2000e-005
tblVehicleEF	HHD	7.09	4.03
tblVehicleEF	HHD	2.16	1.75
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	2.9710e-003	2.1770e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.0000e-006
tblVehicleEF	HHD	2.8430e-003	2.0780e-003
tblVehicleEF	HHD	0.03	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	8.9150e-003	8.8040e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0000e-006
tblVehicleEF	HHD	2.0000e-006	2.9600e-004
tblVehicleEF	HHD	7.3000e-005	7.4000e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-005	7.7000e-005
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.01	7.0810e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.0000e-006	2.9600e-004
tblVehicleEF	HHD	7.3000e-005	7.4000e-005
tblVehicleEF	HHD	0.67	0.58
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.0000e-005	7.7000e-005
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	8.54	5.26
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.0000e-003	1.2670e-003
tblVehicleEF	HHD	1,384.98	821.66
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	6.0000e-006	1.2000e-005
tblVehicleEF	HHD	6.75	3.86
tblVehicleEF	HHD	2.04	1.65
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	2.6190e-003	1.9140e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.0000e-006
tblVehicleEF	HHD	2.5050e-003	1.8270e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8040e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0000e-006
tblVehicleEF	HHD	5.0000e-006	4.5500e-004
tblVehicleEF	HHD	8.6000e-005	8.1000e-005
tblVehicleEF	HHD	0.62	0.34
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.1000e-005	8.3000e-005
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.01	7.0010e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	5.0000e-006	4.5500e-004
tblVehicleEF	HHD	8.6000e-005	8.1000e-005
tblVehicleEF	HHD	0.71	0.60
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.1000e-005	8.3000e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	8.82	5.42
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.1040e-003	1.3320e-003
tblVehicleEF	HHD	1,426.46	841.71
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.14
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.2000e-005
tblVehicleEF	HHD	7.56	4.27
tblVehicleEF	HHD	2.13	1.72
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	3.4590e-003	2.5400e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.0000e-006
tblVehicleEF	HHD	3.3090e-003	2.4260e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8040e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0000e-006
tblVehicleEF	HHD	3.0000e-006	3.0400e-004
tblVehicleEF	HHD	8.6000e-005	7.3000e-005
tblVehicleEF	HHD	0.54	0.30
tblVehicleEF	HHD	1.0000e-006	0.00

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tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.2000e-005	8.1000e-005
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.01	7.1910e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	3.0000e-006	3.0400e-004
tblVehicleEF	HHD	8.6000e-005	7.3000e-005
tblVehicleEF	HHD	0.61	0.56
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.2000e-005	8.1000e-005
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	LDA	1.9200e-003	2.1620e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.57	0.71
tblVehicleEF	LDA	2.02	2.77
tblVehicleEF	LDA	246.40	267.38
tblVehicleEF	LDA	50.59	66.67
tblVehicleEF	LDA	4.1400e-003	4.2910e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1530e-003
tblVehicleEF	LDA	1.3330e-003	1.2370e-003
tblVehicleEF	LDA	1.7020e-003	2.0060e-003
tblVehicleEF	LDA	0.02	2.5040e-003
tblVehicleEF	LDA	1.2270e-003	1.1380e-003
tblVehicleEF	LDA	1.5650e-003	1.8440e-003
tblVehicleEF	LDA	0.05	0.31

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.0520e-003	7.9890e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.19	0.28
tblVehicleEF	LDA	2.4380e-003	2.6430e-003
tblVehicleEF	LDA	5.0100e-004	6.5900e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.21	0.31
tblVehicleEF	LDA	2.2030e-003	2.2990e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.70	0.95
tblVehicleEF	LDA	1.68	2.32
tblVehicleEF	LDA	269.03	290.04
tblVehicleEF	LDA	49.95	65.83
tblVehicleEF	LDA	3.8800e-003	3.8160e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	7.1530e-003
tblVehicleEF	LDA	1.3330e-003	1.2370e-003
tblVehicleEF	LDA	1.7020e-003	2.0060e-003
tblVehicleEF	LDA	0.02	2.5040e-003
tblVehicleEF	LDA	1.2270e-003	1.1380e-003
tblVehicleEF	LDA	1.5650e-003	1.8440e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	0.11	0.41
tblVehicleEF	LDA	0.11	0.09
tblVehicleEF	LDA	0.09	0.00
tblVehicleEF	LDA	7.9980e-003	8.3870e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.24
tblVehicleEF	LDA	2.6610e-003	2.8670e-003
tblVehicleEF	LDA	4.9400e-004	6.5100e-004
tblVehicleEF	LDA	0.11	0.41
tblVehicleEF	LDA	0.11	0.09
tblVehicleEF	LDA	0.09	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	1.8740e-003	2.1440e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.54	0.66
tblVehicleEF	LDA	1.98	2.77
tblVehicleEF	LDA	241.10	263.22
tblVehicleEF	LDA	50.53	66.68
tblVehicleEF	LDA	3.9710e-003	4.1800e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1530e-003
tblVehicleEF	LDA	1.3330e-003	1.2370e-003
tblVehicleEF	LDA	1.7020e-003	2.0060e-003
tblVehicleEF	LDA	0.02	2.5040e-003
tblVehicleEF	LDA	1.2270e-003	1.1380e-003

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tblVehicleEF	LDA	1.5650e-003	1.8440e-003
tblVehicleEF	LDA	0.05	0.32
tblVehicleEF	LDA	0.10	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.8740e-003	7.9260e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDA	2.3850e-003	2.6020e-003
tblVehicleEF	LDA	5.0000e-004	6.5900e-004
tblVehicleEF	LDA	0.05	0.32
tblVehicleEF	LDA	0.10	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	9.9970e-003	0.01
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.21	0.31
tblVehicleEF	LDT1	5.3250e-003	9.1720e-003
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	1.14	1.98
tblVehicleEF	LDT1	2.25	6.39
tblVehicleEF	LDT1	292.95	340.41
tblVehicleEF	LDT1	61.63	90.26
tblVehicleEF	LDT1	7.5100e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.10	0.19
tblVehicleEF	LDT1	0.25	0.47
tblVehicleEF	LDT1	0.04	8.8510e-003
tblVehicleEF	LDT1	1.8800e-003	2.2560e-003
tblVehicleEF	LDT1	2.4490e-003	3.5200e-003
tblVehicleEF	LDT1	0.02	3.0980e-003

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tblVehicleEF	LDT1	1.7290e-003	2.0760e-003
tblVehicleEF	LDT1	2.2520e-003	3.2370e-003
tblVehicleEF	LDT1	0.16	0.96
tblVehicleEF	LDT1	0.22	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.10	0.09
tblVehicleEF	LDT1	0.35	0.68
tblVehicleEF	LDT1	2.8990e-003	3.3650e-003
tblVehicleEF	LDT1	6.1000e-004	8.9200e-004
tblVehicleEF	LDT1	0.16	0.96
tblVehicleEF	LDT1	0.22	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.10	0.09
tblVehicleEF	LDT1	0.38	0.74
tblVehicleEF	LDT1	6.0460e-003	9.7300e-003
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	1.39	2.64
tblVehicleEF	LDT1	1.87	5.32
tblVehicleEF	LDT1	316.51	366.96
tblVehicleEF	LDT1	60.83	88.23
tblVehicleEF	LDT1	6.9690e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.16
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	0.04	8.8510e-003
tblVehicleEF	LDT1	1.8800e-003	2.2560e-003
tblVehicleEF	LDT1	2.4490e-003	3.5200e-003

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tblVehicleEF	LDT1	0.02	3.0980e-003
tblVehicleEF	LDT1	1.7290e-003	2.0760e-003
tblVehicleEF	LDT1	2.2520e-003	3.2370e-003
tblVehicleEF	LDT1	0.33	1.28
tblVehicleEF	LDT1	0.27	0.25
tblVehicleEF	LDT1	0.25	0.00
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.29	0.58
tblVehicleEF	LDT1	3.1320e-003	3.6280e-003
tblVehicleEF	LDT1	6.0200e-004	8.7200e-004
tblVehicleEF	LDT1	0.33	1.28
tblVehicleEF	LDT1	0.27	0.25
tblVehicleEF	LDT1	0.25	0.00
tblVehicleEF	LDT1	0.04	0.06
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.32	0.64
tblVehicleEF	LDT1	5.2030e-003	9.0930e-003
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	1.09	1.86
tblVehicleEF	LDT1	2.21	6.41
tblVehicleEF	LDT1	287.37	335.53
tblVehicleEF	LDT1	61.56	90.30
tblVehicleEF	LDT1	7.1990e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.18
tblVehicleEF	LDT1	0.25	0.46
tblVehicleEF	LDT1	0.04	8.8510e-003
tblVehicleEF	LDT1	1.8800e-003	2.2560e-003

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tblVehicleEF	LDT1	2.4490e-003	3.5200e-003
tblVehicleEF	LDT1	0.02	3.0980e-003
tblVehicleEF	LDT1	1.7290e-003	2.0760e-003
tblVehicleEF	LDT1	2.2520e-003	3.2370e-003
tblVehicleEF	LDT1	0.17	0.96
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.35	0.68
tblVehicleEF	LDT1	2.8440e-003	3.3170e-003
tblVehicleEF	LDT1	6.0900e-004	8.9300e-004
tblVehicleEF	LDT1	0.17	0.96
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.38	0.75
tblVehicleEF	LDT2	3.4390e-003	3.0530e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.83	0.90
tblVehicleEF	LDT2	2.58	3.45
tblVehicleEF	LDT2	308.59	346.22
tblVehicleEF	LDT2	65.18	86.80
tblVehicleEF	LDT2	6.1800e-003	6.2260e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.26	0.32
tblVehicleEF	LDT2	0.04	8.3560e-003

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tblVehicleEF	LDT2	1.4110e-003	1.3020e-003
tblVehicleEF	LDT2	1.7940e-003	2.0730e-003
tblVehicleEF	LDT2	0.02	2.9240e-003
tblVehicleEF	LDT2	1.2980e-003	1.1970e-003
tblVehicleEF	LDT2	1.6500e-003	1.9060e-003
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.0530e-003	3.4220e-003
tblVehicleEF	LDT2	6.4500e-004	8.5800e-004
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.32	0.40
tblVehicleEF	LDT2	3.9290e-003	3.2450e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	1.01	1.21
tblVehicleEF	LDT2	2.14	2.89
tblVehicleEF	LDT2	331.10	370.27
tblVehicleEF	LDT2	64.32	85.74
tblVehicleEF	LDT2	5.7670e-003	5.5490e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.24	0.30

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.04	8.3560e-003
tblVehicleEF	LDT2	1.4110e-003	1.3020e-003
tblVehicleEF	LDT2	1.7940e-003	2.0730e-003
tblVehicleEF	LDT2	0.02	2.9240e-003
tblVehicleEF	LDT2	1.2980e-003	1.1970e-003
tblVehicleEF	LDT2	1.6500e-003	1.9060e-003
tblVehicleEF	LDT2	0.19	0.44
tblVehicleEF	LDT2	0.16	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.25	0.31
tblVehicleEF	LDT2	3.2760e-003	3.6600e-003
tblVehicleEF	LDT2	6.3600e-004	8.4800e-004
tblVehicleEF	LDT2	0.19	0.44
tblVehicleEF	LDT2	0.16	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	3.3570e-003	3.0280e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.78	0.84
tblVehicleEF	LDT2	2.54	3.46
tblVehicleEF	LDT2	303.26	341.80
tblVehicleEF	LDT2	65.10	86.82
tblVehicleEF	LDT2	5.9260e-003	6.0680e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	0.04	8.3560e-003
tblVehicleEF	LDT2	1.4110e-003	1.3020e-003
tblVehicleEF	LDT2	1.7940e-003	2.0730e-003
tblVehicleEF	LDT2	0.02	2.9240e-003
tblVehicleEF	LDT2	1.2980e-003	1.1970e-003
tblVehicleEF	LDT2	1.6500e-003	1.9060e-003
tblVehicleEF	LDT2	0.09	0.35
tblVehicleEF	LDT2	0.15	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.0000e-003	3.3790e-003
tblVehicleEF	LDT2	6.4400e-004	8.5800e-004
tblVehicleEF	LDT2	0.09	0.35
tblVehicleEF	LDT2	0.15	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.03
tblVehicleEF	LDT2	0.32	0.40
tblVehicleEF	LHD1	4.6170e-003	5.1500e-003
tblVehicleEF	LHD1	5.3670e-003	3.3290e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.72	0.67
tblVehicleEF	LHD1	0.96	1.91
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.81	366.80

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tblVehicleEF	LHD1	10.40	16.42
tblVehicleEF	LHD1	8.6200e-004	7.2700e-004
tblVehicleEF	LHD1	0.04	6.0120e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.26	0.11
tblVehicleEF	LHD1	0.28	0.41
tblVehicleEF	LHD1	9.7300e-004	7.8300e-004
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	9.9970e-003	4.7640e-003
tblVehicleEF	LHD1	0.01	7.0300e-004
tblVehicleEF	LHD1	2.4100e-004	2.3000e-004
tblVehicleEF	LHD1	9.3100e-004	7.4900e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.4990e-003	1.1910e-003
tblVehicleEF	LHD1	9.5440e-003	6.4700e-004
tblVehicleEF	LHD1	2.2100e-004	2.1200e-004
tblVehicleEF	LHD1	2.8470e-003	0.14
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.4060e-003	0.00
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.9000e-005	8.7000e-005
tblVehicleEF	LHD1	6.1580e-003	3.6260e-003
tblVehicleEF	LHD1	1.0300e-004	1.6200e-004
tblVehicleEF	LHD1	2.8470e-003	0.14
tblVehicleEF	LHD1	0.08	0.03

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.4060e-003	0.00
tblVehicleEF	LHD1	0.07	0.02
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.08	0.12
tblVehicleEF	LHD1	4.6320e-003	5.1680e-003
tblVehicleEF	LHD1	5.4860e-003	2.0250e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.73	0.14
tblVehicleEF	LHD1	0.90	1.81
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.83	198.35
tblVehicleEF	LHD1	10.29	16.26
tblVehicleEF	LHD1	8.6400e-004	7.2900e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.18	0.66
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.7300e-004	7.8300e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	9.9970e-003	4.8830e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	2.4100e-004	2.3000e-004
tblVehicleEF	LHD1	9.3100e-004	7.4900e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.4990e-003	1.2210e-003
tblVehicleEF	LHD1	9.5440e-003	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	2.2100e-004	2.1200e-004
tblVehicleEF	LHD1	5.6090e-003	0.18
tblVehicleEF	LHD1	0.10	0.04
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.1720e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	8.9000e-005	8.7000e-005
tblVehicleEF	LHD1	6.1580e-003	1.8790e-003
tblVehicleEF	LHD1	1.0200e-004	1.6100e-004
tblVehicleEF	LHD1	5.6090e-003	0.18
tblVehicleEF	LHD1	0.10	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.1720e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.6200e-003	5.1520e-003
tblVehicleEF	LHD1	5.3800e-003	2.0250e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.72	0.14
tblVehicleEF	LHD1	0.95	1.90
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.81	198.35
tblVehicleEF	LHD1	10.37	16.41
tblVehicleEF	LHD1	8.6300e-004	7.2800e-004
tblVehicleEF	LHD1	0.04	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.24	0.69
tblVehicleEF	LHD1	0.28	0.40
tblVehicleEF	LHD1	9.7300e-004	7.8300e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	9.9970e-003	4.8830e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	2.4100e-004	2.3000e-004
tblVehicleEF	LHD1	9.3100e-004	7.4900e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.4990e-003	1.2210e-003
tblVehicleEF	LHD1	9.5440e-003	0.01
tblVehicleEF	LHD1	2.2100e-004	2.1200e-004
tblVehicleEF	LHD1	3.1080e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3850e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.9000e-005	8.7000e-005
tblVehicleEF	LHD1	6.1580e-003	1.8790e-003
tblVehicleEF	LHD1	1.0300e-004	1.6200e-004
tblVehicleEF	LHD1	3.1080e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3850e-003	0.00
tblVehicleEF	LHD1	0.07	0.05

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tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	0.07	0.12
tblVehicleEF	LHD2	3.1180e-003	3.5200e-003
tblVehicleEF	LHD2	3.5830e-003	1.1550e-003
tblVehicleEF	LHD2	8.3140e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.27
tblVehicleEF	LHD2	0.56	1.20
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.46	247.54
tblVehicleEF	LHD2	7.43	10.55
tblVehicleEF	LHD2	1.8200e-003	1.6430e-003
tblVehicleEF	LHD2	0.06	3.3770e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.35	0.05
tblVehicleEF	LHD2	0.18	0.27
tblVehicleEF	LHD2	1.4280e-003	1.2800e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8540e-003
tblVehicleEF	LHD2	0.01	3.5400e-004
tblVehicleEF	LHD2	1.1500e-004	1.0700e-004
tblVehicleEF	LHD2	1.3660e-003	1.2250e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7000e-003	7.1300e-004
tblVehicleEF	LHD2	0.01	3.2500e-004
tblVehicleEF	LHD2	1.0600e-004	9.9000e-005
tblVehicleEF	LHD2	1.3970e-003	0.08
tblVehicleEF	LHD2	0.04	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4400e-004	0.00
tblVehicleEF	LHD2	0.06	5.2730e-003
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	1.3700e-004	1.3200e-004
tblVehicleEF	LHD2	6.1090e-003	2.4470e-003
tblVehicleEF	LHD2	7.4000e-005	1.0400e-004
tblVehicleEF	LHD2	1.3970e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4400e-004	0.00
tblVehicleEF	LHD2	0.07	7.6950e-003
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.1280e-003	3.5320e-003
tblVehicleEF	LHD2	3.6170e-003	2.9070e-003
tblVehicleEF	LHD2	7.9410e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.17
tblVehicleEF	LHD2	0.53	1.14
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.47	376.65
tblVehicleEF	LHD2	7.37	10.44
tblVehicleEF	LHD2	1.8210e-003	1.6440e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.27	0.81

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.17	0.26
tblVehicleEF	LHD2	1.4280e-003	1.2800e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.7460e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1500e-004	1.0700e-004
tblVehicleEF	LHD2	1.3660e-003	1.2250e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7000e-003	1.9370e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	9.9000e-005
tblVehicleEF	LHD2	2.7020e-003	0.11
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6140e-003	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3700e-004	1.3200e-004
tblVehicleEF	LHD2	6.1090e-003	3.5690e-003
tblVehicleEF	LHD2	7.3000e-005	1.0300e-004
tblVehicleEF	LHD2	2.7020e-003	0.11
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6140e-003	0.00
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.1200e-003	3.5210e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	3.5870e-003	2.9070e-003
tblVehicleEF	LHD2	8.2440e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.17
tblVehicleEF	LHD2	0.56	1.20
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.47	376.65
tblVehicleEF	LHD2	7.42	10.54
tblVehicleEF	LHD2	1.8200e-003	1.6430e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.33	0.85
tblVehicleEF	LHD2	0.18	0.27
tblVehicleEF	LHD2	1.4280e-003	1.2800e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.7460e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1500e-004	1.0700e-004
tblVehicleEF	LHD2	1.3660e-003	1.2250e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7000e-003	1.9370e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	9.9000e-005
tblVehicleEF	LHD2	1.4360e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	0.00
tblVehicleEF	LHD2	0.06	0.06

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tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	1.3700e-004	1.3200e-004
tblVehicleEF	LHD2	6.1090e-003	3.5690e-003
tblVehicleEF	LHD2	7.3000e-005	1.0400e-004
tblVehicleEF	LHD2	1.4360e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	0.00
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.58
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	19.97	0.58
tblVehicleEF	MCY	8.82	7.71
tblVehicleEF	MCY	211.12	0.58
tblVehicleEF	MCY	60.91	48.91
tblVehicleEF	MCY	0.07	0.58
tblVehicleEF	MCY	0.02	8.1990e-003
tblVehicleEF	MCY	1.16	0.58
tblVehicleEF	MCY	0.27	0.14
tblVehicleEF	MCY	0.01	0.58
tblVehicleEF	MCY	4.0000e-003	0.58
tblVehicleEF	MCY	1.8990e-003	0.58
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.58
tblVehicleEF	MCY	1.0000e-003	0.58
tblVehicleEF	MCY	1.7750e-003	0.58

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tblVehicleEF	MCY	2.6600e-003	3.0800e-003
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.21	0.58
tblVehicleEF	MCY	0.41	0.58
tblVehicleEF	MCY	1.88	1.31
tblVehicleEF	MCY	2.0890e-003	0.58
tblVehicleEF	MCY	6.0300e-004	4.8400e-004
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.73	0.58
tblVehicleEF	MCY	0.41	0.58
tblVehicleEF	MCY	2.05	1.42
tblVehicleEF	MCY	0.32	0.51
tblVehicleEF	MCY	0.22	0.16
tblVehicleEF	MCY	20.11	0.51
tblVehicleEF	MCY	7.97	6.98
tblVehicleEF	MCY	211.15	0.51
tblVehicleEF	MCY	58.66	47.22
tblVehicleEF	MCY	0.06	0.51
tblVehicleEF	MCY	0.01	8.0420e-003
tblVehicleEF	MCY	0.98	0.51
tblVehicleEF	MCY	0.25	0.13
tblVehicleEF	MCY	0.01	0.51
tblVehicleEF	MCY	4.0000e-003	0.51
tblVehicleEF	MCY	1.8990e-003	0.51
tblVehicleEF	MCY	2.8290e-003	3.2780e-003

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tblVehicleEF	MCY	5.0400e-003	0.51
tblVehicleEF	MCY	1.0000e-003	0.51
tblVehicleEF	MCY	1.7750e-003	0.51
tblVehicleEF	MCY	2.6600e-003	3.0800e-003
tblVehicleEF	MCY	3.14	3.79
tblVehicleEF	MCY	1.27	3.76
tblVehicleEF	MCY	2.10	0.00
tblVehicleEF	MCY	2.16	0.51
tblVehicleEF	MCY	0.41	0.51
tblVehicleEF	MCY	1.62	1.15
tblVehicleEF	MCY	2.0890e-003	0.51
tblVehicleEF	MCY	5.8000e-004	4.6700e-004
tblVehicleEF	MCY	3.14	3.79
tblVehicleEF	MCY	1.27	3.76
tblVehicleEF	MCY	2.10	0.00
tblVehicleEF	MCY	2.66	0.51
tblVehicleEF	MCY	0.41	0.51
tblVehicleEF	MCY	1.76	1.25
tblVehicleEF	MCY	0.32	0.57
tblVehicleEF	MCY	0.24	0.18
tblVehicleEF	MCY	19.09	0.57
tblVehicleEF	MCY	8.48	7.60
tblVehicleEF	MCY	209.60	0.57
tblVehicleEF	MCY	60.13	48.67
tblVehicleEF	MCY	0.07	0.57
tblVehicleEF	MCY	0.02	8.2050e-003
tblVehicleEF	MCY	1.12	0.57
tblVehicleEF	MCY	0.26	0.14
tblVehicleEF	MCY	0.01	0.57

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tblVehicleEF	MCY	4.0000e-003	0.57
tblVehicleEF	MCY	1.8990e-003	0.57
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.57
tblVehicleEF	MCY	1.0000e-003	0.57
tblVehicleEF	MCY	1.7750e-003	0.57
tblVehicleEF	MCY	2.6600e-003	3.0800e-003
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.10	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.18	0.57
tblVehicleEF	MCY	0.47	0.57
tblVehicleEF	MCY	1.81	1.29
tblVehicleEF	MCY	2.0740e-003	0.57
tblVehicleEF	MCY	5.9500e-004	4.8100e-004
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.10	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.68	0.57
tblVehicleEF	MCY	0.47	0.57
tblVehicleEF	MCY	1.97	1.40
tblVehicleEF	MDV	4.3590e-003	4.4100e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.93	1.10
tblVehicleEF	MDV	2.97	3.91
tblVehicleEF	MDV	385.79	424.26
tblVehicleEF	MDV	81.00	106.70
tblVehicleEF	MDV	8.5970e-003	9.1890e-003
tblVehicleEF	MDV	0.03	0.04

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tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.32	0.45
tblVehicleEF	MDV	0.04	8.6190e-003
tblVehicleEF	MDV	1.4890e-003	1.4370e-003
tblVehicleEF	MDV	1.8380e-003	2.2020e-003
tblVehicleEF	MDV	0.02	3.0170e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0250e-003
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MDV	3.8140e-003	4.1920e-003
tblVehicleEF	MDV	8.0200e-004	1.0550e-003
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.41	0.57
tblVehicleEF	MDV	4.9900e-003	4.6900e-003
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	1.14	1.47
tblVehicleEF	MDV	2.45	3.28
tblVehicleEF	MDV	409.60	449.20
tblVehicleEF	MDV	79.98	105.44
tblVehicleEF	MDV	8.0890e-003	8.2700e-003

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tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.30	0.42
tblVehicleEF	MDV	0.04	8.6190e-003
tblVehicleEF	MDV	1.4890e-003	1.4370e-003
tblVehicleEF	MDV	1.8380e-003	2.2020e-003
tblVehicleEF	MDV	0.02	3.0170e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0250e-003
tblVehicleEF	MDV	0.22	0.58
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	4.0490e-003	4.4390e-003
tblVehicleEF	MDV	7.9200e-004	1.0420e-003
tblVehicleEF	MDV	0.22	0.58
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MDV	4.2510e-003	4.3700e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.88	1.03
tblVehicleEF	MDV	2.92	3.93
tblVehicleEF	MDV	380.15	419.67
tblVehicleEF	MDV	80.92	106.73

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tblVehicleEF	MDV	8.2840e-003	8.9760e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.32	0.45
tblVehicleEF	MDV	0.04	8.6190e-003
tblVehicleEF	MDV	1.4890e-003	1.4370e-003
tblVehicleEF	MDV	1.8380e-003	2.2020e-003
tblVehicleEF	MDV	0.02	3.0170e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0250e-003
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MDV	3.7580e-003	4.1470e-003
tblVehicleEF	MDV	8.0100e-004	1.0550e-003
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.41	0.58
tblVehicleEF	MH	9.5080e-003	5.9000e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.14	2.8710e-003
tblVehicleEF	MH	2.03	2.33
tblVehicleEF	MH	1,457.66	5.3870e-003

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tblVehicleEF	MH	18.29	22.42
tblVehicleEF	MH	0.06	1.0000e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.51	1.38
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	0.00
tblVehicleEF	MH	0.04	0.00
tblVehicleEF	MH	2.4000e-004	2.7300e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.4700e-004
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	2.2100e-004	2.5100e-004
tblVehicleEF	MH	1.05	35.26
tblVehicleEF	MH	0.06	8.42
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	0.02	2.1460e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	5.0000e-005
tblVehicleEF	MH	1.8100e-004	2.2200e-004
tblVehicleEF	MH	1.05	35.26
tblVehicleEF	MH	0.06	8.42
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.08	6.3080e-003
tblVehicleEF	MH	0.02	2.1460e-003
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MH	9.7710e-003	6.0000e-005
tblVehicleEF	MH	0.02	0.03

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tblVehicleEF	MH	1.18	3.0780e-003
tblVehicleEF	MH	1.86	2.17
tblVehicleEF	MH	1,457.73	5.3870e-003
tblVehicleEF	MH	18.00	22.14
tblVehicleEF	MH	0.06	1.0000e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.39	1.28
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	0.00
tblVehicleEF	MH	0.04	0.00
tblVehicleEF	MH	2.4000e-004	2.7300e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.1500e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.2100e-004	2.5100e-004
tblVehicleEF	MH	2.08	46.19
tblVehicleEF	MH	0.08	9.14
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	0.02	2.2360e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	5.4000e-005
tblVehicleEF	MH	1.7800e-004	2.1900e-004
tblVehicleEF	MH	2.08	46.19
tblVehicleEF	MH	0.08	9.14
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.08	7.0690e-003
tblVehicleEF	MH	0.02	2.2360e-003

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tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	9.5320e-003	5.9000e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.14	2.9520e-003
tblVehicleEF	MH	2.01	2.34
tblVehicleEF	MH	1,457.67	5.3870e-003
tblVehicleEF	MH	18.26	22.43
tblVehicleEF	MH	0.06	1.0000e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.48	1.36
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	0.00
tblVehicleEF	MH	0.04	0.00
tblVehicleEF	MH	2.4000e-004	2.7300e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.3800e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.2100e-004	2.5100e-004
tblVehicleEF	MH	1.21	35.35
tblVehicleEF	MH	0.08	8.37
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	0.02	2.2050e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	5.1000e-005
tblVehicleEF	MH	1.8100e-004	2.2200e-004
tblVehicleEF	MH	1.21	35.35
tblVehicleEF	MH	0.08	8.37

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tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.08	6.2760e-003
tblVehicleEF	MH	0.02	2.2050e-003
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	3.0880e-003	0.02
tblVehicleEF	MHD	1.2060e-003	7.7320e-003
tblVehicleEF	MHD	7.8410e-003	6.3740e-003
tblVehicleEF	MHD	0.34	0.64
tblVehicleEF	MHD	0.16	0.23
tblVehicleEF	MHD	0.86	0.73
tblVehicleEF	MHD	64.48	160.75
tblVehicleEF	MHD	956.24	1,134.10
tblVehicleEF	MHD	7.77	6.25
tblVehicleEF	MHD	9.3540e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.2780e-003	4.4800e-003
tblVehicleEF	MHD	0.35	0.84
tblVehicleEF	MHD	1.01	0.73
tblVehicleEF	MHD	1.76	1.48
tblVehicleEF	MHD	2.8300e-004	1.4030e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	7.5800e-003	9.1060e-003
tblVehicleEF	MHD	9.0000e-005	7.0000e-005
tblVehicleEF	MHD	2.7100e-004	1.3420e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4000e-005
tblVehicleEF	MHD	4.8600e-004	0.02
tblVehicleEF	MHD	0.02	4.8250e-003

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tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.5600e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1200e-004	1.4790e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.7000e-005	6.2000e-005
tblVehicleEF	MHD	4.8600e-004	0.02
tblVehicleEF	MHD	0.02	4.8250e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.5600e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	2.9410e-003	0.02
tblVehicleEF	MHD	1.2330e-003	7.7620e-003
tblVehicleEF	MHD	7.4810e-003	6.1230e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.17	0.23
tblVehicleEF	MHD	0.80	0.69
tblVehicleEF	MHD	64.29	159.41
tblVehicleEF	MHD	956.24	1,134.11
tblVehicleEF	MHD	7.68	6.18
tblVehicleEF	MHD	9.2940e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1480e-003	4.4070e-003
tblVehicleEF	MHD	0.34	0.81
tblVehicleEF	MHD	0.95	0.69

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tblVehicleEF	MHD	1.75	1.48
tblVehicleEF	MHD	2.4200e-004	1.1930e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	7.5800e-003	9.1060e-003
tblVehicleEF	MHD	9.0000e-005	7.0000e-005
tblVehicleEF	MHD	2.3100e-004	1.1410e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4000e-005
tblVehicleEF	MHD	9.5400e-004	0.03
tblVehicleEF	MHD	0.02	5.2310e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	5.7800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1000e-004	1.4660e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.6000e-005	6.1000e-005
tblVehicleEF	MHD	9.5400e-004	0.03
tblVehicleEF	MHD	0.02	5.2310e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	5.7800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	3.3060e-003	0.02
tblVehicleEF	MHD	1.2080e-003	7.7330e-003
tblVehicleEF	MHD	7.7490e-003	6.3290e-003

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tblVehicleEF	MHD	0.40	0.70
tblVehicleEF	MHD	0.16	0.23
tblVehicleEF	MHD	0.85	0.72
tblVehicleEF	MHD	64.74	162.59
tblVehicleEF	MHD	956.24	1,134.10
tblVehicleEF	MHD	7.75	6.24
tblVehicleEF	MHD	9.4410e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.2350e-003	4.4610e-003
tblVehicleEF	MHD	0.37	0.88
tblVehicleEF	MHD	0.99	0.72
tblVehicleEF	MHD	1.76	1.48
tblVehicleEF	MHD	3.4100e-004	1.6930e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	7.5800e-003	9.1060e-003
tblVehicleEF	MHD	9.0000e-005	7.0000e-005
tblVehicleEF	MHD	3.2600e-004	1.6190e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4000e-005
tblVehicleEF	MHD	5.1400e-004	0.02
tblVehicleEF	MHD	0.02	4.7950e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.5000e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1400e-004	1.4960e-003
tblVehicleEF	MHD	9.1120e-003	0.01

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tblVehicleEF	MHD	7.7000e-005	6.2000e-005
tblVehicleEF	MHD	5.1400e-004	0.02
tblVehicleEF	MHD	0.02	4.7950e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.5000e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	OBUS	9.0290e-003	0.02
tblVehicleEF	OBUS	6.3900e-003	0.04
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.50	0.52
tblVehicleEF	OBUS	0.76	0.91
tblVehicleEF	OBUS	2.60	2.72
tblVehicleEF	OBUS	64.96	72.64
tblVehicleEF	OBUS	1,426.10	1,461.31
tblVehicleEF	OBUS	21.19	22.62
tblVehicleEF	OBUS	8.0550e-003	9.6580e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.23	0.27
tblVehicleEF	OBUS	0.90	1.09
tblVehicleEF	OBUS	0.66	0.69
tblVehicleEF	OBUS	7.7000e-005	5.7700e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4100e-004
tblVehicleEF	OBUS	7.4000e-005	5.5200e-004
tblVehicleEF	OBUS	0.06	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2100e-004
tblVehicleEF	OBUS	2.7750e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1530e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.2000e-004	6.5600e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.1000e-004	2.2400e-004
tblVehicleEF	OBUS	2.7750e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1530e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	OBUS	9.1020e-003	0.02
tblVehicleEF	OBUS	6.5800e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.49	0.51
tblVehicleEF	OBUS	0.79	0.93
tblVehicleEF	OBUS	2.38	2.53
tblVehicleEF	OBUS	64.29	72.07
tblVehicleEF	OBUS	1,426.14	1,461.34
tblVehicleEF	OBUS	20.83	22.30
tblVehicleEF	OBUS	7.9570e-003	9.5730e-003

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tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.22	0.26
tblVehicleEF	OBUS	0.82	1.01
tblVehicleEF	OBUS	0.65	0.67
tblVehicleEF	OBUS	6.8000e-005	4.9300e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4100e-004
tblVehicleEF	OBUS	6.6000e-005	4.7100e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2100e-004
tblVehicleEF	OBUS	5.3940e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.6310e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.1400e-004	6.5000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0600e-004	2.2000e-004
tblVehicleEF	OBUS	5.3940e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	2.6310e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.09	0.04

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	8.9680e-003	0.02
tblVehicleEF	OBUS	6.4110e-003	0.04
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.50	0.53
tblVehicleEF	OBUS	0.77	0.92
tblVehicleEF	OBUS	2.58	2.72
tblVehicleEF	OBUS	65.88	73.43
tblVehicleEF	OBUS	1,426.10	1,461.31
tblVehicleEF	OBUS	21.16	22.63
tblVehicleEF	OBUS	8.2020e-003	9.7840e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.25	0.29
tblVehicleEF	OBUS	0.88	1.07
tblVehicleEF	OBUS	0.66	0.68
tblVehicleEF	OBUS	8.9000e-005	6.9400e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4100e-004
tblVehicleEF	OBUS	8.5000e-005	6.6400e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2100e-004
tblVehicleEF	OBUS	2.9560e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1590e-003	0.00
tblVehicleEF	OBUS	0.03	0.06

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.2900e-004	6.6300e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0900e-004	2.2400e-004
tblVehicleEF	OBUS	2.9560e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	1.1590e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	SBUS	0.04	0.51
tblVehicleEF	SBUS	5.9790e-003	1.34
tblVehicleEF	SBUS	4.3250e-003	6.8410e-003
tblVehicleEF	SBUS	2.05	2.91
tblVehicleEF	SBUS	0.51	5.05
tblVehicleEF	SBUS	0.57	0.89
tblVehicleEF	SBUS	333.61	269.17
tblVehicleEF	SBUS	1,098.25	1,227.15
tblVehicleEF	SBUS	3.39	5.44
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.15	0.17
tblVehicleEF	SBUS	3.6030e-003	5.8740e-003
tblVehicleEF	SBUS	3.15	1.14
tblVehicleEF	SBUS	4.52	2.37
tblVehicleEF	SBUS	1.06	0.18
tblVehicleEF	SBUS	3.2820e-003	1.6750e-003
tblVehicleEF	SBUS	0.74	0.05

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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.3000e-005
tblVehicleEF	SBUS	3.1400e-003	1.5850e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5590e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.9000e-005
tblVehicleEF	SBUS	7.2900e-004	0.06
tblVehicleEF	SBUS	5.5220e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	9.4790e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	3.1720e-003	1.2750e-003
tblVehicleEF	SBUS	0.01	6.8400e-003
tblVehicleEF	SBUS	3.4000e-005	5.4000e-005
tblVehicleEF	SBUS	7.2900e-004	0.06
tblVehicleEF	SBUS	5.5220e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	9.4790e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.51
tblVehicleEF	SBUS	6.0530e-003	1.34
tblVehicleEF	SBUS	3.5770e-003	5.7300e-003
tblVehicleEF	SBUS	2.01	2.90

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.52	5.06
tblVehicleEF	SBUS	0.40	0.64
tblVehicleEF	SBUS	340.36	271.88
tblVehicleEF	SBUS	1,098.26	1,227.18
tblVehicleEF	SBUS	3.11	5.03
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.4720e-003	5.6670e-003
tblVehicleEF	SBUS	3.21	1.17
tblVehicleEF	SBUS	4.23	2.22
tblVehicleEF	SBUS	1.06	0.17
tblVehicleEF	SBUS	2.7750e-003	1.4890e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.3000e-005
tblVehicleEF	SBUS	2.6550e-003	1.4070e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5590e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.9000e-005
tblVehicleEF	SBUS	1.3160e-003	0.08
tblVehicleEF	SBUS	5.7640e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	7.0300e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	8.6820e-003	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.2360e-003	1.3010e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.01	6.8400e-003
tblVehicleEF	SBUS	3.1000e-005	5.0000e-005
tblVehicleEF	SBUS	1.3160e-003	0.08
tblVehicleEF	SBUS	5.7640e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	7.0300e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	8.6820e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.04	0.51
tblVehicleEF	SBUS	5.9750e-003	1.34
tblVehicleEF	SBUS	4.4250e-003	7.0470e-003
tblVehicleEF	SBUS	2.09	2.92
tblVehicleEF	SBUS	0.51	5.05
tblVehicleEF	SBUS	0.59	0.93
tblVehicleEF	SBUS	324.30	265.43
tblVehicleEF	SBUS	1,098.25	1,227.15
tblVehicleEF	SBUS	3.42	5.51
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.6360e-003	5.9460e-003
tblVehicleEF	SBUS	3.08	1.11
tblVehicleEF	SBUS	4.45	2.33
tblVehicleEF	SBUS	1.07	0.18
tblVehicleEF	SBUS	3.9810e-003	1.9330e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.3000e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	3.8090e-003	1.8320e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5590e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.9000e-005
tblVehicleEF	SBUS	6.8400e-004	0.06
tblVehicleEF	SBUS	5.6560e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0840e-003	1.2400e-003
tblVehicleEF	SBUS	0.01	6.8400e-003
tblVehicleEF	SBUS	3.4000e-005	5.4000e-005
tblVehicleEF	SBUS	6.8400e-004	0.06
tblVehicleEF	SBUS	5.6560e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8120e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.42	1.09
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	16.41	7.58
tblVehicleEF	UBUS	0.28	0.31

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7180e-003
tblVehicleEF	UBUS	2.1400e-004	4.0000e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1750e-003
tblVehicleEF	UBUS	2.5810e-003	1.6380e-003
tblVehicleEF	UBUS	1.9700e-004	3.6000e-005
tblVehicleEF	UBUS	1.0010e-003	0.02
tblVehicleEF	UBUS	6.9600e-003	4.9380e-003
tblVehicleEF	UBUS	5.6300e-004	0.00
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	7.9300e-004	5.0900e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6300e-004
tblVehicleEF	UBUS	1.6200e-004	7.5000e-005
tblVehicleEF	UBUS	1.0010e-003	0.02
tblVehicleEF	UBUS	6.9600e-003	4.9380e-003
tblVehicleEF	UBUS	5.6300e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	7.9300e-004	5.0900e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.01	7.1310e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.16	0.93

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	15.99	7.32
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.35	0.38
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7180e-003
tblVehicleEF	UBUS	2.1400e-004	4.0000e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1750e-003
tblVehicleEF	UBUS	2.5810e-003	1.6380e-003
tblVehicleEF	UBUS	1.9700e-004	3.6000e-005
tblVehicleEF	UBUS	1.9290e-003	0.03
tblVehicleEF	UBUS	9.1640e-003	5.3960e-003
tblVehicleEF	UBUS	1.3450e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	7.7900e-004	5.3200e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6400e-004
tblVehicleEF	UBUS	1.5800e-004	7.2000e-005
tblVehicleEF	UBUS	1.9290e-003	0.03
tblVehicleEF	UBUS	9.1640e-003	5.3960e-003
tblVehicleEF	UBUS	1.3450e-003	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	7.7900e-004	5.3200e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	4.21	2.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.02	7.8700e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.38	1.10
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	16.36	7.61
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7180e-003
tblVehicleEF	UBUS	2.1400e-004	4.0000e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1750e-003
tblVehicleEF	UBUS	2.5810e-003	1.6380e-003
tblVehicleEF	UBUS	1.9700e-004	3.6000e-005
tblVehicleEF	UBUS	1.0890e-003	0.02
tblVehicleEF	UBUS	8.1120e-003	4.9030e-003
tblVehicleEF	UBUS	5.5900e-004	0.00
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	9.1300e-004	5.2800e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6300e-004
tblVehicleEF	UBUS	1.6200e-004	7.5000e-005
tblVehicleEF	UBUS	1.0890e-003	0.02
tblVehicleEF	UBUS	8.1120e-003	4.9030e-003
tblVehicleEF	UBUS	5.5900e-004	0.00
tblVehicleEF	UBUS	4.30	2.05

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	9.1300e-004	5.2800e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	CC_TTP	0.00	48.00
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	33.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	2.21	141.21
tblVehicleTrips	ST_TR	0.00	7.31
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	0.70	141.21
tblVehicleTrips	SU_TR	0.00	7.31
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	9.74	141.21
tblVehicleTrips	WD_TR	0.00	7.31
tblVehicleTrips	WD_TR	2.12	0.00
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	19.5767	43.8392	41.1608	0.1542	8.8519	1.5097	10.3616	2.3465	1.4218	3.7683	0.0000	14,417.6594	14,417.6594	1.5772	1.2434	14,827.6075
Maximum	**19.5767**	**43.8392**	**41.1608**	**0.1542**	**8.8519**	**1.5097**	**10.3616**	**2.3465**	**1.4218**	**3.7683**	**0.0000**	**14,417.6594**	**14,417.6594**	**1.5772**	**1.2434**	**14,827.6075**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	17.6340	23.3829	44.9816	0.1542	6.0270	0.4529	6.4799	1.6213	0.4296	2.0509	0.0000	14,417.6534	14,417.6534	1.5772	1.2434	14,827.6015
Maximum	**17.6340**	**23.3829**	**44.9816**	**0.1542**	**6.0270**	**0.4529**	**6.4799**	**1.6213**	**0.4296**	**2.0509**	**0.0000**	**14,417.6534**	**14,417.6534**	**1.5772**	**1.2434**	**14,827.6015**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.92**	**46.66**	**-9.28**	**0.00**	**31.91**	**70.00**	**37.46**	**30.90**	**69.79**	**45.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	13.1449	10.5884
2	4-1-2023	6-30-2023	18.1623	8.6965
3	7-1-2023	9-30-2023	16.5118	7.9888
		Highest	18.1623	10.5884

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2924	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867
Energy	0.0680	0.6183	0.5194	3.7100e-003		0.0470	0.0470		0.0470	0.0470	0.0000	2,748.7566	2,748.7566	0.0129	0.0123	2,752.7568
Mobile	4.0012	3.4191	38.4974	0.5818	9.3797	0.5301	9.9098	3.0598	0.5262	3.5860	0.0000	9,230.7181	9,230.7181	0.7408	0.6996	9,457.7260
Waste						0.0000	0.0000		0.0000	0.0000	600.6442	0.0000	600.6442	35.4971	0.0000	1,488.0705
Water						0.0000	0.0000		0.0000	0.0000	230.1311	1,487.5484	1,717.6795	23.6367	0.5581	2,474.9140
Total	**17.3616**	**4.0378**	**39.0586**	**0.5855**	**9.3797**	**0.5772**	**9.9569**	**3.0598**	**0.5733**	**3.6331**	**830.7753**	**13,467.1045**	**14,297.8798**	**59.8877**	**1.2701**	**16,173.5540**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2901	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Energy	0.0558	0.5075	0.4263	3.0400e-003		0.0386	0.0386		0.0386	0.0386	0.0000	2,292.8253	2,292.8253	0.0106	0.0101	2,296.1084
Mobile	3.9909	3.3893	38.1640	0.5750	9.2692	0.5239	9.7931	3.0238	0.5200	3.5438	0.0000	9,124.4602	9,124.4602	0.7347	0.6925	9,349.1834
Waste						0.0000	0.0000		0.0000	0.0000	150.1610	0.0000	150.1610	8.8743	0.0000	372.0176
Water						0.0000	0.0000		0.0000	0.0000	184.1049	1,191.3550	1,375.4599	18.9093	0.4465	1,981.2475
Total	**17.3369**	**3.8970**	**38.6145**	**0.5780**	**9.2692**	**0.5625**	**9.8318**	**3.0238**	**0.5587**	**3.5825**	**334.2659**	**12,608.6845**	**12,942.9504**	**28.5289**	**1.1491**	**13,998.6030**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.14**	**3.49**	**1.14**	**1.28**	**1.18**	**2.54**	**1.26**	**1.18**	**2.55**	**1.39**	**59.76**	**6.37**	**9.48**	**52.36**	**9.53**	**13.45**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	6/1/2023	5	109	
2	Road Construction/Utilities	Site Preparation	1/1/2023	6/1/2023	5	109	
3	Concrete Pour	Building Construction	5/1/2023	8/31/2023	5	89	

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4	Paving/Landscap/Site Finishes	Paving	9/1/2023	12/29/2023	5	86	
5	Architectural Coating	Architectural Coating	9/1/2023	12/29/2023	5	86	
6	Excavation/Mass Site Grading	Grading	2/1/2023	4/28/2023	5	63	

Acres of Grading (Site Preparation Phase): 163.5

Acres of Grading (Grading Phase): 1102.5

Acres of Paving: 132.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,722,555; Non-Residential Outdoor: 1,574,185; Striped Parking Area: 345,727 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Road Construction/Utilities	Excavators	2	8.00	158	0.38
Road Construction/Utilities	Off-Highway Trucks	1	4.00	402	0.38
Road Construction/Utilities	Rubber Tired Dozers	3	8.00	247	0.40
Road Construction/Utilities	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Road Construction/Utilities	Trenchers	2	8.00	78	0.50
Concrete Pour	Cranes	3	7.00	231	0.29
Concrete Pour	Forklifts	15	8.00	89	0.20
Concrete Pour	Generator Sets	54	8.00	84	0.74
Concrete Pour	Off-Highway Trucks	12	7.00	402	0.38
Concrete Pour	Other General Industrial Equipment	84	8.00	88	0.34
Concrete Pour	Pumps	3	7.00	84	0.74
Concrete Pour	Rollers	3	8.00	80	0.38
Concrete Pour	Tractors/Loaders/Backhoes	21	7.00	97	0.37
Concrete Pour	Welders	0	8.00	46	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving/Landscap/Site Finishes	Graders	2	8.00	187	0.41
Paving/Landscap/Site Finishes	Off-Highway Tractors	1	8.00	124	0.44
Paving/Landscap/Site Finishes	Off-Highway Trucks	2	8.00	402	0.38
Paving/Landscap/Site Finishes	Other Construction Equipment	2	8.00	172	0.42
Paving/Landscap/Site Finishes	Other General Industrial Equipment	6	8.00	88	0.34
Paving/Landscap/Site Finishes	Pavers	0	8.00	130	0.42
Paving/Landscap/Site Finishes	Paving Equipment	1	8.00	132	0.36
Paving/Landscap/Site Finishes	Rollers	6	8.00	80	0.38
Paving/Landscap/Site Finishes	Scrapers	1	8.00	367	0.48
Paving/Landscap/Site Finishes	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Architectural Coating	Air Compressors	3	6.00	78	0.48
Excavation/Mass Site Grading	Excavators	0	8.00	158	0.38
Excavation/Mass Site Grading	Graders	2	8.00	187	0.41
Excavation/Mass Site Grading	Off-Highway Trucks	3	8.00	402	0.38
Excavation/Mass Site Grading	Other Construction Equipment	1	8.00	172	0.42
Excavation/Mass Site Grading	Rollers	1	8.00	80	0.38
Excavation/Mass Site Grading	Rubber Tired Dozers	1	8.00	247	0.40
Excavation/Mass Site Grading	Rubber Tired Loaders	1	8.00	203	0.36
Excavation/Mass Site Grading	Scrapers	16	8.00	367	0.48
Excavation/Mass Site Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	20,768.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Road Construction/Utilities	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Pour	195	3,737.00	1,460.00	23,664.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving/Landscap/Site Finishes	25	63.00	0.00	11,522.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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Architectural Coating	3	747.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Mass Site Grading	25	63.00	0.00	73,464.00	14.70	6.90	50.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.2472	0.0000	2.2472	0.3403	0.0000	0.3403	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1237	1.1709	1.0706	2.1200e-003		0.0544	0.0544		0.0506	0.0506	0.0000	185.2568	185.2568	0.0519	0.0000	186.5538
Total	**0.1237**	**1.1709**	**1.0706**	**2.1200e-003**	**2.2472**	**0.0544**	**2.3016**	**0.3403**	**0.0506**	**0.3908**	**0.0000**	**185.2568**	**185.2568**	**0.0519**	**0.0000**	**186.5538**

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3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0242	1.2077	0.3504	5.8400e-003	0.1788	0.0120	0.1909	0.0491	0.0115	0.0606	0.0000	577.0439	577.0439	0.0246	0.0915	604.9148
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	2.1200e-003	0.0265	8.0000e-005	8.9600e-003	5.0000e-005	9.0100e-003	2.3800e-003	4.0000e-005	2.4200e-003	0.0000	6.9140	6.9140	1.8000e-004	1.9000e-004	6.9752
Total	**0.0271**	**1.2098**	**0.3770**	**5.9200e-003**	**0.1878**	**0.0121**	**0.1999**	**0.0515**	**0.0115**	**0.0630**	**0.0000**	**583.9579**	**583.9579**	**0.0248**	**0.0917**	**611.8900**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8326	0.0000	0.8326	0.1261	0.0000	0.1261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0400	0.2352	1.2578	2.1200e-003		9.9000e-003	9.9000e-003		9.9000e-003	9.9000e-003	0.0000	185.2566	185.2566	0.0519	0.0000	186.5536
Total	**0.0400**	**0.2352**	**1.2578**	**2.1200e-003**	**0.8326**	**9.9000e-003**	**0.8425**	**0.1261**	**9.9000e-003**	**0.1360**	**0.0000**	**185.2566**	**185.2566**	**0.0519**	**0.0000**	**186.5536**

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3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0242	1.2077	0.3504	5.8400e-003	0.1708	0.0120	0.1828	0.0472	0.0115	0.0587	0.0000	577.0439	577.0439	0.0246	0.0915	604.9148
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	2.1200e-003	0.0265	8.0000e-005	8.5000e-003	5.0000e-005	8.5400e-003	2.2700e-003	4.0000e-005	2.3100e-003	0.0000	6.9140	6.9140	1.8000e-004	1.9000e-004	6.9752
Total	**0.0271**	**1.2098**	**0.3770**	**5.9200e-003**	**0.1793**	**0.0121**	**0.1913**	**0.0494**	**0.0115**	**0.0610**	**0.0000**	**583.9579**	**583.9579**	**0.0248**	**0.0917**	**611.8900**

3.3 Road Construction/Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0713	0.0000	1.0713	0.5506	0.0000	0.5506	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2170	2.1185	1.7216	3.3700e-003		0.1052	0.1052		0.0968	0.0968	0.0000	295.7527	295.7527	0.0957	0.0000	298.1440
Total	**0.2170**	**2.1185**	**1.7216**	**3.3700e-003**	**1.0713**	**0.1052**	**1.1765**	**0.5506**	**0.0968**	**0.6474**	**0.0000**	**295.7527**	**295.7527**	**0.0957**	**0.0000**	**298.1440**

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3.3 Road Construction/Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6900e-003	4.2500e-003	0.0531	1.5000e-004	0.0179	9.0000e-005	0.0180	4.7600e-003	8.0000e-005	4.8400e-003	0.0000	13.8281	13.8281	3.7000e-004	3.8000e-004	13.9505
Total	**5.6900e-003**	**4.2500e-003**	**0.0531**	**1.5000e-004**	**0.0179**	**9.0000e-005**	**0.0180**	**4.7600e-003**	**8.0000e-005**	**4.8400e-003**	**0.0000**	**13.8281**	**13.8281**	**3.7000e-004**	**3.8000e-004**	**13.9505**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3969	0.0000	0.3969	0.2040	0.0000	0.2040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0412	0.1785	2.0034	3.3700e-003		5.4900e-003	5.4900e-003		5.4900e-003	5.4900e-003	0.0000	295.7524	295.7524	0.0957	0.0000	298.1437
Total	**0.0412**	**0.1785**	**2.0034**	**3.3700e-003**	**0.3969**	**5.4900e-003**	**0.4024**	**0.2040**	**5.4900e-003**	**0.2095**	**0.0000**	**295.7524**	**295.7524**	**0.0957**	**0.0000**	**298.1437**

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3.3 Road Construction/Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6900e-003	4.2500e-003	0.0531	1.5000e-004	0.0170	9.0000e-005	0.0171	4.5300e-003	8.0000e-005	4.6200e-003	0.0000	13.8281	13.8281	3.7000e-004	3.8000e-004	13.9505
Total	**5.6900e-003**	**4.2500e-003**	**0.0531**	**1.5000e-004**	**0.0170**	**9.0000e-005**	**0.0171**	**4.5300e-003**	**8.0000e-005**	**4.6200e-003**	**0.0000**	**13.8281**	**13.8281**	**3.7000e-004**	**3.8000e-004**	**13.9505**

3.4 Concrete Pour - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8693	16.8387	21.0333	0.0369		0.8486	0.8486		0.8066	0.8066	0.0000	3,211.1223	3,211.1223	0.6407	0.0000	3,227.1396
Total	**1.8693**	**16.8387**	**21.0333**	**0.0369**		**0.8486**	**0.8486**		**0.8066**	**0.8066**	**0.0000**	**3,211.1223**	**3,211.1223**	**0.6407**	**0.0000**	**3,227.1396**

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3.4 Concrete Pour - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0276	1.3761	0.3993	6.6500e-003	0.2038	0.0137	0.2175	0.0560	0.0131	0.0691	0.0000	657.5099	657.5099	0.0280	0.1042	689.2673
Vendor	0.0733	2.3971	0.9704	0.0116	0.4098	0.0172	0.4269	0.1183	0.0164	0.1347	0.0000	1,132.3167	1,132.3167	0.0295	0.1673	1,182.9197
Worker	0.5791	0.4322	5.3964	0.0153	1.8234	9.1600e-003	1.8325	0.4843	8.4300e-003	0.4927	0.0000	1,406.4579	1,406.4579	0.0374	0.0386	1,418.9068
Total	**0.6800**	**4.2054**	**6.7661**	**0.0336**	**2.4369**	**0.0400**	**2.4769**	**0.6585**	**0.0379**	**0.6965**	**0.0000**	**3,196.2846**	**3,196.2846**	**0.0948**	**0.3102**	**3,291.0938**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4486	2.2118	23.4587	0.0369		0.0730	0.0730		0.0715	0.0715	0.0000	3,211.1185	3,211.1185	0.6407	0.0000	3,227.1357
Total	**0.4486**	**2.2118**	**23.4587**	**0.0369**		**0.0730**	**0.0730**		**0.0715**	**0.0715**	**0.0000**	**3,211.1185**	**3,211.1185**	**0.6407**	**0.0000**	**3,227.1357**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Concrete Pour - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0276	1.3761	0.3993	6.6500e-003	0.1946	0.0137	0.2083	0.0537	0.0131	0.0668	0.0000	657.5099	657.5099	0.0280	0.1042	689.2673
Vendor	0.0733	2.3971	0.9704	0.0116	0.3924	0.0172	0.4095	0.1140	0.0164	0.1304	0.0000	1,132.3167	1,132.3167	0.0295	0.1673	1,182.9197
Worker	0.5791	0.4322	5.3964	0.0153	1.7286	9.1600e-003	1.7377	0.4610	8.4300e-003	0.4694	0.0000	1,406.4579	1,406.4579	0.0374	0.0386	1,418.9068
Total	**0.6800**	**4.2054**	**6.7661**	**0.0336**	**2.3155**	**0.0400**	**2.3555**	**0.6287**	**0.0379**	**0.6667**	**0.0000**	**3,196.2846**	**3,196.2846**	**0.0948**	**0.3102**	**3,291.0938**

3.5 Paving/Landscap/Site Finishes - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2633	2.5792	2.6347	5.1400e-003		0.1191	0.1191		0.1096	0.1096	0.0000	451.5995	451.5995	0.1461	0.0000	455.2509
Paving	0.1733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4366**	**2.5792**	**2.6347**	**5.1400e-003**		**0.1191**	**0.1191**		**0.1096**	**0.1096**	**0.0000**	**451.5995**	**451.5995**	**0.1461**	**0.0000**	**455.2509**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving/Landscap/Site Finishes - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0134	0.6700	0.1944	3.2400e-003	0.0992	6.6700e-003	0.1059	0.0273	6.3800e-003	0.0336	0.0000	320.1415	320.1415	0.0136	0.0507	335.6042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4300e-003	7.0400e-003	0.0879	2.5000e-004	0.0297	1.5000e-004	0.0299	7.8900e-003	1.4000e-004	8.0300e-003	0.0000	22.9115	22.9115	6.1000e-004	6.3000e-004	23.1143
Total	**0.0229**	**0.6771**	**0.2823**	**3.4900e-003**	**0.1289**	**6.8200e-003**	**0.1357**	**0.0351**	**6.5200e-003**	**0.0417**	**0.0000**	**343.0530**	**343.0530**	**0.0142**	**0.0514**	**358.7184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0889	0.5950	3.1397	5.1400e-003		0.0213	0.0213		0.0202	0.0202	0.0000	451.5990	451.5990	0.1461	0.0000	455.2504
Paving	0.1733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2622**	**0.5950**	**3.1397**	**5.1400e-003**		**0.0213**	**0.0213**		**0.0202**	**0.0202**	**0.0000**	**451.5990**	**451.5990**	**0.1461**	**0.0000**	**455.2504**

3.5 Paving/Landscap/Site Finishes - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0134	0.6700	0.1944	3.2400e-003	0.0948	6.6700e-003	0.1014	0.0262	6.3800e-003	0.0325	0.0000	320.1415	320.1415	0.0136	0.0507	335.6042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4300e-003	7.0400e-003	0.0879	2.5000e-004	0.0282	1.5000e-004	0.0283	7.5100e-003	1.4000e-004	7.6500e-003	0.0000	22.9115	22.9115	6.1000e-004	6.3000e-004	23.1143
Total	**0.0229**	**0.6771**	**0.2823**	**3.4900e-003**	**0.1229**	**6.8200e-003**	**0.1297**	**0.0337**	**6.5200e-003**	**0.0402**	**0.0000**	**343.0530**	**343.0530**	**0.0142**	**0.0514**	**358.7184**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	15.3939					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.1681	0.2336	3.8000e-004		9.1400e-003	9.1400e-003		9.1400e-003	9.1400e-003	0.0000	32.9370	32.9370	1.9700e-003	0.0000	32.9862
Total	**15.4186**	**0.1681**	**0.2336**	**3.8000e-004**		**9.1400e-003**	**9.1400e-003**		**9.1400e-003**	**9.1400e-003**	**0.0000**	**32.9370**	**32.9370**	**1.9700e-003**	**0.0000**	**32.9862**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1119	0.0835	1.0423	2.9600e-003	0.3522	1.7700e-003	0.3540	0.0935	1.6300e-003	0.0952	0.0000	271.6644	271.6644	7.2200e-003	7.4600e-003	274.0689
Total	**0.1119**	**0.0835**	**1.0423**	**2.9600e-003**	**0.3522**	**1.7700e-003**	**0.3540**	**0.0935**	**1.6300e-003**	**0.0952**	**0.0000**	**271.6644**	**271.6644**	**7.2200e-003**	**7.4600e-003**	**274.0689**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	15.3939					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.1681	0.2336	3.8000e-004		9.1400e-003	9.1400e-003		9.1400e-003	9.1400e-003	0.0000	32.9369	32.9369	1.9700e-003	0.0000	32.9862
Total	**15.4186**	**0.1681**	**0.2336**	**3.8000e-004**		**9.1400e-003**	**9.1400e-003**		**9.1400e-003**	**9.1400e-003**	**0.0000**	**32.9369**	**32.9369**	**1.9700e-003**	**0.0000**	**32.9862**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1119	0.0835	1.0423	2.9600e-003	0.3339	1.7700e-003	0.3357	0.0890	1.6300e-003	0.0907	0.0000	271.6644	271.6644	7.2200e-003	7.4600e-003	274.0689
Total	**0.1119**	**0.0835**	**1.0423**	**2.9600e-003**	**0.3339**	**1.7700e-003**	**0.3357**	**0.0890**	**1.6300e-003**	**0.0907**	**0.0000**	**271.6644**	**271.6644**	**7.2200e-003**	**7.4600e-003**	**274.0689**

3.7 Excavation/Mass Site Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8075	0.0000	0.8075	0.1724	0.0000	0.1724	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5142	5.2723	3.8403	0.0101		0.2067	0.2067		0.1902	0.1902	0.0000	883.8189	883.8189	0.2858	0.0000	890.9650
Total	**0.5142**	**5.2723**	**3.8403**	**0.0101**	**0.8075**	**0.2067**	**1.0143**	**0.1724**	**0.1902**	**0.3626**	**0.0000**	**883.8189**	**883.8189**	**0.2858**	**0.0000**	**890.9650**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Excavation/Mass Site Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1429	9.5063	2.0416	0.0499	1.5803	0.1056	1.6860	0.4340	0.1010	0.5350	0.0000	4,931.6004	4,931.6004	0.2132	0.7818	5,169.9138
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9100e-003	5.1600e-003	0.0644	1.8000e-004	0.0218	1.1000e-004	0.0219	5.7800e-003	1.0000e-004	5.8800e-003	0.0000	16.7840	16.7840	4.5000e-004	4.6000e-004	16.9325
Total	**0.1498**	**9.5115**	**2.1060**	**0.0500**	**1.6021**	**0.1057**	**1.7078**	**0.4398**	**0.1011**	**0.5409**	**0.0000**	**4,948.3843**	**4,948.3843**	**0.2136**	**0.7823**	**5,186.8464**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2992	0.0000	0.2992	0.0639	0.0000	0.0639	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4261	4.3028	4.2617	0.0101		0.1676	0.1676		0.1545	0.1545	0.0000	883.8179	883.8179	0.2858	0.0000	890.9640
Total	**0.4261**	**4.3028**	**4.2617**	**0.0101**	**0.2992**	**0.1676**	**0.4668**	**0.0639**	**0.1545**	**0.2184**	**0.0000**	**883.8179**	**883.8179**	**0.2858**	**0.0000**	**890.9640**

3.7 Excavation/Mass Site Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1429	9.5063	2.0416	0.0499	1.5091	0.1056	1.6147	0.4165	0.1010	0.5176	0.0000	4,931.6004	4,931.6004	0.2132	0.7818	5,169.9138
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9100e-003	5.1600e-003	0.0644	1.8000e-004	0.0206	1.1000e-004	0.0207	5.5000e-003	1.0000e-004	5.6000e-003	0.0000	16.7840	16.7840	4.5000e-004	4.6000e-004	16.9325
Total	**0.1498**	**9.5115**	**2.1060**	**0.0500**	**1.5297**	**0.1057**	**1.6354**	**0.4220**	**0.1011**	**0.5232**	**0.0000**	**4,948.3843**	**4,948.3843**	**0.2136**	**0.7823**	**5,186.8464**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

Employee Vanpool/Shuttle

Provide Riade Sharing Program

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.9909	3.3893	38.1640	0.5750	9.2692	0.5239	9.7931	3.0238	0.5200	3.5438	0.0000	9,124.4602	9,124.4602	0.7347	0.6925	9,349.1834
Unmitigated	4.0012	3.4191	38.4974	0.5818	9.3797	0.5301	9.9098	3.0598	0.5262	3.5860	0.0000	9,230.7181	9,230.7181	0.7408	0.6996	9,457.7260

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	7,060.50	7,060.50	7060.50	27,810,208	27,482,700
Other Asphalt Surfaces	523.03	523.03	523.03	2,060,136	2,035,874
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	7,583.53	7,583.53	7,583.53	29,870,344	29,518,574

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.583387	0.056059	0.172680	0.136494	0.026304	0.000000	0.000000	0.000000	0.000000	0.000000	0.025076	0.000000	0.000000
Other Asphalt Surfaces	0.583387	0.056059	0.172680	0.136494	0.026304	0.000000	0.000000	0.000000	0.000000	0.000000	0.025076	0.000000	0.000000
Parking Lot	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Refrigerated Warehouse-Rail	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Unrefrigerated Warehouse-Rail	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,740.3617	1,740.3617	0.0000	0.0000	1,740.3617
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,075.6136	2,075.6136	0.0000	0.0000	2,075.6136
NaturalGas Mitigated	0.0558	0.5075	0.4263	3.0400e-003		0.0386	0.0386		0.0386	0.0386	0.0000	552.4637	552.4637	0.0106	0.0101	555.7467
NaturalGas Unmitigated	0.0680	0.6183	0.5194	3.7100e-003		0.0470	0.0470		0.0470	0.0470	0.0000	673.1430	673.1430	0.0129	0.0123	677.1432

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	171500	9.2000e-004	8.4100e-003	7.0600e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1519	9.1519	1.8000e-004	1.7000e-004	9.2063
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.46625e+006	0.0349	0.3170	0.2663	1.9000e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.0637	345.0637	6.6100e-003	6.3300e-003	347.1143
Unrefrigerated Warehouse-Rail	5.97647e+006	0.0322	0.2930	0.2461	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	318.9274	318.9274	6.1100e-003	5.8500e-003	320.8226
Total		**0.0680**	**0.6183**	**0.5194**	**3.7100e-003**		**0.0470**	**0.0470**		**0.0470**	**0.0470**	**0.0000**	**673.1430**	**673.1430**	**0.0129**	**0.0124**	**677.1432**

Speedway Commerce Center (Phase 1a Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	111475	6.0000e-004	5.4600e-003	4.5900e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	5.9487	5.9487	1.1000e-004	1.1000e-004	5.9841
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.32538e+006	0.0341	0.3101	0.2605	1.8600e-003		0.0236	0.0236		0.0236	0.0236	0.0000	337.5461	337.5461	6.4700e-003	6.1900e-003	339.5520
Unrefrigerated Warehouse-Rail	3.91593e+006	0.0211	0.1920	0.1612	1.1500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	208.9689	208.9689	4.0100e-003	3.8300e-003	210.2106
Total		**0.0558**	**0.5075**	**0.4263**	**3.0400e-003**		**0.0386**	**0.0386**		**0.0386**	**0.0386**	**0.0000**	**552.4637**	**552.4637**	**0.0106**	**0.0101**	**555.7467**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	459500	71.9069	0.0000	0.0000	71.9069
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	925890	144.8919	0.0000	0.0000	144.8919
Refrigerated Warehouse-Rail	4.98e +006	779.3171	0.0000	0.0000	779.3171
Unrefrigerated Warehouse-Rail	6.89822e +006	1,079.4978	0.0000	0.0000	1,079.4978
Total		**2,075.6136**	**0.0000**	**0.0000**	**2,075.6136**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	347500	54.3801	0.0000	0.0000	54.3801
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	601828	94.1797	0.0000	0.0000	94.1797
Refrigerated Warehouse-Rail	4.83475e+006	756.5870	0.0000	0.0000	756.5870
Unrefrigerated Warehouse-Rail	5.3372e+006	835.2149	0.0000	0.0000	835.2149
Total		**1,740.3617**	**0.0000**	**0.0000**	**1,740.3617**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	13.2901	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Unmitigated	13.2924	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.7491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8600e-003	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867
Total	**13.2924**	**3.8000e-004**	**0.0418**	**0.0000**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0814**	**0.0814**	**2.1000e-004**	**0.0000**	**0.0867**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.7491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6400e-003	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Total	**13.2901**	**2.1000e-004**	**0.0242**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0439**	**0.0439**	**9.0000e-005**	**0.0000**	**0.0461**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,375.4599	18.9093	0.4465	1,981.2475
Unmitigated	1,717.6795	23.6367	0.5581	2,474.9140

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	8.88669 / 5.44668	30.3969	0.2896	6.8400e-003	39.6737
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	28.9063 / 0	68.0714	0.9419	0.0222	98.2468
Unrefrigerated Warehouse-Rail	687.592 / 0	1,619.2113	22.4052	0.5290	2,336.9935
Total		**1,717.6795**	**23.6367**	**0.5581**	**2,474.9140**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	7.10935 / 5.11443	25.6338	0.2317	5.4700e-003	33.0553
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	23.125 / 0	54.4571	0.7535	0.0178	78.5975
Unrefrigerated Warehouse-Rail	550.073 / 0	1,295.3690	17.9242	0.4232	1,869.5948
Total		**1,375.4599**	**18.9093**	**0.4465**	**1,981.2475**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	150.1610	8.8743	0.0000	372.0176
Unmitigated	600.6442	35.4971	0.0000	1,488.0705

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	46.5	9.4391	0.5578	0.0000	23.3849
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	117.5	23.8514	1.4096	0.0000	59.0909
Unrefrigerated Warehouse-Rail	2794.97	567.3537	33.5296	0.0000	1,405.5947
Total		**600.6442**	**35.4971**	**0.0000**	**1,488.0705**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	11.625	2.3598	0.1395	0.0000	5.8462
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	29.375	5.9629	0.3524	0.0000	14.7727
Unrefrigerated Warehouse-Rail	698.742	141.8384	8.3824	0.0000	351.3987
Total		**150.1610**	**8.8743**	**0.0000**	**372.0176**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 1a Trucks)(*Mobile Source/Truck Operations Only)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	50.00	1000sqft	1.15	50,000.00	0
Refrigerated Warehouse-Rail	125.00	1000sqft	2.87	125,000.00	0
Unrefrigerated Warehouse-Rail	2,973.37	1000sqft	68.26	2,973,370.00	0
Other Asphalt Surfaces	71.55	Acre	71.55	3,116,718.00	0
Parking Lot	60.73	Acre	60.73	2,645,398.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	345	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 factor per RPS

Land Use -

Construction Phase - operations only

Off-road Equipment - Anticipated equipment

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating -

Vehicle Trips - Phase 1a Trucks run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products -

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase 1a trucks run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	0.00
tblFleetMix	HHD	0.02	0.64
tblFleetMix	HHD	0.02	0.64
tblFleetMix	HHD	0.02	0.64
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.1040e-003	0.12
tblFleetMix	LHD2	7.1040e-003	0.12
tblFleetMix	LHD2	7.1040e-003	0.12
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MH	4.8300e-003	0.00
tblFleetMix	MH	4.8300e-003	0.00
tblFleetMix	MH	4.8300e-003	0.00
tblFleetMix	MHD	0.01	0.24
tblFleetMix	MHD	0.01	0.24
tblFleetMix	MHD	0.01	0.24
tblFleetMix	OBUS	5.5400e-004	0.00
tblFleetMix	OBUS	5.5400e-004	0.00
tblFleetMix	OBUS	5.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5100e-004	0.00
tblFleetMix	UBUS	2.5100e-004	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	UBUS	2.5100e-004	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	345
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	0.00	3.5573e-008
tblVehicleEF	HHD	8.65	5.33
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.1330e-003	1.3424e-003
tblVehicleEF	HHD	1,402.40	830.08
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.2094e-005
tblVehicleEF	HHD	7.09	4.03
tblVehicleEF	HHD	2.16	1.75
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	2.9710e-003	2.1769e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.1491e-006
tblVehicleEF	HHD	2.8430e-003	2.0784e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8039e-003
tblVehicleEF	HHD	0.02	0.02

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tblVehicleEF	HHD	0.00	1.0565e-006
tblVehicleEF	HHD	2.0000e-006	2.9585e-004
tblVehicleEF	HHD	7.3000e-005	7.3658e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-005	7.7386e-005
tblVehicleEF	HHD	1.0000e-006	1.8327e-007
tblVehicleEF	HHD	0.01	7.0812e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	2.5394e-007
tblVehicleEF	HHD	2.0000e-006	2.9585e-004
tblVehicleEF	HHD	7.3000e-005	7.3658e-005
tblVehicleEF	HHD	0.67	0.58
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.0000e-005	7.7386e-005
tblVehicleEF	HHD	1.0000e-006	2.0066e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	0.00	3.3939e-008
tblVehicleEF	HHD	8.54	5.26
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.0000e-003	1.2674e-003
tblVehicleEF	HHD	1,384.98	821.66
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	6.0000e-006	1.1975e-005
tblVehicleEF	HHD	6.75	3.86
tblVehicleEF	HHD	2.04	1.65
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	2.6190e-003	1.9139e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.1491e-006
tblVehicleEF	HHD	2.5050e-003	1.8268e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8039e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0565e-006
tblVehicleEF	HHD	5.0000e-006	4.5479e-004
tblVehicleEF	HHD	8.6000e-005	8.1474e-005
tblVehicleEF	HHD	0.62	0.34
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.1000e-005	8.2869e-005
tblVehicleEF	HHD	1.0000e-006	1.7537e-007
tblVehicleEF	HHD	0.01	7.0015e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	2.5277e-007
tblVehicleEF	HHD	5.0000e-006	4.5479e-004
tblVehicleEF	HHD	8.6000e-005	8.1474e-005
tblVehicleEF	HHD	0.71	0.60
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17

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tblVehicleEF	HHD	3.1000e-005	8.2869e-005
tblVehicleEF	HHD	1.0000e-006	1.9201e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	0.00	3.5370e-008
tblVehicleEF	HHD	8.82	5.42
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.1040e-003	1.3319e-003
tblVehicleEF	HHD	1,426.46	841.71
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.14
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.2058e-005
tblVehicleEF	HHD	7.56	4.27
tblVehicleEF	HHD	2.13	1.72
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	3.4590e-003	2.5400e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.1491e-006
tblVehicleEF	HHD	3.3090e-003	2.4258e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8039e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0565e-006
tblVehicleEF	HHD	3.0000e-006	3.0380e-004
tblVehicleEF	HHD	8.6000e-005	7.2926e-005

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tblVehicleEF	HHD	0.54	0.30
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.2000e-005	8.1228e-005
tblVehicleEF	HHD	1.0000e-006	1.8225e-007
tblVehicleEF	HHD	0.01	7.1914e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	2.5378e-007
tblVehicleEF	HHD	3.0000e-006	3.0380e-004
tblVehicleEF	HHD	8.6000e-005	7.2926e-005
tblVehicleEF	HHD	0.61	0.56
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.2000e-005	8.1228e-005
tblVehicleEF	HHD	1.0000e-006	1.9955e-007
tblVehicleEF	LDA	1.9200e-003	2.1619e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.57	0.71
tblVehicleEF	LDA	2.02	2.77
tblVehicleEF	LDA	246.40	267.38
tblVehicleEF	LDA	50.59	66.67
tblVehicleEF	LDA	4.1400e-003	4.2907e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1532e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.3330e-003	1.2369e-003
tblVehicleEF	LDA	1.7020e-003	2.0056e-003

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tblVehicleEF	LDA	0.02	2.5036e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.2270e-003	1.1382e-003
tblVehicleEF	LDA	1.5650e-003	1.8441e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.0520e-003	7.9892e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.19	0.28
tblVehicleEF	LDA	2.4380e-003	2.6432e-003
tblVehicleEF	LDA	5.0100e-004	6.5906e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.21	0.31
tblVehicleEF	LDA	2.2030e-003	2.2988e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.70	0.95
tblVehicleEF	LDA	1.68	2.32
tblVehicleEF	LDA	269.03	290.04
tblVehicleEF	LDA	49.95	65.83
tblVehicleEF	LDA	3.8800e-003	3.8164e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	7.1532e-003

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tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.3330e-003	1.2369e-003
tblVehicleEF	LDA	1.7020e-003	2.0056e-003
tblVehicleEF	LDA	0.02	2.5036e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.2270e-003	1.1382e-003
tblVehicleEF	LDA	1.5650e-003	1.8441e-003
tblVehicleEF	LDA	0.11	0.41
tblVehicleEF	LDA	0.11	0.09
tblVehicleEF	LDA	0.09	0.00
tblVehicleEF	LDA	7.9980e-003	8.3868e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.24
tblVehicleEF	LDA	2.6610e-003	2.8671e-003
tblVehicleEF	LDA	4.9400e-004	6.5081e-004
tblVehicleEF	LDA	0.11	0.41
tblVehicleEF	LDA	0.11	0.09
tblVehicleEF	LDA	0.09	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	1.8740e-003	2.1440e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.54	0.66
tblVehicleEF	LDA	1.98	2.77
tblVehicleEF	LDA	241.10	263.22
tblVehicleEF	LDA	50.53	66.68
tblVehicleEF	LDA	3.9710e-003	4.1796e-003
tblVehicleEF	LDA	0.02	0.03

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tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1532e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.3330e-003	1.2369e-003
tblVehicleEF	LDA	1.7020e-003	2.0056e-003
tblVehicleEF	LDA	0.02	2.5036e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.2270e-003	1.1382e-003
tblVehicleEF	LDA	1.5650e-003	1.8441e-003
tblVehicleEF	LDA	0.05	0.32
tblVehicleEF	LDA	0.10	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.8740e-003	7.9256e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDA	2.3850e-003	2.6020e-003
tblVehicleEF	LDA	5.0000e-004	6.5920e-004
tblVehicleEF	LDA	0.05	0.32
tblVehicleEF	LDA	0.10	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	9.9970e-003	0.01
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.21	0.31
tblVehicleEF	LDT1	5.3250e-003	9.1717e-003
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	1.14	1.98
tblVehicleEF	LDT1	2.25	6.39
tblVehicleEF	LDT1	292.95	340.41

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tblVehicleEF	LDT1	61.63	90.26
tblVehicleEF	LDT1	7.5100e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.10	0.19
tblVehicleEF	LDT1	0.25	0.47
tblVehicleEF	LDT1	0.04	8.8506e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.8800e-003	2.2564e-003
tblVehicleEF	LDT1	2.4490e-003	3.5201e-003
tblVehicleEF	LDT1	0.02	3.0977e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7290e-003	2.0757e-003
tblVehicleEF	LDT1	2.2520e-003	3.2367e-003
tblVehicleEF	LDT1	0.16	0.96
tblVehicleEF	LDT1	0.22	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.10	0.09
tblVehicleEF	LDT1	0.35	0.68
tblVehicleEF	LDT1	2.8990e-003	3.3653e-003
tblVehicleEF	LDT1	6.1000e-004	8.9234e-004
tblVehicleEF	LDT1	0.16	0.96
tblVehicleEF	LDT1	0.22	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.10	0.09
tblVehicleEF	LDT1	0.38	0.74
tblVehicleEF	LDT1	6.0460e-003	9.7297e-003
tblVehicleEF	LDT1	0.06	0.11

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tblVehicleEF	LDT1	1.39	2.64
tblVehicleEF	LDT1	1.87	5.32
tblVehicleEF	LDT1	316.51	366.96
tblVehicleEF	LDT1	60.83	88.23
tblVehicleEF	LDT1	6.9690e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.16
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	0.04	8.8506e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.8800e-003	2.2564e-003
tblVehicleEF	LDT1	2.4490e-003	3.5201e-003
tblVehicleEF	LDT1	0.02	3.0977e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7290e-003	2.0757e-003
tblVehicleEF	LDT1	2.2520e-003	3.2367e-003
tblVehicleEF	LDT1	0.33	1.28
tblVehicleEF	LDT1	0.27	0.25
tblVehicleEF	LDT1	0.25	0.00
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.29	0.58
tblVehicleEF	LDT1	3.1320e-003	3.6277e-003
tblVehicleEF	LDT1	6.0200e-004	8.7220e-004
tblVehicleEF	LDT1	0.33	1.28
tblVehicleEF	LDT1	0.27	0.25
tblVehicleEF	LDT1	0.25	0.00
tblVehicleEF	LDT1	0.04	0.06
tblVehicleEF	LDT1	0.09	0.09

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tblVehicleEF	LDT1	0.32	0.64
tblVehicleEF	LDT1	5.2030e-003	9.0926e-003
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	1.09	1.86
tblVehicleEF	LDT1	2.21	6.41
tblVehicleEF	LDT1	287.37	335.53
tblVehicleEF	LDT1	61.56	90.30
tblVehicleEF	LDT1	7.1990e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.18
tblVehicleEF	LDT1	0.25	0.46
tblVehicleEF	LDT1	0.04	8.8506e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.8800e-003	2.2564e-003
tblVehicleEF	LDT1	2.4490e-003	3.5201e-003
tblVehicleEF	LDT1	0.02	3.0977e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7290e-003	2.0757e-003
tblVehicleEF	LDT1	2.2520e-003	3.2367e-003
tblVehicleEF	LDT1	0.17	0.96
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.35	0.68
tblVehicleEF	LDT1	2.8440e-003	3.3170e-003
tblVehicleEF	LDT1	6.0900e-004	8.9273e-004
tblVehicleEF	LDT1	0.17	0.96
tblVehicleEF	LDT1	0.25	0.23

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tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.38	0.75
tblVehicleEF	LDT2	3.4390e-003	3.0533e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.83	0.90
tblVehicleEF	LDT2	2.58	3.45
tblVehicleEF	LDT2	308.59	346.22
tblVehicleEF	LDT2	65.18	86.80
tblVehicleEF	LDT2	6.1800e-003	6.2259e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.26	0.32
tblVehicleEF	LDT2	0.04	8.3555e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.4110e-003	1.3018e-003
tblVehicleEF	LDT2	1.7940e-003	2.0728e-003
tblVehicleEF	LDT2	0.02	2.9244e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2980e-003	1.1975e-003
tblVehicleEF	LDT2	1.6500e-003	1.9059e-003
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.0530e-003	3.4224e-003

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tblVehicleEF	LDT2	6.4500e-004	8.5810e-004
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.32	0.40
tblVehicleEF	LDT2	3.9290e-003	3.2451e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	1.01	1.21
tblVehicleEF	LDT2	2.14	2.89
tblVehicleEF	LDT2	331.10	370.27
tblVehicleEF	LDT2	64.32	85.74
tblVehicleEF	LDT2	5.7670e-003	5.5489e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.24	0.30
tblVehicleEF	LDT2	0.04	8.3555e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.4110e-003	1.3018e-003
tblVehicleEF	LDT2	1.7940e-003	2.0728e-003
tblVehicleEF	LDT2	0.02	2.9244e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2980e-003	1.1975e-003
tblVehicleEF	LDT2	1.6500e-003	1.9059e-003
tblVehicleEF	LDT2	0.19	0.44
tblVehicleEF	LDT2	0.16	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.01

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tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.25	0.31
tblVehicleEF	LDT2	3.2760e-003	3.6601e-003
tblVehicleEF	LDT2	6.3600e-004	8.4762e-004
tblVehicleEF	LDT2	0.19	0.44
tblVehicleEF	LDT2	0.16	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	3.3570e-003	3.0280e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.78	0.84
tblVehicleEF	LDT2	2.54	3.46
tblVehicleEF	LDT2	303.26	341.80
tblVehicleEF	LDT2	65.10	86.82
tblVehicleEF	LDT2	5.9260e-003	6.0680e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	0.04	8.3555e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.4110e-003	1.3018e-003
tblVehicleEF	LDT2	1.7940e-003	2.0728e-003
tblVehicleEF	LDT2	0.02	2.9244e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2980e-003	1.1975e-003
tblVehicleEF	LDT2	1.6500e-003	1.9059e-003
tblVehicleEF	LDT2	0.09	0.35

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tblVehicleEF	LDT2	0.15	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.0000e-003	3.3787e-003
tblVehicleEF	LDT2	6.4400e-004	8.5832e-004
tblVehicleEF	LDT2	0.09	0.35
tblVehicleEF	LDT2	0.15	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.03
tblVehicleEF	LDT2	0.32	0.40
tblVehicleEF	LHD1	4.6170e-003	5.1496e-003
tblVehicleEF	LHD1	5.3670e-003	3.3293e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.72	0.67
tblVehicleEF	LHD1	0.96	1.91
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.81	366.80
tblVehicleEF	LHD1	10.40	16.42
tblVehicleEF	LHD1	8.6200e-004	7.2706e-004
tblVehicleEF	LHD1	0.04	6.0124e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.26	0.11
tblVehicleEF	LHD1	0.28	0.41
tblVehicleEF	LHD1	9.7300e-004	7.8313e-004

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tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	9.9970e-003	4.7639e-003
tblVehicleEF	LHD1	0.01	7.0315e-004
tblVehicleEF	LHD1	2.4100e-004	2.3021e-004
tblVehicleEF	LHD1	9.3100e-004	7.4926e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.4990e-003	1.1910e-003
tblVehicleEF	LHD1	9.5440e-003	6.4652e-004
tblVehicleEF	LHD1	2.2100e-004	2.1167e-004
tblVehicleEF	LHD1	2.8470e-003	0.14
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.4060e-003	0.00
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.9000e-005	8.6798e-005
tblVehicleEF	LHD1	6.1580e-003	3.6262e-003
tblVehicleEF	LHD1	1.0300e-004	1.6236e-004
tblVehicleEF	LHD1	2.8470e-003	0.14
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.4060e-003	0.00
tblVehicleEF	LHD1	0.07	0.02
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.08	0.12
tblVehicleEF	LHD1	4.6320e-003	5.1681e-003
tblVehicleEF	LHD1	5.4860e-003	2.0248e-003
tblVehicleEF	LHD1	0.01	0.02

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tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.73	0.14
tblVehicleEF	LHD1	0.90	1.81
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.83	198.35
tblVehicleEF	LHD1	10.29	16.26
tblVehicleEF	LHD1	8.6400e-004	7.2947e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.18	0.66
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.7300e-004	7.8313e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	9.9970e-003	4.8833e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	2.4100e-004	2.3021e-004
tblVehicleEF	LHD1	9.3100e-004	7.4926e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.4990e-003	1.2208e-003
tblVehicleEF	LHD1	9.5440e-003	0.01
tblVehicleEF	LHD1	2.2100e-004	2.1167e-004
tblVehicleEF	LHD1	5.6090e-003	0.18
tblVehicleEF	LHD1	0.10	0.04
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.1720e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.10

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tblVehicleEF	LHD1	8.9000e-005	8.6798e-005
tblVehicleEF	LHD1	6.1580e-003	1.8794e-003
tblVehicleEF	LHD1	1.0200e-004	1.6070e-004
tblVehicleEF	LHD1	5.6090e-003	0.18
tblVehicleEF	LHD1	0.10	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.1720e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.6200e-003	5.1517e-003
tblVehicleEF	LHD1	5.3800e-003	2.0248e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.72	0.14
tblVehicleEF	LHD1	0.95	1.90
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.81	198.35
tblVehicleEF	LHD1	10.37	16.41
tblVehicleEF	LHD1	8.6300e-004	7.2774e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.24	0.69
tblVehicleEF	LHD1	0.28	0.40
tblVehicleEF	LHD1	9.7300e-004	7.8313e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	9.9970e-003	4.8833e-003
tblVehicleEF	LHD1	0.01	0.01

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tblVehicleEF	LHD1	2.4100e-004	2.3021e-004
tblVehicleEF	LHD1	9.3100e-004	7.4926e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.4990e-003	1.2208e-003
tblVehicleEF	LHD1	9.5440e-003	0.01
tblVehicleEF	LHD1	2.2100e-004	2.1167e-004
tblVehicleEF	LHD1	3.1080e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3850e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.9000e-005	8.6798e-005
tblVehicleEF	LHD1	6.1580e-003	1.8794e-003
tblVehicleEF	LHD1	1.0300e-004	1.6218e-004
tblVehicleEF	LHD1	3.1080e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3850e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	0.07	0.12
tblVehicleEF	LHD2	3.1180e-003	3.5197e-003
tblVehicleEF	LHD2	3.5830e-003	1.1547e-003
tblVehicleEF	LHD2	8.3140e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.27
tblVehicleEF	LHD2	0.56	1.20

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tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.46	247.54
tblVehicleEF	LHD2	7.43	10.55
tblVehicleEF	LHD2	1.8200e-003	1.6427e-003
tblVehicleEF	LHD2	0.06	3.3772e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.35	0.05
tblVehicleEF	LHD2	0.18	0.27
tblVehicleEF	LHD2	1.4280e-003	1.2805e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8536e-003
tblVehicleEF	LHD2	0.01	3.5384e-004
tblVehicleEF	LHD2	1.1500e-004	1.0730e-004
tblVehicleEF	LHD2	1.3660e-003	1.2251e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7000e-003	7.1341e-004
tblVehicleEF	LHD2	0.01	3.2535e-004
tblVehicleEF	LHD2	1.0600e-004	9.8656e-005
tblVehicleEF	LHD2	1.3970e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4400e-004	0.00
tblVehicleEF	LHD2	0.06	5.2733e-003
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	1.3700e-004	1.3193e-004
tblVehicleEF	LHD2	6.1090e-003	2.4472e-003
tblVehicleEF	LHD2	7.4000e-005	1.0429e-004

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tblVehicleEF	LHD2	1.3970e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4400e-004	0.00
tblVehicleEF	LHD2	0.07	7.6947e-003
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.1280e-003	3.5323e-003
tblVehicleEF	LHD2	3.6170e-003	2.9068e-003
tblVehicleEF	LHD2	7.9410e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.17
tblVehicleEF	LHD2	0.53	1.14
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.47	376.65
tblVehicleEF	LHD2	7.37	10.44
tblVehicleEF	LHD2	1.8210e-003	1.6443e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.27	0.81
tblVehicleEF	LHD2	0.17	0.26
tblVehicleEF	LHD2	1.4280e-003	1.2805e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.7461e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1500e-004	1.0730e-004
tblVehicleEF	LHD2	1.3660e-003	1.2251e-003
tblVehicleEF	LHD2	0.04	0.02

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tblVehicleEF	LHD2	2.7000e-003	1.9365e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	9.8656e-005
tblVehicleEF	LHD2	2.7020e-003	0.11
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6140e-003	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3700e-004	1.3193e-004
tblVehicleEF	LHD2	6.1090e-003	3.5690e-003
tblVehicleEF	LHD2	7.3000e-005	1.0325e-004
tblVehicleEF	LHD2	2.7020e-003	0.11
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6140e-003	0.00
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.1200e-003	3.5211e-003
tblVehicleEF	LHD2	3.5870e-003	2.9068e-003
tblVehicleEF	LHD2	8.2440e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.17
tblVehicleEF	LHD2	0.56	1.20
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.47	376.65
tblVehicleEF	LHD2	7.42	10.54

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tblVehicleEF	LHD2	1.8200e-003	1.6432e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.33	0.85
tblVehicleEF	LHD2	0.18	0.27
tblVehicleEF	LHD2	1.4280e-003	1.2805e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.7461e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1500e-004	1.0730e-004
tblVehicleEF	LHD2	1.3660e-003	1.2251e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7000e-003	1.9365e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	9.8656e-005
tblVehicleEF	LHD2	1.4360e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	1.3700e-004	1.3193e-004
tblVehicleEF	LHD2	6.1090e-003	3.5690e-003
tblVehicleEF	LHD2	7.3000e-005	1.0418e-004
tblVehicleEF	LHD2	1.4360e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02

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tblVehicleEF	LHD2	7.2400e-004	0.00
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.58
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	19.97	0.58
tblVehicleEF	MCY	8.82	7.71
tblVehicleEF	MCY	211.12	0.58
tblVehicleEF	MCY	60.91	48.91
tblVehicleEF	MCY	0.07	0.58
tblVehicleEF	MCY	0.02	8.1994e-003
tblVehicleEF	MCY	1.16	0.58
tblVehicleEF	MCY	0.27	0.14
tblVehicleEF	MCY	0.01	0.58
tblVehicleEF	MCY	4.0000e-003	0.58
tblVehicleEF	MCY	1.8990e-003	0.58
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.58
tblVehicleEF	MCY	1.0000e-003	0.58
tblVehicleEF	MCY	1.7750e-003	0.58
tblVehicleEF	MCY	2.6600e-003	3.0802e-003
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.21	0.58
tblVehicleEF	MCY	0.41	0.58
tblVehicleEF	MCY	1.88	1.31
tblVehicleEF	MCY	2.0890e-003	0.58

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tblVehicleEF	MCY	6.0300e-004	4.8357e-004
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.73	0.58
tblVehicleEF	MCY	0.41	0.58
tblVehicleEF	MCY	2.05	1.42
tblVehicleEF	MCY	0.32	0.51
tblVehicleEF	MCY	0.22	0.16
tblVehicleEF	MCY	20.11	0.51
tblVehicleEF	MCY	7.97	6.98
tblVehicleEF	MCY	211.15	0.51
tblVehicleEF	MCY	58.66	47.22
tblVehicleEF	MCY	0.06	0.51
tblVehicleEF	MCY	0.01	8.0425e-003
tblVehicleEF	MCY	0.98	0.51
tblVehicleEF	MCY	0.25	0.13
tblVehicleEF	MCY	0.01	0.51
tblVehicleEF	MCY	4.0000e-003	0.51
tblVehicleEF	MCY	1.8990e-003	0.51
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.51
tblVehicleEF	MCY	1.0000e-003	0.51
tblVehicleEF	MCY	1.7750e-003	0.51
tblVehicleEF	MCY	2.6600e-003	3.0802e-003
tblVehicleEF	MCY	3.14	3.79
tblVehicleEF	MCY	1.27	3.76
tblVehicleEF	MCY	2.10	0.00
tblVehicleEF	MCY	2.16	0.51

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tblVehicleEF	MCY	0.41	0.51
tblVehicleEF	MCY	1.62	1.15
tblVehicleEF	MCY	2.0890e-003	0.51
tblVehicleEF	MCY	5.8000e-004	4.6685e-004
tblVehicleEF	MCY	3.14	3.79
tblVehicleEF	MCY	1.27	3.76
tblVehicleEF	MCY	2.10	0.00
tblVehicleEF	MCY	2.66	0.51
tblVehicleEF	MCY	0.41	0.51
tblVehicleEF	MCY	1.76	1.25
tblVehicleEF	MCY	0.32	0.57
tblVehicleEF	MCY	0.24	0.18
tblVehicleEF	MCY	19.09	0.57
tblVehicleEF	MCY	8.48	7.60
tblVehicleEF	MCY	209.60	0.57
tblVehicleEF	MCY	60.13	48.67
tblVehicleEF	MCY	0.07	0.57
tblVehicleEF	MCY	0.02	8.2054e-003
tblVehicleEF	MCY	1.12	0.57
tblVehicleEF	MCY	0.26	0.14
tblVehicleEF	MCY	0.01	0.57
tblVehicleEF	MCY	4.0000e-003	0.57
tblVehicleEF	MCY	1.8990e-003	0.57
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.57
tblVehicleEF	MCY	1.0000e-003	0.57
tblVehicleEF	MCY	1.7750e-003	0.57
tblVehicleEF	MCY	2.6600e-003	3.0802e-003
tblVehicleEF	MCY	1.70	2.59

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tblVehicleEF	MCY	1.10	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.18	0.57
tblVehicleEF	MCY	0.47	0.57
tblVehicleEF	MCY	1.81	1.29
tblVehicleEF	MCY	2.0740e-003	0.57
tblVehicleEF	MCY	5.9500e-004	4.8113e-004
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.10	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.68	0.57
tblVehicleEF	MCY	0.47	0.57
tblVehicleEF	MCY	1.97	1.40
tblVehicleEF	MDV	4.3590e-003	4.4096e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.93	1.10
tblVehicleEF	MDV	2.97	3.91
tblVehicleEF	MDV	385.79	424.26
tblVehicleEF	MDV	81.00	106.70
tblVehicleEF	MDV	8.5970e-003	9.1892e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.32	0.45
tblVehicleEF	MDV	0.04	8.6194e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4890e-003	1.4366e-003
tblVehicleEF	MDV	1.8380e-003	2.2018e-003
tblVehicleEF	MDV	0.02	3.0168e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003

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tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0246e-003
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MDV	3.8140e-003	4.1919e-003
tblVehicleEF	MDV	8.0200e-004	1.0549e-003
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.41	0.57
tblVehicleEF	MDV	4.9900e-003	4.6896e-003
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	1.14	1.47
tblVehicleEF	MDV	2.45	3.28
tblVehicleEF	MDV	409.60	449.20
tblVehicleEF	MDV	79.98	105.44
tblVehicleEF	MDV	8.0890e-003	8.2695e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.30	0.42
tblVehicleEF	MDV	0.04	8.6194e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4890e-003	1.4366e-003

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tblVehicleEF	MDV	1.8380e-003	2.2018e-003
tblVehicleEF	MDV	0.02	3.0168e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0246e-003
tblVehicleEF	MDV	0.22	0.58
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	4.0490e-003	4.4385e-003
tblVehicleEF	MDV	7.9200e-004	1.0424e-003
tblVehicleEF	MDV	0.22	0.58
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MDV	4.2510e-003	4.3705e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.88	1.03
tblVehicleEF	MDV	2.92	3.93
tblVehicleEF	MDV	380.15	419.67
tblVehicleEF	MDV	80.92	106.73
tblVehicleEF	MDV	8.2840e-003	8.9755e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.32	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.04	8.6194e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4890e-003	1.4366e-003
tblVehicleEF	MDV	1.8380e-003	2.2018e-003
tblVehicleEF	MDV	0.02	3.0168e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0246e-003
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MDV	3.7580e-003	4.1466e-003
tblVehicleEF	MDV	8.0100e-004	1.0552e-003
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.41	0.58
tblVehicleEF	MH	9.5080e-003	5.8541e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.14	2.8706e-003
tblVehicleEF	MH	2.03	2.33
tblVehicleEF	MH	1,457.66	5.3866e-003
tblVehicleEF	MH	18.29	22.42
tblVehicleEF	MH	0.06	1.3655e-006

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tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.51	1.38
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.9698e-011
tblVehicleEF	MH	0.04	3.3082e-009
tblVehicleEF	MH	2.4000e-004	2.7295e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.4653e-004
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	2.2100e-004	2.5097e-004
tblVehicleEF	MH	1.05	35.26
tblVehicleEF	MH	0.06	8.42
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.06	6.2571e-008
tblVehicleEF	MH	0.02	2.1459e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	4.9964e-005
tblVehicleEF	MH	1.8100e-004	2.2164e-004
tblVehicleEF	MH	1.05	35.26
tblVehicleEF	MH	0.06	8.42
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.08	6.3083e-003
tblVehicleEF	MH	0.02	2.1459e-003
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MH	9.7710e-003	6.0057e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.18	3.0778e-003
tblVehicleEF	MH	1.86	2.17

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	1,457.73	5.3868e-003
tblVehicleEF	MH	18.00	22.14
tblVehicleEF	MH	0.06	1.2720e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.39	1.28
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.9698e-011
tblVehicleEF	MH	0.04	3.3082e-009
tblVehicleEF	MH	2.4000e-004	2.7295e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.1530e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.2100e-004	2.5097e-004
tblVehicleEF	MH	2.08	46.19
tblVehicleEF	MH	0.08	9.14
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.06	6.0134e-008
tblVehicleEF	MH	0.02	2.2364e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	5.3573e-005
tblVehicleEF	MH	1.7800e-004	2.1891e-004
tblVehicleEF	MH	2.08	46.19
tblVehicleEF	MH	0.08	9.14
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.08	7.0688e-003
tblVehicleEF	MH	0.02	2.2364e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	9.5320e-003	5.8587e-005

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tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.14	2.9519e-003
tblVehicleEF	MH	2.01	2.34
tblVehicleEF	MH	1,457.67	5.3866e-003
tblVehicleEF	MH	18.26	22.43
tblVehicleEF	MH	0.06	1.3361e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.48	1.36
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.9698e-011
tblVehicleEF	MH	0.04	3.3082e-009
tblVehicleEF	MH	2.4000e-004	2.7295e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.3760e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.2100e-004	2.5097e-004
tblVehicleEF	MH	1.21	35.35
tblVehicleEF	MH	0.08	8.37
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.06	6.1280e-008
tblVehicleEF	MH	0.02	2.2048e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	5.1379e-005
tblVehicleEF	MH	1.8100e-004	2.2172e-004
tblVehicleEF	MH	1.21	35.35
tblVehicleEF	MH	0.08	8.37
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.08	6.2758e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.02	2.2048e-003
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	3.0880e-003	0.02
tblVehicleEF	MHD	1.2060e-003	7.7322e-003
tblVehicleEF	MHD	7.8410e-003	6.3743e-003
tblVehicleEF	MHD	0.34	0.64
tblVehicleEF	MHD	0.16	0.23
tblVehicleEF	MHD	0.86	0.73
tblVehicleEF	MHD	64.48	160.75
tblVehicleEF	MHD	956.24	1,134.10
tblVehicleEF	MHD	7.77	6.25
tblVehicleEF	MHD	9.3540e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.2780e-003	4.4797e-003
tblVehicleEF	MHD	0.35	0.84
tblVehicleEF	MHD	1.01	0.73
tblVehicleEF	MHD	1.76	1.48
tblVehicleEF	MHD	2.8300e-004	1.4029e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.5800e-003	9.1062e-003
tblVehicleEF	MHD	9.0000e-005	6.9860e-005
tblVehicleEF	MHD	2.7100e-004	1.3416e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4234e-005
tblVehicleEF	MHD	4.8600e-004	0.02
tblVehicleEF	MHD	0.02	4.8252e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.5600e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1200e-004	1.4786e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.7000e-005	6.1764e-005
tblVehicleEF	MHD	4.8600e-004	0.02
tblVehicleEF	MHD	0.02	4.8252e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.5600e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	2.9410e-003	0.02
tblVehicleEF	MHD	1.2330e-003	7.7618e-003
tblVehicleEF	MHD	7.4810e-003	6.1230e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.17	0.23
tblVehicleEF	MHD	0.80	0.69
tblVehicleEF	MHD	64.29	159.41
tblVehicleEF	MHD	956.24	1,134.11
tblVehicleEF	MHD	7.68	6.18
tblVehicleEF	MHD	9.2940e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1480e-003	4.4067e-003
tblVehicleEF	MHD	0.34	0.81
tblVehicleEF	MHD	0.95	0.69

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tblVehicleEF	MHD	1.75	1.48
tblVehicleEF	MHD	2.4200e-004	1.1931e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.5800e-003	9.1062e-003
tblVehicleEF	MHD	9.0000e-005	6.9860e-005
tblVehicleEF	MHD	2.3100e-004	1.1409e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4234e-005
tblVehicleEF	MHD	9.5400e-004	0.03
tblVehicleEF	MHD	0.02	5.2312e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	5.7800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1000e-004	1.4660e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.6000e-005	6.1075e-005
tblVehicleEF	MHD	9.5400e-004	0.03
tblVehicleEF	MHD	0.02	5.2312e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	5.7800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	3.3060e-003	0.02

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tblVehicleEF	MHD	1.2080e-003	7.7326e-003
tblVehicleEF	MHD	7.7490e-003	6.3293e-003
tblVehicleEF	MHD	0.40	0.70
tblVehicleEF	MHD	0.16	0.23
tblVehicleEF	MHD	0.85	0.72
tblVehicleEF	MHD	64.74	162.59
tblVehicleEF	MHD	956.24	1,134.10
tblVehicleEF	MHD	7.75	6.24
tblVehicleEF	MHD	9.4410e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.2350e-003	4.4612e-003
tblVehicleEF	MHD	0.37	0.88
tblVehicleEF	MHD	0.99	0.72
tblVehicleEF	MHD	1.76	1.48
tblVehicleEF	MHD	3.4100e-004	1.6926e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.5800e-003	9.1062e-003
tblVehicleEF	MHD	9.0000e-005	6.9860e-005
tblVehicleEF	MHD	3.2600e-004	1.6187e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4234e-005
tblVehicleEF	MHD	5.1400e-004	0.02
tblVehicleEF	MHD	0.02	4.7948e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.5000e-004	0.00
tblVehicleEF	MHD	0.01	0.02

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tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1400e-004	1.4959e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.7000e-005	6.1668e-005
tblVehicleEF	MHD	5.1400e-004	0.02
tblVehicleEF	MHD	0.02	4.7948e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.5000e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	OBUS	9.0290e-003	0.02
tblVehicleEF	OBUS	6.3900e-003	0.04
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.50	0.52
tblVehicleEF	OBUS	0.76	0.91
tblVehicleEF	OBUS	2.60	2.72
tblVehicleEF	OBUS	64.96	72.64
tblVehicleEF	OBUS	1,426.10	1,461.31
tblVehicleEF	OBUS	21.19	22.62
tblVehicleEF	OBUS	8.0550e-003	9.6583e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.23	0.27
tblVehicleEF	OBUS	0.90	1.09
tblVehicleEF	OBUS	0.66	0.69
tblVehicleEF	OBUS	7.7000e-005	5.7741e-004
tblVehicleEF	OBUS	0.13	0.05

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4090e-004
tblVehicleEF	OBUS	7.4000e-005	5.5195e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2150e-004
tblVehicleEF	OBUS	2.7750e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1530e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.2000e-004	6.5581e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.1000e-004	2.2365e-004
tblVehicleEF	OBUS	2.7750e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1530e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	OBUS	9.1020e-003	0.02
tblVehicleEF	OBUS	6.5800e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.49	0.51

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tblVehicleEF	OBUS	0.79	0.93
tblVehicleEF	OBUS	2.38	2.53
tblVehicleEF	OBUS	64.29	72.07
tblVehicleEF	OBUS	1,426.14	1,461.34
tblVehicleEF	OBUS	20.83	22.30
tblVehicleEF	OBUS	7.9570e-003	9.5732e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.22	0.26
tblVehicleEF	OBUS	0.82	1.01
tblVehicleEF	OBUS	0.65	0.67
tblVehicleEF	OBUS	6.8000e-005	4.9265e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4090e-004
tblVehicleEF	OBUS	6.6000e-005	4.7086e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2150e-004
tblVehicleEF	OBUS	5.3940e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.6310e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.1400e-004	6.5040e-004

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0600e-004	2.2048e-004
tblVehicleEF	OBUS	5.3940e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	2.6310e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	8.9680e-003	0.02
tblVehicleEF	OBUS	6.4110e-003	0.04
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.50	0.53
tblVehicleEF	OBUS	0.77	0.92
tblVehicleEF	OBUS	2.58	2.72
tblVehicleEF	OBUS	65.88	73.43
tblVehicleEF	OBUS	1,426.10	1,461.31
tblVehicleEF	OBUS	21.16	22.63
tblVehicleEF	OBUS	8.2020e-003	9.7839e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.25	0.29
tblVehicleEF	OBUS	0.88	1.07
tblVehicleEF	OBUS	0.66	0.68
tblVehicleEF	OBUS	8.9000e-005	6.9446e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4090e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	8.5000e-005	6.6393e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2150e-004
tblVehicleEF	OBUS	2.9560e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1590e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.2900e-004	6.6329e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0900e-004	2.2375e-004
tblVehicleEF	OBUS	2.9560e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	1.1590e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	SBUS	0.04	0.51
tblVehicleEF	SBUS	5.9790e-003	1.34
tblVehicleEF	SBUS	4.3250e-003	6.8405e-003
tblVehicleEF	SBUS	2.05	2.91
tblVehicleEF	SBUS	0.51	5.05
tblVehicleEF	SBUS	0.57	0.89
tblVehicleEF	SBUS	333.61	269.17

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	1,098.25	1,227.15
tblVehicleEF	SBUS	3.39	5.44
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.15	0.17
tblVehicleEF	SBUS	3.6030e-003	5.8741e-003
tblVehicleEF	SBUS	3.15	1.14
tblVehicleEF	SBUS	4.52	2.37
tblVehicleEF	SBUS	1.06	0.18
tblVehicleEF	SBUS	3.2820e-003	1.6755e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.2906e-005
tblVehicleEF	SBUS	3.1400e-003	1.5852e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5589e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.8645e-005
tblVehicleEF	SBUS	7.2900e-004	0.06
tblVehicleEF	SBUS	5.5220e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	9.4790e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	3.1720e-003	1.2751e-003
tblVehicleEF	SBUS	0.01	6.8397e-003
tblVehicleEF	SBUS	3.4000e-005	5.3821e-005
tblVehicleEF	SBUS	7.2900e-004	0.06

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	5.5220e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	9.4790e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.51
tblVehicleEF	SBUS	6.0530e-003	1.34
tblVehicleEF	SBUS	3.5770e-003	5.7298e-003
tblVehicleEF	SBUS	2.01	2.90
tblVehicleEF	SBUS	0.52	5.06
tblVehicleEF	SBUS	0.40	0.64
tblVehicleEF	SBUS	340.36	271.88
tblVehicleEF	SBUS	1,098.26	1,227.18
tblVehicleEF	SBUS	3.11	5.03
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.4720e-003	5.6666e-003
tblVehicleEF	SBUS	3.21	1.17
tblVehicleEF	SBUS	4.23	2.22
tblVehicleEF	SBUS	1.06	0.17
tblVehicleEF	SBUS	2.7750e-003	1.4889e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.2906e-005
tblVehicleEF	SBUS	2.6550e-003	1.4066e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5589e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.8645e-005
tblVehicleEF	SBUS	1.3160e-003	0.08
tblVehicleEF	SBUS	5.7640e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	7.0300e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	8.6820e-003	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.2360e-003	1.3008e-003
tblVehicleEF	SBUS	0.01	6.8400e-003
tblVehicleEF	SBUS	3.1000e-005	4.9768e-005
tblVehicleEF	SBUS	1.3160e-003	0.08
tblVehicleEF	SBUS	5.7640e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	7.0300e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	8.6820e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.04	0.51
tblVehicleEF	SBUS	5.9750e-003	1.34
tblVehicleEF	SBUS	4.4250e-003	7.0471e-003
tblVehicleEF	SBUS	2.09	2.92
tblVehicleEF	SBUS	0.51	5.05
tblVehicleEF	SBUS	0.59	0.93
tblVehicleEF	SBUS	324.30	265.43
tblVehicleEF	SBUS	1,098.25	1,227.15
tblVehicleEF	SBUS	3.42	5.51
tblVehicleEF	SBUS	0.05	0.04

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.6360e-003	5.9461e-003
tblVehicleEF	SBUS	3.08	1.11
tblVehicleEF	SBUS	4.45	2.33
tblVehicleEF	SBUS	1.07	0.18
tblVehicleEF	SBUS	3.9810e-003	1.9332e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.2906e-005
tblVehicleEF	SBUS	3.8090e-003	1.8317e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5589e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.8645e-005
tblVehicleEF	SBUS	6.8400e-004	0.06
tblVehicleEF	SBUS	5.6560e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0840e-003	1.2397e-003
tblVehicleEF	SBUS	0.01	6.8398e-003
tblVehicleEF	SBUS	3.4000e-005	5.4489e-005
tblVehicleEF	SBUS	6.8400e-004	0.06
tblVehicleEF	SBUS	5.6560e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	3.6500e-004	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8121e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.42	1.09
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	16.41	7.58
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7176e-003
tblVehicleEF	UBUS	2.1400e-004	3.9572e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5810e-003	1.6377e-003
tblVehicleEF	UBUS	1.9700e-004	3.6385e-005
tblVehicleEF	UBUS	1.0010e-003	0.02
tblVehicleEF	UBUS	6.9600e-003	4.9384e-003
tblVehicleEF	UBUS	5.6300e-004	0.00
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	7.9300e-004	5.0875e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6349e-004
tblVehicleEF	UBUS	1.6200e-004	7.4957e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.0010e-003	0.02
tblVehicleEF	UBUS	6.9600e-003	4.9384e-003
tblVehicleEF	UBUS	5.6300e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	7.9300e-004	5.0875e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.01	7.1308e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.16	0.93
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	15.99	7.32
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.35	0.38
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7176e-003
tblVehicleEF	UBUS	2.1400e-004	3.9572e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5810e-003	1.6377e-003
tblVehicleEF	UBUS	1.9700e-004	3.6385e-005
tblVehicleEF	UBUS	1.9290e-003	0.03
tblVehicleEF	UBUS	9.1640e-003	5.3960e-003
tblVehicleEF	UBUS	1.3450e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	7.7900e-004	5.3161e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6352e-004
tblVehicleEF	UBUS	1.5800e-004	7.2360e-005
tblVehicleEF	UBUS	1.9290e-003	0.03
tblVehicleEF	UBUS	9.1640e-003	5.3960e-003
tblVehicleEF	UBUS	1.3450e-003	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	7.7900e-004	5.3161e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8697e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.38	1.10
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	16.36	7.61
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7176e-003
tblVehicleEF	UBUS	2.1400e-004	3.9572e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5810e-003	1.6377e-003
tblVehicleEF	UBUS	1.9700e-004	3.6385e-005
tblVehicleEF	UBUS	1.0890e-003	0.02
tblVehicleEF	UBUS	8.1120e-003	4.9030e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	5.5900e-004	0.00
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	9.1300e-004	5.2797e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6349e-004
tblVehicleEF	UBUS	1.6200e-004	7.5217e-005
tblVehicleEF	UBUS	1.0890e-003	0.02
tblVehicleEF	UBUS	8.1120e-003	4.9030e-003
tblVehicleEF	UBUS	5.5900e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	9.1300e-004	5.2797e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	CNW_TL	6.90	33.60
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CNW_TTP	41.00	100.00
tblVehicleTrips	CNW_TTP	41.00	100.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	0.00	39.64

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	2.12	0.59
tblVehicleTrips	ST_TR	1.74	0.59
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	0.00	39.64
tblVehicleTrips	SU_TR	2.12	0.59
tblVehicleTrips	SU_TR	1.74	0.59
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	0.00	39.64
tblVehicleTrips	WD_TR	2.12	0.59
tblVehicleTrips	WD_TR	1.74	0.59

2.0 Emissions Summary

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2924	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867
Energy	0.0680	0.6183	0.5194	3.7100e-003		0.0470	0.0470		0.0470	0.0470	0.0000	2,748.7566	2,748.7566	0.0129	0.0123	2,752.7568
Mobile	1.4260	90.2632	45.6430	0.7421	20.8342	1.1528	21.9870	5.5647	1.1025	6.6673	0.0000	74,556.3356	74,556.3356	5.8602	11.3359	78,080.9518
Waste						0.0000	0.0000		0.0000	0.0000	600.6442	0.0000	600.6442	35.4971	0.0000	1,488.0705
Water						0.0000	0.0000		0.0000	0.0000	230.1311	1,487.5484	1,717.6795	23.6367	0.5581	2,474.9140
Total	**14.7864**	**90.8819**	**46.2042**	**0.7458**	**20.8342**	**1.2000**	**22.0341**	**5.5647**	**1.1497**	**6.7144**	**830.7753**	**78,792.7220**	**79,623.4973**	**65.0071**	**11.9064**	**84,796.7798**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2901	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Energy	0.0558	0.5075	0.4263	3.0400e-003		0.0386	0.0386		0.0386	0.0386	0.0000	2,292.8253	2,292.8253	0.0106	0.0101	2,296.1084
Mobile	1.4260	90.2632	45.6430	0.7421	20.8342	1.1528	21.9870	5.5647	1.1025	6.6673	0.0000	74,556.3356	74,556.3356	5.8602	11.3359	78,080.9518
Waste						0.0000	0.0000		0.0000	0.0000	150.1610	0.0000	150.1610	8.8743	0.0000	372.0176
Water						0.0000	0.0000		0.0000	0.0000	184.1049	1,191.3550	1,375.4599	18.9093	0.4465	1,981.2475
Total	**14.7720**	**90.7709**	**46.0935**	**0.7451**	**20.8342**	**1.1914**	**22.0256**	**5.5647**	**1.1412**	**6.7059**	**334.2659**	**78,040.5598**	**78,374.8257**	**33.6545**	**11.7926**	**82,730.3714**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.10**	**0.12**	**0.24**	**0.09**	**0.00**	**0.71**	**0.04**	**0.00**	**0.74**	**0.13**	**59.76**	**0.95**	**1.57**	**48.23**	**0.96**	**2.44**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	12/30/2022	5	0	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 132.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	20,768.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

Speedway Commerce Center (Phase 1a Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Employee Vanpool/Shuttle

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4260	90.2632	45.6430	0.7421	20.8342	1.1528	21.9870	5.5647	1.1025	6.6673	0.0000	74,556.3356	74,556.3356	5.8602	11.3359	78,080.9518
Unmitigated	1.4260	90.2632	45.6430	0.7421	20.8342	1.1528	21.9870	5.5647	1.1025	6.6673	0.0000	74,556.3356	74,556.3356	5.8602	11.3359	78,080.9518

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Other Asphalt Surfaces	2,836.24	2,836.24	2836.24	34,688,374	34,688,374
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	73.75	73.75	73.75	891,254	891,254
Unrefrigerated Warehouse-Rail	1,754.29	1,754.29	1754.29	21,200,223	21,200,223
Total	4,664.28	4,664.28	4,664.28	56,779,851	56,779,851

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	16.60	8.40	33.60	0.00	0.00	100.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-Rail	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.000000	0.118984	0.243984	0.637032	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Refrigerated Warehouse-Rail	0.000000	0.000000	0.000000	0.000000	0.000000	0.118984	0.243984	0.637032	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.000000	0.000000	0.000000	0.000000	0.000000	0.118984	0.243984	0.637032	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Speedway Commerce Center (Phase 1a Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,740.3617	1,740.3617	0.0000	0.0000	1,740.3617
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,075.6136	2,075.6136	0.0000	0.0000	2,075.6136
NaturalGas Mitigated	0.0558	0.5075	0.4263	3.0400e-003		0.0386	0.0386		0.0386	0.0386	0.0000	552.4637	552.4637	0.0106	0.0101	555.7467
NaturalGas Unmitigated	0.0680	0.6183	0.5194	3.7100e-003		0.0470	0.0470		0.0470	0.0470	0.0000	673.1430	673.1430	0.0129	0.0123	677.1432

Speedway Commerce Center (Phase 1a Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	171500	9.2000e-004	8.4100e-003	7.0600e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1519	9.1519	1.8000e-004	1.7000e-004	9.2063
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.46625e+006	0.0349	0.3170	0.2663	1.9000e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.0637	345.0637	6.6100e-003	6.3300e-003	347.1143
Unrefrigerated Warehouse-Rail	5.97647e+006	0.0322	0.2930	0.2461	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	318.9274	318.9274	6.1100e-003	5.8500e-003	320.8226
Total		**0.0680**	**0.6183**	**0.5194**	**3.7100e-003**		**0.0470**	**0.0470**		**0.0470**	**0.0470**	**0.0000**	**673.1430**	**673.1430**	**0.0129**	**0.0124**	**677.1432**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	111475	6.0000e-004	5.4600e-003	4.5900e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	5.9487	5.9487	1.1000e-004	1.1000e-004	5.9841
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.32538e+006	0.0341	0.3101	0.2605	1.8600e-003		0.0236	0.0236		0.0236	0.0236	0.0000	337.5461	337.5461	6.4700e-003	6.1900e-003	339.5520
Unrefrigerated Warehouse-Rail	3.91593e+006	0.0211	0.1920	0.1612	1.1500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	208.9689	208.9689	4.0100e-003	3.8300e-003	210.2106
Total		**0.0558**	**0.5075**	**0.4263**	**3.0400e-003**		**0.0386**	**0.0386**		**0.0386**	**0.0386**	**0.0000**	**552.4637**	**552.4637**	**0.0106**	**0.0101**	**555.7467**

Speedway Commerce Center (Phase 1a Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	459500	71.9069	0.0000	0.0000	71.9069
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	925890	144.8919	0.0000	0.0000	144.8919
Refrigerated Warehouse-Rail	4.98e +006	779.3171	0.0000	0.0000	779.3171
Unrefrigerated Warehouse-Rail	6.89822e +006	1,079.4978	0.0000	0.0000	1,079.4978
Total		**2,075.6136**	**0.0000**	**0.0000**	**2,075.6136**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	347500	54.3801	0.0000	0.0000	54.3801
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	601828	94.1797	0.0000	0.0000	94.1797
Refrigerated Warehouse-Rail	4.83475e+006	756.5870	0.0000	0.0000	756.5870
Unrefrigerated Warehouse-Rail	5.3372e+006	835.2149	0.0000	0.0000	835.2149
Total		**1,740.3617**	**0.0000**	**0.0000**	**1,740.3617**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	13.2901	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Unmitigated	13.2924	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.7491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8600e-003	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867
Total	**13.2924**	**3.8000e-004**	**0.0418**	**0.0000**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0814**	**0.0814**	**2.1000e-004**	**0.0000**	**0.0867**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.7491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6400e-003	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Total	**13.2901**	**2.1000e-004**	**0.0242**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0439**	**0.0439**	**9.0000e-005**	**0.0000**	**0.0461**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,375.4599	18.9093	0.4465	1,981.2475
Unmitigated	1,717.6795	23.6367	0.5581	2,474.9140

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	8.88669 / 5.44668	30.3969	0.2896	6.8400e-003	39.6737
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	28.9063 / 0	68.0714	0.9419	0.0222	98.2468
Unrefrigerated Warehouse-Rail	687.592 / 0	1,619.2113	22.4052	0.5290	2,336.9935
Total		**1,717.6795**	**23.6367**	**0.5581**	**2,474.9140**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	7.10935 / 5.11443	25.6338	0.2317	5.4700e-003	33.0553
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	23.125 / 0	54.4571	0.7535	0.0178	78.5975
Unrefrigerated Warehouse-Rail	550.073 / 0	1,295.3690	17.9242	0.4232	1,869.5948
Total		**1,375.4599**	**18.9093**	**0.4465**	**1,981.2475**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	150.1610	8.8743	0.0000	372.0176
Unmitigated	600.6442	35.4971	0.0000	1,488.0705

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	46.5	9.4391	0.5578	0.0000	23.3849
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	117.5	23.8514	1.4096	0.0000	59.0909
Unrefrigerated Warehouse-Rail	2794.97	567.3537	33.5296	0.0000	1,405.5947
Total		**600.6442**	**35.4971**	**0.0000**	**1,488.0705**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	11.625	2.3598	0.1395	0.0000	5.8462
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	29.375	5.9629	0.3524	0.0000	14.7727
Unrefrigerated Warehouse-Rail	698.742	141.8384	8.3824	0.0000	351.3987
Total		**150.1610**	**8.8743**	**0.0000**	**372.0176**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

Speedway Commerce Center (Phase 1a Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Speedway Commerce Center (Phase 1a Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 1a Vans) (*Mobile Source/Truck Operations Only)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	50.00	1000sqft	1.15	50,000.00	0
Refrigerated Warehouse-Rail	125.00	1000sqft	2.87	125,000.00	0
Unrefrigerated Warehouse-Rail	2,973.37	1000sqft	68.26	2,973,370.00	0
Other Asphalt Surfaces	71.55	Acre	71.55	3,116,718.00	0
Parking Lot	60.73	Acre	60.73	2,645,398.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	345	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 factor per RPS

Land Use -

Construction Phase - operations only

Off-road Equipment - Anticipated equipment

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

Speedway Commerce Center (Phase 1a Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating - Mitigation requires low VOC (10 gr/L)

Vehicle Trips - Phase 1a Vans run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products -

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase 1a vans run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	0.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.1040e-003	1.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MH	4.8300e-003	0.00

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tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5100e-004	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	345
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	0.00	3.5573e-008
tblVehicleEF	HHD	8.65	5.33
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.1330e-003	1.3424e-003
tblVehicleEF	HHD	1,402.40	830.08
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.2094e-005
tblVehicleEF	HHD	7.09	4.03
tblVehicleEF	HHD	2.16	1.75
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	2.9710e-003	2.1769e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.1491e-006
tblVehicleEF	HHD	2.8430e-003	2.0784e-003

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tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8039e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0565e-006
tblVehicleEF	HHD	2.0000e-006	2.9585e-004
tblVehicleEF	HHD	7.3000e-005	7.3658e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-005	7.7386e-005
tblVehicleEF	HHD	1.0000e-006	1.8327e-007
tblVehicleEF	HHD	0.01	7.0812e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	2.5394e-007
tblVehicleEF	HHD	2.0000e-006	2.9585e-004
tblVehicleEF	HHD	7.3000e-005	7.3658e-005
tblVehicleEF	HHD	0.67	0.58
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.0000e-005	7.7386e-005
tblVehicleEF	HHD	1.0000e-006	2.0066e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	0.00	3.3939e-008
tblVehicleEF	HHD	8.54	5.26
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.0000e-003	1.2674e-003
tblVehicleEF	HHD	1,384.98	821.66
tblVehicleEF	HHD	1,288.58	1,556.23

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.1975e-005
tblVehicleEF	HHD	6.75	3.86
tblVehicleEF	HHD	2.04	1.65
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	2.6190e-003	1.9139e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.1491e-006
tblVehicleEF	HHD	2.5050e-003	1.8268e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8039e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.0565e-006
tblVehicleEF	HHD	5.0000e-006	4.5479e-004
tblVehicleEF	HHD	8.6000e-005	8.1474e-005
tblVehicleEF	HHD	0.62	0.34
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.1000e-005	8.2869e-005
tblVehicleEF	HHD	1.0000e-006	1.7537e-007
tblVehicleEF	HHD	0.01	7.0015e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	2.5277e-007
tblVehicleEF	HHD	5.0000e-006	4.5479e-004
tblVehicleEF	HHD	8.6000e-005	8.1474e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.71	0.60
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.1000e-005	8.2869e-005
tblVehicleEF	HHD	1.0000e-006	1.9201e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.06	0.15
tblVehicleEF	HHD	0.00	3.5370e-008
tblVehicleEF	HHD	8.82	5.42
tblVehicleEF	HHD	0.33	0.83
tblVehicleEF	HHD	2.1040e-003	1.3319e-003
tblVehicleEF	HHD	1,426.46	841.71
tblVehicleEF	HHD	1,288.58	1,556.23
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	0.22	0.14
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	6.0000e-006	1.2058e-005
tblVehicleEF	HHD	7.56	4.27
tblVehicleEF	HHD	2.13	1.72
tblVehicleEF	HHD	2.33	2.63
tblVehicleEF	HHD	3.4590e-003	2.5400e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.00	1.1491e-006
tblVehicleEF	HHD	3.3090e-003	2.4258e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9150e-003	8.8039e-003
tblVehicleEF	HHD	0.02	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.00	1.0565e-006
tblVehicleEF	HHD	3.0000e-006	3.0380e-004
tblVehicleEF	HHD	8.6000e-005	7.2926e-005
tblVehicleEF	HHD	0.54	0.30
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.2000e-005	8.1228e-005
tblVehicleEF	HHD	1.0000e-006	1.8225e-007
tblVehicleEF	HHD	0.01	7.1914e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	2.5378e-007
tblVehicleEF	HHD	3.0000e-006	3.0380e-004
tblVehicleEF	HHD	8.6000e-005	7.2926e-005
tblVehicleEF	HHD	0.61	0.56
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.17
tblVehicleEF	HHD	3.2000e-005	8.1228e-005
tblVehicleEF	HHD	1.0000e-006	1.9955e-007
tblVehicleEF	LDA	1.9200e-003	2.1619e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.57	0.71
tblVehicleEF	LDA	2.02	2.77
tblVehicleEF	LDA	246.40	267.38
tblVehicleEF	LDA	50.59	66.67
tblVehicleEF	LDA	4.1400e-003	4.2907e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1532e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.3330e-003	1.2369e-003
tblVehicleEF	LDA	1.7020e-003	2.0056e-003
tblVehicleEF	LDA	0.02	2.5036e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.2270e-003	1.1382e-003
tblVehicleEF	LDA	1.5650e-003	1.8441e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.0520e-003	7.9892e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.19	0.28
tblVehicleEF	LDA	2.4380e-003	2.6432e-003
tblVehicleEF	LDA	5.0100e-004	6.5906e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.21	0.31
tblVehicleEF	LDA	2.2030e-003	2.2988e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.70	0.95
tblVehicleEF	LDA	1.68	2.32
tblVehicleEF	LDA	269.03	290.04
tblVehicleEF	LDA	49.95	65.83
tblVehicleEF	LDA	3.8800e-003	3.8164e-003
tblVehicleEF	LDA	0.02	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	7.1532e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.3330e-003	1.2369e-003
tblVehicleEF	LDA	1.7020e-003	2.0056e-003
tblVehicleEF	LDA	0.02	2.5036e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.2270e-003	1.1382e-003
tblVehicleEF	LDA	1.5650e-003	1.8441e-003
tblVehicleEF	LDA	0.11	0.41
tblVehicleEF	LDA	0.11	0.09
tblVehicleEF	LDA	0.09	0.00
tblVehicleEF	LDA	7.9980e-003	8.3868e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.24
tblVehicleEF	LDA	2.6610e-003	2.8671e-003
tblVehicleEF	LDA	4.9400e-004	6.5081e-004
tblVehicleEF	LDA	0.11	0.41
tblVehicleEF	LDA	0.11	0.09
tblVehicleEF	LDA	0.09	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	1.8740e-003	2.1440e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.54	0.66
tblVehicleEF	LDA	1.98	2.77
tblVehicleEF	LDA	241.10	263.22

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	50.53	66.68
tblVehicleEF	LDA	3.9710e-003	4.1796e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1532e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.3330e-003	1.2369e-003
tblVehicleEF	LDA	1.7020e-003	2.0056e-003
tblVehicleEF	LDA	0.02	2.5036e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.2270e-003	1.1382e-003
tblVehicleEF	LDA	1.5650e-003	1.8441e-003
tblVehicleEF	LDA	0.05	0.32
tblVehicleEF	LDA	0.10	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.8740e-003	7.9256e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDA	2.3850e-003	2.6020e-003
tblVehicleEF	LDA	5.0000e-004	6.5920e-004
tblVehicleEF	LDA	0.05	0.32
tblVehicleEF	LDA	0.10	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	9.9970e-003	0.01
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.21	0.31
tblVehicleEF	LDT1	5.3250e-003	9.1717e-003
tblVehicleEF	LDT1	0.07	0.13

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tblVehicleEF	LDT1	1.14	1.98
tblVehicleEF	LDT1	2.25	6.39
tblVehicleEF	LDT1	292.95	340.41
tblVehicleEF	LDT1	61.63	90.26
tblVehicleEF	LDT1	7.5100e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.10	0.19
tblVehicleEF	LDT1	0.25	0.47
tblVehicleEF	LDT1	0.04	8.8506e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.8800e-003	2.2564e-003
tblVehicleEF	LDT1	2.4490e-003	3.5201e-003
tblVehicleEF	LDT1	0.02	3.0977e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7290e-003	2.0757e-003
tblVehicleEF	LDT1	2.2520e-003	3.2367e-003
tblVehicleEF	LDT1	0.16	0.96
tblVehicleEF	LDT1	0.22	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.10	0.09
tblVehicleEF	LDT1	0.35	0.68
tblVehicleEF	LDT1	2.8990e-003	3.3653e-003
tblVehicleEF	LDT1	6.1000e-004	8.9234e-004
tblVehicleEF	LDT1	0.16	0.96
tblVehicleEF	LDT1	0.22	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.10	0.09

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tblVehicleEF	LDT1	0.38	0.74
tblVehicleEF	LDT1	6.0460e-003	9.7297e-003
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	1.39	2.64
tblVehicleEF	LDT1	1.87	5.32
tblVehicleEF	LDT1	316.51	366.96
tblVehicleEF	LDT1	60.83	88.23
tblVehicleEF	LDT1	6.9690e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.16
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	0.04	8.8506e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.8800e-003	2.2564e-003
tblVehicleEF	LDT1	2.4490e-003	3.5201e-003
tblVehicleEF	LDT1	0.02	3.0977e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7290e-003	2.0757e-003
tblVehicleEF	LDT1	2.2520e-003	3.2367e-003
tblVehicleEF	LDT1	0.33	1.28
tblVehicleEF	LDT1	0.27	0.25
tblVehicleEF	LDT1	0.25	0.00
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.29	0.58
tblVehicleEF	LDT1	3.1320e-003	3.6277e-003
tblVehicleEF	LDT1	6.0200e-004	8.7220e-004
tblVehicleEF	LDT1	0.33	1.28
tblVehicleEF	LDT1	0.27	0.25

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	0.25	0.00
tblVehicleEF	LDT1	0.04	0.06
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.32	0.64
tblVehicleEF	LDT1	5.2030e-003	9.0926e-003
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	1.09	1.86
tblVehicleEF	LDT1	2.21	6.41
tblVehicleEF	LDT1	287.37	335.53
tblVehicleEF	LDT1	61.56	90.30
tblVehicleEF	LDT1	7.1990e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.18
tblVehicleEF	LDT1	0.25	0.46
tblVehicleEF	LDT1	0.04	8.8506e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.8800e-003	2.2564e-003
tblVehicleEF	LDT1	2.4490e-003	3.5201e-003
tblVehicleEF	LDT1	0.02	3.0977e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7290e-003	2.0757e-003
tblVehicleEF	LDT1	2.2520e-003	3.2367e-003
tblVehicleEF	LDT1	0.17	0.96
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.35	0.68
tblVehicleEF	LDT1	2.8440e-003	3.3170e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	6.0900e-004	8.9273e-004
tblVehicleEF	LDT1	0.17	0.96
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.38	0.75
tblVehicleEF	LDT2	3.4390e-003	3.0533e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.83	0.90
tblVehicleEF	LDT2	2.58	3.45
tblVehicleEF	LDT2	308.59	346.22
tblVehicleEF	LDT2	65.18	86.80
tblVehicleEF	LDT2	6.1800e-003	6.2259e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.26	0.32
tblVehicleEF	LDT2	0.04	8.3555e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.4110e-003	1.3018e-003
tblVehicleEF	LDT2	1.7940e-003	2.0728e-003
tblVehicleEF	LDT2	0.02	2.9244e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2980e-003	1.1975e-003
tblVehicleEF	LDT2	1.6500e-003	1.9059e-003
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.01	0.01

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tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.0530e-003	3.4224e-003
tblVehicleEF	LDT2	6.4500e-004	8.5810e-004
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.32	0.40
tblVehicleEF	LDT2	3.9290e-003	3.2451e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	1.01	1.21
tblVehicleEF	LDT2	2.14	2.89
tblVehicleEF	LDT2	331.10	370.27
tblVehicleEF	LDT2	64.32	85.74
tblVehicleEF	LDT2	5.7670e-003	5.5489e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.24	0.30
tblVehicleEF	LDT2	0.04	8.3555e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.4110e-003	1.3018e-003
tblVehicleEF	LDT2	1.7940e-003	2.0728e-003
tblVehicleEF	LDT2	0.02	2.9244e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2980e-003	1.1975e-003
tblVehicleEF	LDT2	1.6500e-003	1.9059e-003
tblVehicleEF	LDT2	0.19	0.44

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.16	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.25	0.31
tblVehicleEF	LDT2	3.2760e-003	3.6601e-003
tblVehicleEF	LDT2	6.3600e-004	8.4762e-004
tblVehicleEF	LDT2	0.19	0.44
tblVehicleEF	LDT2	0.16	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	3.3570e-003	3.0280e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.78	0.84
tblVehicleEF	LDT2	2.54	3.46
tblVehicleEF	LDT2	303.26	341.80
tblVehicleEF	LDT2	65.10	86.82
tblVehicleEF	LDT2	5.9260e-003	6.0680e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	0.04	8.3555e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.4110e-003	1.3018e-003
tblVehicleEF	LDT2	1.7940e-003	2.0728e-003
tblVehicleEF	LDT2	0.02	2.9244e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	1.2980e-003	1.1975e-003
tblVehicleEF	LDT2	1.6500e-003	1.9059e-003
tblVehicleEF	LDT2	0.09	0.35
tblVehicleEF	LDT2	0.15	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.0000e-003	3.3787e-003
tblVehicleEF	LDT2	6.4400e-004	8.5832e-004
tblVehicleEF	LDT2	0.09	0.35
tblVehicleEF	LDT2	0.15	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.03
tblVehicleEF	LDT2	0.32	0.40
tblVehicleEF	LHD1	4.6170e-003	5.1496e-003
tblVehicleEF	LHD1	5.3670e-003	3.3293e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.72	0.67
tblVehicleEF	LHD1	0.96	1.91
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.81	366.80
tblVehicleEF	LHD1	10.40	16.42
tblVehicleEF	LHD1	8.6200e-004	7.2706e-004
tblVehicleEF	LHD1	0.04	6.0124e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	1.26	0.11
tblVehicleEF	LHD1	0.28	0.41
tblVehicleEF	LHD1	9.7300e-004	7.8313e-004
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	9.9970e-003	4.7639e-003
tblVehicleEF	LHD1	0.01	7.0315e-004
tblVehicleEF	LHD1	2.4100e-004	2.3021e-004
tblVehicleEF	LHD1	9.3100e-004	7.4926e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.4990e-003	1.1910e-003
tblVehicleEF	LHD1	9.5440e-003	6.4652e-004
tblVehicleEF	LHD1	2.2100e-004	2.1167e-004
tblVehicleEF	LHD1	2.8470e-003	0.14
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.4060e-003	0.00
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.9000e-005	8.6798e-005
tblVehicleEF	LHD1	6.1580e-003	3.6262e-003
tblVehicleEF	LHD1	1.0300e-004	1.6236e-004
tblVehicleEF	LHD1	2.8470e-003	0.14
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.4060e-003	0.00
tblVehicleEF	LHD1	0.07	0.02
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.08	0.12

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	4.6320e-003	5.1681e-003
tblVehicleEF	LHD1	5.4860e-003	2.0248e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.73	0.14
tblVehicleEF	LHD1	0.90	1.81
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.83	198.35
tblVehicleEF	LHD1	10.29	16.26
tblVehicleEF	LHD1	8.6400e-004	7.2947e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.18	0.66
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.7300e-004	7.8313e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	9.9970e-003	4.8833e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	2.4100e-004	2.3021e-004
tblVehicleEF	LHD1	9.3100e-004	7.4926e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.4990e-003	1.2208e-003
tblVehicleEF	LHD1	9.5440e-003	0.01
tblVehicleEF	LHD1	2.2100e-004	2.1167e-004
tblVehicleEF	LHD1	5.6090e-003	0.18
tblVehicleEF	LHD1	0.10	0.04
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.1720e-003	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	8.9000e-005	8.6798e-005
tblVehicleEF	LHD1	6.1580e-003	1.8794e-003
tblVehicleEF	LHD1	1.0200e-004	1.6070e-004
tblVehicleEF	LHD1	5.6090e-003	0.18
tblVehicleEF	LHD1	0.10	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.1720e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.6200e-003	5.1517e-003
tblVehicleEF	LHD1	5.3800e-003	2.0248e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.72	0.14
tblVehicleEF	LHD1	0.95	1.90
tblVehicleEF	LHD1	9.21	8.94
tblVehicleEF	LHD1	632.81	198.35
tblVehicleEF	LHD1	10.37	16.41
tblVehicleEF	LHD1	8.6300e-004	7.2774e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.24	0.69
tblVehicleEF	LHD1	0.28	0.40
tblVehicleEF	LHD1	9.7300e-004	7.8313e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	9.9970e-003	4.8833e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	2.4100e-004	2.3021e-004
tblVehicleEF	LHD1	9.3100e-004	7.4926e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.4990e-003	1.2208e-003
tblVehicleEF	LHD1	9.5440e-003	0.01
tblVehicleEF	LHD1	2.2100e-004	2.1167e-004
tblVehicleEF	LHD1	3.1080e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3850e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.9000e-005	8.6798e-005
tblVehicleEF	LHD1	6.1580e-003	1.8794e-003
tblVehicleEF	LHD1	1.0300e-004	1.6218e-004
tblVehicleEF	LHD1	3.1080e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3850e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	0.07	0.12
tblVehicleEF	LHD2	3.1180e-003	3.5197e-003
tblVehicleEF	LHD2	3.5830e-003	1.1547e-003
tblVehicleEF	LHD2	8.3140e-003	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.27
tblVehicleEF	LHD2	0.56	1.20
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.46	247.54
tblVehicleEF	LHD2	7.43	10.55
tblVehicleEF	LHD2	1.8200e-003	1.6427e-003
tblVehicleEF	LHD2	0.06	3.3772e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.35	0.05
tblVehicleEF	LHD2	0.18	0.27
tblVehicleEF	LHD2	1.4280e-003	1.2805e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8536e-003
tblVehicleEF	LHD2	0.01	3.5384e-004
tblVehicleEF	LHD2	1.1500e-004	1.0730e-004
tblVehicleEF	LHD2	1.3660e-003	1.2251e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7000e-003	7.1341e-004
tblVehicleEF	LHD2	0.01	3.2535e-004
tblVehicleEF	LHD2	1.0600e-004	9.8656e-005
tblVehicleEF	LHD2	1.3970e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4400e-004	0.00
tblVehicleEF	LHD2	0.06	5.2733e-003
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.3700e-004	1.3193e-004
tblVehicleEF	LHD2	6.1090e-003	2.4472e-003
tblVehicleEF	LHD2	7.4000e-005	1.0429e-004
tblVehicleEF	LHD2	1.3970e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4400e-004	0.00
tblVehicleEF	LHD2	0.07	7.6947e-003
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.1280e-003	3.5323e-003
tblVehicleEF	LHD2	3.6170e-003	2.9068e-003
tblVehicleEF	LHD2	7.9410e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.17
tblVehicleEF	LHD2	0.53	1.14
tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.47	376.65
tblVehicleEF	LHD2	7.37	10.44
tblVehicleEF	LHD2	1.8210e-003	1.6443e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.27	0.81
tblVehicleEF	LHD2	0.17	0.26
tblVehicleEF	LHD2	1.4280e-003	1.2805e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.7461e-003
tblVehicleEF	LHD2	0.01	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.1500e-004	1.0730e-004
tblVehicleEF	LHD2	1.3660e-003	1.2251e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7000e-003	1.9365e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	9.8656e-005
tblVehicleEF	LHD2	2.7020e-003	0.11
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6140e-003	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3700e-004	1.3193e-004
tblVehicleEF	LHD2	6.1090e-003	3.5690e-003
tblVehicleEF	LHD2	7.3000e-005	1.0325e-004
tblVehicleEF	LHD2	2.7020e-003	0.11
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6140e-003	0.00
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.1200e-003	3.5211e-003
tblVehicleEF	LHD2	3.5870e-003	2.9068e-003
tblVehicleEF	LHD2	8.2440e-003	0.01
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.47	0.17
tblVehicleEF	LHD2	0.56	1.20

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tblVehicleEF	LHD2	14.36	13.76
tblVehicleEF	LHD2	633.47	376.65
tblVehicleEF	LHD2	7.42	10.54
tblVehicleEF	LHD2	1.8200e-003	1.6432e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	1.33	0.85
tblVehicleEF	LHD2	0.18	0.27
tblVehicleEF	LHD2	1.4280e-003	1.2805e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.7461e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1500e-004	1.0730e-004
tblVehicleEF	LHD2	1.3660e-003	1.2251e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7000e-003	1.9365e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	9.8656e-005
tblVehicleEF	LHD2	1.4360e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	1.3700e-004	1.3193e-004
tblVehicleEF	LHD2	6.1090e-003	3.5690e-003
tblVehicleEF	LHD2	7.3000e-005	1.0418e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.4360e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	0.00
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.58
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	19.97	0.58
tblVehicleEF	MCY	8.82	7.71
tblVehicleEF	MCY	211.12	0.58
tblVehicleEF	MCY	60.91	48.91
tblVehicleEF	MCY	0.07	0.58
tblVehicleEF	MCY	0.02	8.1994e-003
tblVehicleEF	MCY	1.16	0.58
tblVehicleEF	MCY	0.27	0.14
tblVehicleEF	MCY	0.01	0.58
tblVehicleEF	MCY	4.0000e-003	0.58
tblVehicleEF	MCY	1.8990e-003	0.58
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.58
tblVehicleEF	MCY	1.0000e-003	0.58
tblVehicleEF	MCY	1.7750e-003	0.58
tblVehicleEF	MCY	2.6600e-003	3.0802e-003
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.21	0.58

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	0.41	0.58
tblVehicleEF	MCY	1.88	1.31
tblVehicleEF	MCY	2.0890e-003	0.58
tblVehicleEF	MCY	6.0300e-004	4.8357e-004
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.73	0.58
tblVehicleEF	MCY	0.41	0.58
tblVehicleEF	MCY	2.05	1.42
tblVehicleEF	MCY	0.32	0.51
tblVehicleEF	MCY	0.22	0.16
tblVehicleEF	MCY	20.11	0.51
tblVehicleEF	MCY	7.97	6.98
tblVehicleEF	MCY	211.15	0.51
tblVehicleEF	MCY	58.66	47.22
tblVehicleEF	MCY	0.06	0.51
tblVehicleEF	MCY	0.01	8.0425e-003
tblVehicleEF	MCY	0.98	0.51
tblVehicleEF	MCY	0.25	0.13
tblVehicleEF	MCY	0.01	0.51
tblVehicleEF	MCY	4.0000e-003	0.51
tblVehicleEF	MCY	1.8990e-003	0.51
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.51
tblVehicleEF	MCY	1.0000e-003	0.51
tblVehicleEF	MCY	1.7750e-003	0.51
tblVehicleEF	MCY	2.6600e-003	3.0802e-003
tblVehicleEF	MCY	3.14	3.79

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.27	3.76
tblVehicleEF	MCY	2.10	0.00
tblVehicleEF	MCY	2.16	0.51
tblVehicleEF	MCY	0.41	0.51
tblVehicleEF	MCY	1.62	1.15
tblVehicleEF	MCY	2.0890e-003	0.51
tblVehicleEF	MCY	5.8000e-004	4.6685e-004
tblVehicleEF	MCY	3.14	3.79
tblVehicleEF	MCY	1.27	3.76
tblVehicleEF	MCY	2.10	0.00
tblVehicleEF	MCY	2.66	0.51
tblVehicleEF	MCY	0.41	0.51
tblVehicleEF	MCY	1.76	1.25
tblVehicleEF	MCY	0.32	0.57
tblVehicleEF	MCY	0.24	0.18
tblVehicleEF	MCY	19.09	0.57
tblVehicleEF	MCY	8.48	7.60
tblVehicleEF	MCY	209.60	0.57
tblVehicleEF	MCY	60.13	48.67
tblVehicleEF	MCY	0.07	0.57
tblVehicleEF	MCY	0.02	8.2054e-003
tblVehicleEF	MCY	1.12	0.57
tblVehicleEF	MCY	0.26	0.14
tblVehicleEF	MCY	0.01	0.57
tblVehicleEF	MCY	4.0000e-003	0.57
tblVehicleEF	MCY	1.8990e-003	0.57
tblVehicleEF	MCY	2.8290e-003	3.2780e-003
tblVehicleEF	MCY	5.0400e-003	0.57
tblVehicleEF	MCY	1.0000e-003	0.57

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.7750e-003	0.57
tblVehicleEF	MCY	2.6600e-003	3.0802e-003
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.10	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.18	0.57
tblVehicleEF	MCY	0.47	0.57
tblVehicleEF	MCY	1.81	1.29
tblVehicleEF	MCY	2.0740e-003	0.57
tblVehicleEF	MCY	5.9500e-004	4.8113e-004
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.10	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.68	0.57
tblVehicleEF	MCY	0.47	0.57
tblVehicleEF	MCY	1.97	1.40
tblVehicleEF	MDV	4.3590e-003	4.4096e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.93	1.10
tblVehicleEF	MDV	2.97	3.91
tblVehicleEF	MDV	385.79	424.26
tblVehicleEF	MDV	81.00	106.70
tblVehicleEF	MDV	8.5970e-003	9.1892e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.32	0.45
tblVehicleEF	MDV	0.04	8.6194e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4890e-003	1.4366e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	1.8380e-003	2.2018e-003
tblVehicleEF	MDV	0.02	3.0168e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0246e-003
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MDV	3.8140e-003	4.1919e-003
tblVehicleEF	MDV	8.0200e-004	1.0549e-003
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.41	0.57
tblVehicleEF	MDV	4.9900e-003	4.6896e-003
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	1.14	1.47
tblVehicleEF	MDV	2.45	3.28
tblVehicleEF	MDV	409.60	449.20
tblVehicleEF	MDV	79.98	105.44
tblVehicleEF	MDV	8.0890e-003	8.2695e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.30	0.42

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.04	8.6194e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4890e-003	1.4366e-003
tblVehicleEF	MDV	1.8380e-003	2.2018e-003
tblVehicleEF	MDV	0.02	3.0168e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0246e-003
tblVehicleEF	MDV	0.22	0.58
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	4.0490e-003	4.4385e-003
tblVehicleEF	MDV	7.9200e-004	1.0424e-003
tblVehicleEF	MDV	0.22	0.58
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MDV	4.2510e-003	4.3705e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.88	1.03
tblVehicleEF	MDV	2.92	3.93
tblVehicleEF	MDV	380.15	419.67
tblVehicleEF	MDV	80.92	106.73
tblVehicleEF	MDV	8.2840e-003	8.9755e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.32	0.45
tblVehicleEF	MDV	0.04	8.6194e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4890e-003	1.4366e-003
tblVehicleEF	MDV	1.8380e-003	2.2018e-003
tblVehicleEF	MDV	0.02	3.0168e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3740e-003	1.3250e-003
tblVehicleEF	MDV	1.6900e-003	2.0246e-003
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MDV	3.7580e-003	4.1466e-003
tblVehicleEF	MDV	8.0100e-004	1.0552e-003
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.41	0.58
tblVehicleEF	MH	9.5080e-003	5.8541e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.14	2.8706e-003
tblVehicleEF	MH	2.03	2.33

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	1,457.66	5.3866e-003
tblVehicleEF	MH	18.29	22.42
tblVehicleEF	MH	0.06	1.3655e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.51	1.38
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.9698e-011
tblVehicleEF	MH	0.04	3.3082e-009
tblVehicleEF	MH	2.4000e-004	2.7295e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.4653e-004
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	2.2100e-004	2.5097e-004
tblVehicleEF	MH	1.05	35.26
tblVehicleEF	MH	0.06	8.42
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.06	6.2571e-008
tblVehicleEF	MH	0.02	2.1459e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	4.9964e-005
tblVehicleEF	MH	1.8100e-004	2.2164e-004
tblVehicleEF	MH	1.05	35.26
tblVehicleEF	MH	0.06	8.42
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.08	6.3083e-003
tblVehicleEF	MH	0.02	2.1459e-003
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MH	9.7710e-003	6.0057e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.18	3.0778e-003
tblVehicleEF	MH	1.86	2.17
tblVehicleEF	MH	1,457.73	5.3868e-003
tblVehicleEF	MH	18.00	22.14
tblVehicleEF	MH	0.06	1.2720e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.39	1.28
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.9698e-011
tblVehicleEF	MH	0.04	3.3082e-009
tblVehicleEF	MH	2.4000e-004	2.7295e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.1530e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.2100e-004	2.5097e-004
tblVehicleEF	MH	2.08	46.19
tblVehicleEF	MH	0.08	9.14
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.06	6.0134e-008
tblVehicleEF	MH	0.02	2.2364e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	5.3573e-005
tblVehicleEF	MH	1.7800e-004	2.1891e-004
tblVehicleEF	MH	2.08	46.19
tblVehicleEF	MH	0.08	9.14
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.08	7.0688e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.02	2.2364e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	9.5320e-003	5.8587e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.14	2.9519e-003
tblVehicleEF	MH	2.01	2.34
tblVehicleEF	MH	1,457.67	5.3866e-003
tblVehicleEF	MH	18.26	22.43
tblVehicleEF	MH	0.06	1.3361e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.48	1.36
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.9698e-011
tblVehicleEF	MH	0.04	3.3082e-009
tblVehicleEF	MH	2.4000e-004	2.7295e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2880e-003	5.3760e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.2100e-004	2.5097e-004
tblVehicleEF	MH	1.21	35.35
tblVehicleEF	MH	0.08	8.37
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.06	6.1280e-008
tblVehicleEF	MH	0.02	2.2048e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	5.1379e-005
tblVehicleEF	MH	1.8100e-004	2.2172e-004
tblVehicleEF	MH	1.21	35.35

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.08	8.37
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.08	6.2758e-003
tblVehicleEF	MH	0.02	2.2048e-003
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	3.0880e-003	0.02
tblVehicleEF	MHD	1.2060e-003	7.7322e-003
tblVehicleEF	MHD	7.8410e-003	6.3743e-003
tblVehicleEF	MHD	0.34	0.64
tblVehicleEF	MHD	0.16	0.23
tblVehicleEF	MHD	0.86	0.73
tblVehicleEF	MHD	64.48	160.75
tblVehicleEF	MHD	956.24	1,134.10
tblVehicleEF	MHD	7.77	6.25
tblVehicleEF	MHD	9.3540e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.2780e-003	4.4797e-003
tblVehicleEF	MHD	0.35	0.84
tblVehicleEF	MHD	1.01	0.73
tblVehicleEF	MHD	1.76	1.48
tblVehicleEF	MHD	2.8300e-004	1.4029e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.5800e-003	9.1062e-003
tblVehicleEF	MHD	9.0000e-005	6.9860e-005
tblVehicleEF	MHD	2.7100e-004	1.3416e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.2480e-003	8.7080e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	8.3000e-005	6.4234e-005
tblVehicleEF	MHD	4.8600e-004	0.02
tblVehicleEF	MHD	0.02	4.8252e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.5600e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1200e-004	1.4786e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.7000e-005	6.1764e-005
tblVehicleEF	MHD	4.8600e-004	0.02
tblVehicleEF	MHD	0.02	4.8252e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.5600e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	2.9410e-003	0.02
tblVehicleEF	MHD	1.2330e-003	7.7618e-003
tblVehicleEF	MHD	7.4810e-003	6.1230e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.17	0.23
tblVehicleEF	MHD	0.80	0.69
tblVehicleEF	MHD	64.29	159.41
tblVehicleEF	MHD	956.24	1,134.11
tblVehicleEF	MHD	7.68	6.18
tblVehicleEF	MHD	9.2940e-003	0.02
tblVehicleEF	MHD	0.12	0.15

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	6.1480e-003	4.4067e-003
tblVehicleEF	MHD	0.34	0.81
tblVehicleEF	MHD	0.95	0.69
tblVehicleEF	MHD	1.75	1.48
tblVehicleEF	MHD	2.4200e-004	1.1931e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.5800e-003	9.1062e-003
tblVehicleEF	MHD	9.0000e-005	6.9860e-005
tblVehicleEF	MHD	2.3100e-004	1.1409e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4234e-005
tblVehicleEF	MHD	9.5400e-004	0.03
tblVehicleEF	MHD	0.02	5.2312e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	5.7800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1000e-004	1.4660e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.6000e-005	6.1075e-005
tblVehicleEF	MHD	9.5400e-004	0.03
tblVehicleEF	MHD	0.02	5.2312e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	5.7800e-004	0.00
tblVehicleEF	MHD	0.01	0.03

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	3.3060e-003	0.02
tblVehicleEF	MHD	1.2080e-003	7.7326e-003
tblVehicleEF	MHD	7.7490e-003	6.3293e-003
tblVehicleEF	MHD	0.40	0.70
tblVehicleEF	MHD	0.16	0.23
tblVehicleEF	MHD	0.85	0.72
tblVehicleEF	MHD	64.74	162.59
tblVehicleEF	MHD	956.24	1,134.10
tblVehicleEF	MHD	7.75	6.24
tblVehicleEF	MHD	9.4410e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.2350e-003	4.4612e-003
tblVehicleEF	MHD	0.37	0.88
tblVehicleEF	MHD	0.99	0.72
tblVehicleEF	MHD	1.76	1.48
tblVehicleEF	MHD	3.4100e-004	1.6926e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.5800e-003	9.1062e-003
tblVehicleEF	MHD	9.0000e-005	6.9860e-005
tblVehicleEF	MHD	3.2600e-004	1.6187e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.2480e-003	8.7080e-003
tblVehicleEF	MHD	8.3000e-005	6.4234e-005
tblVehicleEF	MHD	5.1400e-004	0.02
tblVehicleEF	MHD	0.02	4.7948e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.5000e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1400e-004	1.4959e-003
tblVehicleEF	MHD	9.1120e-003	0.01
tblVehicleEF	MHD	7.7000e-005	6.1668e-005
tblVehicleEF	MHD	5.1400e-004	0.02
tblVehicleEF	MHD	0.02	4.7948e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.5000e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	OBUS	9.0290e-003	0.02
tblVehicleEF	OBUS	6.3900e-003	0.04
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.50	0.52
tblVehicleEF	OBUS	0.76	0.91
tblVehicleEF	OBUS	2.60	2.72
tblVehicleEF	OBUS	64.96	72.64
tblVehicleEF	OBUS	1,426.10	1,461.31
tblVehicleEF	OBUS	21.19	22.62
tblVehicleEF	OBUS	8.0550e-003	9.6583e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.23	0.27
tblVehicleEF	OBUS	0.90	1.09

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.66	0.69
tblVehicleEF	OBUS	7.7000e-005	5.7741e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4090e-004
tblVehicleEF	OBUS	7.4000e-005	5.5195e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2150e-004
tblVehicleEF	OBUS	2.7750e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1530e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.2000e-004	6.5581e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.1000e-004	2.2365e-004
tblVehicleEF	OBUS	2.7750e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1530e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	OBUS	9.1020e-003	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	6.5800e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.49	0.51
tblVehicleEF	OBUS	0.79	0.93
tblVehicleEF	OBUS	2.38	2.53
tblVehicleEF	OBUS	64.29	72.07
tblVehicleEF	OBUS	1,426.14	1,461.34
tblVehicleEF	OBUS	20.83	22.30
tblVehicleEF	OBUS	7.9570e-003	9.5732e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.22	0.26
tblVehicleEF	OBUS	0.82	1.01
tblVehicleEF	OBUS	0.65	0.67
tblVehicleEF	OBUS	6.8000e-005	4.9265e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4090e-004
tblVehicleEF	OBUS	6.6000e-005	4.7086e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2150e-004
tblVehicleEF	OBUS	5.3940e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.6310e-003	0.00
tblVehicleEF	OBUS	0.03	0.06

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.1400e-004	6.5040e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0600e-004	2.2048e-004
tblVehicleEF	OBUS	5.3940e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	2.6310e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	8.9680e-003	0.02
tblVehicleEF	OBUS	6.4110e-003	0.04
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.50	0.53
tblVehicleEF	OBUS	0.77	0.92
tblVehicleEF	OBUS	2.58	2.72
tblVehicleEF	OBUS	65.88	73.43
tblVehicleEF	OBUS	1,426.10	1,461.31
tblVehicleEF	OBUS	21.16	22.63
tblVehicleEF	OBUS	8.2020e-003	9.7839e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.25	0.29
tblVehicleEF	OBUS	0.88	1.07
tblVehicleEF	OBUS	0.66	0.68
tblVehicleEF	OBUS	8.9000e-005	6.9446e-004
tblVehicleEF	OBUS	0.13	0.05

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3040e-003	0.02
tblVehicleEF	OBUS	2.3600e-004	2.4090e-004
tblVehicleEF	OBUS	8.5000e-005	6.6393e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0110e-003	0.02
tblVehicleEF	OBUS	2.1700e-004	2.2150e-004
tblVehicleEF	OBUS	2.9560e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1590e-003	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.2900e-004	6.6329e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0900e-004	2.2375e-004
tblVehicleEF	OBUS	2.9560e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	1.1590e-003	0.00
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	SBUS	0.04	0.51
tblVehicleEF	SBUS	5.9790e-003	1.34
tblVehicleEF	SBUS	4.3250e-003	6.8405e-003
tblVehicleEF	SBUS	2.05	2.91

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.51	5.05
tblVehicleEF	SBUS	0.57	0.89
tblVehicleEF	SBUS	333.61	269.17
tblVehicleEF	SBUS	1,098.25	1,227.15
tblVehicleEF	SBUS	3.39	5.44
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.15	0.17
tblVehicleEF	SBUS	3.6030e-003	5.8741e-003
tblVehicleEF	SBUS	3.15	1.14
tblVehicleEF	SBUS	4.52	2.37
tblVehicleEF	SBUS	1.06	0.18
tblVehicleEF	SBUS	3.2820e-003	1.6755e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.2906e-005
tblVehicleEF	SBUS	3.1400e-003	1.5852e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5589e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.8645e-005
tblVehicleEF	SBUS	7.2900e-004	0.06
tblVehicleEF	SBUS	5.5220e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	9.4790e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	3.1720e-003	1.2751e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.01	6.8397e-003
tblVehicleEF	SBUS	3.4000e-005	5.3821e-005
tblVehicleEF	SBUS	7.2900e-004	0.06
tblVehicleEF	SBUS	5.5220e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	9.4790e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.51
tblVehicleEF	SBUS	6.0530e-003	1.34
tblVehicleEF	SBUS	3.5770e-003	5.7298e-003
tblVehicleEF	SBUS	2.01	2.90
tblVehicleEF	SBUS	0.52	5.06
tblVehicleEF	SBUS	0.40	0.64
tblVehicleEF	SBUS	340.36	271.88
tblVehicleEF	SBUS	1,098.26	1,227.18
tblVehicleEF	SBUS	3.11	5.03
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.4720e-003	5.6666e-003
tblVehicleEF	SBUS	3.21	1.17
tblVehicleEF	SBUS	4.23	2.22
tblVehicleEF	SBUS	1.06	0.17
tblVehicleEF	SBUS	2.7750e-003	1.4889e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.2906e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	2.6550e-003	1.4066e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5589e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.8645e-005
tblVehicleEF	SBUS	1.3160e-003	0.08
tblVehicleEF	SBUS	5.7640e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	7.0300e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	8.6820e-003	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.2360e-003	1.3008e-003
tblVehicleEF	SBUS	0.01	6.8400e-003
tblVehicleEF	SBUS	3.1000e-005	4.9768e-005
tblVehicleEF	SBUS	1.3160e-003	0.08
tblVehicleEF	SBUS	5.7640e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	7.0300e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	8.6820e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.04	0.51
tblVehicleEF	SBUS	5.9750e-003	1.34
tblVehicleEF	SBUS	4.4250e-003	7.0471e-003
tblVehicleEF	SBUS	2.09	2.92
tblVehicleEF	SBUS	0.51	5.05
tblVehicleEF	SBUS	0.59	0.93
tblVehicleEF	SBUS	324.30	265.43

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	1,098.25	1,227.15
tblVehicleEF	SBUS	3.42	5.51
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.6360e-003	5.9461e-003
tblVehicleEF	SBUS	3.08	1.11
tblVehicleEF	SBUS	4.45	2.33
tblVehicleEF	SBUS	1.07	0.18
tblVehicleEF	SBUS	3.9810e-003	1.9332e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.3000e-005	5.2906e-005
tblVehicleEF	SBUS	3.8090e-003	1.8317e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7500e-003	2.5589e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0000e-005	4.8645e-005
tblVehicleEF	SBUS	6.8400e-004	0.06
tblVehicleEF	SBUS	5.6560e-003	0.01
tblVehicleEF	SBUS	0.21	0.27
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0840e-003	1.2397e-003
tblVehicleEF	SBUS	0.01	6.8398e-003
tblVehicleEF	SBUS	3.4000e-005	5.4489e-005
tblVehicleEF	SBUS	6.8400e-004	0.06

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	5.6560e-003	0.01
tblVehicleEF	SBUS	0.30	0.84
tblVehicleEF	SBUS	3.6500e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8121e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.42	1.09
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	16.41	7.58
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7176e-003
tblVehicleEF	UBUS	2.1400e-004	3.9572e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5810e-003	1.6377e-003
tblVehicleEF	UBUS	1.9700e-004	3.6385e-005
tblVehicleEF	UBUS	1.0010e-003	0.02
tblVehicleEF	UBUS	6.9600e-003	4.9384e-003
tblVehicleEF	UBUS	5.6300e-004	0.00
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	7.9300e-004	5.0875e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6349e-004
tblVehicleEF	UBUS	1.6200e-004	7.4957e-005
tblVehicleEF	UBUS	1.0010e-003	0.02
tblVehicleEF	UBUS	6.9600e-003	4.9384e-003
tblVehicleEF	UBUS	5.6300e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	7.9300e-004	5.0875e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.01	7.1308e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.16	0.93
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	15.99	7.32
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.35	0.38
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7176e-003
tblVehicleEF	UBUS	2.1400e-004	3.9572e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5810e-003	1.6377e-003
tblVehicleEF	UBUS	1.9700e-004	3.6385e-005
tblVehicleEF	UBUS	1.9290e-003	0.03
tblVehicleEF	UBUS	9.1640e-003	5.3960e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.3450e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	7.7900e-004	5.3161e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6352e-004
tblVehicleEF	UBUS	1.5800e-004	7.2360e-005
tblVehicleEF	UBUS	1.9290e-003	0.03
tblVehicleEF	UBUS	9.1640e-003	5.3960e-003
tblVehicleEF	UBUS	1.3450e-003	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	7.7900e-004	5.3161e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8697e-003
tblVehicleEF	UBUS	32.79	27.99
tblVehicleEF	UBUS	1.38	1.10
tblVehicleEF	UBUS	1,717.93	1,626.34
tblVehicleEF	UBUS	16.36	7.61
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7160e-003	1.7176e-003
tblVehicleEF	UBUS	2.1400e-004	3.9572e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5810e-003	1.6377e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.9700e-004	3.6385e-005
tblVehicleEF	UBUS	1.0890e-003	0.02
tblVehicleEF	UBUS	8.1120e-003	4.9030e-003
tblVehicleEF	UBUS	5.5900e-004	0.00
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	9.1300e-004	5.2797e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7420e-003	9.6349e-004
tblVehicleEF	UBUS	1.6200e-004	7.5217e-005
tblVehicleEF	UBUS	1.0890e-003	0.02
tblVehicleEF	UBUS	8.1120e-003	4.9030e-003
tblVehicleEF	UBUS	5.5900e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	9.1300e-004	5.2797e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	2.21	94.14
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	0.70	94.14
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	9.74	94.14
tblVehicleTrips	WD_TR	2.12	0.00
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2924	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867
Energy	0.0680	0.6183	0.5194	3.7100e-003		0.0470	0.0470		0.0470	0.0470	0.0000	2,748.7566	2,748.7566	0.0129	0.0123	2,752.7568
Mobile	0.5277	1.7851	8.0807	0.0504	5.6109	9.8400e-003	5.6207	1.4465	9.1400e-003	1.4557	0.0000	4,625.5258	4,625.5258	0.0510	0.1015	4,657.0358
Waste						0.0000	0.0000		0.0000	0.0000	600.6442	0.0000	600.6442	35.4971	0.0000	1,488.0705
Water						0.0000	0.0000		0.0000	0.0000	230.1311	1,487.5484	1,717.6795	23.6367	0.5581	2,474.9140
Total	**13.8881**	**2.4038**	**8.6419**	**0.0541**	**5.6109**	**0.0570**	**5.6679**	**1.4465**	**0.0563**	**1.5028**	**830.7753**	**8,861.9123**	**9,692.6876**	**59.1978**	**0.6719**	**11,372.8639**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2901	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Energy	0.0558	0.5075	0.4263	3.0400e-003		0.0386	0.0386		0.0386	0.0386	0.0000	2,292.8253	2,292.8253	0.0106	0.0101	2,296.1084
Mobile	0.5264	1.7721	8.0155	0.0498	5.5448	9.7600e-003	5.5546	1.4295	9.0600e-003	1.4385	0.0000	4,571.5429	4,571.5429	0.0507	0.1007	4,602.8272
Waste						0.0000	0.0000		0.0000	0.0000	150.1610	0.0000	150.1610	8.8743	0.0000	372.0176
Water						0.0000	0.0000		0.0000	0.0000	184.1049	1,191.3550	1,375.4599	18.9093	0.4465	1,981.2475
Total	**13.8724**	**2.2798**	**8.4661**	**0.0529**	**5.5448**	**0.0484**	**5.5932**	**1.4295**	**0.0477**	**1.4772**	**334.2659**	**8,055.7672**	**8,390.0331**	**27.8450**	**0.5574**	**9,252.2468**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.11**	**5.16**	**2.03**	**2.33**	**1.18**	**15.08**	**1.32**	**1.18**	**15.26**	**1.70**	**59.76**	**9.10**	**13.44**	**52.96**	**17.05**	**18.65**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	12/30/2022	5	0	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 132.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Employee Vanpool/Shuttle

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5264	1.7721	8.0155	0.0498	5.5448	9.7600e-003	5.5546	1.4295	9.0600e-003	1.4385	0.0000	4,571.5429	4,571.5429	0.0507	0.1007	4,602.8272
Unmitigated	0.5277	1.7851	8.0807	0.0504	5.6109	9.8400e-003	5.6207	1.4465	9.1400e-003	1.4557	0.0000	4,625.5258	4,625.5258	0.0510	0.1015	4,657.0358

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	4,707.00	4,707.00	4707.00	18,540,139	18,321,800
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	4,707.00	4,707.00	4,707.00	18,540,139	18,321,800

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Parking Lot	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Refrigerated Warehouse-Rail	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830
Unrefrigerated Warehouse-Rail	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Speedway Commerce Center (Phase 1a Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,740.3617	1,740.3617	0.0000	0.0000	1,740.3617
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,075.6136	2,075.6136	0.0000	0.0000	2,075.6136
NaturalGas Mitigated	0.0558	0.5075	0.4263	3.0400e-003		0.0386	0.0386		0.0386	0.0386	0.0000	552.4637	552.4637	0.0106	0.0101	555.7467
NaturalGas Unmitigated	0.0680	0.6183	0.5194	3.7100e-003		0.0470	0.0470		0.0470	0.0470	0.0000	673.1430	673.1430	0.0129	0.0123	677.1432

Speedway Commerce Center (Phase 1a Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	171500	9.2000e-004	8.4100e-003	7.0600e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1519	9.1519	1.8000e-004	1.7000e-004	9.2063
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.46625e+006	0.0349	0.3170	0.2663	1.9000e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.0637	345.0637	6.6100e-003	6.3300e-003	347.1143
Unrefrigerated Warehouse-Rail	5.97647e+006	0.0322	0.2930	0.2461	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	318.9274	318.9274	6.1100e-003	5.8500e-003	320.8226
Total		**0.0680**	**0.6183**	**0.5194**	**3.7100e-003**		**0.0470**	**0.0470**		**0.0470**	**0.0470**	**0.0000**	**673.1430**	**673.1430**	**0.0129**	**0.0124**	**677.1432**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	111475	6.0000e-004	5.4600e-003	4.5900e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	5.9487	5.9487	1.1000e-004	1.1000e-004	5.9841
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.32538e+006	0.0341	0.3101	0.2605	1.8600e-003		0.0236	0.0236		0.0236	0.0236	0.0000	337.5461	337.5461	6.4700e-003	6.1900e-003	339.5520
Unrefrigerated Warehouse-Rail	3.91593e+006	0.0211	0.1920	0.1612	1.1500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	208.9689	208.9689	4.0100e-003	3.8300e-003	210.2106
Total		**0.0558**	**0.5075**	**0.4263**	**3.0400e-003**		**0.0386**	**0.0386**		**0.0386**	**0.0386**	**0.0000**	**552.4637**	**552.4637**	**0.0106**	**0.0101**	**555.7467**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	459500	71.9069	0.0000	0.0000	71.9069
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	925890	144.8919	0.0000	0.0000	144.8919
Refrigerated Warehouse-Rail	4.98e +006	779.3171	0.0000	0.0000	779.3171
Unrefrigerated Warehouse-Rail	6.89822e +006	1,079.4978	0.0000	0.0000	1,079.4978
Total		**2,075.6136**	**0.0000**	**0.0000**	**2,075.6136**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	347500	54.3801	0.0000	0.0000	54.3801
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	601828	94.1797	0.0000	0.0000	94.1797
Refrigerated Warehouse-Rail	4.83475e+006	756.5870	0.0000	0.0000	756.5870
Unrefrigerated Warehouse-Rail	5.3372e+006	835.2149	0.0000	0.0000	835.2149
Total		**1,740.3617**	**0.0000**	**0.0000**	**1,740.3617**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	13.2901	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Unmitigated	13.2924	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.7491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8600e-003	3.8000e-004	0.0418	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.1000e-004	0.0000	0.0867
Total	**13.2924**	**3.8000e-004**	**0.0418**	**0.0000**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0814**	**0.0814**	**2.1000e-004**	**0.0000**	**0.0867**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.7491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6400e-003	2.1000e-004	0.0242	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0439	0.0439	9.0000e-005	0.0000	0.0461
Total	**13.2901**	**2.1000e-004**	**0.0242**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0439**	**0.0439**	**9.0000e-005**	**0.0000**	**0.0461**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,375.4599	18.9093	0.4465	1,981.2475
Unmitigated	1,717.6795	23.6367	0.5581	2,474.9140

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	8.88669 / 5.44668	30.3969	0.2896	6.8400e-003	39.6737
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	28.9063 / 0	68.0714	0.9419	0.0222	98.2468
Unrefrigerated Warehouse-Rail	687.592 / 0	1,619.2113	22.4052	0.5290	2,336.9935
Total		**1,717.6795**	**23.6367**	**0.5581**	**2,474.9140**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	7.10935 / 5.11443	25.6338	0.2317	5.4700e-003	33.0553
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	23.125 / 0	54.4571	0.7535	0.0178	78.5975
Unrefrigerated Warehouse-Rail	550.073 / 0	1,295.3690	17.9242	0.4232	1,869.5948
Total		**1,375.4599**	**18.9093**	**0.4465**	**1,981.2475**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	150.1610	8.8743	0.0000	372.0176
Unmitigated	600.6442	35.4971	0.0000	1,488.0705

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	46.5	9.4391	0.5578	0.0000	23.3849
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	117.5	23.8514	1.4096	0.0000	59.0909
Unrefrigerated Warehouse-Rail	2794.97	567.3537	33.5296	0.0000	1,405.5947
Total		**600.6442**	**35.4971**	**0.0000**	**1,488.0705**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	11.625	2.3598	0.1395	0.0000	5.8462
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	29.375	5.9629	0.3524	0.0000	14.7727
Unrefrigerated Warehouse-Rail	698.742	141.8384	8.3824	0.0000	351.3987
Total		**150.1610**	**8.8743**	**0.0000**	**372.0176**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 1b Passenger Cars) (*Includes Construction)

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	40.00	1000sqft	0.92	40,000.00	0
Refrigerated Warehouse-Rail	125.00	1000sqft	2.87	125,000.00	0
Unrefrigerated Warehouse-Rail	1,735.30	1000sqft	39.84	1,735,300.00	0
Other Asphalt Surfaces	61.66	Acre	61.66	2,685,909.60	0
Parking Lot	36.46	Acre	36.46	1,588,197.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	335	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 Factor adjusted per RPS

Land Use -

Construction Phase - per construction schedule

Off-road Equipment - Anticipated equipment

Off-road Equipment - Per construction equipment list

Off-road Equipment -

Off-road Equipment - Per construction equipment list

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Off-road Equipment - Per Construction equipment list

Off-road Equipment - anticipated construction equipment

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

Vehicle Trips - Phase 1b passenger cars run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products - project would not use consumer products as specified in definition, emission factor reduced by 50%

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase 1b passenger cars run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	36.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	63.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	110.00
tblConstructionPhase	NumDays	120.00	110.00
tblConstructionPhase	NumDays	310.00	64.00
tblConstructionPhase	NumDays	3,100.00	88.00
tblConstructionPhase	NumDays	220.00	85.00
tblConstructionPhase	NumDays	220.00	85.00
tblFleetMix	HHD	0.02	0.00

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tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.59
tblFleetMix	LDA	0.54	0.59
tblFleetMix	LHD2	7.0090e-003	0.00
tblFleetMix	LHD2	7.0090e-003	0.00
tblFleetMix	MH	4.6060e-003	0.00
tblFleetMix	MH	4.6060e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5200e-004	0.00
tblFleetMix	OBUS	5.5200e-004	0.00
tblFleetMix	SBUS	9.5600e-004	0.00
tblFleetMix	SBUS	9.5600e-004	0.00
tblFleetMix	UBUS	2.4800e-004	0.00
tblFleetMix	UBUS	2.4800e-004	0.00
tblGrading	MaterialExported	0.00	426,541.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	36.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	16.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	14.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

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tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	335
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblTripsAndVMT	HaulingTripLength	20.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	14,594.00
tblTripsAndVMT	HaulingTripNumber	0.00	6,388.00
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.4052e-008
tblVehicleEF	HHD	8.64	5.29
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.1350e-003	1.0677e-003
tblVehicleEF	HHD	1,377.00	811.82
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.2142e-006
tblVehicleEF	HHD	7.06	3.98
tblVehicleEF	HHD	2.14	1.67
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	2.9130e-003	2.0729e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	2.7870e-003	1.9787e-003

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tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	2.0000e-006	1.8370e-004
tblVehicleEF	HHD	5.6000e-005	4.5691e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.3000e-005	4.8603e-005
tblVehicleEF	HHD	1.0000e-006	1.7531e-007
tblVehicleEF	HHD	0.01	6.9121e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7125e-007
tblVehicleEF	HHD	2.0000e-006	1.8370e-004
tblVehicleEF	HHD	5.6000e-005	4.5691e-005
tblVehicleEF	HHD	0.67	0.57
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.3000e-005	4.8603e-005
tblVehicleEF	HHD	1.0000e-006	1.9194e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.2487e-008
tblVehicleEF	HHD	8.52	5.23
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.0010e-003	1.0080e-003
tblVehicleEF	HHD	1,359.81	803.46
tblVehicleEF	HHD	1,260.88	1,528.41

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tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.1274e-006
tblVehicleEF	HHD	6.72	3.80
tblVehicleEF	HHD	2.02	1.57
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	2.5690e-003	1.8267e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	2.4580e-003	1.7432e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	4.0000e-006	2.8198e-004
tblVehicleEF	HHD	6.5000e-005	5.0521e-005
tblVehicleEF	HHD	0.62	0.34
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.4000e-005	5.2030e-005
tblVehicleEF	HHD	1.0000e-006	1.6775e-007
tblVehicleEF	HHD	0.01	6.8329e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7031e-007
tblVehicleEF	HHD	4.0000e-006	2.8198e-004
tblVehicleEF	HHD	6.5000e-005	5.0521e-005

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tblVehicleEF	HHD	0.71	0.59
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.4000e-005	5.2030e-005
tblVehicleEF	HHD	1.0000e-006	1.8366e-007
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.3858e-008
tblVehicleEF	HHD	8.80	5.38
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.1050e-003	1.0594e-003
tblVehicleEF	HHD	1,400.73	823.37
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.1881e-006
tblVehicleEF	HHD	7.53	4.22
tblVehicleEF	HHD	2.11	1.64
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	3.3870e-003	2.4128e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	3.2410e-003	2.3039e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02

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tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	2.0000e-006	1.8870e-004
tblVehicleEF	HHD	6.5000e-005	4.5240e-005
tblVehicleEF	HHD	0.53	0.29
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.4000e-005	5.1002e-005
tblVehicleEF	HHD	1.0000e-006	1.7434e-007
tblVehicleEF	HHD	0.01	7.0215e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7112e-007
tblVehicleEF	HHD	2.0000e-006	1.8870e-004
tblVehicleEF	HHD	6.5000e-005	4.5240e-005
tblVehicleEF	HHD	0.61	0.54
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.4000e-005	5.1002e-005
tblVehicleEF	HHD	1.0000e-006	1.9088e-007
tblVehicleEF	LDA	1.7080e-003	1.9620e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.53	0.67
tblVehicleEF	LDA	1.93	2.61
tblVehicleEF	LDA	238.15	260.20
tblVehicleEF	LDA	48.93	64.94
tblVehicleEF	LDA	3.9170e-003	4.0426e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1205e-003

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tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.1620e-003	7.1305e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.26
tblVehicleEF	LDA	2.3560e-003	2.5722e-003
tblVehicleEF	LDA	4.8400e-004	6.4196e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	8.9600e-003	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDA	1.9600e-003	2.0865e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.65	0.89
tblVehicleEF	LDA	1.61	2.19
tblVehicleEF	LDA	259.99	282.24
tblVehicleEF	LDA	48.33	64.15
tblVehicleEF	LDA	3.6720e-003	3.5948e-003
tblVehicleEF	LDA	0.02	0.03

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tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.14	0.20
tblVehicleEF	LDA	0.04	7.1205e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.10	0.40
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	6.9860e-003	7.4844e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.15	0.23
tblVehicleEF	LDA	2.5720e-003	2.7900e-003
tblVehicleEF	LDA	4.7800e-004	6.3423e-004
tblVehicleEF	LDA	0.10	0.40
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	1.6660e-003	1.9458e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.50	0.62
tblVehicleEF	LDA	1.90	2.61
tblVehicleEF	LDA	233.04	256.15

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tblVehicleEF	LDA	48.87	64.95
tblVehicleEF	LDA	3.7570e-003	3.9376e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1205e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.0060e-003	7.0743e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	2.3050e-003	2.5322e-003
tblVehicleEF	LDA	4.8400e-004	6.4209e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	8.7330e-003	0.01
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDT1	4.5970e-003	8.1809e-003
tblVehicleEF	LDT1	0.06	0.12

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tblVehicleEF	LDT1	1.02	1.81
tblVehicleEF	LDT1	2.15	5.92
tblVehicleEF	LDT1	283.77	334.40
tblVehicleEF	LDT1	59.69	88.18
tblVehicleEF	LDT1	6.7580e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.08	0.17
tblVehicleEF	LDT1	0.23	0.44
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	2.8080e-003	3.3058e-003
tblVehicleEF	LDT1	5.9100e-004	8.7174e-004
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.09	0.08

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tblVehicleEF	LDT1	0.34	0.69
tblVehicleEF	LDT1	5.2210e-003	8.6781e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	1.24	2.41
tblVehicleEF	LDT1	1.79	4.93
tblVehicleEF	LDT1	306.50	360.35
tblVehicleEF	LDT1	58.95	86.30
tblVehicleEF	LDT1	6.2730e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.14
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.30	1.20
tblVehicleEF	LDT1	0.25	0.24
tblVehicleEF	LDT1	0.23	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.26	0.54
tblVehicleEF	LDT1	3.0330e-003	3.5624e-003
tblVehicleEF	LDT1	5.8300e-004	8.5315e-004
tblVehicleEF	LDT1	0.30	1.20
tblVehicleEF	LDT1	0.25	0.24

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tblVehicleEF	LDT1	0.23	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.29	0.59
tblVehicleEF	LDT1	4.4920e-003	8.1118e-003
tblVehicleEF	LDT1	0.06	0.12
tblVehicleEF	LDT1	0.97	1.70
tblVehicleEF	LDT1	2.11	5.94
tblVehicleEF	LDT1	278.38	329.62
tblVehicleEF	LDT1	59.63	88.22
tblVehicleEF	LDT1	6.4760e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.08	0.16
tblVehicleEF	LDT1	0.23	0.44
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.23	0.22
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	2.7550e-003	3.2586e-003

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tblVehicleEF	LDT1	5.9000e-004	8.7210e-004
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.23	0.22
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.34	0.69
tblVehicleEF	LDT2	3.0790e-003	2.7679e-003
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.77	0.84
tblVehicleEF	LDT2	2.49	3.23
tblVehicleEF	LDT2	296.94	338.28
tblVehicleEF	LDT2	62.71	84.59
tblVehicleEF	LDT2	5.6980e-003	5.7730e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.24	0.30
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.09	0.33
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.01	0.01

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tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	2.9380e-003	3.3439e-003
tblVehicleEF	LDT2	6.2100e-004	8.3622e-004
tblVehicleEF	LDT2	0.09	0.33
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.5190e-003	2.9421e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.94	1.12
tblVehicleEF	LDT2	2.06	2.71
tblVehicleEF	LDT2	318.51	361.67
tblVehicleEF	LDT2	61.89	83.60
tblVehicleEF	LDT2	5.3190e-003	5.1454e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.06	0.05
tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.18	0.42

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tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.23	0.29
tblVehicleEF	LDT2	3.1510e-003	3.5751e-003
tblVehicleEF	LDT2	6.1200e-004	8.2646e-004
tblVehicleEF	LDT2	0.18	0.42
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	3.0060e-003	2.7451e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.73	0.78
tblVehicleEF	LDT2	2.45	3.24
tblVehicleEF	LDT2	291.83	333.98
tblVehicleEF	LDT2	62.64	84.61
tblVehicleEF	LDT2	5.4640e-003	5.6264e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.23	0.30
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003

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tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	2.8870e-003	3.3013e-003
tblVehicleEF	LDT2	6.2000e-004	8.3642e-004
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LHD1	4.4980e-003	5.0070e-003
tblVehicleEF	LHD1	4.8130e-003	2.8214e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.64	0.61
tblVehicleEF	LHD1	0.94	1.92
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.71	354.89
tblVehicleEF	LHD1	10.21	16.27
tblVehicleEF	LHD1	8.5900e-004	7.2256e-004
tblVehicleEF	LHD1	0.04	5.3107e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06

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tblVehicleEF	LHD1	1.13	0.09
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	4.7768e-003
tblVehicleEF	LHD1	9.4060e-003	6.8794e-004
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5020e-003	1.1942e-003
tblVehicleEF	LHD1	8.9760e-003	6.3253e-004
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	2.6930e-003	0.13
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3450e-003	0.00
tblVehicleEF	LHD1	0.05	0.01
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	3.5084e-003
tblVehicleEF	LHD1	1.0100e-004	1.6083e-004
tblVehicleEF	LHD1	2.6930e-003	0.13
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3450e-003	0.00
tblVehicleEF	LHD1	0.07	0.02
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.07	0.11

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tblVehicleEF	LHD1	4.5120e-003	5.0253e-003
tblVehicleEF	LHD1	4.9120e-003	1.8912e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.66	0.12
tblVehicleEF	LHD1	0.88	1.82
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.74	196.64
tblVehicleEF	LHD1	10.10	16.10
tblVehicleEF	LHD1	8.6200e-004	7.2487e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.06	0.60
tblVehicleEF	LHD1	0.26	0.38
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9102e-003
tblVehicleEF	LHD1	9.4060e-003	0.01
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5020e-003	1.2276e-003
tblVehicleEF	LHD1	8.9760e-003	9.7899e-003
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	5.2970e-003	0.17
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.0170e-003	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	1.8632e-003
tblVehicleEF	LHD1	1.0000e-004	1.5918e-004
tblVehicleEF	LHD1	5.2970e-003	0.17
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.0170e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.5010e-003	5.0091e-003
tblVehicleEF	LHD1	4.8240e-003	1.8912e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.64	0.12
tblVehicleEF	LHD1	0.92	1.91
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.72	196.64
tblVehicleEF	LHD1	10.18	16.25
tblVehicleEF	LHD1	8.6000e-004	7.2322e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.11	0.62
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9102e-003
tblVehicleEF	LHD1	9.4060e-003	0.01
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5020e-003	1.2276e-003
tblVehicleEF	LHD1	8.9760e-003	9.7899e-003
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	2.9190e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3230e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	1.8632e-003
tblVehicleEF	LHD1	1.0100e-004	1.6066e-004
tblVehicleEF	LHD1	2.9190e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3230e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD2	3.0290e-003	3.3816e-003
tblVehicleEF	LHD2	3.3290e-003	1.0183e-003
tblVehicleEF	LHD2	7.7710e-003	0.01

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tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.43	0.26
tblVehicleEF	LHD2	0.54	1.18
tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.31	236.88
tblVehicleEF	LHD2	7.26	10.25
tblVehicleEF	LHD2	1.8100e-003	1.6419e-003
tblVehicleEF	LHD2	0.06	3.0442e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.21	0.05
tblVehicleEF	LHD2	0.18	0.26
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8235e-003
tblVehicleEF	LHD2	0.01	3.4405e-004
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7030e-003	7.0588e-004
tblVehicleEF	LHD2	0.01	3.1634e-004
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	1.3290e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2000e-004	0.00
tblVehicleEF	LHD2	0.05	4.6402e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06

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tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0100e-003	2.3418e-003
tblVehicleEF	LHD2	7.2000e-005	1.0131e-004
tblVehicleEF	LHD2	1.3290e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2000e-004	0.00
tblVehicleEF	LHD2	0.06	6.7710e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.0380e-003	3.3937e-003
tblVehicleEF	LHD2	3.3590e-003	2.7712e-003
tblVehicleEF	LHD2	7.4220e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.44	0.16
tblVehicleEF	LHD2	0.51	1.12
tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.32	376.11
tblVehicleEF	LHD2	7.20	10.14
tblVehicleEF	LHD2	1.8120e-003	1.6434e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.14	0.75
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.8326e-003
tblVehicleEF	LHD2	0.01	0.02

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tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7030e-003	1.9582e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	2.5650e-003	0.10
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5490e-003	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0110e-003	3.5639e-003
tblVehicleEF	LHD2	7.1000e-005	1.0029e-004
tblVehicleEF	LHD2	2.5650e-003	0.10
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5490e-003	0.00
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.0310e-003	3.3829e-003
tblVehicleEF	LHD2	3.3320e-003	2.7712e-003
tblVehicleEF	LHD2	7.7050e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.43	0.16
tblVehicleEF	LHD2	0.54	1.18

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tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.31	376.11
tblVehicleEF	LHD2	7.24	10.24
tblVehicleEF	LHD2	1.8110e-003	1.6423e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.20	0.78
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.8326e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7030e-003	1.9582e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	1.3530e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9900e-004	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0100e-003	3.5639e-003
tblVehicleEF	LHD2	7.2000e-005	1.0120e-004

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tblVehicleEF	LHD2	1.3530e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9900e-004	0.00
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.57
tblVehicleEF	MCY	0.25	0.17
tblVehicleEF	MCY	19.66	0.57
tblVehicleEF	MCY	8.85	7.68
tblVehicleEF	MCY	211.00	0.57
tblVehicleEF	MCY	60.62	47.89
tblVehicleEF	MCY	0.07	0.57
tblVehicleEF	MCY	0.02	7.8912e-003
tblVehicleEF	MCY	1.15	0.57
tblVehicleEF	MCY	0.27	0.13
tblVehicleEF	MCY	0.01	0.57
tblVehicleEF	MCY	4.0000e-003	0.57
tblVehicleEF	MCY	1.9320e-003	0.57
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.57
tblVehicleEF	MCY	1.0000e-003	0.57
tblVehicleEF	MCY	1.8050e-003	0.57
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	1.45	2.50
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.19	0.57

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tblVehicleEF	MCY	0.40	0.57
tblVehicleEF	MCY	1.87	1.27
tblVehicleEF	MCY	2.0880e-003	0.57
tblVehicleEF	MCY	6.0000e-004	4.7345e-004
tblVehicleEF	MCY	1.45	2.50
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.71	0.57
tblVehicleEF	MCY	0.40	0.57
tblVehicleEF	MCY	2.04	1.39
tblVehicleEF	MCY	0.32	0.49
tblVehicleEF	MCY	0.21	0.15
tblVehicleEF	MCY	19.80	0.49
tblVehicleEF	MCY	7.97	6.92
tblVehicleEF	MCY	211.03	0.49
tblVehicleEF	MCY	58.35	46.19
tblVehicleEF	MCY	0.06	0.49
tblVehicleEF	MCY	0.01	7.7414e-003
tblVehicleEF	MCY	0.98	0.49
tblVehicleEF	MCY	0.25	0.12
tblVehicleEF	MCY	0.01	0.49
tblVehicleEF	MCY	4.0000e-003	0.49
tblVehicleEF	MCY	1.9320e-003	0.49
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.49
tblVehicleEF	MCY	1.0000e-003	0.49
tblVehicleEF	MCY	1.8050e-003	0.49
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	3.13	3.75

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tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.09	0.00
tblVehicleEF	MCY	2.14	0.49
tblVehicleEF	MCY	0.40	0.49
tblVehicleEF	MCY	1.61	1.12
tblVehicleEF	MCY	2.0880e-003	0.49
tblVehicleEF	MCY	5.7700e-004	4.5668e-004
tblVehicleEF	MCY	3.13	3.75
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.09	0.00
tblVehicleEF	MCY	2.65	0.49
tblVehicleEF	MCY	0.40	0.49
tblVehicleEF	MCY	1.75	1.22
tblVehicleEF	MCY	0.32	0.55
tblVehicleEF	MCY	0.24	0.17
tblVehicleEF	MCY	18.81	0.55
tblVehicleEF	MCY	8.50	7.56
tblVehicleEF	MCY	209.52	0.55
tblVehicleEF	MCY	59.85	47.66
tblVehicleEF	MCY	0.06	0.55
tblVehicleEF	MCY	0.02	7.8973e-003
tblVehicleEF	MCY	1.11	0.55
tblVehicleEF	MCY	0.26	0.13
tblVehicleEF	MCY	0.01	0.55
tblVehicleEF	MCY	4.0000e-003	0.55
tblVehicleEF	MCY	1.9320e-003	0.55
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.55
tblVehicleEF	MCY	1.0000e-003	0.55

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tblVehicleEF	MCY	1.8050e-003	0.55
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.09	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.16	0.55
tblVehicleEF	MCY	0.46	0.55
tblVehicleEF	MCY	1.81	1.26
tblVehicleEF	MCY	2.0730e-003	0.55
tblVehicleEF	MCY	5.9200e-004	4.7113e-004
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.09	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.67	0.55
tblVehicleEF	MCY	0.46	0.55
tblVehicleEF	MCY	1.97	1.37
tblVehicleEF	MDV	3.8560e-003	3.9181e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.86	1.01
tblVehicleEF	MDV	2.81	3.65
tblVehicleEF	MDV	371.74	414.62
tblVehicleEF	MDV	77.98	104.08
tblVehicleEF	MDV	7.9270e-003	8.3898e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003

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tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.15	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.6750e-003	4.0968e-003
tblVehicleEF	MDV	7.7200e-004	1.0290e-003
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.15	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.37	0.52
tblVehicleEF	MDV	4.4140e-003	4.1664e-003
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	1.05	1.35
tblVehicleEF	MDV	2.33	3.05
tblVehicleEF	MDV	394.46	438.81
tblVehicleEF	MDV	77.03	102.92
tblVehicleEF	MDV	7.4690e-003	7.5539e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	0.27	0.39

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tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003
tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.22	0.56
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	3.9000e-003	4.3359e-003
tblVehicleEF	MDV	7.6200e-004	1.0174e-003
tblVehicleEF	MDV	0.22	0.56
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	3.7610e-003	3.8843e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.81	0.95
tblVehicleEF	MDV	2.77	3.66
tblVehicleEF	MDV	366.36	410.18
tblVehicleEF	MDV	77.90	104.11
tblVehicleEF	MDV	7.6430e-003	8.1953e-003

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tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003
tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.10	0.46
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.6210e-003	4.0528e-003
tblVehicleEF	MDV	7.7100e-004	1.0293e-003
tblVehicleEF	MDV	0.10	0.46
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MH	8.6210e-003	5.1346e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.00	2.4369e-003
tblVehicleEF	MH	1.95	2.24

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tblVehicleEF	MH	1,433.73	5.1751e-003
tblVehicleEF	MH	17.85	22.02
tblVehicleEF	MH	0.06	1.1392e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.46	1.36
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	5.2895e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	0.98	34.03
tblVehicleEF	MH	0.06	7.99
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.05	4.6949e-008
tblVehicleEF	MH	0.02	2.0695e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	4.2408e-005
tblVehicleEF	MH	1.7700e-004	2.1766e-004
tblVehicleEF	MH	0.98	34.03
tblVehicleEF	MH	0.06	7.99
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.07	5.4238e-003
tblVehicleEF	MH	0.02	2.0695e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	8.8540e-003	5.2651e-005

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tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.03	2.6059e-003
tblVehicleEF	MH	1.78	2.09
tblVehicleEF	MH	1,433.78	5.1753e-003
tblVehicleEF	MH	17.57	21.75
tblVehicleEF	MH	0.06	1.0607e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.35	1.27
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	4.9873e-004
tblVehicleEF	MH	0.04	0.12
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	1.94	44.12
tblVehicleEF	MH	0.07	8.66
tblVehicleEF	MH	0.84	0.00
tblVehicleEF	MH	0.06	4.5071e-008
tblVehicleEF	MH	0.02	2.1519e-003
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	4.5351e-005
tblVehicleEF	MH	1.7400e-004	2.1504e-004
tblVehicleEF	MH	1.94	44.12
tblVehicleEF	MH	0.07	8.66
tblVehicleEF	MH	0.84	0.00
tblVehicleEF	MH	0.07	6.0613e-003

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tblVehicleEF	MH	0.02	2.1519e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	8.6430e-003	5.1387e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.00	2.5018e-003
tblVehicleEF	MH	1.93	2.25
tblVehicleEF	MH	1,433.73	5.1751e-003
tblVehicleEF	MH	17.82	22.03
tblVehicleEF	MH	0.06	1.1147e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.43	1.34
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	5.2030e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	1.12	34.18
tblVehicleEF	MH	0.07	7.95
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.05	4.5982e-008
tblVehicleEF	MH	0.02	2.1228e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	4.3538e-005
tblVehicleEF	MH	1.7600e-004	2.1774e-004
tblVehicleEF	MH	1.12	34.18

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tblVehicleEF	MH	0.07	7.95
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.07	5.3980e-003
tblVehicleEF	MH	0.02	2.1228e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MHD	3.0370e-003	0.02
tblVehicleEF	MHD	1.0670e-003	7.6783e-003
tblVehicleEF	MHD	7.4460e-003	5.9090e-003
tblVehicleEF	MHD	0.34	0.64
tblVehicleEF	MHD	0.14	0.19
tblVehicleEF	MHD	0.80	0.67
tblVehicleEF	MHD	63.12	159.53
tblVehicleEF	MHD	940.09	1,118.67
tblVehicleEF	MHD	7.43	5.86
tblVehicleEF	MHD	9.1720e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1470e-003	4.2304e-003
tblVehicleEF	MHD	0.34	0.82
tblVehicleEF	MHD	1.01	0.67
tblVehicleEF	MHD	1.77	1.48
tblVehicleEF	MHD	2.4100e-004	1.1608e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	2.3000e-004	1.1099e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003

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tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	4.4300e-004	0.02
tblVehicleEF	MHD	0.02	4.3023e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.3800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.9479e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9900e-004	1.4651e-003
tblVehicleEF	MHD	8.9580e-003	0.01
tblVehicleEF	MHD	7.4000e-005	5.7952e-005
tblVehicleEF	MHD	4.4300e-004	0.02
tblVehicleEF	MHD	0.02	4.3023e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.3800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	9.9479e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	2.8930e-003	0.02
tblVehicleEF	MHD	1.0900e-003	7.7026e-003
tblVehicleEF	MHD	7.1060e-003	5.6772e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.15	0.20
tblVehicleEF	MHD	0.75	0.63
tblVehicleEF	MHD	62.88	158.09
tblVehicleEF	MHD	940.09	1,118.68
tblVehicleEF	MHD	7.34	5.80
tblVehicleEF	MHD	9.1040e-003	0.02
tblVehicleEF	MHD	0.12	0.15

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tblVehicleEF	MHD	6.0170e-003	4.1601e-003
tblVehicleEF	MHD	0.33	0.79
tblVehicleEF	MHD	0.95	0.62
tblVehicleEF	MHD	1.76	1.47
tblVehicleEF	MHD	2.0600e-004	9.8923e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	1.9700e-004	9.4576e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	8.6600e-004	0.03
tblVehicleEF	MHD	0.02	4.6560e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	5.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9700e-004	1.4515e-003
tblVehicleEF	MHD	8.9590e-003	0.01
tblVehicleEF	MHD	7.3000e-005	5.7322e-005
tblVehicleEF	MHD	8.6600e-004	0.03
tblVehicleEF	MHD	0.02	4.6560e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	5.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.03

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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	3.2500e-003	0.02
tblVehicleEF	MHD	1.0690e-003	7.6786e-003
tblVehicleEF	MHD	7.3590e-003	5.8669e-003
tblVehicleEF	MHD	0.40	0.69
tblVehicleEF	MHD	0.14	0.19
tblVehicleEF	MHD	0.79	0.66
tblVehicleEF	MHD	63.46	161.53
tblVehicleEF	MHD	940.09	1,118.67
tblVehicleEF	MHD	7.41	5.85
tblVehicleEF	MHD	9.2690e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1040e-003	4.2126e-003
tblVehicleEF	MHD	0.36	0.86
tblVehicleEF	MHD	0.99	0.65
tblVehicleEF	MHD	1.77	1.47
tblVehicleEF	MHD	2.8900e-004	1.3976e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	2.7600e-004	1.3365e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	4.6200e-004	0.02
tblVehicleEF	MHD	0.02	4.2766e-003

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tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.0200e-004	1.4839e-003
tblVehicleEF	MHD	8.9580e-003	0.01
tblVehicleEF	MHD	7.3000e-005	5.7865e-005
tblVehicleEF	MHD	4.6200e-004	0.02
tblVehicleEF	MHD	0.02	4.2766e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	OBUS	9.0060e-003	0.02
tblVehicleEF	OBUS	5.7900e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.53
tblVehicleEF	OBUS	0.69	0.84
tblVehicleEF	OBUS	2.52	2.63
tblVehicleEF	OBUS	66.45	74.72
tblVehicleEF	OBUS	1,394.03	1,435.64
tblVehicleEF	OBUS	20.71	22.01
tblVehicleEF	OBUS	8.3390e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.28
tblVehicleEF	OBUS	0.87	1.03

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tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	8.1000e-005	4.9883e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	7.8000e-005	4.7670e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	2.7570e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1520e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.3400e-004	6.7271e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0500e-004	2.1760e-004
tblVehicleEF	OBUS	2.7570e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1520e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	9.0820e-003	0.02

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tblVehicleEF	OBUS	5.9630e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.53
tblVehicleEF	OBUS	0.71	0.85
tblVehicleEF	OBUS	2.32	2.45
tblVehicleEF	OBUS	65.76	74.12
tblVehicleEF	OBUS	1,394.07	1,435.67
tblVehicleEF	OBUS	20.35	21.70
tblVehicleEF	OBUS	8.2370e-003	9.9572e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.23	0.27
tblVehicleEF	OBUS	0.80	0.96
tblVehicleEF	OBUS	0.66	0.68
tblVehicleEF	OBUS	7.2000e-005	4.2688e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	6.9000e-005	4.0786e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	5.3510e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.6140e-003	0.00
tblVehicleEF	OBUS	0.03	0.05

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tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.2800e-004	6.6695e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0100e-004	2.1453e-004
tblVehicleEF	OBUS	5.3510e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	2.6140e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.14
tblVehicleEF	OBUS	8.9410e-003	0.02
tblVehicleEF	OBUS	5.8090e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.54
tblVehicleEF	OBUS	0.69	0.84
tblVehicleEF	OBUS	2.51	2.64
tblVehicleEF	OBUS	67.41	75.56
tblVehicleEF	OBUS	1,394.04	1,435.65
tblVehicleEF	OBUS	20.67	22.02
tblVehicleEF	OBUS	8.4910e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.26	0.29
tblVehicleEF	OBUS	0.86	1.02
tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	9.4000e-005	5.9818e-004
tblVehicleEF	OBUS	0.13	0.05

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	9.0000e-005	5.7176e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	2.9210e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1560e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.4400e-004	6.8066e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0500e-004	2.1770e-004
tblVehicleEF	OBUS	2.9210e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	1.1560e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.6520e-003	1.35
tblVehicleEF	SBUS	4.4230e-003	6.8206e-003
tblVehicleEF	SBUS	2.12	2.94

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tblVehicleEF	SBUS	0.48	5.02
tblVehicleEF	SBUS	0.58	0.87
tblVehicleEF	SBUS	331.70	270.15
tblVehicleEF	SBUS	1,082.52	1,220.57
tblVehicleEF	SBUS	3.48	5.41
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.7600e-003	5.9990e-003
tblVehicleEF	SBUS	3.05	1.10
tblVehicleEF	SBUS	4.26	2.21
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	2.9700e-003	1.5870e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	2.8410e-003	1.4998e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	7.5800e-004	0.06
tblVehicleEF	SBUS	5.7310e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	9.7720e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.1550e-003	1.2523e-003

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tblVehicleEF	SBUS	0.01	6.7230e-003
tblVehicleEF	SBUS	3.4000e-005	5.3511e-005
tblVehicleEF	SBUS	7.5800e-004	0.06
tblVehicleEF	SBUS	5.7310e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	9.7720e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.7220e-003	1.35
tblVehicleEF	SBUS	3.6550e-003	5.7134e-003
tblVehicleEF	SBUS	2.09	2.93
tblVehicleEF	SBUS	0.49	5.03
tblVehicleEF	SBUS	0.41	0.63
tblVehicleEF	SBUS	337.86	272.68
tblVehicleEF	SBUS	1,082.54	1,220.60
tblVehicleEF	SBUS	3.19	5.01
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.6220e-003	5.7874e-003
tblVehicleEF	SBUS	3.09	1.13
tblVehicleEF	SBUS	3.99	2.07
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	2.5130e-003	1.4170e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005

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tblVehicleEF	SBUS	2.4040e-003	1.3372e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	1.3700e-003	0.08
tblVehicleEF	SBUS	5.9610e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	7.3800e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	8.9590e-003	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.2130e-003	1.2763e-003
tblVehicleEF	SBUS	0.01	6.7233e-003
tblVehicleEF	SBUS	3.2000e-005	4.9531e-005
tblVehicleEF	SBUS	1.3700e-003	0.08
tblVehicleEF	SBUS	5.9610e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	7.3800e-004	0.00
tblVehicleEF	SBUS	0.10	1.45
tblVehicleEF	SBUS	8.9590e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.6490e-003	1.35
tblVehicleEF	SBUS	4.5230e-003	7.0265e-003
tblVehicleEF	SBUS	2.16	2.95
tblVehicleEF	SBUS	0.48	5.02
tblVehicleEF	SBUS	0.60	0.91
tblVehicleEF	SBUS	323.18	266.66

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tblVehicleEF	SBUS	1,082.52	1,220.58
tblVehicleEF	SBUS	3.50	5.48
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.7940e-003	6.0725e-003
tblVehicleEF	SBUS	2.98	1.07
tblVehicleEF	SBUS	4.20	2.18
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	3.6010e-003	1.8216e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	3.4450e-003	1.7243e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	7.0600e-004	0.06
tblVehicleEF	SBUS	5.8560e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0740e-003	1.2192e-003
tblVehicleEF	SBUS	0.01	6.7230e-003
tblVehicleEF	SBUS	3.5000e-005	5.4167e-005
tblVehicleEF	SBUS	7.0600e-004	0.06

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tblVehicleEF	SBUS	5.8560e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8958e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.41	1.08
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	16.41	7.56
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	1.1890e-003	0.02
tblVehicleEF	UBUS	8.9290e-003	4.7458e-003
tblVehicleEF	UBUS	6.9100e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.0620e-003	5.0276e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6140e-004
tblVehicleEF	UBUS	1.6200e-004	7.4748e-005
tblVehicleEF	UBUS	1.1890e-003	0.02
tblVehicleEF	UBUS	8.9290e-003	4.7458e-003
tblVehicleEF	UBUS	6.9100e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.0620e-003	5.0276e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.2083e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.16	0.92
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	15.98	7.30
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.35	0.39
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	2.2690e-003	0.03
tblVehicleEF	UBUS	0.01	5.1891e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.5870e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.0440e-003	5.2527e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6142e-004
tblVehicleEF	UBUS	1.5800e-004	7.2167e-005
tblVehicleEF	UBUS	2.2690e-003	0.03
tblVehicleEF	UBUS	0.01	5.1891e-003
tblVehicleEF	UBUS	1.5870e-003	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.0440e-003	5.2527e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.9529e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.38	1.10
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	16.35	7.59
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	1.2470e-003	0.02
tblVehicleEF	UBUS	0.01	4.7112e-003
tblVehicleEF	UBUS	6.8300e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.2180e-003	5.2205e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6140e-004
tblVehicleEF	UBUS	1.6200e-004	7.5006e-005
tblVehicleEF	UBUS	1.2470e-003	0.02
tblVehicleEF	UBUS	0.01	4.7112e-003
tblVehicleEF	UBUS	6.8300e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.2180e-003	5.2205e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	CC_TTP	0.00	48.00
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	33.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	2.21	141.21
tblVehicleTrips	ST_TR	0.00	7.31
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	0.70	141.21
tblVehicleTrips	SU_TR	0.00	7.31
tblVehicleTrips	SU_TR	2.12	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	9.74	141.21
tblVehicleTrips	WD_TR	0.00	7.31
tblVehicleTrips	WD_TR	2.12	0.00
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	12.5191	32.3687	30.6620	0.1125	6.5299	1.0831	7.6130	1.8261	1.0162	2.8423	0.0000	10,480.6630	10,480.6630	1.2840	0.8463	10,764.9644
Maximum	**12.5191**	**32.3687**	**30.6620**	**0.1125**	**6.5299**	**1.0831**	**7.6130**	**1.8261**	**1.0162**	**2.8423**	**0.0000**	**10,480.6630**	**10,480.6630**	**1.2840**	**0.8463**	**10,764.9644**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	11.1091	17.6140	33.9789	0.1125	4.3291	0.3671	4.6962	1.1992	0.3474	1.5466	0.0000	10,480.6581	10,480.6581	1.2840	0.8463	10,764.9595
Maximum	**11.1091**	**17.6140**	**33.9789**	**0.1125**	**4.3291**	**0.3671**	**4.6962**	**1.1992**	**0.3474**	**1.5466**	**0.0000**	**10,480.6581**	**10,480.6581**	**1.2840**	**0.8463**	**10,764.9595**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.26**	**45.58**	**-10.82**	**0.00**	**33.70**	**66.10**	**38.31**	**34.33**	**65.81**	**45.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2024	3-31-2024	10.9647	8.4252
2	4-1-2024	6-30-2024	13.1785	6.6526
3	7-1-2024	9-30-2024	10.6268	5.1783
		Highest	13.1785	8.4252

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0856	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528
Energy	0.0544	0.4947	0.4155	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	2,047.3169	2,047.3169	0.0103	9.8700e-003	2,050.5171
Mobile	3.0627	2.5084	28.8972	0.4530	7.5167	0.4118	7.9284	2.4347	0.4088	2.8435	0.0000	7,231.8637	7,231.8637	0.5662	0.5382	7,406.3982
Waste						0.0000	0.0000		0.0000	0.0000	362.5175	0.0000	362.5175	21.4242	0.0000	898.1218
Water						0.0000	0.0000		0.0000	0.0000	138.7363	872.5990	1,011.3353	14.2496	0.3365	1,467.8399
Total	**11.2027**	**3.0033**	**29.3382**	**0.4560**	**7.5167**	**0.4495**	**7.9661**	**2.4347**	**0.4465**	**2.8812**	**501.2538**	**10,151.8293**	**10,653.0831**	**36.2503**	**0.8845**	**11,822.9298**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0842	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Energy	0.0469	0.4265	0.3582	2.5600e-003		0.0324	0.0324		0.0324	0.0324	0.0000	1,769.3795	1,769.3795	8.9000e-003	8.5100e-003	1,772.1383
Mobile	3.0550	2.4868	28.6476	0.4477	7.4281	0.4070	7.8351	2.4060	0.4040	2.8101	0.0000	7,148.6156	7,148.6156	0.5614	0.5327	7,321.3945
Waste						0.0000	0.0000		0.0000	0.0000	90.6294	0.0000	90.6294	5.3560	0.0000	224.5304
Water						0.0000	0.0000		0.0000	0.0000	110.9890	699.1017	810.0908	11.3996	0.2692	1,175.2944
Total	**11.1861**	**2.9134**	**29.0206**	**0.4503**	**7.4281**	**0.4395**	**7.8676**	**2.4060**	**0.4365**	**2.8425**	**201.6184**	**9,617.1235**	**9,818.7419**	**17.3260**	**0.8104**	**10,493.3858**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.15**	**3.00**	**1.08**	**1.25**	**1.18**	**2.23**	**1.24**	**1.18**	**2.24**	**1.34**	**59.78**	**5.27**	**7.83**	**52.20**	**8.38**	**11.25**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2024	5/31/2024	5	110	
2	Road Construction/Utilities	Site Preparation	1/1/2024	5/31/2024	5	110	
3	Excavation/Mass Site Grading	Grading	2/1/2024	4/30/2024	5	64	

4	Concrete Pour	Building Construction	5/1/2024	8/30/2024	5	88	
5	Paving/Landscap/Site Finishes	Paving	9/1/2024	12/27/2024	5	85	
6	Architectural Coating	Architectural Coating	9/1/2024	12/27/2024	5	85	

Acres of Grading (Site Preparation Phase): 165

Acres of Grading (Grading Phase): 1120

Acres of Paving: 98.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,850,450; Non-Residential Outdoor: 950,150; Striped Parking Area: 256,446 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Road Construction/Utilities	Excavators	2	8.00	158	0.38
Road Construction/Utilities	Off-Highway Trucks	1	8.00	402	0.38
Road Construction/Utilities	Rubber Tired Dozers	3	8.00	247	0.40
Road Construction/Utilities	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Road Construction/Utilities	Trenchers	2	8.00	78	0.50
Excavation/Mass Site Grading	Excavators	0	8.00	158	0.38
Excavation/Mass Site Grading	Graders	2	8.00	187	0.41
Excavation/Mass Site Grading	Off-Highway Trucks	3	8.00	402	0.38
Excavation/Mass Site Grading	Other Construction Equipment	1	8.00	172	0.42
Excavation/Mass Site Grading	Rollers	1	8.00	80	0.38
Excavation/Mass Site Grading	Rubber Tired Dozers	1	8.00	247	0.40
Excavation/Mass Site Grading	Rubber Tired Loaders	1	8.00	203	0.36
Excavation/Mass Site Grading	Scrapers	16	8.00	367	0.48
Excavation/Mass Site Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Concrete Pour	Cranes	2	8.00	231	0.29
Concrete Pour	Forklifts	10	8.00	89	0.20
Concrete Pour	Generator Sets	36	8.00	84	0.74
Concrete Pour	Off-Highway Trucks	8	8.00	402	0.38
Concrete Pour	Other General Industrial Equipment	57	8.00	88	0.34
Concrete Pour	Pumps	2	7.00	84	0.74
Concrete Pour	Rollers	2	8.00	80	0.38
Concrete Pour	Tractors/Loaders/Backhoes	14	7.00	97	0.37
Concrete Pour	Welders	0	8.00	46	0.45
Paving/Landscap/Site Finishes	Graders	2	8.00	187	0.41
Paving/Landscap/Site Finishes	Off-Highway Trucks	3	8.00	402	0.38
Paving/Landscap/Site Finishes	Other Construction Equipment	2	8.00	172	0.42
Paving/Landscap/Site Finishes	Other General Industrial Equipment	6	8.00	88	0.34
Paving/Landscap/Site Finishes	Pavers	0	8.00	130	0.42
Paving/Landscap/Site Finishes	Paving Equipment	1	8.00	132	0.36
Paving/Landscap/Site Finishes	Rollers	6	8.00	80	0.38
Paving/Landscap/Site Finishes	Scrapers	1	8.00	367	0.48
Paving/Landscap/Site Finishes	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Architectural Coating	Air Compressors	3	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	12,503.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Road Construction/Utilities	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Mass Site Grading	25	63.00	0.00	53,318.00	14.70	6.90	50.00	LD_Mix	HDT_Mix	HHDT
Concrete Pour	131	2,589.00	1,012.00	14,594.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving/Landscap/Site Finishes	25	63.00	0.00	6,388.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating		3	518.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3530	0.0000	1.3530	0.2049	0.0000	0.2049	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1234	1.1483	1.0839	2.1400e-003		0.0528	0.0528		0.0491	0.0491	0.0000	186.9783	186.9783	0.0523	0.0000	188.2861
Total	**0.1234**	**1.1483**	**1.0839**	**2.1400e-003**	**1.3530**	**0.0528**	**1.4058**	**0.2049**	**0.0491**	**0.2539**	**0.0000**	**186.9783**	**186.9783**	**0.0523**	**0.0000**	**188.2861**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0145	0.7295	0.2115	3.4500e-003	0.1077	7.1400e-003	0.1148	0.0296	6.8300e-003	0.0364	0.0000	341.3667	341.3667	0.0144	0.0541	357.8495
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6700e-003	1.9000e-003	0.0249	7.0000e-005	9.0500e-003	4.0000e-005	9.0900e-003	2.4000e-003	4.0000e-005	2.4400e-003	0.0000	6.7750	6.7750	1.7000e-004	1.8000e-004	6.8321
Total	**0.0171**	**0.7314**	**0.2364**	**3.5200e-003**	**0.1167**	**7.1800e-003**	**0.1239**	**0.0320**	**6.8700e-003**	**0.0389**	**0.0000**	**348.1417**	**348.1417**	**0.0145**	**0.0543**	**364.6817**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5013	0.0000	0.5013	0.0759	0.0000	0.0759	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0392	0.2281	1.2689	2.1400e-003		9.0100e-003	9.0100e-003		9.0100e-003	9.0100e-003	0.0000	186.9780	186.9780	0.0523	0.0000	188.2859
Total	**0.0392**	**0.2281**	**1.2689**	**2.1400e-003**	**0.5013**	**9.0100e-003**	**0.5103**	**0.0759**	**9.0100e-003**	**0.0849**	**0.0000**	**186.9780**	**186.9780**	**0.0523**	**0.0000**	**188.2859**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0145	0.7295	0.2115	3.4500e-003	0.1028	7.1400e-003	0.1100	0.0284	6.8300e-003	0.0352	0.0000	341.3667	341.3667	0.0144	0.0541	357.8495
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6700e-003	1.9000e-003	0.0249	7.0000e-005	8.5800e-003	4.0000e-005	8.6200e-003	2.2900e-003	4.0000e-005	2.3300e-003	0.0000	6.7750	6.7750	1.7000e-004	1.8000e-004	6.8321
Total	**0.0171**	**0.7314**	**0.2364**	**3.5200e-003**	**0.1114**	**7.1800e-003**	**0.1186**	**0.0307**	**6.8700e-003**	**0.0376**	**0.0000**	**348.1417**	**348.1417**	**0.0145**	**0.0543**	**364.6817**

3.3 Road Construction/Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0811	0.0000	1.0811	0.5556	0.0000	0.5556	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2309	2.1796	1.8315	3.7600e-003		0.1059	0.1059		0.0974	0.0974	0.0000	330.4662	330.4662	0.1069	0.0000	333.1382
Total	**0.2309**	**2.1796**	**1.8315**	**3.7600e-003**	**1.0811**	**0.1059**	**1.1870**	**0.5556**	**0.0974**	**0.6530**	**0.0000**	**330.4662**	**330.4662**	**0.1069**	**0.0000**	**333.1382**

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Road Construction/Utilities - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3400e-003	3.8000e-003	0.0498	1.5000e-004	0.0181	9.0000e-005	0.0182	4.8000e-003	8.0000e-005	4.8900e-003	0.0000	13.5500	13.5500	3.4000e-004	3.6000e-004	13.6643
Total	**5.3400e-003**	**3.8000e-003**	**0.0498**	**1.5000e-004**	**0.0181**	**9.0000e-005**	**0.0182**	**4.8000e-003**	**8.0000e-005**	**4.8900e-003**	**0.0000**	**13.5500**	**13.5500**	**3.4000e-004**	**3.6000e-004**	**13.6643**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4006	0.0000	0.4006	0.2059	0.0000	0.2059	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0460	0.1995	2.1847	3.7600e-003		6.1400e-003	6.1400e-003		6.1400e-003	6.1400e-003	0.0000	330.4658	330.4658	0.1069	0.0000	333.1378
Total	**0.0460**	**0.1995**	**2.1847**	**3.7600e-003**	**0.4006**	**6.1400e-003**	**0.4067**	**0.2059**	**6.1400e-003**	**0.2120**	**0.0000**	**330.4658**	**330.4658**	**0.1069**	**0.0000**	**333.1378**

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Road Construction/Utilities - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3400e-003	3.8000e-003	0.0498	1.5000e-004	0.0172	9.0000e-005	0.0172	4.5700e-003	8.0000e-005	4.6500e-003	0.0000	13.5500	13.5500	3.4000e-004	3.6000e-004	13.6643
Total	**5.3400e-003**	**3.8000e-003**	**0.0498**	**1.5000e-004**	**0.0172**	**9.0000e-005**	**0.0172**	**4.5700e-003**	**8.0000e-005**	**4.6500e-003**	**0.0000**	**13.5500**	**13.5500**	**3.4000e-004**	**3.6000e-004**	**13.6643**

3.4 Excavation/Mass Site Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8107	0.0000	0.8107	0.1737	0.0000	0.1737	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5052	4.9797	3.8088	0.0102		0.1965	0.1965		0.1808	0.1808	0.0000	897.3877	897.3877	0.2902	0.0000	904.6436
Total	**0.5052**	**4.9797**	**3.8088**	**0.0102**	**0.8107**	**0.1965**	**1.0072**	**0.1737**	**0.1808**	**0.3545**	**0.0000**	**897.3877**	**897.3877**	**0.2902**	**0.0000**	**904.6436**

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Excavation/Mass Site Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1024	6.9281	1.4887	0.0356	1.1469	0.0757	1.2226	0.3150	0.0724	0.3874	0.0000	3,516.8573	3,516.8573	0.1502	0.5575	3,686.7521
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5300e-003	4.6500e-003	0.0609	1.8000e-004	0.0221	1.1000e-004	0.0222	5.8700e-003	1.0000e-004	5.9700e-003	0.0000	16.5556	16.5556	4.1000e-004	4.3000e-004	16.6952
Total	**0.1089**	**6.9328**	**1.5496**	**0.0357**	**1.1690**	**0.0758**	**1.2448**	**0.3208**	**0.0725**	**0.3933**	**0.0000**	**3,533.4129**	**3,533.4129**	**0.1506**	**0.5580**	**3,703.4473**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3004	0.0000	0.3004	0.0644	0.0000	0.0644	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4192	4.0702	4.2423	0.0102		0.1597	0.1597		0.1473	0.1473	0.0000	897.3866	897.3866	0.2902	0.0000	904.6425
Total	**0.4192**	**4.0702**	**4.2423**	**0.0102**	**0.3004**	**0.1597**	**0.4601**	**0.0644**	**0.1473**	**0.2116**	**0.0000**	**897.3866**	**897.3866**	**0.2902**	**0.0000**	**904.6425**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Excavation/Mass Site Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1024	6.9281	1.4887	0.0356	1.0952	0.0757	1.1709	0.3023	0.0724	0.3747	0.0000	3,516.8573	3,516.8573	0.1502	0.5575	3,686.7521
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5300e-003	4.6500e-003	0.0609	1.8000e-004	0.0210	1.1000e-004	0.0211	5.5900e-003	1.0000e-004	5.6900e-003	0.0000	16.5556	16.5556	4.1000e-004	4.3000e-004	16.6952
Total	**0.1089**	**6.9328**	**1.5496**	**0.0357**	**1.1162**	**0.0758**	**1.1919**	**0.3079**	**0.0725**	**0.3804**	**0.0000**	**3,533.4129**	**3,533.4129**	**0.1506**	**0.5580**	**3,703.4473**

3.5 Concrete Pour - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1911	10.5961	14.0758	0.0251		0.4979	0.4979		0.4728	0.4728	0.0000	2,183.5021	2,183.5021	0.4407	0.0000	2,194.5198
Total	**1.1911**	**10.5961**	**14.0758**	**0.0251**		**0.4979**	**0.4979**		**0.4728**	**0.4728**	**0.0000**	**2,183.5021**	**2,183.5021**	**0.4407**	**0.0000**	**2,194.5198**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Concrete Pour - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0169	0.8516	0.2469	4.0300e-003	0.1257	8.3400e-003	0.1340	0.0345	7.9800e-003	0.0425	0.0000	398.4568	398.4568	0.0168	0.0632	417.6963
Vendor	0.0491	1.6575	0.6541	7.8700e-003	0.2808	0.0116	0.2924	0.0811	0.0111	0.0921	0.0000	765.3629	765.3629	0.0196	0.1131	799.5519
Worker	0.3688	0.2625	3.4400	0.0102	1.2491	6.0100e-003	1.2551	0.3317	5.5400e-003	0.3373	0.0000	935.4924	935.4924	0.0232	0.0245	943.3802
Total	**0.4347**	**2.7716**	**4.3410**	**0.0221**	**1.6556**	**0.0259**	**1.6815**	**0.4473**	**0.0246**	**0.4719**	**0.0000**	**2,099.3121**	**2,099.3121**	**0.0596**	**0.2008**	**2,160.6284**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3064	1.5094	15.8251	0.0251		0.0498	0.0498		0.0488	0.0488	0.0000	2,183.4995	2,183.4995	0.4407	0.0000	2,194.5171
Total	**0.3064**	**1.5094**	**15.8251**	**0.0251**		**0.0498**	**0.0498**		**0.0488**	**0.0488**	**0.0000**	**2,183.4995**	**2,183.4995**	**0.4407**	**0.0000**	**2,194.5171**

3.5 Concrete Pour - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0169	0.8516	0.2469	4.0300e-003	0.1200	8.3400e-003	0.1283	0.0331	7.9800e-003	0.0411	0.0000	398.4568	398.4568	0.0168	0.0632	417.6963
Vendor	0.0491	1.6575	0.6541	7.8700e-003	0.2689	0.0116	0.2805	0.0781	0.0111	0.0892	0.0000	765.3629	765.3629	0.0196	0.1131	799.5519
Worker	0.3688	0.2625	3.4400	0.0102	1.1841	6.0100e-003	1.1901	0.3158	5.5400e-003	0.3213	0.0000	935.4924	935.4924	0.0232	0.0245	943.3802
Total	**0.4347**	**2.7716**	**4.3410**	**0.0221**	**1.5730**	**0.0259**	**1.5989**	**0.4271**	**0.0246**	**0.4516**	**0.0000**	**2,099.3121**	**2,099.3121**	**0.0596**	**0.2008**	**2,160.6284**

3.6 Paving/Landscap/Site Finishes - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2613	2.4404	2.6006	5.4400e-003		0.1083	0.1083		0.0997	0.0997	0.0000	478.1700	478.1700	0.1547	0.0000	482.0362
Paving	0.1285					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3898**	**2.4404**	**2.6006**	**5.4400e-003**		**0.1083**	**0.1083**		**0.0997**	**0.0997**	**0.0000**	**478.1700**	**478.1700**	**0.1547**	**0.0000**	**482.0362**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving/Landscap/Site Finishes - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.3800e-003	0.3727	0.1081	1.7600e-003	0.0550	3.6500e-003	0.0587	0.0151	3.4900e-003	0.0186	0.0000	174.4102	174.4102	7.3400e-003	0.0276	182.8316
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6700e-003	6.1700e-003	0.0809	2.4000e-004	0.0294	1.4000e-004	0.0295	7.8000e-003	1.3000e-004	7.9300e-003	0.0000	21.9880	21.9880	5.5000e-004	5.8000e-004	22.1734
Total	**0.0161**	**0.3789**	**0.1889**	**2.0000e-003**	**0.0844**	**3.7900e-003**	**0.0882**	**0.0229**	**3.6200e-003**	**0.0265**	**0.0000**	**196.3981**	**196.3981**	**7.8900e-003**	**0.0282**	**205.0049**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0912	0.5822	3.1966	5.4400e-003		0.0208	0.0208		0.0197	0.0197	0.0000	478.1694	478.1694	0.1547	0.0000	482.0357
Paving	0.1285					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2197**	**0.5822**	**3.1966**	**5.4400e-003**		**0.0208**	**0.0208**		**0.0197**	**0.0197**	**0.0000**	**478.1694**	**478.1694**	**0.1547**	**0.0000**	**482.0357**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving/Landscap/Site Finishes - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.3800e-003	0.3727	0.1081	1.7600e-003	0.0525	3.6500e-003	0.0562	0.0145	3.4900e-003	0.0180	0.0000	174.4102	174.4102	7.3400e-003	0.0276	182.8316
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6700e-003	6.1700e-003	0.0809	2.4000e-004	0.0278	1.4000e-004	0.0280	7.4200e-003	1.3000e-004	7.5500e-003	0.0000	21.9880	21.9880	5.5000e-004	5.8000e-004	22.1734
Total	**0.0161**	**0.3789**	**0.1889**	**2.0000e-003**	**0.0804**	**3.7900e-003**	**0.0842**	**0.0219**	**3.6200e-003**	**0.0255**	**0.0000**	**196.3981**	**196.3981**	**7.8900e-003**	**0.0282**	**205.0049**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.4022					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0231	0.1554	0.2308	3.8000e-004		7.7700e-003	7.7700e-003		7.7700e-003	7.7700e-003	0.0000	32.5540	32.5540	1.8300e-003	0.0000	32.5998
Total	**9.4253**	**0.1554**	**0.2308**	**3.8000e-004**		**7.7700e-003**	**7.7700e-003**		**7.7700e-003**	**7.7700e-003**	**0.0000**	**32.5540**	**32.5540**	**1.8300e-003**	**0.0000**	**32.5998**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0713	0.0507	0.6648	1.9700e-003	0.2414	1.1600e-003	0.2426	0.0641	1.0700e-003	0.0652	0.0000	180.7899	180.7899	4.4800e-003	4.7400e-003	182.3143
Total	**0.0713**	**0.0507**	**0.6648**	**1.9700e-003**	**0.2414**	**1.1600e-003**	**0.2426**	**0.0641**	**1.0700e-003**	**0.0652**	**0.0000**	**180.7899**	**180.7899**	**4.4800e-003**	**4.7400e-003**	**182.3143**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.4022					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0231	0.1554	0.2308	3.8000e-004		7.7700e-003	7.7700e-003		7.7700e-003	7.7700e-003	0.0000	32.5540	32.5540	1.8300e-003	0.0000	32.5998
Total	**9.4253**	**0.1554**	**0.2308**	**3.8000e-004**		**7.7700e-003**	**7.7700e-003**		**7.7700e-003**	**7.7700e-003**	**0.0000**	**32.5540**	**32.5540**	**1.8300e-003**	**0.0000**	**32.5998**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0713	0.0507	0.6648	1.9700e-003	0.2288	1.1600e-003	0.2300	0.0610	1.0700e-003	0.0621	0.0000	180.7899	180.7899	4.4800e-003	4.7400e-003	182.3143
Total	**0.0713**	**0.0507**	**0.6648**	**1.9700e-003**	**0.2288**	**1.1600e-003**	**0.2300**	**0.0610**	**1.0700e-003**	**0.0621**	**0.0000**	**180.7899**	**180.7899**	**4.4800e-003**	**4.7400e-003**	**182.3143**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

Employee Vanpool/Shuttle

Provide Riade Sharing Program

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.0550	2.4868	28.6476	0.4477	7.4281	0.4070	7.8351	2.4060	0.4040	2.8101	0.0000	7,148.6156	7,148.6156	0.5614	0.5327	7,321.3945
Unmitigated	3.0627	2.5084	28.8972	0.4530	7.5167	0.4118	7.9284	2.4347	0.4088	2.8435	0.0000	7,231.8637	7,231.8637	0.5662	0.5382	7,406.3982

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	5,648.40	5,648.40	5648.40	22,248,166	21,986,160
Other Asphalt Surfaces	450.73	450.73	450.73	1,775,373	1,754,466
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	6,099.13	6,099.13	6,099.13	24,023,540	23,740,625

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.585864	0.056300	0.173085	0.134258	0.025645	0.000000	0.000000	0.000000	0.000000	0.000000	0.024848	0.000000	0.000000
Other Asphalt Surfaces	0.585864	0.056300	0.173085	0.134258	0.025645	0.000000	0.000000	0.000000	0.000000	0.000000	0.024848	0.000000	0.000000
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Refrigerated Warehouse-Rail	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Unrefrigerated Warehouse-Rail	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,305.1173	1,305.1173	0.0000	0.0000	1,305.1173
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,508.8012	1,508.8012	0.0000	0.0000	1,508.8012
NaturalGas Mitigated	0.0469	0.4265	0.3582	2.5600e-003		0.0324	0.0324		0.0324	0.0324	0.0000	464.2622	464.2622	8.9000e-003	8.5100e-003	467.0211
NaturalGas Unmitigated	0.0544	0.4947	0.4155	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	538.5157	538.5157	0.0103	9.8700e-003	541.7158

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	137200	7.4000e-004	6.7300e-003	5.6500e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	7.3215	7.3215	1.4000e-004	1.3000e-004	7.3650
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.46625e+006	0.0349	0.3170	0.2663	1.9000e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.0637	345.0637	6.6100e-003	6.3300e-003	347.1143
Unrefrigerated Warehouse-Rail	3.48795e+006	0.0188	0.1710	0.1436	1.0300e-003		0.0130	0.0130		0.0130	0.0130	0.0000	186.1305	186.1305	3.5700e-003	3.4100e-003	187.2365
Total		**0.0544**	**0.4947**	**0.4155**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**	**0.0000**	**538.5157**	**538.5157**	**0.0103**	**9.8700e-003**	**541.7158**

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	89180	4.8000e-004	4.3700e-003	3.6700e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	4.7590	4.7590	9.0000e-005	9.0000e-005	4.7873
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.32538e+006	0.0341	0.3101	0.2605	1.8600e-003		0.0236	0.0236		0.0236	0.0236	0.0000	337.5461	337.5461	6.4700e-003	6.1900e-003	339.5520
Unrefrigerated Warehouse-Rail	2.28539e+006	0.0123	0.1120	0.0941	6.7000e-004		8.5100e-003	8.5100e-003		8.5100e-003	8.5100e-003	0.0000	121.9571	121.9571	2.3400e-003	2.2400e-003	122.6819
Total		**0.0469**	**0.4265**	**0.3582**	**2.5600e-003**		**0.0324**	**0.0324**		**0.0324**	**0.0324**	**0.0000**	**464.2622**	**464.2622**	**8.9000e-003**	**8.5200e-003**	**467.0211**

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	367600	55.8581	0.0000	0.0000	55.8581
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	555869	84.4662	0.0000	0.0000	84.4662
Refrigerated Warehouse-Rail	4.98e +006	756.7282	0.0000	0.0000	756.7282
Unrefrigerated Warehouse-Rail	4.0259e +006	611.7488	0.0000	0.0000	611.7488
Total		**1,508.8012**	**0.0000**	**0.0000**	**1,508.8012**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	278000	42.2431	0.0000	0.0000	42.2431
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	361315	54.9031	0.0000	0.0000	54.9031
Refrigerated Warehouse-Rail	4.83475e+006	734.6569	0.0000	0.0000	734.6569
Unrefrigerated Warehouse-Rail	3.11486e+006	473.3142	0.0000	0.0000	473.3142
Total		**1,305.1173**	**0.0000**	**0.0000**	**1,305.1173**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0842	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Unmitigated	8.0856	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.1430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3400e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528
Total	**8.0856**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0496**	**0.0496**	**1.3000e-004**	**0.0000**	**0.0528**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.1430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.9000e-004	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Total	**8.0842**	**1.3000e-004**	**0.0148**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0267**	**0.0267**	**5.0000e-005**	**0.0000**	**0.0281**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	810.0908	11.3996	0.2692	1,175.2944
Unmitigated	1,011.3353	14.2496	0.3365	1,467.8399

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	7.10935 / 4.35734	23.6780	0.2317	5.4700e-003	31.0995
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	28.9063 / 0	66.3641	0.9419	0.0222	96.5396
Unrefrigerated Warehouse-Rail	401.288 / 0	921.2932	13.0760	0.3088	1,340.2008
Total		**1,011.3353**	**14.2496**	**0.3365**	**1,467.8399**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.68748 / 4.09155	19.9649	0.1853	4.3800e-003	25.9021
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	23.125 / 0	53.0913	0.7535	0.0178	77.2317
Unrefrigerated Warehouse-Rail	321.031 / 0	737.0346	10.4608	0.2470	1,072.1607
Total		**810.0907**	**11.3996**	**0.2692**	**1,175.2944**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	90.6294	5.3560	0.0000	224.5304
Unmitigated	362.5175	21.4242	0.0000	898.1218

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	37.2	7.5513	0.4463	0.0000	18.7079
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	117.5	23.8514	1.4096	0.0000	59.0909
Unrefrigerated Warehouse-Rail	1631.18	331.1148	19.5683	0.0000	820.3229
Total		**362.5175**	**21.4242**	**0.0000**	**898.1218**

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	9.3	1.8878	0.1116	0.0000	4.6770
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	29.375	5.9629	0.3524	0.0000	14.7727
Unrefrigerated Warehouse-Rail	407.795	82.7787	4.8921	0.0000	205.0807
Total		**90.6294**	**5.3560**	**0.0000**	**224.5304**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

Speedway Commerce Center (Phase 1b Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Speedway Commerce Center (Phase 1b Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 1b Trucks)(*Mobile Source/Truck Operations Only)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	40.00	1000sqft	0.92	40,000.00	0
Refrigerated Warehouse-Rail	125.00	1000sqft	2.87	125,000.00	0
Unrefrigerated Warehouse-Rail	1,735.30	1000sqft	39.84	1,735,300.00	0
Other Asphalt Surfaces	61.66	Acre	61.66	2,685,909.60	0
Parking Lot	36.46	Acre	36.46	1,588,197.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	335	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 Factor adjusted per RPS

Land Use -

Construction Phase - per construction schedule

Off-road Equipment - Anticipated equipment

Off-road Equipment -

Trips and VMT - anticipated concrete truck trips

Demolition -

Speedway Commerce Center (Phase 1b Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading -

Vehicle Trips - Phase 1b trucks run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products - project would not use consumer products as specified in definition, emission factor reduced by 50%

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase 1b trucks run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.02	0.64
tblFleetMix	HHD	0.02	0.62
tblFleetMix	HHD	0.02	0.62
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.00

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tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.0090e-003	0.12
tblFleetMix	LHD2	7.0090e-003	0.21
tblFleetMix	LHD2	7.0090e-003	0.21
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	4.6060e-003	0.00
tblFleetMix	MH	4.6060e-003	0.00
tblFleetMix	MH	4.6060e-003	0.00
tblFleetMix	MHD	0.01	0.24
tblFleetMix	MHD	0.01	0.18
tblFleetMix	MHD	0.01	0.18
tblFleetMix	OBUS	5.5200e-004	0.00
tblFleetMix	OBUS	5.5200e-004	0.00
tblFleetMix	OBUS	5.5200e-004	0.00
tblFleetMix	SBUS	9.5600e-004	0.00
tblFleetMix	SBUS	9.5600e-004	0.00
tblFleetMix	SBUS	9.5600e-004	0.00
tblFleetMix	UBUS	2.4800e-004	0.00
tblFleetMix	UBUS	2.4800e-004	0.00

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tblFleetMix	UBUS	2.4800e-004	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	335
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.4052e-008
tblVehicleEF	HHD	8.64	5.29
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.1350e-003	1.0677e-003
tblVehicleEF	HHD	1,377.00	811.82
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.2142e-006
tblVehicleEF	HHD	7.06	3.98
tblVehicleEF	HHD	2.14	1.67
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	2.9130e-003	2.0729e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	2.7870e-003	1.9787e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	2.0000e-006	1.8370e-004
tblVehicleEF	HHD	5.6000e-005	4.5691e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.3000e-005	4.8603e-005
tblVehicleEF	HHD	1.0000e-006	1.7531e-007
tblVehicleEF	HHD	0.01	6.9121e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7125e-007
tblVehicleEF	HHD	2.0000e-006	1.8370e-004
tblVehicleEF	HHD	5.6000e-005	4.5691e-005
tblVehicleEF	HHD	0.67	0.57
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.3000e-005	4.8603e-005
tblVehicleEF	HHD	1.0000e-006	1.9194e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.2487e-008
tblVehicleEF	HHD	8.52	5.23
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.0010e-003	1.0080e-003
tblVehicleEF	HHD	1,359.81	803.46
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.25

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	5.0000e-006	8.1274e-006
tblVehicleEF	HHD	6.72	3.80
tblVehicleEF	HHD	2.02	1.57
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	2.5690e-003	1.8267e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	2.4580e-003	1.7432e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	4.0000e-006	2.8198e-004
tblVehicleEF	HHD	6.5000e-005	5.0521e-005
tblVehicleEF	HHD	0.62	0.34
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.4000e-005	5.2030e-005
tblVehicleEF	HHD	1.0000e-006	1.6775e-007
tblVehicleEF	HHD	0.01	6.8329e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7031e-007
tblVehicleEF	HHD	4.0000e-006	2.8198e-004
tblVehicleEF	HHD	6.5000e-005	5.0521e-005
tblVehicleEF	HHD	0.71	0.59
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	2.4000e-005	5.2030e-005
tblVehicleEF	HHD	1.0000e-006	1.8366e-007
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.3858e-008
tblVehicleEF	HHD	8.80	5.38
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.1050e-003	1.0594e-003
tblVehicleEF	HHD	1,400.73	823.37
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.1881e-006
tblVehicleEF	HHD	7.53	4.22
tblVehicleEF	HHD	2.11	1.64
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	3.3870e-003	2.4128e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	3.2410e-003	2.3039e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	2.0000e-006	1.8870e-004
tblVehicleEF	HHD	6.5000e-005	4.5240e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.53	0.29
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.4000e-005	5.1002e-005
tblVehicleEF	HHD	1.0000e-006	1.7434e-007
tblVehicleEF	HHD	0.01	7.0215e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7112e-007
tblVehicleEF	HHD	2.0000e-006	1.8870e-004
tblVehicleEF	HHD	6.5000e-005	4.5240e-005
tblVehicleEF	HHD	0.61	0.54
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.4000e-005	5.1002e-005
tblVehicleEF	HHD	1.0000e-006	1.9088e-007
tblVehicleEF	LDA	1.7080e-003	1.9620e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.53	0.67
tblVehicleEF	LDA	1.93	2.61
tblVehicleEF	LDA	238.15	260.20
tblVehicleEF	LDA	48.93	64.94
tblVehicleEF	LDA	3.9170e-003	4.0426e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1205e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.1620e-003	7.1305e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.26
tblVehicleEF	LDA	2.3560e-003	2.5722e-003
tblVehicleEF	LDA	4.8400e-004	6.4196e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	8.9600e-003	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDA	1.9600e-003	2.0865e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.65	0.89
tblVehicleEF	LDA	1.61	2.19
tblVehicleEF	LDA	259.99	282.24
tblVehicleEF	LDA	48.33	64.15
tblVehicleEF	LDA	3.6720e-003	3.5948e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.14	0.20
tblVehicleEF	LDA	0.04	7.1205e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.10	0.40
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	6.9860e-003	7.4844e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.15	0.23
tblVehicleEF	LDA	2.5720e-003	2.7900e-003
tblVehicleEF	LDA	4.7800e-004	6.3423e-004
tblVehicleEF	LDA	0.10	0.40
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	1.6660e-003	1.9458e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.50	0.62
tblVehicleEF	LDA	1.90	2.61
tblVehicleEF	LDA	233.04	256.15
tblVehicleEF	LDA	48.87	64.95
tblVehicleEF	LDA	3.7570e-003	3.9376e-003
tblVehicleEF	LDA	0.02	0.03

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tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1205e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.0060e-003	7.0743e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	2.3050e-003	2.5322e-003
tblVehicleEF	LDA	4.8400e-004	6.4209e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	8.7330e-003	0.01
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDT1	4.5970e-003	8.1809e-003
tblVehicleEF	LDT1	0.06	0.12
tblVehicleEF	LDT1	1.02	1.81
tblVehicleEF	LDT1	2.15	5.92
tblVehicleEF	LDT1	283.77	334.40

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tblVehicleEF	LDT1	59.69	88.18
tblVehicleEF	LDT1	6.7580e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.08	0.17
tblVehicleEF	LDT1	0.23	0.44
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	2.8080e-003	3.3058e-003
tblVehicleEF	LDT1	5.9100e-004	8.7174e-004
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.34	0.69
tblVehicleEF	LDT1	5.2210e-003	8.6781e-003
tblVehicleEF	LDT1	0.05	0.10

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tblVehicleEF	LDT1	1.24	2.41
tblVehicleEF	LDT1	1.79	4.93
tblVehicleEF	LDT1	306.50	360.35
tblVehicleEF	LDT1	58.95	86.30
tblVehicleEF	LDT1	6.2730e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.14
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.30	1.20
tblVehicleEF	LDT1	0.25	0.24
tblVehicleEF	LDT1	0.23	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.26	0.54
tblVehicleEF	LDT1	3.0330e-003	3.5624e-003
tblVehicleEF	LDT1	5.8300e-004	8.5315e-004
tblVehicleEF	LDT1	0.30	1.20
tblVehicleEF	LDT1	0.25	0.24
tblVehicleEF	LDT1	0.23	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.09	0.08

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tblVehicleEF	LDT1	0.29	0.59
tblVehicleEF	LDT1	4.4920e-003	8.1118e-003
tblVehicleEF	LDT1	0.06	0.12
tblVehicleEF	LDT1	0.97	1.70
tblVehicleEF	LDT1	2.11	5.94
tblVehicleEF	LDT1	278.38	329.62
tblVehicleEF	LDT1	59.63	88.22
tblVehicleEF	LDT1	6.4760e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.08	0.16
tblVehicleEF	LDT1	0.23	0.44
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.23	0.22
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	2.7550e-003	3.2586e-003
tblVehicleEF	LDT1	5.9000e-004	8.7210e-004
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.23	0.22

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.34	0.69
tblVehicleEF	LDT2	3.0790e-003	2.7679e-003
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.77	0.84
tblVehicleEF	LDT2	2.49	3.23
tblVehicleEF	LDT2	296.94	338.28
tblVehicleEF	LDT2	62.71	84.59
tblVehicleEF	LDT2	5.6980e-003	5.7730e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.24	0.30
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.09	0.33
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	2.9380e-003	3.3439e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	6.2100e-004	8.3622e-004
tblVehicleEF	LDT2	0.09	0.33
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.5190e-003	2.9421e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.94	1.12
tblVehicleEF	LDT2	2.06	2.71
tblVehicleEF	LDT2	318.51	361.67
tblVehicleEF	LDT2	61.89	83.60
tblVehicleEF	LDT2	5.3190e-003	5.1454e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.06	0.05
tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.18	0.42
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.01	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.23	0.29
tblVehicleEF	LDT2	3.1510e-003	3.5751e-003
tblVehicleEF	LDT2	6.1200e-004	8.2646e-004
tblVehicleEF	LDT2	0.18	0.42
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	3.0060e-003	2.7451e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.73	0.78
tblVehicleEF	LDT2	2.45	3.24
tblVehicleEF	LDT2	291.83	333.98
tblVehicleEF	LDT2	62.64	84.61
tblVehicleEF	LDT2	5.4640e-003	5.6264e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.23	0.30
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.09	0.34

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	2.8870e-003	3.3013e-003
tblVehicleEF	LDT2	6.2000e-004	8.3642e-004
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LHD1	4.4980e-003	5.0070e-003
tblVehicleEF	LHD1	4.8130e-003	2.8214e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.64	0.61
tblVehicleEF	LHD1	0.94	1.92
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.71	354.89
tblVehicleEF	LHD1	10.21	16.27
tblVehicleEF	LHD1	8.5900e-004	7.2256e-004
tblVehicleEF	LHD1	0.04	5.3107e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.13	0.09
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	4.7768e-003
tblVehicleEF	LHD1	9.4060e-003	6.8794e-004
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5020e-003	1.1942e-003
tblVehicleEF	LHD1	8.9760e-003	6.3253e-004
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	2.6930e-003	0.13
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3450e-003	0.00
tblVehicleEF	LHD1	0.05	0.01
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	3.5084e-003
tblVehicleEF	LHD1	1.0100e-004	1.6083e-004
tblVehicleEF	LHD1	2.6930e-003	0.13
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3450e-003	0.00
tblVehicleEF	LHD1	0.07	0.02
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.5120e-003	5.0253e-003
tblVehicleEF	LHD1	4.9120e-003	1.8912e-003
tblVehicleEF	LHD1	0.01	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.66	0.12
tblVehicleEF	LHD1	0.88	1.82
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.74	196.64
tblVehicleEF	LHD1	10.10	16.10
tblVehicleEF	LHD1	8.6200e-004	7.2487e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.06	0.60
tblVehicleEF	LHD1	0.26	0.38
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9102e-003
tblVehicleEF	LHD1	9.4060e-003	0.01
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5020e-003	1.2276e-003
tblVehicleEF	LHD1	8.9760e-003	9.7899e-003
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	5.2970e-003	0.17
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.0170e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.06	0.10

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	1.8632e-003
tblVehicleEF	LHD1	1.0000e-004	1.5918e-004
tblVehicleEF	LHD1	5.2970e-003	0.17
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.0170e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.5010e-003	5.0091e-003
tblVehicleEF	LHD1	4.8240e-003	1.8912e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.64	0.12
tblVehicleEF	LHD1	0.92	1.91
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.72	196.64
tblVehicleEF	LHD1	10.18	16.25
tblVehicleEF	LHD1	8.6000e-004	7.2322e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.11	0.62
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9102e-003
tblVehicleEF	LHD1	9.4060e-003	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5020e-003	1.2276e-003
tblVehicleEF	LHD1	8.9760e-003	9.7899e-003
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	2.9190e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3230e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	1.8632e-003
tblVehicleEF	LHD1	1.0100e-004	1.6066e-004
tblVehicleEF	LHD1	2.9190e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3230e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD2	3.0290e-003	3.3816e-003
tblVehicleEF	LHD2	3.3290e-003	1.0183e-003
tblVehicleEF	LHD2	7.7710e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.43	0.26
tblVehicleEF	LHD2	0.54	1.18

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.31	236.88
tblVehicleEF	LHD2	7.26	10.25
tblVehicleEF	LHD2	1.8100e-003	1.6419e-003
tblVehicleEF	LHD2	0.06	3.0442e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.21	0.05
tblVehicleEF	LHD2	0.18	0.26
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8235e-003
tblVehicleEF	LHD2	0.01	3.4405e-004
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7030e-003	7.0588e-004
tblVehicleEF	LHD2	0.01	3.1634e-004
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	1.3290e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2000e-004	0.00
tblVehicleEF	LHD2	0.05	4.6402e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0100e-003	2.3418e-003
tblVehicleEF	LHD2	7.2000e-005	1.0131e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.3290e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2000e-004	0.00
tblVehicleEF	LHD2	0.06	6.7710e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.0380e-003	3.3937e-003
tblVehicleEF	LHD2	3.3590e-003	2.7712e-003
tblVehicleEF	LHD2	7.4220e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.44	0.16
tblVehicleEF	LHD2	0.51	1.12
tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.32	376.11
tblVehicleEF	LHD2	7.20	10.14
tblVehicleEF	LHD2	1.8120e-003	1.6434e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.14	0.75
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.8326e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	2.7030e-003	1.9582e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	2.5650e-003	0.10
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5490e-003	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0110e-003	3.5639e-003
tblVehicleEF	LHD2	7.1000e-005	1.0029e-004
tblVehicleEF	LHD2	2.5650e-003	0.10
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5490e-003	0.00
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.0310e-003	3.3829e-003
tblVehicleEF	LHD2	3.3320e-003	2.7712e-003
tblVehicleEF	LHD2	7.7050e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.43	0.16
tblVehicleEF	LHD2	0.54	1.18
tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.31	376.11
tblVehicleEF	LHD2	7.24	10.24

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.8110e-003	1.6423e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.20	0.78
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.8326e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7030e-003	1.9582e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	1.3530e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9900e-004	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0100e-003	3.5639e-003
tblVehicleEF	LHD2	7.2000e-005	1.0120e-004
tblVehicleEF	LHD2	1.3530e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	6.9900e-004	0.00
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.57
tblVehicleEF	MCY	0.25	0.17
tblVehicleEF	MCY	19.66	0.57
tblVehicleEF	MCY	8.85	7.68
tblVehicleEF	MCY	211.00	0.57
tblVehicleEF	MCY	60.62	47.89
tblVehicleEF	MCY	0.07	0.57
tblVehicleEF	MCY	0.02	7.8912e-003
tblVehicleEF	MCY	1.15	0.57
tblVehicleEF	MCY	0.27	0.13
tblVehicleEF	MCY	0.01	0.57
tblVehicleEF	MCY	4.0000e-003	0.57
tblVehicleEF	MCY	1.9320e-003	0.57
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.57
tblVehicleEF	MCY	1.0000e-003	0.57
tblVehicleEF	MCY	1.8050e-003	0.57
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	1.45	2.50
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.19	0.57
tblVehicleEF	MCY	0.40	0.57
tblVehicleEF	MCY	1.87	1.27
tblVehicleEF	MCY	2.0880e-003	0.57

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	6.0000e-004	4.7345e-004
tblVehicleEF	MCY	1.45	2.50
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.71	0.57
tblVehicleEF	MCY	0.40	0.57
tblVehicleEF	MCY	2.04	1.39
tblVehicleEF	MCY	0.32	0.49
tblVehicleEF	MCY	0.21	0.15
tblVehicleEF	MCY	19.80	0.49
tblVehicleEF	MCY	7.97	6.92
tblVehicleEF	MCY	211.03	0.49
tblVehicleEF	MCY	58.35	46.19
tblVehicleEF	MCY	0.06	0.49
tblVehicleEF	MCY	0.01	7.7414e-003
tblVehicleEF	MCY	0.98	0.49
tblVehicleEF	MCY	0.25	0.12
tblVehicleEF	MCY	0.01	0.49
tblVehicleEF	MCY	4.0000e-003	0.49
tblVehicleEF	MCY	1.9320e-003	0.49
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.49
tblVehicleEF	MCY	1.0000e-003	0.49
tblVehicleEF	MCY	1.8050e-003	0.49
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	3.13	3.75
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.09	0.00
tblVehicleEF	MCY	2.14	0.49

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tblVehicleEF	MCY	0.40	0.49
tblVehicleEF	MCY	1.61	1.12
tblVehicleEF	MCY	2.0880e-003	0.49
tblVehicleEF	MCY	5.7700e-004	4.5668e-004
tblVehicleEF	MCY	3.13	3.75
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.09	0.00
tblVehicleEF	MCY	2.65	0.49
tblVehicleEF	MCY	0.40	0.49
tblVehicleEF	MCY	1.75	1.22
tblVehicleEF	MCY	0.32	0.55
tblVehicleEF	MCY	0.24	0.17
tblVehicleEF	MCY	18.81	0.55
tblVehicleEF	MCY	8.50	7.56
tblVehicleEF	MCY	209.52	0.55
tblVehicleEF	MCY	59.85	47.66
tblVehicleEF	MCY	0.06	0.55
tblVehicleEF	MCY	0.02	7.8973e-003
tblVehicleEF	MCY	1.11	0.55
tblVehicleEF	MCY	0.26	0.13
tblVehicleEF	MCY	0.01	0.55
tblVehicleEF	MCY	4.0000e-003	0.55
tblVehicleEF	MCY	1.9320e-003	0.55
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.55
tblVehicleEF	MCY	1.0000e-003	0.55
tblVehicleEF	MCY	1.8050e-003	0.55
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	1.70	2.59

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.09	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.16	0.55
tblVehicleEF	MCY	0.46	0.55
tblVehicleEF	MCY	1.81	1.26
tblVehicleEF	MCY	2.0730e-003	0.55
tblVehicleEF	MCY	5.9200e-004	4.7113e-004
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.09	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.67	0.55
tblVehicleEF	MCY	0.46	0.55
tblVehicleEF	MCY	1.97	1.37
tblVehicleEF	MDV	3.8560e-003	3.9181e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.86	1.01
tblVehicleEF	MDV	2.81	3.65
tblVehicleEF	MDV	371.74	414.62
tblVehicleEF	MDV	77.98	104.08
tblVehicleEF	MDV	7.9270e-003	8.3898e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003
tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.15	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.6750e-003	4.0968e-003
tblVehicleEF	MDV	7.7200e-004	1.0290e-003
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.15	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.37	0.52
tblVehicleEF	MDV	4.4140e-003	4.1664e-003
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	1.05	1.35
tblVehicleEF	MDV	2.33	3.05
tblVehicleEF	MDV	394.46	438.81
tblVehicleEF	MDV	77.03	102.92
tblVehicleEF	MDV	7.4690e-003	7.5539e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	0.27	0.39
tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.22	0.56
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	3.9000e-003	4.3359e-003
tblVehicleEF	MDV	7.6200e-004	1.0174e-003
tblVehicleEF	MDV	0.22	0.56
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	3.7610e-003	3.8843e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.81	0.95
tblVehicleEF	MDV	2.77	3.66
tblVehicleEF	MDV	366.36	410.18
tblVehicleEF	MDV	77.90	104.11
tblVehicleEF	MDV	7.6430e-003	8.1953e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.29	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003
tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.10	0.46
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.6210e-003	4.0528e-003
tblVehicleEF	MDV	7.7100e-004	1.0293e-003
tblVehicleEF	MDV	0.10	0.46
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MH	8.6210e-003	5.1346e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.00	2.4369e-003
tblVehicleEF	MH	1.95	2.24
tblVehicleEF	MH	1,433.73	5.1751e-003
tblVehicleEF	MH	17.85	22.02
tblVehicleEF	MH	0.06	1.1392e-006

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.46	1.36
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	5.2895e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	0.98	34.03
tblVehicleEF	MH	0.06	7.99
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.05	4.6949e-008
tblVehicleEF	MH	0.02	2.0695e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	4.2408e-005
tblVehicleEF	MH	1.7700e-004	2.1766e-004
tblVehicleEF	MH	0.98	34.03
tblVehicleEF	MH	0.06	7.99
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.07	5.4238e-003
tblVehicleEF	MH	0.02	2.0695e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	8.8540e-003	5.2651e-005
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.03	2.6059e-003
tblVehicleEF	MH	1.78	2.09

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	1,433.78	5.1753e-003
tblVehicleEF	MH	17.57	21.75
tblVehicleEF	MH	0.06	1.0607e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.35	1.27
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	4.9873e-004
tblVehicleEF	MH	0.04	0.12
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	1.94	44.12
tblVehicleEF	MH	0.07	8.66
tblVehicleEF	MH	0.84	0.00
tblVehicleEF	MH	0.06	4.5071e-008
tblVehicleEF	MH	0.02	2.1519e-003
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	4.5351e-005
tblVehicleEF	MH	1.7400e-004	2.1504e-004
tblVehicleEF	MH	1.94	44.12
tblVehicleEF	MH	0.07	8.66
tblVehicleEF	MH	0.84	0.00
tblVehicleEF	MH	0.07	6.0613e-003
tblVehicleEF	MH	0.02	2.1519e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	8.6430e-003	5.1387e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.00	2.5018e-003
tblVehicleEF	MH	1.93	2.25
tblVehicleEF	MH	1,433.73	5.1751e-003
tblVehicleEF	MH	17.82	22.03
tblVehicleEF	MH	0.06	1.1147e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.43	1.34
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	5.2030e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	1.12	34.18
tblVehicleEF	MH	0.07	7.95
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.05	4.5982e-008
tblVehicleEF	MH	0.02	2.1228e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	4.3538e-005
tblVehicleEF	MH	1.7600e-004	2.1774e-004
tblVehicleEF	MH	1.12	34.18
tblVehicleEF	MH	0.07	7.95
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.07	5.3980e-003

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tblVehicleEF	MH	0.02	2.1228e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MHD	3.0370e-003	0.02
tblVehicleEF	MHD	1.0670e-003	7.6783e-003
tblVehicleEF	MHD	7.4460e-003	5.9090e-003
tblVehicleEF	MHD	0.34	0.64
tblVehicleEF	MHD	0.14	0.19
tblVehicleEF	MHD	0.80	0.67
tblVehicleEF	MHD	63.12	159.53
tblVehicleEF	MHD	940.09	1,118.67
tblVehicleEF	MHD	7.43	5.86
tblVehicleEF	MHD	9.1720e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1470e-003	4.2304e-003
tblVehicleEF	MHD	0.34	0.82
tblVehicleEF	MHD	1.01	0.67
tblVehicleEF	MHD	1.77	1.48
tblVehicleEF	MHD	2.4100e-004	1.1608e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	2.3000e-004	1.1099e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	4.4300e-004	0.02
tblVehicleEF	MHD	0.02	4.3023e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.3800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.9479e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9900e-004	1.4651e-003
tblVehicleEF	MHD	8.9580e-003	0.01
tblVehicleEF	MHD	7.4000e-005	5.7952e-005
tblVehicleEF	MHD	4.4300e-004	0.02
tblVehicleEF	MHD	0.02	4.3023e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.3800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	9.9479e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	2.8930e-003	0.02
tblVehicleEF	MHD	1.0900e-003	7.7026e-003
tblVehicleEF	MHD	7.1060e-003	5.6772e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.15	0.20
tblVehicleEF	MHD	0.75	0.63
tblVehicleEF	MHD	62.88	158.09
tblVehicleEF	MHD	940.09	1,118.68
tblVehicleEF	MHD	7.34	5.80
tblVehicleEF	MHD	9.1040e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.0170e-003	4.1601e-003
tblVehicleEF	MHD	0.33	0.79
tblVehicleEF	MHD	0.95	0.62

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	1.76	1.47
tblVehicleEF	MHD	2.0600e-004	9.8923e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	1.9700e-004	9.4576e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	8.6600e-004	0.03
tblVehicleEF	MHD	0.02	4.6560e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	5.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9700e-004	1.4515e-003
tblVehicleEF	MHD	8.9590e-003	0.01
tblVehicleEF	MHD	7.3000e-005	5.7322e-005
tblVehicleEF	MHD	8.6600e-004	0.03
tblVehicleEF	MHD	0.02	4.6560e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	5.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	3.2500e-003	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	1.0690e-003	7.6786e-003
tblVehicleEF	MHD	7.3590e-003	5.8669e-003
tblVehicleEF	MHD	0.40	0.69
tblVehicleEF	MHD	0.14	0.19
tblVehicleEF	MHD	0.79	0.66
tblVehicleEF	MHD	63.46	161.53
tblVehicleEF	MHD	940.09	1,118.67
tblVehicleEF	MHD	7.41	5.85
tblVehicleEF	MHD	9.2690e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1040e-003	4.2126e-003
tblVehicleEF	MHD	0.36	0.86
tblVehicleEF	MHD	0.99	0.65
tblVehicleEF	MHD	1.77	1.47
tblVehicleEF	MHD	2.8900e-004	1.3976e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	2.7600e-004	1.3365e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	4.6200e-004	0.02
tblVehicleEF	MHD	0.02	4.2766e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.0200e-004	1.4839e-003
tblVehicleEF	MHD	8.9580e-003	0.01
tblVehicleEF	MHD	7.3000e-005	5.7865e-005
tblVehicleEF	MHD	4.6200e-004	0.02
tblVehicleEF	MHD	0.02	4.2766e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	OBUS	9.0060e-003	0.02
tblVehicleEF	OBUS	5.7900e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.53
tblVehicleEF	OBUS	0.69	0.84
tblVehicleEF	OBUS	2.52	2.63
tblVehicleEF	OBUS	66.45	74.72
tblVehicleEF	OBUS	1,394.03	1,435.64
tblVehicleEF	OBUS	20.71	22.01
tblVehicleEF	OBUS	8.3390e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.28
tblVehicleEF	OBUS	0.87	1.03
tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	8.1000e-005	4.9883e-004
tblVehicleEF	OBUS	0.13	0.05

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	7.8000e-005	4.7670e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	2.7570e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1520e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.3400e-004	6.7271e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0500e-004	2.1760e-004
tblVehicleEF	OBUS	2.7570e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1520e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	9.0820e-003	0.02
tblVehicleEF	OBUS	5.9630e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.53

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.71	0.85
tblVehicleEF	OBUS	2.32	2.45
tblVehicleEF	OBUS	65.76	74.12
tblVehicleEF	OBUS	1,394.07	1,435.67
tblVehicleEF	OBUS	20.35	21.70
tblVehicleEF	OBUS	8.2370e-003	9.9572e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.23	0.27
tblVehicleEF	OBUS	0.80	0.96
tblVehicleEF	OBUS	0.66	0.68
tblVehicleEF	OBUS	7.2000e-005	4.2688e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	6.9000e-005	4.0786e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	5.3510e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.6140e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.2800e-004	6.6695e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0100e-004	2.1453e-004
tblVehicleEF	OBUS	5.3510e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	2.6140e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.14
tblVehicleEF	OBUS	8.9410e-003	0.02
tblVehicleEF	OBUS	5.8090e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.54
tblVehicleEF	OBUS	0.69	0.84
tblVehicleEF	OBUS	2.51	2.64
tblVehicleEF	OBUS	67.41	75.56
tblVehicleEF	OBUS	1,394.04	1,435.65
tblVehicleEF	OBUS	20.67	22.02
tblVehicleEF	OBUS	8.4910e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.26	0.29
tblVehicleEF	OBUS	0.86	1.02
tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	9.4000e-005	5.9818e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	9.0000e-005	5.7176e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	2.9210e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1560e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.4400e-004	6.8066e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0500e-004	2.1770e-004
tblVehicleEF	OBUS	2.9210e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	1.1560e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.6520e-003	1.35
tblVehicleEF	SBUS	4.4230e-003	6.8206e-003
tblVehicleEF	SBUS	2.12	2.94
tblVehicleEF	SBUS	0.48	5.02
tblVehicleEF	SBUS	0.58	0.87
tblVehicleEF	SBUS	331.70	270.15

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	1,082.52	1,220.57
tblVehicleEF	SBUS	3.48	5.41
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.7600e-003	5.9990e-003
tblVehicleEF	SBUS	3.05	1.10
tblVehicleEF	SBUS	4.26	2.21
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	2.9700e-003	1.5870e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	2.8410e-003	1.4998e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	7.5800e-004	0.06
tblVehicleEF	SBUS	5.7310e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	9.7720e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.1550e-003	1.2523e-003
tblVehicleEF	SBUS	0.01	6.7230e-003
tblVehicleEF	SBUS	3.4000e-005	5.3511e-005
tblVehicleEF	SBUS	7.5800e-004	0.06

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	5.7310e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	9.7720e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.7220e-003	1.35
tblVehicleEF	SBUS	3.6550e-003	5.7134e-003
tblVehicleEF	SBUS	2.09	2.93
tblVehicleEF	SBUS	0.49	5.03
tblVehicleEF	SBUS	0.41	0.63
tblVehicleEF	SBUS	337.86	272.68
tblVehicleEF	SBUS	1,082.54	1,220.60
tblVehicleEF	SBUS	3.19	5.01
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.6220e-003	5.7874e-003
tblVehicleEF	SBUS	3.09	1.13
tblVehicleEF	SBUS	3.99	2.07
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	2.5130e-003	1.4170e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	2.4040e-003	1.3372e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	1.3700e-003	0.08
tblVehicleEF	SBUS	5.9610e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	7.3800e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	8.9590e-003	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.2130e-003	1.2763e-003
tblVehicleEF	SBUS	0.01	6.7233e-003
tblVehicleEF	SBUS	3.2000e-005	4.9531e-005
tblVehicleEF	SBUS	1.3700e-003	0.08
tblVehicleEF	SBUS	5.9610e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	7.3800e-004	0.00
tblVehicleEF	SBUS	0.10	1.45
tblVehicleEF	SBUS	8.9590e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.6490e-003	1.35
tblVehicleEF	SBUS	4.5230e-003	7.0265e-003
tblVehicleEF	SBUS	2.16	2.95
tblVehicleEF	SBUS	0.48	5.02
tblVehicleEF	SBUS	0.60	0.91
tblVehicleEF	SBUS	323.18	266.66
tblVehicleEF	SBUS	1,082.52	1,220.58
tblVehicleEF	SBUS	3.50	5.48
tblVehicleEF	SBUS	0.05	0.04

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.7940e-003	6.0725e-003
tblVehicleEF	SBUS	2.98	1.07
tblVehicleEF	SBUS	4.20	2.18
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	3.6010e-003	1.8216e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	3.4450e-003	1.7243e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	7.0600e-004	0.06
tblVehicleEF	SBUS	5.8560e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0740e-003	1.2192e-003
tblVehicleEF	SBUS	0.01	6.7230e-003
tblVehicleEF	SBUS	3.5000e-005	5.4167e-005
tblVehicleEF	SBUS	7.0600e-004	0.06
tblVehicleEF	SBUS	5.8560e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	3.8400e-004	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8958e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.41	1.08
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	16.41	7.56
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	1.1890e-003	0.02
tblVehicleEF	UBUS	8.9290e-003	4.7458e-003
tblVehicleEF	UBUS	6.9100e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.0620e-003	5.0276e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6140e-004
tblVehicleEF	UBUS	1.6200e-004	7.4748e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.1890e-003	0.02
tblVehicleEF	UBUS	8.9290e-003	4.7458e-003
tblVehicleEF	UBUS	6.9100e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.0620e-003	5.0276e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.2083e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.16	0.92
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	15.98	7.30
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.35	0.39
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	2.2690e-003	0.03
tblVehicleEF	UBUS	0.01	5.1891e-003
tblVehicleEF	UBUS	1.5870e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.0440e-003	5.2527e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6142e-004
tblVehicleEF	UBUS	1.5800e-004	7.2167e-005
tblVehicleEF	UBUS	2.2690e-003	0.03
tblVehicleEF	UBUS	0.01	5.1891e-003
tblVehicleEF	UBUS	1.5870e-003	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.0440e-003	5.2527e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.9529e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.38	1.10
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	16.35	7.59
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	1.2470e-003	0.02
tblVehicleEF	UBUS	0.01	4.7112e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	6.8300e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.2180e-003	5.2205e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6140e-004
tblVehicleEF	UBUS	1.6200e-004	7.5006e-005
tblVehicleEF	UBUS	1.2470e-003	0.02
tblVehicleEF	UBUS	0.01	4.7112e-003
tblVehicleEF	UBUS	6.8300e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.2180e-003	5.2205e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CNW_TTP	41.00	100.00
tblVehicleTrips	CNW_TTP	41.00	100.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	0.00	39.64

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	2.12	0.59
tblVehicleTrips	ST_TR	1.74	0.59
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	0.00	39.64
tblVehicleTrips	SU_TR	2.12	0.59
tblVehicleTrips	SU_TR	1.74	0.59
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	0.00	39.64
tblVehicleTrips	WD_TR	2.12	0.59
tblVehicleTrips	WD_TR	1.74	0.59

2.0 Emissions Summary

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0856	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528
Energy	0.0544	0.4947	0.4155	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	2,047.3169	2,047.3169	0.0103	9.8700e-003	2,050.5171
Mobile	1.0036	63.5536	32.8027	0.5377	15.6484	0.8330	16.4814	4.1768	0.7967	4.9735	0.0000	54,067.3089	54,067.3089	4.1289	8.2042	56,615.3817
Waste						0.0000	0.0000		0.0000	0.0000	362.5175	0.0000	362.5175	21.4242	0.0000	898.1218
Water						0.0000	0.0000		0.0000	0.0000	138.7363	872.5990	1,011.3353	14.2496	0.3365	1,467.8399
Total	**9.1436**	**64.0486**	**33.2437**	**0.5407**	**15.6484**	**0.8707**	**16.5191**	**4.1768**	**0.8344**	**5.0112**	**501.2538**	**56,987.2745**	**57,488.5283**	**39.8130**	**8.5505**	**61,031.9132**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0842	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Energy	0.0469	0.4265	0.3582	2.5600e-003		0.0324	0.0324		0.0324	0.0324	0.0000	1,769.3795	1,769.3795	8.9000e-003	8.5100e-003	1,772.1383
Mobile	1.0036	63.5536	32.8027	0.5377	15.6484	0.8330	16.4814	4.1768	0.7967	4.9735	0.0000	54,067.3089	54,067.3089	4.1289	8.2042	56,615.3817
Waste						0.0000	0.0000		0.0000	0.0000	90.6294	0.0000	90.6294	5.3560	0.0000	224.5304
Water						0.0000	0.0000		0.0000	0.0000	110.9890	699.1017	810.0908	11.3996	0.2692	1,175.2944
Total	**9.1348**	**63.9802**	**33.1757**	**0.5403**	**15.6484**	**0.8655**	**16.5138**	**4.1768**	**0.8291**	**5.0060**	**201.6184**	**56,535.8168**	**56,737.4353**	**20.8935**	**8.4819**	**59,787.3730**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.10**	**0.11**	**0.20**	**0.08**	**0.00**	**0.60**	**0.03**	**0.00**	**0.63**	**0.10**	**59.78**	**0.79**	**1.31**	**47.52**	**0.80**	**2.04**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2024	12/31/2023	5	0	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 98.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Employee Vanpool/Shuttle

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0036	63.5536	32.8027	0.5377	15.6484	0.8330	16.4814	4.1768	0.7967	4.9735	0.0000	54,067.3089	54,067.3089	4.1289	8.2042	56,615.3817
Unmitigated	1.0036	63.5536	32.8027	0.5377	15.6484	0.8330	16.4814	4.1768	0.7967	4.9735	0.0000	54,067.3089	54,067.3089	4.1289	8.2042	56,615.3817

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Other Asphalt Surfaces	2,444.20	2,444.20	2444.20	29,537,697	29,537,697
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	73.75	73.75	73.75	891,254	891,254
Unrefrigerated Warehouse-Rail	1,023.83	1,023.83	1023.83	12,372,745	12,372,745
Total	3,541.78	3,541.78	3,541.78	42,801,696	42,801,696

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0

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	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-Rail	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.000000	0.118984	0.243984	0.637032	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Refrigerated Warehouse-Rail	0.000000	0.000000	0.000000	0.000000	0.000000	0.206417	0.178577	0.615006	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.000000	0.000000	0.000000	0.000000	0.000000	0.206417	0.178577	0.615006	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,305.1173	1,305.1173	0.0000	0.0000	1,305.1173
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,508.8012	1,508.8012	0.0000	0.0000	1,508.8012
NaturalGas Mitigated	0.0469	0.4265	0.3582	2.5600e-003		0.0324	0.0324		0.0324	0.0324	0.0000	464.2622	464.2622	8.9000e-003	8.5100e-003	467.0211
NaturalGas Unmitigated	0.0544	0.4947	0.4155	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	538.5157	538.5157	0.0103	9.8700e-003	541.7158

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	137200	7.4000e-004	6.7300e-003	5.6500e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	7.3215	7.3215	1.4000e-004	1.3000e-004	7.3650
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.46625e+006	0.0349	0.3170	0.2663	1.9000e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.0637	345.0637	6.6100e-003	6.3300e-003	347.1143
Unrefrigerated Warehouse-Rail	3.48795e+006	0.0188	0.1710	0.1436	1.0300e-003		0.0130	0.0130		0.0130	0.0130	0.0000	186.1305	186.1305	3.5700e-003	3.4100e-003	187.2365
Total		**0.0544**	**0.4947**	**0.4155**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**	**0.0000**	**538.5157**	**538.5157**	**0.0103**	**9.8700e-003**	**541.7158**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	89180	4.8000e-004	4.3700e-003	3.6700e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	4.7590	4.7590	9.0000e-005	9.0000e-005	4.7873
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.32538e+006	0.0341	0.3101	0.2605	1.8600e-003		0.0236	0.0236		0.0236	0.0236	0.0000	337.5461	337.5461	6.4700e-003	6.1900e-003	339.5520
Unrefrigerated Warehouse-Rail	2.28539e+006	0.0123	0.1120	0.0941	6.7000e-004		8.5100e-003	8.5100e-003		8.5100e-003	8.5100e-003	0.0000	121.9571	121.9571	2.3400e-003	2.2400e-003	122.6819
Total		**0.0469**	**0.4265**	**0.3582**	**2.5600e-003**		**0.0324**	**0.0324**		**0.0324**	**0.0324**	**0.0000**	**464.2622**	**464.2622**	**8.9000e-003**	**8.5200e-003**	**467.0211**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	367600	55.8581	0.0000	0.0000	55.8581
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	555869	84.4662	0.0000	0.0000	84.4662
Refrigerated Warehouse-Rail	4.98e +006	756.7282	0.0000	0.0000	756.7282
Unrefrigerated Warehouse-Rail	4.0259e +006	611.7488	0.0000	0.0000	611.7488
Total		**1,508.8012**	**0.0000**	**0.0000**	**1,508.8012**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	278000	42.2431	0.0000	0.0000	42.2431
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	361315	54.9031	0.0000	0.0000	54.9031
Refrigerated Warehouse-Rail	4.83475e+006	734.6569	0.0000	0.0000	734.6569
Unrefrigerated Warehouse-Rail	3.11486e+006	473.3142	0.0000	0.0000	473.3142
Total		**1,305.1173**	**0.0000**	**0.0000**	**1,305.1173**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0842	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Unmitigated	8.0856	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.1430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3400e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528
Total	**8.0856**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0496**	**0.0496**	**1.3000e-004**	**0.0000**	**0.0528**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.1430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.9000e-004	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Total	**8.0842**	**1.3000e-004**	**0.0148**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0267**	**0.0267**	**5.0000e-005**	**0.0000**	**0.0281**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	810.0908	11.3996	0.2692	1,175.2944
Unmitigated	1,011.3353	14.2496	0.3365	1,467.8399

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	7.10935 / 4.35734	23.6780	0.2317	5.4700e-003	31.0995
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	28.9063 / 0	66.3641	0.9419	0.0222	96.5396
Unrefrigerated Warehouse-Rail	401.288 / 0	921.2932	13.0760	0.3088	1,340.2008
Total		**1,011.3353**	**14.2496**	**0.3365**	**1,467.8399**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.68748 / 4.09155	19.9649	0.1853	4.3800e-003	25.9021
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	23.125 / 0	53.0913	0.7535	0.0178	77.2317
Unrefrigerated Warehouse-Rail	321.031 / 0	737.0346	10.4608	0.2470	1,072.1607
Total		**810.0907**	**11.3996**	**0.2692**	**1,175.2944**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	90.6294	5.3560	0.0000	224.5304
Unmitigated	362.5175	21.4242	0.0000	898.1218

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	37.2	7.5513	0.4463	0.0000	18.7079
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	117.5	23.8514	1.4096	0.0000	59.0909
Unrefrigerated Warehouse-Rail	1631.18	331.1148	19.5683	0.0000	820.3229
Total		**362.5175**	**21.4242**	**0.0000**	**898.1218**

Speedway Commerce Center (Phase 1b Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	9.3	1.8878	0.1116	0.0000	4.6770
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	29.375	5.9629	0.3524	0.0000	14.7727
Unrefrigerated Warehouse-Rail	407.795	82.7787	4.8921	0.0000	205.0807
Total		**90.6294**	**5.3560**	**0.0000**	**224.5304**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

Speedway Commerce Center (Phase 1b Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Speedway Commerce Center (Phase 1b Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 1b Vans)(*Mobile Source/Truck Operations Only)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	40.00	1000sqft	0.92	40,000.00	0
Refrigerated Warehouse-Rail	125.00	1000sqft	2.87	125,000.00	0
Unrefrigerated Warehouse-Rail	1,735.30	1000sqft	39.84	1,735,300.00	0
Other Asphalt Surfaces	61.66	Acre	61.66	2,685,909.60	0
Parking Lot	36.46	Acre	36.46	1,588,197.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	335	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 Factor adjusted per RPS

Land Use -

Construction Phase - operations only

Off-road Equipment - Anticipated equipment

Off-road Equipment -

Trips and VMT - anticipated concrete truck trips

Demolition -

Speedway Commerce Center (Phase 1b Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading -

Vehicle Trips - Phase 1b vans run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products - project would not use consumer products as specified in definition, emission factor reduced by 50%

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase 1b vans run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.0090e-003	1.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	4.6060e-003	0.00

Speedway Commerce Center (Phase 1b Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5200e-004	0.00
tblFleetMix	SBUS	9.5600e-004	0.00
tblFleetMix	UBUS	2.4800e-004	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	335
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.4052e-008
tblVehicleEF	HHD	8.64	5.29
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.1350e-003	1.0677e-003
tblVehicleEF	HHD	1,377.00	811.82
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.2142e-006
tblVehicleEF	HHD	7.06	3.98
tblVehicleEF	HHD	2.14	1.67
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	2.9130e-003	2.0729e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	2.7870e-003	1.9787e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	2.0000e-006	1.8370e-004
tblVehicleEF	HHD	5.6000e-005	4.5691e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.3000e-005	4.8603e-005
tblVehicleEF	HHD	1.0000e-006	1.7531e-007
tblVehicleEF	HHD	0.01	6.9121e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7125e-007
tblVehicleEF	HHD	2.0000e-006	1.8370e-004
tblVehicleEF	HHD	5.6000e-005	4.5691e-005
tblVehicleEF	HHD	0.67	0.57
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.3000e-005	4.8603e-005
tblVehicleEF	HHD	1.0000e-006	1.9194e-007
tblVehicleEF	HHD	0.03	0.23
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.2487e-008
tblVehicleEF	HHD	8.52	5.23
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.0010e-003	1.0080e-003
tblVehicleEF	HHD	1,359.81	803.46
tblVehicleEF	HHD	1,260.88	1,528.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.1274e-006
tblVehicleEF	HHD	6.72	3.80
tblVehicleEF	HHD	2.02	1.57
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	2.5690e-003	1.8267e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	2.4580e-003	1.7432e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	4.0000e-006	2.8198e-004
tblVehicleEF	HHD	6.5000e-005	5.0521e-005
tblVehicleEF	HHD	0.62	0.34
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.4000e-005	5.2030e-005
tblVehicleEF	HHD	1.0000e-006	1.6775e-007
tblVehicleEF	HHD	0.01	6.8329e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7031e-007
tblVehicleEF	HHD	4.0000e-006	2.8198e-004
tblVehicleEF	HHD	6.5000e-005	5.0521e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.71	0.59
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.4000e-005	5.2030e-005
tblVehicleEF	HHD	1.0000e-006	1.8366e-007
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.14
tblVehicleEF	HHD	0.00	3.3858e-008
tblVehicleEF	HHD	8.80	5.38
tblVehicleEF	HHD	0.33	0.79
tblVehicleEF	HHD	2.1050e-003	1.0594e-003
tblVehicleEF	HHD	1,400.73	823.37
tblVehicleEF	HHD	1,260.88	1,528.41
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.25
tblVehicleEF	HHD	5.0000e-006	8.1881e-006
tblVehicleEF	HHD	7.53	4.22
tblVehicleEF	HHD	2.11	1.64
tblVehicleEF	HHD	2.33	2.65
tblVehicleEF	HHD	3.3870e-003	2.4128e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	6.5960e-007
tblVehicleEF	HHD	3.2410e-003	2.3039e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9140e-003	8.8051e-003
tblVehicleEF	HHD	0.02	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.00	6.0648e-007
tblVehicleEF	HHD	2.0000e-006	1.8870e-004
tblVehicleEF	HHD	6.5000e-005	4.5240e-005
tblVehicleEF	HHD	0.53	0.29
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.4000e-005	5.1002e-005
tblVehicleEF	HHD	1.0000e-006	1.7434e-007
tblVehicleEF	HHD	0.01	7.0215e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.7112e-007
tblVehicleEF	HHD	2.0000e-006	1.8870e-004
tblVehicleEF	HHD	6.5000e-005	4.5240e-005
tblVehicleEF	HHD	0.61	0.54
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.16
tblVehicleEF	HHD	2.4000e-005	5.1002e-005
tblVehicleEF	HHD	1.0000e-006	1.9088e-007
tblVehicleEF	LDA	1.7080e-003	1.9620e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.53	0.67
tblVehicleEF	LDA	1.93	2.61
tblVehicleEF	LDA	238.15	260.20
tblVehicleEF	LDA	48.93	64.94
tblVehicleEF	LDA	3.9170e-003	4.0426e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1205e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.1620e-003	7.1305e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.26
tblVehicleEF	LDA	2.3560e-003	2.5722e-003
tblVehicleEF	LDA	4.8400e-004	6.4196e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	8.9600e-003	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDA	1.9600e-003	2.0865e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.65	0.89
tblVehicleEF	LDA	1.61	2.19
tblVehicleEF	LDA	259.99	282.24
tblVehicleEF	LDA	48.33	64.15
tblVehicleEF	LDA	3.6720e-003	3.5948e-003
tblVehicleEF	LDA	0.02	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.14	0.20
tblVehicleEF	LDA	0.04	7.1205e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.10	0.40
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	6.9860e-003	7.4844e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.15	0.23
tblVehicleEF	LDA	2.5720e-003	2.7900e-003
tblVehicleEF	LDA	4.7800e-004	6.3423e-004
tblVehicleEF	LDA	0.10	0.40
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	1.6660e-003	1.9458e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.50	0.62
tblVehicleEF	LDA	1.90	2.61
tblVehicleEF	LDA	233.04	256.15

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	48.87	64.95
tblVehicleEF	LDA	3.7570e-003	3.9376e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1205e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2760e-003	1.1848e-003
tblVehicleEF	LDA	1.6410e-003	1.9375e-003
tblVehicleEF	LDA	0.02	2.4922e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1750e-003	1.0902e-003
tblVehicleEF	LDA	1.5090e-003	1.7815e-003
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	6.0060e-003	7.0743e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	2.3050e-003	2.5322e-003
tblVehicleEF	LDA	4.8400e-004	6.4209e-004
tblVehicleEF	LDA	0.05	0.31
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	8.7330e-003	0.01
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.19	0.29
tblVehicleEF	LDT1	4.5970e-003	8.1809e-003
tblVehicleEF	LDT1	0.06	0.12

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	1.02	1.81
tblVehicleEF	LDT1	2.15	5.92
tblVehicleEF	LDT1	283.77	334.40
tblVehicleEF	LDT1	59.69	88.18
tblVehicleEF	LDT1	6.7580e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.08	0.17
tblVehicleEF	LDT1	0.23	0.44
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	2.8080e-003	3.3058e-003
tblVehicleEF	LDT1	5.9100e-004	8.7174e-004
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.11	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.09	0.08

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	0.34	0.69
tblVehicleEF	LDT1	5.2210e-003	8.6781e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	1.24	2.41
tblVehicleEF	LDT1	1.79	4.93
tblVehicleEF	LDT1	306.50	360.35
tblVehicleEF	LDT1	58.95	86.30
tblVehicleEF	LDT1	6.2730e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.14
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.30	1.20
tblVehicleEF	LDT1	0.25	0.24
tblVehicleEF	LDT1	0.23	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.26	0.54
tblVehicleEF	LDT1	3.0330e-003	3.5624e-003
tblVehicleEF	LDT1	5.8300e-004	8.5315e-004
tblVehicleEF	LDT1	0.30	1.20
tblVehicleEF	LDT1	0.25	0.24

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	0.23	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.09	0.08
tblVehicleEF	LDT1	0.29	0.59
tblVehicleEF	LDT1	4.4920e-003	8.1118e-003
tblVehicleEF	LDT1	0.06	0.12
tblVehicleEF	LDT1	0.97	1.70
tblVehicleEF	LDT1	2.11	5.94
tblVehicleEF	LDT1	278.38	329.62
tblVehicleEF	LDT1	59.63	88.22
tblVehicleEF	LDT1	6.4760e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.08	0.16
tblVehicleEF	LDT1	0.23	0.44
tblVehicleEF	LDT1	0.04	8.8228e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.7400e-003	2.0954e-003
tblVehicleEF	LDT1	2.2850e-003	3.3018e-003
tblVehicleEF	LDT1	0.02	3.0880e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.6000e-003	1.9275e-003
tblVehicleEF	LDT1	2.1010e-003	3.0359e-003
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.23	0.22
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	2.7550e-003	3.2586e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	5.9000e-004	8.7210e-004
tblVehicleEF	LDT1	0.15	0.91
tblVehicleEF	LDT1	0.23	0.22
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.34	0.69
tblVehicleEF	LDT2	3.0790e-003	2.7679e-003
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.77	0.84
tblVehicleEF	LDT2	2.49	3.23
tblVehicleEF	LDT2	296.94	338.28
tblVehicleEF	LDT2	62.71	84.59
tblVehicleEF	LDT2	5.6980e-003	5.7730e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.24	0.30
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.09	0.33
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.01	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	2.9380e-003	3.3439e-003
tblVehicleEF	LDT2	6.2100e-004	8.3622e-004
tblVehicleEF	LDT2	0.09	0.33
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.08	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LDT2	3.5190e-003	2.9421e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.94	1.12
tblVehicleEF	LDT2	2.06	2.71
tblVehicleEF	LDT2	318.51	361.67
tblVehicleEF	LDT2	61.89	83.60
tblVehicleEF	LDT2	5.3190e-003	5.1454e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.06	0.05
tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.18	0.42

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.23	0.29
tblVehicleEF	LDT2	3.1510e-003	3.5751e-003
tblVehicleEF	LDT2	6.1200e-004	8.2646e-004
tblVehicleEF	LDT2	0.18	0.42
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.16	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	3.0060e-003	2.7451e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.73	0.78
tblVehicleEF	LDT2	2.45	3.24
tblVehicleEF	LDT2	291.83	333.98
tblVehicleEF	LDT2	62.64	84.61
tblVehicleEF	LDT2	5.4640e-003	5.6264e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.23	0.30
tblVehicleEF	LDT2	0.04	8.3384e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3590e-003	1.2540e-003
tblVehicleEF	LDT2	1.7340e-003	2.0104e-003
tblVehicleEF	LDT2	0.02	2.9184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	1.2500e-003	1.1535e-003
tblVehicleEF	LDT2	1.5950e-003	1.8485e-003
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	2.8870e-003	3.3013e-003
tblVehicleEF	LDT2	6.2000e-004	8.3642e-004
tblVehicleEF	LDT2	0.09	0.34
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.29	0.37
tblVehicleEF	LHD1	4.4980e-003	5.0070e-003
tblVehicleEF	LHD1	4.8130e-003	2.8214e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.64	0.61
tblVehicleEF	LHD1	0.94	1.92
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.71	354.89
tblVehicleEF	LHD1	10.21	16.27
tblVehicleEF	LHD1	8.5900e-004	7.2256e-004
tblVehicleEF	LHD1	0.04	5.3107e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	1.13	0.09
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	4.7768e-003
tblVehicleEF	LHD1	9.4060e-003	6.8794e-004
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5020e-003	1.1942e-003
tblVehicleEF	LHD1	8.9760e-003	6.3253e-004
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	2.6930e-003	0.13
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3450e-003	0.00
tblVehicleEF	LHD1	0.05	0.01
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	3.5084e-003
tblVehicleEF	LHD1	1.0100e-004	1.6083e-004
tblVehicleEF	LHD1	2.6930e-003	0.13
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3450e-003	0.00
tblVehicleEF	LHD1	0.07	0.02
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.07	0.11

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	4.5120e-003	5.0253e-003
tblVehicleEF	LHD1	4.9120e-003	1.8912e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.66	0.12
tblVehicleEF	LHD1	0.88	1.82
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.74	196.64
tblVehicleEF	LHD1	10.10	16.10
tblVehicleEF	LHD1	8.6200e-004	7.2487e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.06	0.60
tblVehicleEF	LHD1	0.26	0.38
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9102e-003
tblVehicleEF	LHD1	9.4060e-003	0.01
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5020e-003	1.2276e-003
tblVehicleEF	LHD1	8.9760e-003	9.7899e-003
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	5.2970e-003	0.17
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.0170e-003	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	1.8632e-003
tblVehicleEF	LHD1	1.0000e-004	1.5918e-004
tblVehicleEF	LHD1	5.2970e-003	0.17
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.0170e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.22	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	4.5010e-003	5.0091e-003
tblVehicleEF	LHD1	4.8240e-003	1.8912e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.19
tblVehicleEF	LHD1	0.64	0.12
tblVehicleEF	LHD1	0.92	1.91
tblVehicleEF	LHD1	9.12	8.84
tblVehicleEF	LHD1	622.72	196.64
tblVehicleEF	LHD1	10.18	16.25
tblVehicleEF	LHD1	8.6000e-004	7.2322e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.11	0.62
tblVehicleEF	LHD1	0.27	0.39
tblVehicleEF	LHD1	9.8200e-004	7.8652e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9102e-003
tblVehicleEF	LHD1	9.4060e-003	0.01
tblVehicleEF	LHD1	2.3100e-004	2.0921e-004
tblVehicleEF	LHD1	9.4000e-004	7.5249e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5020e-003	1.2276e-003
tblVehicleEF	LHD1	8.9760e-003	9.7899e-003
tblVehicleEF	LHD1	2.1300e-004	1.9236e-004
tblVehicleEF	LHD1	2.9190e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3230e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.8000e-005	8.5809e-005
tblVehicleEF	LHD1	6.0590e-003	1.8632e-003
tblVehicleEF	LHD1	1.0100e-004	1.6066e-004
tblVehicleEF	LHD1	2.9190e-003	0.14
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.3230e-003	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD2	3.0290e-003	3.3816e-003
tblVehicleEF	LHD2	3.3290e-003	1.0183e-003
tblVehicleEF	LHD2	7.7710e-003	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.43	0.26
tblVehicleEF	LHD2	0.54	1.18
tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.31	236.88
tblVehicleEF	LHD2	7.26	10.25
tblVehicleEF	LHD2	1.8100e-003	1.6419e-003
tblVehicleEF	LHD2	0.06	3.0442e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.21	0.05
tblVehicleEF	LHD2	0.18	0.26
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8235e-003
tblVehicleEF	LHD2	0.01	3.4405e-004
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7030e-003	7.0588e-004
tblVehicleEF	LHD2	0.01	3.1634e-004
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	1.3290e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2000e-004	0.00
tblVehicleEF	LHD2	0.05	4.6402e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0100e-003	2.3418e-003
tblVehicleEF	LHD2	7.2000e-005	1.0131e-004
tblVehicleEF	LHD2	1.3290e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2000e-004	0.00
tblVehicleEF	LHD2	0.06	6.7710e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.0380e-003	3.3937e-003
tblVehicleEF	LHD2	3.3590e-003	2.7712e-003
tblVehicleEF	LHD2	7.4220e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.44	0.16
tblVehicleEF	LHD2	0.51	1.12
tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.32	376.11
tblVehicleEF	LHD2	7.20	10.14
tblVehicleEF	LHD2	1.8120e-003	1.6434e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.14	0.75
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.8326e-003
tblVehicleEF	LHD2	0.01	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7030e-003	1.9582e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	2.5650e-003	0.10
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5490e-003	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0110e-003	3.5639e-003
tblVehicleEF	LHD2	7.1000e-005	1.0029e-004
tblVehicleEF	LHD2	2.5650e-003	0.10
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5490e-003	0.00
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	3.0310e-003	3.3829e-003
tblVehicleEF	LHD2	3.3320e-003	2.7712e-003
tblVehicleEF	LHD2	7.7050e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.43	0.16
tblVehicleEF	LHD2	0.54	1.18

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	14.24	13.66
tblVehicleEF	LHD2	623.31	376.11
tblVehicleEF	LHD2	7.24	10.24
tblVehicleEF	LHD2	1.8110e-003	1.6423e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.20	0.78
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4410e-003	1.2964e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.8326e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1200e-004	9.8169e-005
tblVehicleEF	LHD2	1.3780e-003	1.2403e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7030e-003	1.9582e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0300e-004	9.0262e-005
tblVehicleEF	LHD2	1.3530e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9900e-004	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3600e-004	1.3097e-004
tblVehicleEF	LHD2	6.0100e-003	3.5639e-003
tblVehicleEF	LHD2	7.2000e-005	1.0120e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.3530e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9900e-004	0.00
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.57
tblVehicleEF	MCY	0.25	0.17
tblVehicleEF	MCY	19.66	0.57
tblVehicleEF	MCY	8.85	7.68
tblVehicleEF	MCY	211.00	0.57
tblVehicleEF	MCY	60.62	47.89
tblVehicleEF	MCY	0.07	0.57
tblVehicleEF	MCY	0.02	7.8912e-003
tblVehicleEF	MCY	1.15	0.57
tblVehicleEF	MCY	0.27	0.13
tblVehicleEF	MCY	0.01	0.57
tblVehicleEF	MCY	4.0000e-003	0.57
tblVehicleEF	MCY	1.9320e-003	0.57
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.57
tblVehicleEF	MCY	1.0000e-003	0.57
tblVehicleEF	MCY	1.8050e-003	0.57
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	1.45	2.50
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.19	0.57

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	0.40	0.57
tblVehicleEF	MCY	1.87	1.27
tblVehicleEF	MCY	2.0880e-003	0.57
tblVehicleEF	MCY	6.0000e-004	4.7345e-004
tblVehicleEF	MCY	1.45	2.50
tblVehicleEF	MCY	0.82	3.59
tblVehicleEF	MCY	0.79	0.00
tblVehicleEF	MCY	2.71	0.57
tblVehicleEF	MCY	0.40	0.57
tblVehicleEF	MCY	2.04	1.39
tblVehicleEF	MCY	0.32	0.49
tblVehicleEF	MCY	0.21	0.15
tblVehicleEF	MCY	19.80	0.49
tblVehicleEF	MCY	7.97	6.92
tblVehicleEF	MCY	211.03	0.49
tblVehicleEF	MCY	58.35	46.19
tblVehicleEF	MCY	0.06	0.49
tblVehicleEF	MCY	0.01	7.7414e-003
tblVehicleEF	MCY	0.98	0.49
tblVehicleEF	MCY	0.25	0.12
tblVehicleEF	MCY	0.01	0.49
tblVehicleEF	MCY	4.0000e-003	0.49
tblVehicleEF	MCY	1.9320e-003	0.49
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.49
tblVehicleEF	MCY	1.0000e-003	0.49
tblVehicleEF	MCY	1.8050e-003	0.49
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	3.13	3.75

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.09	0.00
tblVehicleEF	MCY	2.14	0.49
tblVehicleEF	MCY	0.40	0.49
tblVehicleEF	MCY	1.61	1.12
tblVehicleEF	MCY	2.0880e-003	0.49
tblVehicleEF	MCY	5.7700e-004	4.5668e-004
tblVehicleEF	MCY	3.13	3.75
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.09	0.00
tblVehicleEF	MCY	2.65	0.49
tblVehicleEF	MCY	0.40	0.49
tblVehicleEF	MCY	1.75	1.22
tblVehicleEF	MCY	0.32	0.55
tblVehicleEF	MCY	0.24	0.17
tblVehicleEF	MCY	18.81	0.55
tblVehicleEF	MCY	8.50	7.56
tblVehicleEF	MCY	209.52	0.55
tblVehicleEF	MCY	59.85	47.66
tblVehicleEF	MCY	0.06	0.55
tblVehicleEF	MCY	0.02	7.8973e-003
tblVehicleEF	MCY	1.11	0.55
tblVehicleEF	MCY	0.26	0.13
tblVehicleEF	MCY	0.01	0.55
tblVehicleEF	MCY	4.0000e-003	0.55
tblVehicleEF	MCY	1.9320e-003	0.55
tblVehicleEF	MCY	2.8200e-003	3.2888e-003
tblVehicleEF	MCY	5.0400e-003	0.55
tblVehicleEF	MCY	1.0000e-003	0.55

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.8050e-003	0.55
tblVehicleEF	MCY	2.6490e-003	3.0883e-003
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.09	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.16	0.55
tblVehicleEF	MCY	0.46	0.55
tblVehicleEF	MCY	1.81	1.26
tblVehicleEF	MCY	2.0730e-003	0.55
tblVehicleEF	MCY	5.9200e-004	4.7113e-004
tblVehicleEF	MCY	1.70	2.59
tblVehicleEF	MCY	1.09	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.67	0.55
tblVehicleEF	MCY	0.46	0.55
tblVehicleEF	MCY	1.97	1.37
tblVehicleEF	MDV	3.8560e-003	3.9181e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.86	1.01
tblVehicleEF	MDV	2.81	3.65
tblVehicleEF	MDV	371.74	414.62
tblVehicleEF	MDV	77.98	104.08
tblVehicleEF	MDV	7.9270e-003	8.3898e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.15	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.6750e-003	4.0968e-003
tblVehicleEF	MDV	7.7200e-004	1.0290e-003
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.15	0.11
tblVehicleEF	MDV	0.10	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.37	0.52
tblVehicleEF	MDV	4.4140e-003	4.1664e-003
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	1.05	1.35
tblVehicleEF	MDV	2.33	3.05
tblVehicleEF	MDV	394.46	438.81
tblVehicleEF	MDV	77.03	102.92
tblVehicleEF	MDV	7.4690e-003	7.5539e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	0.27	0.39

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003
tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.22	0.56
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	3.9000e-003	4.3359e-003
tblVehicleEF	MDV	7.6200e-004	1.0174e-003
tblVehicleEF	MDV	0.22	0.56
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.20	0.00
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	3.7610e-003	3.8843e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.81	0.95
tblVehicleEF	MDV	2.77	3.66
tblVehicleEF	MDV	366.36	410.18
tblVehicleEF	MDV	77.90	104.11
tblVehicleEF	MDV	7.6430e-003	8.1953e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	8.5906e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.4230e-003	1.3679e-003
tblVehicleEF	MDV	1.7590e-003	2.1104e-003
tblVehicleEF	MDV	0.02	3.0067e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.3120e-003	1.2615e-003
tblVehicleEF	MDV	1.6180e-003	1.9405e-003
tblVehicleEF	MDV	0.10	0.46
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.6210e-003	4.0528e-003
tblVehicleEF	MDV	7.7100e-004	1.0293e-003
tblVehicleEF	MDV	0.10	0.46
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.37	0.53
tblVehicleEF	MH	8.6210e-003	5.1346e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.00	2.4369e-003
tblVehicleEF	MH	1.95	2.24

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	1,433.73	5.1751e-003
tblVehicleEF	MH	17.85	22.02
tblVehicleEF	MH	0.06	1.1392e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.46	1.36
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	5.2895e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	0.98	34.03
tblVehicleEF	MH	0.06	7.99
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.05	4.6949e-008
tblVehicleEF	MH	0.02	2.0695e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	4.2408e-005
tblVehicleEF	MH	1.7700e-004	2.1766e-004
tblVehicleEF	MH	0.98	34.03
tblVehicleEF	MH	0.06	7.99
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.07	5.4238e-003
tblVehicleEF	MH	0.02	2.0695e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	8.8540e-003	5.2651e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.03	2.6059e-003
tblVehicleEF	MH	1.78	2.09
tblVehicleEF	MH	1,433.78	5.1753e-003
tblVehicleEF	MH	17.57	21.75
tblVehicleEF	MH	0.06	1.0607e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.35	1.27
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	4.9873e-004
tblVehicleEF	MH	0.04	0.12
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	1.94	44.12
tblVehicleEF	MH	0.07	8.66
tblVehicleEF	MH	0.84	0.00
tblVehicleEF	MH	0.06	4.5071e-008
tblVehicleEF	MH	0.02	2.1519e-003
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	4.5351e-005
tblVehicleEF	MH	1.7400e-004	2.1504e-004
tblVehicleEF	MH	1.94	44.12
tblVehicleEF	MH	0.07	8.66
tblVehicleEF	MH	0.84	0.00
tblVehicleEF	MH	0.07	6.0613e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.02	2.1519e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	8.6430e-003	5.1387e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.00	2.5018e-003
tblVehicleEF	MH	1.93	2.25
tblVehicleEF	MH	1,433.73	5.1751e-003
tblVehicleEF	MH	17.82	22.03
tblVehicleEF	MH	0.06	1.1147e-006
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.43	1.34
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.6953e-011
tblVehicleEF	MH	0.04	3.0794e-009
tblVehicleEF	MH	2.3000e-004	2.6048e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2930e-003	5.2030e-004
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	2.1100e-004	2.3950e-004
tblVehicleEF	MH	1.12	34.18
tblVehicleEF	MH	0.07	7.95
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.05	4.5982e-008
tblVehicleEF	MH	0.02	2.1228e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	4.3538e-005
tblVehicleEF	MH	1.7600e-004	2.1774e-004
tblVehicleEF	MH	1.12	34.18

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.07	7.95
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.07	5.3980e-003
tblVehicleEF	MH	0.02	2.1228e-003
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MHD	3.0370e-003	0.02
tblVehicleEF	MHD	1.0670e-003	7.6783e-003
tblVehicleEF	MHD	7.4460e-003	5.9090e-003
tblVehicleEF	MHD	0.34	0.64
tblVehicleEF	MHD	0.14	0.19
tblVehicleEF	MHD	0.80	0.67
tblVehicleEF	MHD	63.12	159.53
tblVehicleEF	MHD	940.09	1,118.67
tblVehicleEF	MHD	7.43	5.86
tblVehicleEF	MHD	9.1720e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1470e-003	4.2304e-003
tblVehicleEF	MHD	0.34	0.82
tblVehicleEF	MHD	1.01	0.67
tblVehicleEF	MHD	1.77	1.48
tblVehicleEF	MHD	2.4100e-004	1.1608e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	2.3000e-004	1.1099e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	4.4300e-004	0.02
tblVehicleEF	MHD	0.02	4.3023e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.3800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.9479e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9900e-004	1.4651e-003
tblVehicleEF	MHD	8.9580e-003	0.01
tblVehicleEF	MHD	7.4000e-005	5.7952e-005
tblVehicleEF	MHD	4.4300e-004	0.02
tblVehicleEF	MHD	0.02	4.3023e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.3800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	9.9479e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	2.8930e-003	0.02
tblVehicleEF	MHD	1.0900e-003	7.7026e-003
tblVehicleEF	MHD	7.1060e-003	5.6772e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.15	0.20
tblVehicleEF	MHD	0.75	0.63
tblVehicleEF	MHD	62.88	158.09
tblVehicleEF	MHD	940.09	1,118.68
tblVehicleEF	MHD	7.34	5.80
tblVehicleEF	MHD	9.1040e-003	0.02
tblVehicleEF	MHD	0.12	0.15

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	6.0170e-003	4.1601e-003
tblVehicleEF	MHD	0.33	0.79
tblVehicleEF	MHD	0.95	0.62
tblVehicleEF	MHD	1.76	1.47
tblVehicleEF	MHD	2.0600e-004	9.8923e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	1.9700e-004	9.4576e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	8.6600e-004	0.03
tblVehicleEF	MHD	0.02	4.6560e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	5.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9700e-004	1.4515e-003
tblVehicleEF	MHD	8.9590e-003	0.01
tblVehicleEF	MHD	7.3000e-005	5.7322e-005
tblVehicleEF	MHD	8.6600e-004	0.03
tblVehicleEF	MHD	0.02	4.6560e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	5.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.03

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	3.2500e-003	0.02
tblVehicleEF	MHD	1.0690e-003	7.6786e-003
tblVehicleEF	MHD	7.3590e-003	5.8669e-003
tblVehicleEF	MHD	0.40	0.69
tblVehicleEF	MHD	0.14	0.19
tblVehicleEF	MHD	0.79	0.66
tblVehicleEF	MHD	63.46	161.53
tblVehicleEF	MHD	940.09	1,118.67
tblVehicleEF	MHD	7.41	5.85
tblVehicleEF	MHD	9.2690e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.1040e-003	4.2126e-003
tblVehicleEF	MHD	0.36	0.86
tblVehicleEF	MHD	0.99	0.65
tblVehicleEF	MHD	1.77	1.47
tblVehicleEF	MHD	2.8900e-004	1.3976e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6590e-003	8.2260e-003
tblVehicleEF	MHD	8.6000e-005	6.4573e-005
tblVehicleEF	MHD	2.7600e-004	1.3365e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3240e-003	7.8661e-003
tblVehicleEF	MHD	7.9000e-005	5.9373e-005
tblVehicleEF	MHD	4.6200e-004	0.02
tblVehicleEF	MHD	0.02	4.2766e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.0200e-004	1.4839e-003
tblVehicleEF	MHD	8.9580e-003	0.01
tblVehicleEF	MHD	7.3000e-005	5.7865e-005
tblVehicleEF	MHD	4.6200e-004	0.02
tblVehicleEF	MHD	0.02	4.2766e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.3200e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	OBUS	9.0060e-003	0.02
tblVehicleEF	OBUS	5.7900e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.53
tblVehicleEF	OBUS	0.69	0.84
tblVehicleEF	OBUS	2.52	2.63
tblVehicleEF	OBUS	66.45	74.72
tblVehicleEF	OBUS	1,394.03	1,435.64
tblVehicleEF	OBUS	20.71	22.01
tblVehicleEF	OBUS	8.3390e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.28
tblVehicleEF	OBUS	0.87	1.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	8.1000e-005	4.9883e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	7.8000e-005	4.7670e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	2.7570e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1520e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.3400e-004	6.7271e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0500e-004	2.1760e-004
tblVehicleEF	OBUS	2.7570e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1520e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	9.0820e-003	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	5.9630e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.53
tblVehicleEF	OBUS	0.71	0.85
tblVehicleEF	OBUS	2.32	2.45
tblVehicleEF	OBUS	65.76	74.12
tblVehicleEF	OBUS	1,394.07	1,435.67
tblVehicleEF	OBUS	20.35	21.70
tblVehicleEF	OBUS	8.2370e-003	9.9572e-003
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.23	0.27
tblVehicleEF	OBUS	0.80	0.96
tblVehicleEF	OBUS	0.66	0.68
tblVehicleEF	OBUS	7.2000e-005	4.2688e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	6.9000e-005	4.0786e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	5.3510e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.6140e-003	0.00
tblVehicleEF	OBUS	0.03	0.05

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.2800e-004	6.6695e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0100e-004	2.1453e-004
tblVehicleEF	OBUS	5.3510e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	2.6140e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.14
tblVehicleEF	OBUS	8.9410e-003	0.02
tblVehicleEF	OBUS	5.8090e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.51	0.54
tblVehicleEF	OBUS	0.69	0.84
tblVehicleEF	OBUS	2.51	2.64
tblVehicleEF	OBUS	67.41	75.56
tblVehicleEF	OBUS	1,394.04	1,435.65
tblVehicleEF	OBUS	20.67	22.02
tblVehicleEF	OBUS	8.4910e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.26	0.29
tblVehicleEF	OBUS	0.86	1.02
tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	9.4000e-005	5.9818e-004
tblVehicleEF	OBUS	0.13	0.05

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3490e-003	0.02
tblVehicleEF	OBUS	2.3700e-004	2.3443e-004
tblVehicleEF	OBUS	9.0000e-005	5.7176e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0530e-003	0.02
tblVehicleEF	OBUS	2.1800e-004	2.1555e-004
tblVehicleEF	OBUS	2.9210e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1560e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.4400e-004	6.8066e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0500e-004	2.1770e-004
tblVehicleEF	OBUS	2.9210e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	1.1560e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.6520e-003	1.35
tblVehicleEF	SBUS	4.4230e-003	6.8206e-003
tblVehicleEF	SBUS	2.12	2.94

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.48	5.02
tblVehicleEF	SBUS	0.58	0.87
tblVehicleEF	SBUS	331.70	270.15
tblVehicleEF	SBUS	1,082.52	1,220.57
tblVehicleEF	SBUS	3.48	5.41
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.7600e-003	5.9990e-003
tblVehicleEF	SBUS	3.05	1.10
tblVehicleEF	SBUS	4.26	2.21
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	2.9700e-003	1.5870e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	2.8410e-003	1.4998e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	7.5800e-004	0.06
tblVehicleEF	SBUS	5.7310e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	9.7720e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.1550e-003	1.2523e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.01	6.7230e-003
tblVehicleEF	SBUS	3.4000e-005	5.3511e-005
tblVehicleEF	SBUS	7.5800e-004	0.06
tblVehicleEF	SBUS	5.7310e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	9.7720e-003	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.7220e-003	1.35
tblVehicleEF	SBUS	3.6550e-003	5.7134e-003
tblVehicleEF	SBUS	2.09	2.93
tblVehicleEF	SBUS	0.49	5.03
tblVehicleEF	SBUS	0.41	0.63
tblVehicleEF	SBUS	337.86	272.68
tblVehicleEF	SBUS	1,082.54	1,220.60
tblVehicleEF	SBUS	3.19	5.01
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.6220e-003	5.7874e-003
tblVehicleEF	SBUS	3.09	1.13
tblVehicleEF	SBUS	3.99	2.07
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	2.5130e-003	1.4170e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	2.4040e-003	1.3372e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	1.3700e-003	0.08
tblVehicleEF	SBUS	5.9610e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	7.3800e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	8.9590e-003	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.2130e-003	1.2763e-003
tblVehicleEF	SBUS	0.01	6.7233e-003
tblVehicleEF	SBUS	3.2000e-005	4.9531e-005
tblVehicleEF	SBUS	1.3700e-003	0.08
tblVehicleEF	SBUS	5.9610e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	7.3800e-004	0.00
tblVehicleEF	SBUS	0.10	1.45
tblVehicleEF	SBUS	8.9590e-003	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.05	0.52
tblVehicleEF	SBUS	5.6490e-003	1.35
tblVehicleEF	SBUS	4.5230e-003	7.0265e-003
tblVehicleEF	SBUS	2.16	2.95
tblVehicleEF	SBUS	0.48	5.02
tblVehicleEF	SBUS	0.60	0.91
tblVehicleEF	SBUS	323.18	266.66

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	1,082.52	1,220.58
tblVehicleEF	SBUS	3.50	5.48
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.17
tblVehicleEF	SBUS	3.7940e-003	6.0725e-003
tblVehicleEF	SBUS	2.98	1.07
tblVehicleEF	SBUS	4.20	2.18
tblVehicleEF	SBUS	1.12	0.18
tblVehicleEF	SBUS	3.6010e-003	1.8216e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	5.3072e-005
tblVehicleEF	SBUS	3.4450e-003	1.7243e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7420e-003	2.5567e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.2000e-005	4.8798e-005
tblVehicleEF	SBUS	7.0600e-004	0.06
tblVehicleEF	SBUS	5.8560e-003	0.01
tblVehicleEF	SBUS	0.22	0.27
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0740e-003	1.2192e-003
tblVehicleEF	SBUS	0.01	6.7230e-003
tblVehicleEF	SBUS	3.5000e-005	5.4167e-005
tblVehicleEF	SBUS	7.0600e-004	0.06

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	5.8560e-003	0.01
tblVehicleEF	SBUS	0.31	0.85
tblVehicleEF	SBUS	3.8400e-004	0.00
tblVehicleEF	SBUS	0.10	1.44
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.8958e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.41	1.08
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	16.41	7.56
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	1.1890e-003	0.02
tblVehicleEF	UBUS	8.9290e-003	4.7458e-003
tblVehicleEF	UBUS	6.9100e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.0620e-003	5.0276e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6140e-004
tblVehicleEF	UBUS	1.6200e-004	7.4748e-005
tblVehicleEF	UBUS	1.1890e-003	0.02
tblVehicleEF	UBUS	8.9290e-003	4.7458e-003
tblVehicleEF	UBUS	6.9100e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.0620e-003	5.0276e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.2083e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.16	0.92
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	15.98	7.30
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.35	0.39
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003
tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	2.2690e-003	0.03
tblVehicleEF	UBUS	0.01	5.1891e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.5870e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.0440e-003	5.2527e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6142e-004
tblVehicleEF	UBUS	1.5800e-004	7.2167e-005
tblVehicleEF	UBUS	2.2690e-003	0.03
tblVehicleEF	UBUS	0.01	5.1891e-003
tblVehicleEF	UBUS	1.5870e-003	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.0440e-003	5.2527e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	4.21	2.00
tblVehicleEF	UBUS	0.02	7.9529e-003
tblVehicleEF	UBUS	32.80	28.00
tblVehicleEF	UBUS	1.38	1.10
tblVehicleEF	UBUS	1,717.67	1,625.39
tblVehicleEF	UBUS	16.35	7.59
tblVehicleEF	UBUS	0.28	0.31
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.39
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7180e-003	1.8080e-003
tblVehicleEF	UBUS	2.1400e-004	3.9713e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5830e-003	1.7242e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	1.9700e-004	3.6515e-005
tblVehicleEF	UBUS	1.2470e-003	0.02
tblVehicleEF	UBUS	0.01	4.7112e-003
tblVehicleEF	UBUS	6.8300e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.2180e-003	5.2205e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7390e-003	9.6140e-004
tblVehicleEF	UBUS	1.6200e-004	7.5006e-005
tblVehicleEF	UBUS	1.2470e-003	0.02
tblVehicleEF	UBUS	0.01	4.7112e-003
tblVehicleEF	UBUS	6.8300e-004	0.00
tblVehicleEF	UBUS	4.30	2.05
tblVehicleEF	UBUS	1.2180e-003	5.2205e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	2.21	94.14
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	0.70	94.14
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	9.74	94.14
tblVehicleTrips	WD_TR	2.12	0.00
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

Speedway Commerce Center (Phase 1b Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0856	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528
Energy	0.0544	0.4947	0.4155	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	2,047.3169	2,047.3169	0.0103	9.8700e-003	2,050.5171
Mobile	0.3991	1.3117	6.1779	0.0386	4.4788	7.7200e-003	4.4865	1.1538	7.1700e-003	1.1610	0.0000	3,542.0163	3,542.0163	0.0375	0.0751	3,565.3347
Waste						0.0000	0.0000		0.0000	0.0000	362.5175	0.0000	362.5175	21.4242	0.0000	898.1218
Water						0.0000	0.0000		0.0000	0.0000	138.7363	872.5990	1,011.3353	14.2496	0.3365	1,467.8399
Total	**8.5391**	**1.8066**	**6.6189**	**0.0416**	**4.4788**	**0.0454**	**4.5242**	**1.1538**	**0.0449**	**1.1986**	**501.2538**	**6,461.9818**	**6,963.2356**	**35.7217**	**0.4214**	**7,981.8662**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0842	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Energy	0.0469	0.4265	0.3582	2.5600e-003		0.0324	0.0324		0.0324	0.0324	0.0000	1,769.3795	1,769.3795	8.9000e-003	8.5100e-003	1,772.1383
Mobile	0.3982	1.3025	6.1287	0.0381	4.4260	7.6600e-003	4.4337	1.1402	7.1100e-003	1.1473	0.0000	3,500.6890	3,500.6890	0.0374	0.0746	3,523.8447
Waste						0.0000	0.0000		0.0000	0.0000	90.6294	0.0000	90.6294	5.3560	0.0000	224.5304
Water						0.0000	0.0000		0.0000	0.0000	110.9890	699.1017	810.0908	11.3996	0.2692	1,175.2944
Total	**8.5293**	**1.7291**	**6.5017**	**0.0407**	**4.4260**	**0.0401**	**4.4661**	**1.1402**	**0.0396**	**1.1798**	**201.6184**	**5,969.1969**	**6,170.8153**	**16.8020**	**0.3523**	**6,695.8360**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.11**	**4.29**	**1.77**	**2.07**	**1.18**	**11.67**	**1.28**	**1.18**	**11.81**	**1.58**	**59.78**	**7.63**	**11.38**	**52.96**	**16.42**	**16.11**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2024	12/31/2023	5	0	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 98.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Employee Vanpool/Shuttle

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3982	1.3025	6.1287	0.0381	4.4260	7.6600e-003	4.4337	1.1402	7.1100e-003	1.1473	0.0000	3,500.6890	3,500.6890	0.0374	0.0746	3,523.8447
Unmitigated	0.3991	1.3117	6.1779	0.0386	4.4788	7.7200e-003	4.4865	1.1538	7.1700e-003	1.1610	0.0000	3,542.0163	3,542.0163	0.0375	0.0751	3,565.3347

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	3,765.60	3,765.60	3765.60	14,832,111	14,657,440
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	3,765.60	3,765.60	3,765.60	14,832,111	14,657,440

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Refrigerated Warehouse-Rail	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Unrefrigerated Warehouse-Rail	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Speedway Commerce Center (Phase 1b Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,305.1173	1,305.1173	0.0000	0.0000	1,305.1173
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,508.8012	1,508.8012	0.0000	0.0000	1,508.8012
NaturalGas Mitigated	0.0469	0.4265	0.3582	2.5600e-003		0.0324	0.0324		0.0324	0.0324	0.0000	464.2622	464.2622	8.9000e-003	8.5100e-003	467.0211
NaturalGas Unmitigated	0.0544	0.4947	0.4155	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	538.5157	538.5157	0.0103	9.8700e-003	541.7158

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	137200	7.4000e-004	6.7300e-003	5.6500e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	7.3215	7.3215	1.4000e-004	1.3000e-004	7.3650
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.46625e+006	0.0349	0.3170	0.2663	1.9000e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.0637	345.0637	6.6100e-003	6.3300e-003	347.1143
Unrefrigerated Warehouse-Rail	3.48795e+006	0.0188	0.1710	0.1436	1.0300e-003		0.0130	0.0130		0.0130	0.0130	0.0000	186.1305	186.1305	3.5700e-003	3.4100e-003	187.2365
Total		**0.0544**	**0.4947**	**0.4155**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**	**0.0000**	**538.5157**	**538.5157**	**0.0103**	**9.8700e-003**	**541.7158**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	89180	4.8000e-004	4.3700e-003	3.6700e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	4.7590	4.7590	9.0000e-005	9.0000e-005	4.7873
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	6.32538e+006	0.0341	0.3101	0.2605	1.8600e-003		0.0236	0.0236		0.0236	0.0236	0.0000	337.5461	337.5461	6.4700e-003	6.1900e-003	339.5520
Unrefrigerated Warehouse-Rail	2.28539e+006	0.0123	0.1120	0.0941	6.7000e-004		8.5100e-003	8.5100e-003		8.5100e-003	8.5100e-003	0.0000	121.9571	121.9571	2.3400e-003	2.2400e-003	122.6819
Total		**0.0469**	**0.4265**	**0.3582**	**2.5600e-003**		**0.0324**	**0.0324**		**0.0324**	**0.0324**	**0.0000**	**464.2622**	**464.2622**	**8.9000e-003**	**8.5200e-003**	**467.0211**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	367600	55.8581	0.0000	0.0000	55.8581
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	555869	84.4662	0.0000	0.0000	84.4662
Refrigerated Warehouse-Rail	4.98e +006	756.7282	0.0000	0.0000	756.7282
Unrefrigerated Warehouse-Rail	4.0259e +006	611.7488	0.0000	0.0000	611.7488
Total		**1,508.8012**	**0.0000**	**0.0000**	**1,508.8012**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	278000	42.2431	0.0000	0.0000	42.2431
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	361315	54.9031	0.0000	0.0000	54.9031
Refrigerated Warehouse-Rail	4.83475e+006	734.6569	0.0000	0.0000	734.6569
Unrefrigerated Warehouse-Rail	3.11486e+006	473.3142	0.0000	0.0000	473.3142
Total		**1,305.1173**	**0.0000**	**0.0000**	**1,305.1173**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0842	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Unmitigated	8.0856	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.1430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3400e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0496	0.0496	1.3000e-004	0.0000	0.0528
Total	**8.0856**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0496**	**0.0496**	**1.3000e-004**	**0.0000**	**0.0528**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.1430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.9000e-004	1.3000e-004	0.0148	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0267	0.0267	5.0000e-005	0.0000	0.0281
Total	**8.0842**	**1.3000e-004**	**0.0148**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0267**	**0.0267**	**5.0000e-005**	**0.0000**	**0.0281**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	810.0908	11.3996	0.2692	1,175.2944
Unmitigated	1,011.3353	14.2496	0.3365	1,467.8399

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	7.10935 / 4.35734	23.6780	0.2317	5.4700e-003	31.0995
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	28.9063 / 0	66.3641	0.9419	0.0222	96.5396
Unrefrigerated Warehouse-Rail	401.288 / 0	921.2932	13.0760	0.3088	1,340.2008
Total		**1,011.3353**	**14.2496**	**0.3365**	**1,467.8399**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.68748 / 4.09155	19.9649	0.1853	4.3800e-003	25.9021
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	23.125 / 0	53.0913	0.7535	0.0178	77.2317
Unrefrigerated Warehouse-Rail	321.031 / 0	737.0346	10.4608	0.2470	1,072.1607
Total		**810.0907**	**11.3996**	**0.2692**	**1,175.2944**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	90.6294	5.3560	0.0000	224.5304
Unmitigated	362.5175	21.4242	0.0000	898.1218

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	37.2	7.5513	0.4463	0.0000	18.7079
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	117.5	23.8514	1.4096	0.0000	59.0909
Unrefrigerated Warehouse-Rail	1631.18	331.1148	19.5683	0.0000	820.3229
Total		**362.5175**	**21.4242**	**0.0000**	**898.1218**

Speedway Commerce Center (Phase 1b Vans) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	9.3	1.8878	0.1116	0.0000	4.6770
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	29.375	5.9629	0.3524	0.0000	14.7727
Unrefrigerated Warehouse-Rail	407.795	82.7787	4.8921	0.0000	205.0807
Total		**90.6294**	**5.3560**	**0.0000**	**224.5304**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 2 Passenger Cars)(*Includes Construction)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Refrigerated Warehouse-Rail	250.00	1000sqft	5.74	250,000.00	0
Unrefrigerated Warehouse-Rail	1,273.84	1000sqft	29.24	1,273,840.00	0
Other Asphalt Surfaces	17.74	Acre	17.74	772,754.40	0
Parking Lot	33.13	Acre	33.13	1,443,142.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2026
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	325	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 factor adjusted per RPS

Land Use -

Construction Phase - per construction schedule

Off-road Equipment - Anticipated equipment

Off-road Equipment - Per construction equipment list

Off-road Equipment - Per construction equipment list

Off-road Equipment - Per Construction equipment list

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - anticipated construction equipment

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

Vehicle Trips - Phase2 passenger car run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products - project would not use consumer products as specified in definition, emission factor reduced by 50%

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase2 passenger cars run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	36.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	63.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	100.00	86.00
tblConstructionPhase	NumDays	60.00	86.00
tblConstructionPhase	NumDays	155.00	86.00
tblConstructionPhase	NumDays	1,550.00	87.00
tblConstructionPhase	NumDays	110.00	88.00
tblConstructionPhase	NumDays	110.00	88.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	HHD	0.02	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.55	0.59
tblFleetMix	LDA	0.55	0.59
tblFleetMix	LDA	0.55	0.59
tblFleetMix	LHD2	6.9140e-003	0.00
tblFleetMix	LHD2	6.9140e-003	0.00
tblFleetMix	LHD2	6.9140e-003	0.00
tblFleetMix	MH	4.3910e-003	0.00
tblFleetMix	MH	4.3910e-003	0.00
tblFleetMix	MH	4.3910e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.4800e-004	0.00
tblFleetMix	OBUS	5.4800e-004	0.00
tblFleetMix	OBUS	5.4800e-004	0.00
tblFleetMix	SBUS	9.5800e-004	0.00
tblFleetMix	SBUS	9.5800e-004	0.00
tblFleetMix	SBUS	9.5800e-004	0.00
tblFleetMix	UBUS	2.4500e-004	0.00
tblFleetMix	UBUS	2.4500e-004	0.00
tblFleetMix	UBUS	2.4500e-004	0.00
tblGrading	MaterialExported	0.00	611,364.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	36.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	16.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	14.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	325
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblTripsAndVMT	HaulingTripLength	20.00	50.00
tblTripsAndVMT	HaulingTripNumber	76,421.00	76,420.00
tblTripsAndVMT	HaulingTripNumber	0.00	12,212.00
tblTripsAndVMT	HaulingTripNumber	0.00	5,204.00
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	3.2731e-008
tblVehicleEF	HHD	8.62	5.26
tblVehicleEF	HHD	0.33	0.77
tblVehicleEF	HHD	2.0270e-003	9.7248e-004
tblVehicleEF	HHD	1,349.94	794.42
tblVehicleEF	HHD	1,232.49	1,500.44
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.24
tblVehicleEF	HHD	3.0000e-006	1.3919e-006
tblVehicleEF	HHD	7.03	3.93
tblVehicleEF	HHD	2.11	1.59

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	2.33	2.66
tblVehicleEF	HHD	2.8590e-003	1.9831e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	3.3924e-007
tblVehicleEF	HHD	2.7350e-003	1.8926e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9130e-003	8.8063e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	3.1192e-007
tblVehicleEF	HHD	1.0000e-006	9.6189e-005
tblVehicleEF	HHD	4.5000e-005	2.6249e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	1.9000e-005	2.8077e-005
tblVehicleEF	HHD	1.0000e-006	1.6842e-007
tblVehicleEF	HHD	0.01	6.7504e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.1510e-007
tblVehicleEF	HHD	1.0000e-006	9.6189e-005
tblVehicleEF	HHD	4.5000e-005	2.6249e-005
tblVehicleEF	HHD	0.67	0.56
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.15
tblVehicleEF	HHD	1.9000e-005	2.8077e-005
tblVehicleEF	HHD	1.0000e-006	1.8440e-007
tblVehicleEF	HHD	0.03	0.22

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	3.1227e-008
tblVehicleEF	HHD	8.50	5.19
tblVehicleEF	HHD	0.33	0.77
tblVehicleEF	HHD	1.8980e-003	9.1812e-004
tblVehicleEF	HHD	1,333.02	786.14
tblVehicleEF	HHD	1,232.49	1,500.44
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.24
tblVehicleEF	HHD	3.0000e-006	1.3605e-006
tblVehicleEF	HHD	6.69	3.75
tblVehicleEF	HHD	1.99	1.51
tblVehicleEF	HHD	2.33	2.66
tblVehicleEF	HHD	2.5230e-003	1.7515e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	3.3924e-007
tblVehicleEF	HHD	2.4140e-003	1.6711e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9130e-003	8.8063e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	3.1192e-007
tblVehicleEF	HHD	3.0000e-006	1.4473e-004
tblVehicleEF	HHD	5.3000e-005	2.9004e-005
tblVehicleEF	HHD	0.62	0.33
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	1.9000e-005	3.0040e-005
tblVehicleEF	HHD	1.0000e-006	1.6116e-007
tblVehicleEF	HHD	0.01	6.6719e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.1425e-007
tblVehicleEF	HHD	3.0000e-006	1.4473e-004
tblVehicleEF	HHD	5.3000e-005	2.9004e-005
tblVehicleEF	HHD	0.70	0.58
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.15
tblVehicleEF	HHD	1.9000e-005	3.0040e-005
tblVehicleEF	HHD	1.0000e-006	1.7645e-007
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	3.2545e-008
tblVehicleEF	HHD	8.78	5.35
tblVehicleEF	HHD	0.33	0.77
tblVehicleEF	HHD	1.9980e-003	9.6487e-004
tblVehicleEF	HHD	1,373.31	805.87
tblVehicleEF	HHD	1,232.49	1,500.44
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.24
tblVehicleEF	HHD	3.0000e-006	1.3839e-006
tblVehicleEF	HHD	7.50	4.17
tblVehicleEF	HHD	2.08	1.57
tblVehicleEF	HHD	2.33	2.66
tblVehicleEF	HHD	3.3220e-003	2.3029e-003
tblVehicleEF	HHD	0.06	0.08

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	3.3924e-007
tblVehicleEF	HHD	3.1790e-003	2.1986e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9130e-003	8.8063e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	3.1192e-007
tblVehicleEF	HHD	2.0000e-006	9.5783e-005
tblVehicleEF	HHD	5.3000e-005	2.5993e-005
tblVehicleEF	HHD	0.53	0.29
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	2.0000e-005	2.9448e-005
tblVehicleEF	HHD	1.0000e-006	1.6748e-007
tblVehicleEF	HHD	0.01	6.8587e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.1498e-007
tblVehicleEF	HHD	2.0000e-006	9.5783e-005
tblVehicleEF	HHD	5.3000e-005	2.5993e-005
tblVehicleEF	HHD	0.61	0.53
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.15
tblVehicleEF	HHD	2.0000e-005	2.9448e-005
tblVehicleEF	HHD	1.0000e-006	1.8337e-007
tblVehicleEF	LDA	1.5350e-003	1.8026e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.51	0.63
tblVehicleEF	LDA	1.86	2.46

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	230.85	253.98
tblVehicleEF	LDA	47.39	63.30
tblVehicleEF	LDA	3.7420e-003	3.8476e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	7.1089e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2160e-003	1.1349e-003
tblVehicleEF	LDA	1.5800e-003	1.8741e-003
tblVehicleEF	LDA	0.02	2.4881e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1200e-003	1.0441e-003
tblVehicleEF	LDA	1.4530e-003	1.7231e-003
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	5.4470e-003	6.4517e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	2.2840e-003	2.5107e-003
tblVehicleEF	LDA	4.6900e-004	6.2583e-004
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.9200e-003	9.4045e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	1.7620e-003	1.9173e-003

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tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.62	0.85
tblVehicleEF	LDA	1.55	2.07
tblVehicleEF	LDA	252.00	275.48
tblVehicleEF	LDA	46.82	62.57
tblVehicleEF	LDA	3.5080e-003	3.4206e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.14	0.19
tblVehicleEF	LDA	0.04	7.1089e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2160e-003	1.1349e-003
tblVehicleEF	LDA	1.5800e-003	1.8741e-003
tblVehicleEF	LDA	0.02	2.4881e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1200e-003	1.0441e-003
tblVehicleEF	LDA	1.4530e-003	1.7231e-003
tblVehicleEF	LDA	0.09	0.38
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	6.1750e-003	6.7716e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.13	0.21
tblVehicleEF	LDA	2.4930e-003	2.7233e-003
tblVehicleEF	LDA	4.6300e-004	6.1856e-004
tblVehicleEF	LDA	0.09	0.38
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	8.9820e-003	9.8713e-003

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tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.15	0.23
tblVehicleEF	LDA	1.4980e-003	1.7878e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.48	0.59
tblVehicleEF	LDA	1.83	2.47
tblVehicleEF	LDA	225.89	250.03
tblVehicleEF	LDA	47.34	63.32
tblVehicleEF	LDA	3.5890e-003	3.7474e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.14	0.21
tblVehicleEF	LDA	0.04	7.1089e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2160e-003	1.1349e-003
tblVehicleEF	LDA	1.5800e-003	1.8741e-003
tblVehicleEF	LDA	0.02	2.4881e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1200e-003	1.0441e-003
tblVehicleEF	LDA	1.4530e-003	1.7231e-003
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	5.3110e-003	6.4012e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	2.2350e-003	2.4716e-003
tblVehicleEF	LDA	4.6800e-004	6.2594e-004
tblVehicleEF	LDA	0.05	0.30

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tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.7210e-003	9.3307e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDT1	3.9900e-003	7.3205e-003
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.92	1.65
tblVehicleEF	LDT1	2.06	5.49
tblVehicleEF	LDT1	275.61	328.38
tblVehicleEF	LDT1	57.91	86.11
tblVehicleEF	LDT1	6.1380e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.15
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	0.04	8.8125e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.6110e-003	1.9526e-003
tblVehicleEF	LDT1	2.1360e-003	3.1075e-003
tblVehicleEF	LDT1	0.02	3.0844e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.7960e-003
tblVehicleEF	LDT1	1.9640e-003	2.8573e-003
tblVehicleEF	LDT1	0.13	0.84
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.28	0.58

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tblVehicleEF	LDT1	2.7270e-003	3.2464e-003
tblVehicleEF	LDT1	5.7300e-004	8.5129e-004
tblVehicleEF	LDT1	0.13	0.84
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.05
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	4.5340e-003	7.7653e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	1.12	2.21
tblVehicleEF	LDT1	1.71	4.57
tblVehicleEF	LDT1	297.62	353.76
tblVehicleEF	LDT1	57.21	84.38
tblVehicleEF	LDT1	5.6990e-003	9.5218e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	0.20	0.38
tblVehicleEF	LDT1	0.04	8.8125e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.6110e-003	1.9526e-003
tblVehicleEF	LDT1	2.1360e-003	3.1075e-003
tblVehicleEF	LDT1	0.02	3.0844e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.7960e-003
tblVehicleEF	LDT1	1.9640e-003	2.8573e-003
tblVehicleEF	LDT1	0.28	1.09
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.21	0.00

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tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.23	0.50
tblVehicleEF	LDT1	2.9450e-003	3.4972e-003
tblVehicleEF	LDT1	5.6600e-004	8.3415e-004
tblVehicleEF	LDT1	0.28	1.09
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.21	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.26	0.54
tblVehicleEF	LDT1	3.9000e-003	7.2596e-003
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.88	1.55
tblVehicleEF	LDT1	2.02	5.50
tblVehicleEF	LDT1	270.39	323.72
tblVehicleEF	LDT1	57.85	86.14
tblVehicleEF	LDT1	5.8810e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.14
tblVehicleEF	LDT1	0.21	0.41
tblVehicleEF	LDT1	0.04	8.8125e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.6110e-003	1.9526e-003
tblVehicleEF	LDT1	2.1360e-003	3.1075e-003
tblVehicleEF	LDT1	0.02	3.0844e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.7960e-003
tblVehicleEF	LDT1	1.9640e-003	2.8573e-003

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tblVehicleEF	LDT1	0.14	0.84
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.28	0.58
tblVehicleEF	LDT1	2.6760e-003	3.2003e-003
tblVehicleEF	LDT1	5.7200e-004	8.5162e-004
tblVehicleEF	LDT1	0.14	0.84
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.02	0.05
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.30	0.64
tblVehicleEF	LDT2	2.7750e-003	2.5378e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.72	0.79
tblVehicleEF	LDT2	2.40	3.04
tblVehicleEF	LDT2	286.47	330.95
tblVehicleEF	LDT2	60.44	82.51
tblVehicleEF	LDT2	5.3020e-003	5.4109e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3436e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3040e-003	1.2048e-003
tblVehicleEF	LDT2	1.6720e-003	1.9415e-003
tblVehicleEF	LDT2	0.02	2.9203e-003

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tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2000e-003	1.1083e-003
tblVehicleEF	LDT2	1.5370e-003	1.7851e-003
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	9.6456e-003
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.25	0.31
tblVehicleEF	LDT2	2.8340e-003	3.2714e-003
tblVehicleEF	LDT2	5.9800e-004	8.1574e-004
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	3.1730e-003	2.6976e-003
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.88	1.06
tblVehicleEF	LDT2	1.99	2.55
tblVehicleEF	LDT2	307.21	353.76
tblVehicleEF	LDT2	59.66	81.59
tblVehicleEF	LDT2	4.9520e-003	4.8227e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.20	0.26
tblVehicleEF	LDT2	0.04	8.3436e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003

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tblVehicleEF	LDT2	1.3040e-003	1.2048e-003
tblVehicleEF	LDT2	1.6720e-003	1.9415e-003
tblVehicleEF	LDT2	0.02	2.9203e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2000e-003	1.1083e-003
tblVehicleEF	LDT2	1.5370e-003	1.7851e-003
tblVehicleEF	LDT2	0.17	0.40
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.15	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.21	0.27
tblVehicleEF	LDT2	3.0390e-003	3.4969e-003
tblVehicleEF	LDT2	5.9000e-004	8.0661e-004
tblVehicleEF	LDT2	0.17	0.40
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.15	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.23	0.30
tblVehicleEF	LDT2	2.7100e-003	2.5170e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.68	0.74
tblVehicleEF	LDT2	2.36	3.04
tblVehicleEF	LDT2	281.56	326.75
tblVehicleEF	LDT2	60.37	82.53
tblVehicleEF	LDT2	5.0850e-003	5.2735e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.05

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tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3436e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3040e-003	1.2048e-003
tblVehicleEF	LDT2	1.6720e-003	1.9415e-003
tblVehicleEF	LDT2	0.02	2.9203e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2000e-003	1.1083e-003
tblVehicleEF	LDT2	1.5370e-003	1.7851e-003
tblVehicleEF	LDT2	0.08	0.32
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	9.5696e-003
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	2.7850e-003	3.2299e-003
tblVehicleEF	LDT2	5.9700e-004	8.1593e-004
tblVehicleEF	LDT2	0.08	0.32
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.35
tblVehicleEF	LHD1	4.3860e-003	4.8663e-003
tblVehicleEF	LHD1	4.3340e-003	2.4553e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.58	0.57
tblVehicleEF	LHD1	0.92	1.93

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tblVehicleEF	LHD1	9.02	8.72
tblVehicleEF	LHD1	612.33	344.05
tblVehicleEF	LHD1	10.03	16.10
tblVehicleEF	LHD1	8.5400e-004	7.1535e-004
tblVehicleEF	LHD1	0.04	4.7169e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.01	0.08
tblVehicleEF	LHD1	0.26	0.38
tblVehicleEF	LHD1	9.9000e-004	7.8650e-004
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	4.8012e-003
tblVehicleEF	LHD1	8.8180e-003	6.7689e-004
tblVehicleEF	LHD1	2.2400e-004	1.9290e-004
tblVehicleEF	LHD1	9.4700e-004	7.5247e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5040e-003	1.2003e-003
tblVehicleEF	LHD1	8.4140e-003	6.2237e-004
tblVehicleEF	LHD1	2.0600e-004	1.7737e-004
tblVehicleEF	LHD1	2.5580e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2900e-003	0.00
tblVehicleEF	LHD1	0.05	0.01
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.7000e-005	8.4700e-005
tblVehicleEF	LHD1	5.9570e-003	3.4013e-003
tblVehicleEF	LHD1	9.9000e-005	1.5921e-004

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tblVehicleEF	LHD1	2.5580e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.2900e-003	0.00
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	4.4000e-003	4.8841e-003
tblVehicleEF	LHD1	4.4160e-003	1.7639e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.59	0.11
tblVehicleEF	LHD1	0.86	1.83
tblVehicleEF	LHD1	9.02	8.72
tblVehicleEF	LHD1	612.35	194.35
tblVehicleEF	LHD1	9.93	15.94
tblVehicleEF	LHD1	8.5600e-004	7.1756e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.94	0.53
tblVehicleEF	LHD1	0.25	0.36
tblVehicleEF	LHD1	9.9000e-004	7.8650e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9357e-003
tblVehicleEF	LHD1	8.8180e-003	9.5549e-003
tblVehicleEF	LHD1	2.2400e-004	1.9290e-004
tblVehicleEF	LHD1	9.4700e-004	7.5247e-004
tblVehicleEF	LHD1	0.03	0.01

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tblVehicleEF	LHD1	2.5040e-003	1.2339e-003
tblVehicleEF	LHD1	8.4140e-003	9.1415e-003
tblVehicleEF	LHD1	2.0600e-004	1.7737e-004
tblVehicleEF	LHD1	5.0260e-003	0.16
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.8810e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.21	0.07
tblVehicleEF	LHD1	0.06	0.09
tblVehicleEF	LHD1	8.7000e-005	8.4700e-005
tblVehicleEF	LHD1	5.9580e-003	1.8415e-003
tblVehicleEF	LHD1	9.8000e-005	1.5756e-004
tblVehicleEF	LHD1	5.0260e-003	0.16
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.8810e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.21	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	4.3890e-003	4.8683e-003
tblVehicleEF	LHD1	4.3430e-003	1.7639e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.58	0.11
tblVehicleEF	LHD1	0.90	1.92
tblVehicleEF	LHD1	9.02	8.72
tblVehicleEF	LHD1	612.33	194.35
tblVehicleEF	LHD1	10.01	16.09

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	8.5500e-004	7.1598e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.99	0.56
tblVehicleEF	LHD1	0.26	0.37
tblVehicleEF	LHD1	9.9000e-004	7.8650e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9357e-003
tblVehicleEF	LHD1	8.8180e-003	9.5549e-003
tblVehicleEF	LHD1	2.2400e-004	1.9290e-004
tblVehicleEF	LHD1	9.4700e-004	7.5247e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5040e-003	1.2339e-003
tblVehicleEF	LHD1	8.4140e-003	9.1415e-003
tblVehicleEF	LHD1	2.0600e-004	1.7737e-004
tblVehicleEF	LHD1	2.7570e-003	0.13
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2680e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.23	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.7000e-005	8.4700e-005
tblVehicleEF	LHD1	5.9570e-003	1.8415e-003
tblVehicleEF	LHD1	9.9000e-005	1.5903e-004
tblVehicleEF	LHD1	2.7570e-003	0.13
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	1.2680e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.23	0.06
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD2	2.9450e-003	3.2491e-003
tblVehicleEF	LHD2	3.0680e-003	8.4743e-004
tblVehicleEF	LHD2	7.2680e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.39	0.23
tblVehicleEF	LHD2	0.52	1.16
tblVehicleEF	LHD2	14.10	13.54
tblVehicleEF	LHD2	612.80	226.94
tblVehicleEF	LHD2	7.09	9.95
tblVehicleEF	LHD2	1.7980e-003	1.6378e-003
tblVehicleEF	LHD2	0.06	2.7122e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.09	0.04
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4530e-003	1.3094e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8100e-003
tblVehicleEF	LHD2	0.01	3.3290e-004
tblVehicleEF	LHD2	1.0800e-004	8.8794e-005
tblVehicleEF	LHD2	1.3900e-003	1.2528e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7060e-003	7.0251e-004
tblVehicleEF	LHD2	0.01	3.0609e-004
tblVehicleEF	LHD2	1.0000e-004	8.1643e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	1.2570e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9200e-004	0.00
tblVehicleEF	LHD2	0.05	3.7921e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3500e-004	1.2983e-004
tblVehicleEF	LHD2	5.9080e-003	2.2436e-003
tblVehicleEF	LHD2	7.0000e-005	9.8381e-005
tblVehicleEF	LHD2	1.2570e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9200e-004	0.00
tblVehicleEF	LHD2	0.06	5.5334e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	2.9540e-003	3.2608e-003
tblVehicleEF	LHD2	3.0940e-003	2.6435e-003
tblVehicleEF	LHD2	6.9430e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.40	0.15
tblVehicleEF	LHD2	0.49	1.10
tblVehicleEF	LHD2	14.10	13.54
tblVehicleEF	LHD2	612.80	374.67
tblVehicleEF	LHD2	7.04	9.85
tblVehicleEF	LHD2	1.8000e-003	1.6392e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.03	0.68
tblVehicleEF	LHD2	0.16	0.24
tblVehicleEF	LHD2	1.4530e-003	1.3094e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.9093e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0800e-004	8.8794e-005
tblVehicleEF	LHD2	1.3900e-003	1.2528e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7060e-003	1.9773e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0000e-004	8.1643e-005
tblVehicleEF	LHD2	2.4210e-003	0.10
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4810e-003	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	1.3500e-004	1.2983e-004
tblVehicleEF	LHD2	5.9080e-003	3.5502e-003
tblVehicleEF	LHD2	7.0000e-005	9.7392e-005
tblVehicleEF	LHD2	2.4210e-003	0.10
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4810e-003	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.04

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	2.9470e-003	3.2503e-003
tblVehicleEF	LHD2	3.0710e-003	2.6435e-003
tblVehicleEF	LHD2	7.2070e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.39	0.15
tblVehicleEF	LHD2	0.52	1.15
tblVehicleEF	LHD2	14.10	13.54
tblVehicleEF	LHD2	612.80	374.67
tblVehicleEF	LHD2	7.08	9.94
tblVehicleEF	LHD2	1.7980e-003	1.6382e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.07	0.71
tblVehicleEF	LHD2	0.16	0.24
tblVehicleEF	LHD2	1.4530e-003	1.3094e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.9093e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0800e-004	8.8794e-005
tblVehicleEF	LHD2	1.3900e-003	1.2528e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7060e-003	1.9773e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0000e-004	8.1643e-005
tblVehicleEF	LHD2	1.2650e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	6.7200e-004	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	1.3500e-004	1.2983e-004
tblVehicleEF	LHD2	5.9080e-003	3.5502e-003
tblVehicleEF	LHD2	7.0000e-005	9.8280e-005
tblVehicleEF	LHD2	1.2650e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.7200e-004	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.32	0.56
tblVehicleEF	MCY	0.25	0.17
tblVehicleEF	MCY	19.37	0.56
tblVehicleEF	MCY	8.87	7.64
tblVehicleEF	MCY	210.88	0.56
tblVehicleEF	MCY	60.33	46.87
tblVehicleEF	MCY	0.07	0.56
tblVehicleEF	MCY	0.02	7.5844e-003
tblVehicleEF	MCY	1.15	0.56
tblVehicleEF	MCY	0.27	0.13
tblVehicleEF	MCY	0.01	0.56
tblVehicleEF	MCY	4.0000e-003	0.56
tblVehicleEF	MCY	1.9620e-003	0.56
tblVehicleEF	MCY	2.8020e-003	3.2848e-003
tblVehicleEF	MCY	5.0400e-003	0.56

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.0000e-003	0.56
tblVehicleEF	MCY	1.8320e-003	0.56
tblVehicleEF	MCY	2.6300e-003	3.0822e-003
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.81	3.59
tblVehicleEF	MCY	0.78	0.00
tblVehicleEF	MCY	2.18	0.56
tblVehicleEF	MCY	0.39	0.56
tblVehicleEF	MCY	1.87	1.24
tblVehicleEF	MCY	2.0870e-003	0.56
tblVehicleEF	MCY	5.9700e-004	4.6339e-004
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.81	3.59
tblVehicleEF	MCY	0.78	0.00
tblVehicleEF	MCY	2.70	0.56
tblVehicleEF	MCY	0.39	0.56
tblVehicleEF	MCY	2.03	1.35
tblVehicleEF	MCY	0.32	0.48
tblVehicleEF	MCY	0.21	0.15
tblVehicleEF	MCY	19.51	0.48
tblVehicleEF	MCY	7.97	6.87
tblVehicleEF	MCY	210.93	0.48
tblVehicleEF	MCY	58.05	45.17
tblVehicleEF	MCY	0.06	0.48
tblVehicleEF	MCY	0.01	7.4420e-003
tblVehicleEF	MCY	0.98	0.48
tblVehicleEF	MCY	0.25	0.12
tblVehicleEF	MCY	0.01	0.48
tblVehicleEF	MCY	4.0000e-003	0.48

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.9620e-003	0.48
tblVehicleEF	MCY	2.8020e-003	3.2848e-003
tblVehicleEF	MCY	5.0400e-003	0.48
tblVehicleEF	MCY	1.0000e-003	0.48
tblVehicleEF	MCY	1.8320e-003	0.48
tblVehicleEF	MCY	2.6300e-003	3.0822e-003
tblVehicleEF	MCY	3.13	3.74
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.08	0.00
tblVehicleEF	MCY	2.13	0.48
tblVehicleEF	MCY	0.39	0.48
tblVehicleEF	MCY	1.60	1.09
tblVehicleEF	MCY	2.0870e-003	0.48
tblVehicleEF	MCY	5.7400e-004	4.4655e-004
tblVehicleEF	MCY	3.13	3.74
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.08	0.00
tblVehicleEF	MCY	2.64	0.48
tblVehicleEF	MCY	0.39	0.48
tblVehicleEF	MCY	1.75	1.19
tblVehicleEF	MCY	0.32	0.54
tblVehicleEF	MCY	0.24	0.17
tblVehicleEF	MCY	18.54	0.54
tblVehicleEF	MCY	8.53	7.53
tblVehicleEF	MCY	209.44	0.54
tblVehicleEF	MCY	59.57	46.65
tblVehicleEF	MCY	0.06	0.54
tblVehicleEF	MCY	0.02	7.5906e-003
tblVehicleEF	MCY	1.11	0.54

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	0.26	0.13
tblVehicleEF	MCY	0.01	0.54
tblVehicleEF	MCY	4.0000e-003	0.54
tblVehicleEF	MCY	1.9620e-003	0.54
tblVehicleEF	MCY	2.8020e-003	3.2848e-003
tblVehicleEF	MCY	5.0400e-003	0.54
tblVehicleEF	MCY	1.0000e-003	0.54
tblVehicleEF	MCY	1.8320e-003	0.54
tblVehicleEF	MCY	2.6300e-003	3.0822e-003
tblVehicleEF	MCY	1.70	2.60
tblVehicleEF	MCY	1.07	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.14	0.54
tblVehicleEF	MCY	0.45	0.54
tblVehicleEF	MCY	1.80	1.22
tblVehicleEF	MCY	2.0730e-003	0.54
tblVehicleEF	MCY	5.9000e-004	4.6118e-004
tblVehicleEF	MCY	1.70	2.60
tblVehicleEF	MCY	1.07	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.66	0.54
tblVehicleEF	MCY	0.45	0.54
tblVehicleEF	MCY	1.96	1.33
tblVehicleEF	MDV	3.4430e-003	3.5196e-003
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.80	0.94
tblVehicleEF	MDV	2.68	3.42
tblVehicleEF	MDV	358.68	405.46
tblVehicleEF	MDV	75.12	101.56

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	7.3710e-003	7.7147e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	0.27	0.38
tblVehicleEF	MDV	0.04	8.5818e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3620e-003	1.3049e-003
tblVehicleEF	MDV	1.6900e-003	2.0284e-003
tblVehicleEF	MDV	0.02	3.0036e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2560e-003	1.2032e-003
tblVehicleEF	MDV	1.5540e-003	1.8650e-003
tblVehicleEF	MDV	0.11	0.44
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.44
tblVehicleEF	MDV	3.5450e-003	4.0062e-003
tblVehicleEF	MDV	7.4300e-004	1.0041e-003
tblVehicleEF	MDV	0.11	0.44
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.9420e-003	3.7427e-003
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.97	1.26

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	2.22	2.86
tblVehicleEF	MDV	380.41	428.94
tblVehicleEF	MDV	74.23	100.48
tblVehicleEF	MDV	6.9530e-003	6.9489e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.25	0.36
tblVehicleEF	MDV	0.04	8.5818e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3620e-003	1.3049e-003
tblVehicleEF	MDV	1.6900e-003	2.0284e-003
tblVehicleEF	MDV	0.02	3.0036e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2560e-003	1.2032e-003
tblVehicleEF	MDV	1.5540e-003	1.8650e-003
tblVehicleEF	MDV	0.21	0.54
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.19	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	3.7610e-003	4.2384e-003
tblVehicleEF	MDV	7.3500e-004	9.9333e-004
tblVehicleEF	MDV	0.21	0.54
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.19	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.28	0.41

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tblVehicleEF	MDV	3.3580e-003	3.4897e-003
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.75	0.88
tblVehicleEF	MDV	2.64	3.43
tblVehicleEF	MDV	353.53	401.14
tblVehicleEF	MDV	75.05	101.59
tblVehicleEF	MDV	7.1110e-003	7.5364e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	0.04	8.5818e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3620e-003	1.3049e-003
tblVehicleEF	MDV	1.6900e-003	2.0284e-003
tblVehicleEF	MDV	0.02	3.0036e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2560e-003	1.2032e-003
tblVehicleEF	MDV	1.5540e-003	1.8650e-003
tblVehicleEF	MDV	0.10	0.44
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.31	0.44
tblVehicleEF	MDV	3.4950e-003	3.9635e-003
tblVehicleEF	MDV	7.4300e-004	1.0043e-003
tblVehicleEF	MDV	0.10	0.44
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.09	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MH	7.6700e-003	4.4734e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.84	2.0961e-003
tblVehicleEF	MH	1.87	2.16
tblVehicleEF	MH	1,410.41	4.9695e-003
tblVehicleEF	MH	17.41	21.64
tblVehicleEF	MH	0.06	9.4303e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.41	1.34
tblVehicleEF	MH	0.24	0.31
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.4465e-011
tblVehicleEF	MH	0.04	2.8721e-009
tblVehicleEF	MH	2.1900e-004	2.4935e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2980e-003	5.0648e-004
tblVehicleEF	MH	0.03	0.13
tblVehicleEF	MH	2.0200e-004	2.2927e-004
tblVehicleEF	MH	0.91	33.30
tblVehicleEF	MH	0.06	7.69
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.05	3.4603e-008
tblVehicleEF	MH	0.01	2.0519e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	3.6458e-005
tblVehicleEF	MH	1.7200e-004	2.1389e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.91	33.30
tblVehicleEF	MH	0.06	7.69
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.07	4.6673e-003
tblVehicleEF	MH	0.01	2.0519e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	7.8670e-003	4.5845e-005
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.87	2.2329e-003
tblVehicleEF	MH	1.71	2.01
tblVehicleEF	MH	1,410.46	4.9697e-003
tblVehicleEF	MH	17.14	21.38
tblVehicleEF	MH	0.06	8.7760e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.31	1.25
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.4465e-011
tblVehicleEF	MH	0.04	2.8721e-009
tblVehicleEF	MH	2.1900e-004	2.4935e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2980e-003	4.7755e-004
tblVehicleEF	MH	0.03	0.12
tblVehicleEF	MH	2.0200e-004	2.2927e-004
tblVehicleEF	MH	1.79	42.06
tblVehicleEF	MH	0.07	8.32
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.05	3.3176e-008
tblVehicleEF	MH	0.01	2.1264e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	3.8838e-005
tblVehicleEF	MH	1.7000e-004	2.1137e-004
tblVehicleEF	MH	1.79	42.06
tblVehicleEF	MH	0.07	8.32
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.07	5.1976e-003
tblVehicleEF	MH	0.01	2.1264e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	7.6880e-003	4.4769e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.84	2.1468e-003
tblVehicleEF	MH	1.85	2.16
tblVehicleEF	MH	1,410.42	4.9695e-003
tblVehicleEF	MH	17.38	21.64
tblVehicleEF	MH	0.06	9.2279e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.38	1.31
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.4465e-011
tblVehicleEF	MH	0.04	2.8721e-009
tblVehicleEF	MH	2.1900e-004	2.4935e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2980e-003	4.9820e-004
tblVehicleEF	MH	0.03	0.12
tblVehicleEF	MH	2.0200e-004	2.2927e-004
tblVehicleEF	MH	1.02	33.27
tblVehicleEF	MH	0.07	7.66

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.05	3.3890e-008
tblVehicleEF	MH	0.02	2.0997e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	3.7340e-005
tblVehicleEF	MH	1.7200e-004	2.1397e-004
tblVehicleEF	MH	1.02	33.27
tblVehicleEF	MH	0.07	7.66
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.07	4.6473e-003
tblVehicleEF	MH	0.02	2.0997e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MHD	2.9940e-003	0.02
tblVehicleEF	MHD	9.6000e-004	7.6666e-003
tblVehicleEF	MHD	7.1190e-003	5.4980e-003
tblVehicleEF	MHD	0.33	0.64
tblVehicleEF	MHD	0.13	0.17
tblVehicleEF	MHD	0.75	0.61
tblVehicleEF	MHD	61.88	158.09
tblVehicleEF	MHD	924.73	1,101.97
tblVehicleEF	MHD	7.15	5.51
tblVehicleEF	MHD	9.0040e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.0410e-003	3.9950e-003
tblVehicleEF	MHD	0.33	0.81
tblVehicleEF	MHD	1.01	0.61
tblVehicleEF	MHD	1.77	1.46
tblVehicleEF	MHD	2.0700e-004	9.6497e-004
tblVehicleEF	MHD	0.13	0.04

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7130e-003	7.4672e-003
tblVehicleEF	MHD	8.3000e-005	6.0516e-005
tblVehicleEF	MHD	1.9800e-004	9.2251e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3750e-003	7.1401e-003
tblVehicleEF	MHD	7.6000e-005	5.5643e-005
tblVehicleEF	MHD	4.0900e-004	0.02
tblVehicleEF	MHD	0.01	3.9529e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	2.2400e-004	0.00
tblVehicleEF	MHD	9.7180e-003	0.01
tblVehicleEF	MHD	0.01	9.5581e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.8700e-004	1.4498e-003
tblVehicleEF	MHD	8.8120e-003	0.01
tblVehicleEF	MHD	7.1000e-005	5.4509e-005
tblVehicleEF	MHD	4.0900e-004	0.02
tblVehicleEF	MHD	0.01	3.9529e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.2400e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.5581e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	2.8540e-003	0.02
tblVehicleEF	MHD	9.7900e-004	7.6869e-003
tblVehicleEF	MHD	6.7960e-003	5.2832e-003
tblVehicleEF	MHD	0.29	0.60

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.13	0.17
tblVehicleEF	MHD	0.70	0.58
tblVehicleEF	MHD	61.59	156.56
tblVehicleEF	MHD	924.73	1,101.98
tblVehicleEF	MHD	7.06	5.46
tblVehicleEF	MHD	8.9300e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.9120e-003	3.9274e-003
tblVehicleEF	MHD	0.32	0.77
tblVehicleEF	MHD	0.95	0.57
tblVehicleEF	MHD	1.77	1.46
tblVehicleEF	MHD	1.7800e-004	8.2435e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7130e-003	7.4672e-003
tblVehicleEF	MHD	8.3000e-005	6.0516e-005
tblVehicleEF	MHD	1.7000e-004	7.8798e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3750e-003	7.1401e-003
tblVehicleEF	MHD	7.6000e-005	5.5643e-005
tblVehicleEF	MHD	7.9800e-004	0.03
tblVehicleEF	MHD	0.02	4.2663e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	4.9600e-004	0.00
tblVehicleEF	MHD	9.7970e-003	0.01
tblVehicleEF	MHD	0.01	9.9260e-003
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	5.8400e-004	1.4354e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	8.8120e-003	0.01
tblVehicleEF	MHD	7.0000e-005	5.3931e-005
tblVehicleEF	MHD	7.9800e-004	0.03
tblVehicleEF	MHD	0.02	4.2663e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	4.9600e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.9260e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	3.2040e-003	0.02
tblVehicleEF	MHD	9.6100e-004	7.6667e-003
tblVehicleEF	MHD	7.0350e-003	5.4584e-003
tblVehicleEF	MHD	0.39	0.69
tblVehicleEF	MHD	0.13	0.17
tblVehicleEF	MHD	0.74	0.61
tblVehicleEF	MHD	62.28	160.20
tblVehicleEF	MHD	924.73	1,101.97
tblVehicleEF	MHD	7.13	5.51
tblVehicleEF	MHD	9.1100e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.9980e-003	3.9779e-003
tblVehicleEF	MHD	0.35	0.85
tblVehicleEF	MHD	0.99	0.60
tblVehicleEF	MHD	1.77	1.46
tblVehicleEF	MHD	2.4800e-004	1.1591e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7130e-003	7.4672e-003
tblVehicleEF	MHD	8.3000e-005	6.0516e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	2.3700e-004	1.1083e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3750e-003	7.1401e-003
tblVehicleEF	MHD	7.6000e-005	5.5643e-005
tblVehicleEF	MHD	4.2100e-004	0.02
tblVehicleEF	MHD	0.02	3.9312e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.1800e-004	0.00
tblVehicleEF	MHD	9.7270e-003	0.01
tblVehicleEF	MHD	0.01	9.7651e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9100e-004	1.4697e-003
tblVehicleEF	MHD	8.8120e-003	0.01
tblVehicleEF	MHD	7.1000e-005	5.4429e-005
tblVehicleEF	MHD	4.2100e-004	0.02
tblVehicleEF	MHD	0.02	3.9312e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.1800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.7651e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	OBUS	8.9910e-003	0.02
tblVehicleEF	OBUS	5.0340e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.52	0.55
tblVehicleEF	OBUS	0.59	0.78
tblVehicleEF	OBUS	2.45	2.55
tblVehicleEF	OBUS	67.60	76.48

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tblVehicleEF	OBUS	1,365.08	1,410.15
tblVehicleEF	OBUS	20.25	21.43
tblVehicleEF	OBUS	8.5650e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.25	0.28
tblVehicleEF	OBUS	0.85	0.99
tblVehicleEF	OBUS	0.69	0.70
tblVehicleEF	OBUS	8.5000e-005	4.3492e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3820e-003	0.02
tblVehicleEF	OBUS	2.3500e-004	2.3364e-004
tblVehicleEF	OBUS	8.1000e-005	4.1550e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0850e-003	0.02
tblVehicleEF	OBUS	2.1600e-004	2.1483e-004
tblVehicleEF	OBUS	2.6690e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.4500e-004	6.8687e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0000e-004	2.1189e-004
tblVehicleEF	OBUS	2.6690e-003	0.13

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	9.0700e-003	0.02
tblVehicleEF	OBUS	5.1780e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.52	0.54
tblVehicleEF	OBUS	0.60	0.80
tblVehicleEF	OBUS	2.25	2.37
tblVehicleEF	OBUS	66.89	75.84
tblVehicleEF	OBUS	1,365.10	1,410.18
tblVehicleEF	OBUS	19.90	21.13
tblVehicleEF	OBUS	8.4600e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.27
tblVehicleEF	OBUS	0.78	0.92
tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	7.5000e-005	3.7342e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3820e-003	0.02
tblVehicleEF	OBUS	2.3500e-004	2.3364e-004
tblVehicleEF	OBUS	7.2000e-005	3.5667e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	6.0850e-003	0.02
tblVehicleEF	OBUS	2.1600e-004	2.1483e-004
tblVehicleEF	OBUS	5.1580e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.5390e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.3800e-004	6.8082e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.9700e-004	2.0892e-004
tblVehicleEF	OBUS	5.1580e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.07	0.08
tblVehicleEF	OBUS	2.5390e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	8.9240e-003	0.02
tblVehicleEF	OBUS	5.0500e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.52	0.55
tblVehicleEF	OBUS	0.59	0.78
tblVehicleEF	OBUS	2.43	2.55
tblVehicleEF	OBUS	68.58	77.37
tblVehicleEF	OBUS	1,365.08	1,410.16
tblVehicleEF	OBUS	20.22	21.44
tblVehicleEF	OBUS	8.7220e-003	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.27	0.29
tblVehicleEF	OBUS	0.83	0.97
tblVehicleEF	OBUS	0.68	0.69
tblVehicleEF	OBUS	9.8000e-005	5.1984e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3820e-003	0.02
tblVehicleEF	OBUS	2.3500e-004	2.3364e-004
tblVehicleEF	OBUS	9.4000e-005	4.9675e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0850e-003	0.02
tblVehicleEF	OBUS	2.1600e-004	2.1483e-004
tblVehicleEF	OBUS	2.7930e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.5400e-004	6.9523e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0000e-004	2.1199e-004
tblVehicleEF	OBUS	2.7930e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1300e-003	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	SBUS	0.05	0.53
tblVehicleEF	SBUS	5.3990e-003	1.36
tblVehicleEF	SBUS	4.5740e-003	6.8796e-003
tblVehicleEF	SBUS	2.19	2.98
tblVehicleEF	SBUS	0.47	4.99
tblVehicleEF	SBUS	0.59	0.86
tblVehicleEF	SBUS	329.54	270.90
tblVehicleEF	SBUS	1,067.20	1,213.30
tblVehicleEF	SBUS	3.57	5.39
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.9190e-003	6.1232e-003
tblVehicleEF	SBUS	2.94	1.06
tblVehicleEF	SBUS	4.02	2.06
tblVehicleEF	SBUS	1.17	0.19
tblVehicleEF	SBUS	2.6920e-003	1.5046e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.8000e-005	5.3303e-005
tblVehicleEF	SBUS	2.5760e-003	1.4204e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.5545e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	4.9010e-005
tblVehicleEF	SBUS	8.0900e-004	0.07

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	6.0880e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.1350e-003	1.2283e-003
tblVehicleEF	SBUS	0.01	6.6061e-003
tblVehicleEF	SBUS	3.5000e-005	5.3252e-005
tblVehicleEF	SBUS	8.0900e-004	0.07
tblVehicleEF	SBUS	6.0880e-003	0.01
tblVehicleEF	SBUS	0.32	0.86
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.53
tblVehicleEF	SBUS	5.4670e-003	1.36
tblVehicleEF	SBUS	3.7780e-003	5.7632e-003
tblVehicleEF	SBUS	2.16	2.97
tblVehicleEF	SBUS	0.47	5.00
tblVehicleEF	SBUS	0.42	0.62
tblVehicleEF	SBUS	335.12	273.25
tblVehicleEF	SBUS	1,067.21	1,213.33
tblVehicleEF	SBUS	3.27	4.99
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.7740e-003	5.9076e-003
tblVehicleEF	SBUS	2.98	1.08

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tblVehicleEF	SBUS	3.77	1.93
tblVehicleEF	SBUS	1.17	0.18
tblVehicleEF	SBUS	2.2790e-003	1.3503e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.8000e-005	5.3303e-005
tblVehicleEF	SBUS	2.1800e-003	1.2728e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.5545e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	4.9010e-005
tblVehicleEF	SBUS	1.4630e-003	0.09
tblVehicleEF	SBUS	6.3280e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	7.8800e-004	0.00
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	9.4950e-003	0.02
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.1880e-003	1.2506e-003
tblVehicleEF	SBUS	0.01	6.6063e-003
tblVehicleEF	SBUS	3.2000e-005	4.9332e-005
tblVehicleEF	SBUS	1.4630e-003	0.09
tblVehicleEF	SBUS	6.3280e-003	0.01
tblVehicleEF	SBUS	0.32	0.86
tblVehicleEF	SBUS	7.8800e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	9.4950e-003	0.02
tblVehicleEF	SBUS	0.02	0.04

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.05	0.53
tblVehicleEF	SBUS	5.3960e-003	1.36
tblVehicleEF	SBUS	4.6760e-003	7.0873e-003
tblVehicleEF	SBUS	2.24	2.99
tblVehicleEF	SBUS	0.46	4.99
tblVehicleEF	SBUS	0.61	0.90
tblVehicleEF	SBUS	321.84	267.66
tblVehicleEF	SBUS	1,067.20	1,213.30
tblVehicleEF	SBUS	3.59	5.45
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.9540e-003	6.1982e-003
tblVehicleEF	SBUS	2.88	1.03
tblVehicleEF	SBUS	3.96	2.03
tblVehicleEF	SBUS	1.17	0.19
tblVehicleEF	SBUS	3.2630e-003	1.7178e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.8000e-005	5.3303e-005
tblVehicleEF	SBUS	3.1220e-003	1.6244e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.5545e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	4.9010e-005
tblVehicleEF	SBUS	7.5100e-004	0.07
tblVehicleEF	SBUS	6.2180e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	4.0900e-004	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0620e-003	1.1976e-003
tblVehicleEF	SBUS	0.01	6.6061e-003
tblVehicleEF	SBUS	3.6000e-005	5.3898e-005
tblVehicleEF	SBUS	7.5100e-004	0.07
tblVehicleEF	SBUS	6.2180e-003	0.01
tblVehicleEF	SBUS	0.32	0.86
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.14
tblVehicleEF	UBUS	0.02	7.9693e-003
tblVehicleEF	UBUS	32.80	28.86
tblVehicleEF	UBUS	1.40	1.05
tblVehicleEF	UBUS	1,717.18	1,567.15
tblVehicleEF	UBUS	16.38	7.52
tblVehicleEF	UBUS	0.28	0.30
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.33
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7210e-003	1.6888e-003
tblVehicleEF	UBUS	2.1500e-004	3.9714e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	2.5860e-003	1.6101e-003
tblVehicleEF	UBUS	1.9700e-004	3.6516e-005
tblVehicleEF	UBUS	1.4120e-003	0.02
tblVehicleEF	UBUS	0.01	5.4916e-003
tblVehicleEF	UBUS	8.4100e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.4700e-003	5.0350e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7330e-003	9.6224e-004
tblVehicleEF	UBUS	1.6200e-004	7.4313e-005
tblVehicleEF	UBUS	1.4120e-003	0.02
tblVehicleEF	UBUS	0.01	5.4916e-003
tblVehicleEF	UBUS	8.4100e-004	0.00
tblVehicleEF	UBUS	4.30	2.19
tblVehicleEF	UBUS	1.4700e-003	5.0350e-004
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	4.21	2.14
tblVehicleEF	UBUS	0.02	7.2767e-003
tblVehicleEF	UBUS	32.80	28.86
tblVehicleEF	UBUS	1.15	0.90
tblVehicleEF	UBUS	1,717.18	1,567.15
tblVehicleEF	UBUS	15.96	7.26
tblVehicleEF	UBUS	0.28	0.30
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.33
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7210e-003	1.6888e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	2.1500e-004	3.9714e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5860e-003	1.6101e-003
tblVehicleEF	UBUS	1.9700e-004	3.6516e-005
tblVehicleEF	UBUS	2.6730e-003	0.03
tblVehicleEF	UBUS	0.01	5.9609e-003
tblVehicleEF	UBUS	1.8680e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.4460e-003	5.2600e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7330e-003	9.6227e-004
tblVehicleEF	UBUS	1.5800e-004	7.1796e-005
tblVehicleEF	UBUS	2.6730e-003	0.03
tblVehicleEF	UBUS	0.01	5.9609e-003
tblVehicleEF	UBUS	1.8680e-003	0.00
tblVehicleEF	UBUS	4.30	2.19
tblVehicleEF	UBUS	1.4460e-003	5.2600e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.14
tblVehicleEF	UBUS	0.02	8.0256e-003
tblVehicleEF	UBUS	32.80	28.86
tblVehicleEF	UBUS	1.37	1.07
tblVehicleEF	UBUS	1,717.18	1,567.15
tblVehicleEF	UBUS	16.32	7.54
tblVehicleEF	UBUS	0.28	0.30
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.33
tblVehicleEF	UBUS	0.16	0.07

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7210e-003	1.6888e-003
tblVehicleEF	UBUS	2.1500e-004	3.9714e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5860e-003	1.6101e-003
tblVehicleEF	UBUS	1.9700e-004	3.6516e-005
tblVehicleEF	UBUS	1.4350e-003	0.02
tblVehicleEF	UBUS	0.01	5.4589e-003
tblVehicleEF	UBUS	8.2800e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.6900e-003	5.2279e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7330e-003	9.6224e-004
tblVehicleEF	UBUS	1.6200e-004	7.4562e-005
tblVehicleEF	UBUS	1.4350e-003	0.02
tblVehicleEF	UBUS	0.01	5.4589e-003
tblVehicleEF	UBUS	8.2800e-004	0.00
tblVehicleEF	UBUS	4.30	2.19
tblVehicleEF	UBUS	1.6900e-003	5.2279e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	CC_TTP	0.00	48.00
tblVehicleTrips	CC_TTP	0.00	48.00
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CNW_TTP	41.00	19.00
tblVehicleTrips	CW_TTP	0.00	33.00
tblVehicleTrips	CW_TTP	59.00	33.00
tblVehicleTrips	DV_TP	19.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	2.21	51.62
tblVehicleTrips	ST_TR	0.00	7.31
tblVehicleTrips	ST_TR	2.12	1.38
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	0.70	51.62
tblVehicleTrips	SU_TR	0.00	7.31
tblVehicleTrips	SU_TR	2.12	1.38
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	9.74	51.62
tblVehicleTrips	WD_TR	0.00	7.31
tblVehicleTrips	WD_TR	2.12	1.38
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	10.2693	32.5173	29.1319	0.1188	6.1424	0.9771	7.1195	1.6733	0.9173	2.5906	0.0000	11,125.1929	11,125.1929	1.3675	0.9862	11,453.2530
Maximum	**10.2693**	**32.5173**	**29.1319**	**0.1188**	**6.1424**	**0.9771**	**7.1195**	**1.6733**	**0.9173**	**2.5906**	**0.0000**	**11,125.1929**	**11,125.1929**	**1.3675**	**0.9862**	**11,453.2530**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	9.0312	19.6356	32.5768	0.1188	4.0479	0.3968	4.4447	1.1067	0.3753	1.4820	0.0000	11,125.1878	11,125.1878	1.3675	0.9862	11,453.2479
Maximum	**9.0312**	**19.6356**	**32.5768**	**0.1188**	**4.0479**	**0.3968**	**4.4447**	**1.1067**	**0.3753**	**1.4820**	**0.0000**	**11,125.1878**	**11,125.1878**	**1.3675**	**0.9862**	**11,453.2479**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**12.06**	**39.61**	**-11.83**	**0.00**	**34.10**	**59.39**	**37.57**	**33.86**	**59.09**	**42.79**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2025	3-31-2025	14.4380	11.9372
2	4-1-2025	6-30-2025	11.0478	5.7348
3	7-1-2025	9-30-2025	8.8320	3.9804
		Highest	14.4380	11.9372

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.5109	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0398	0.0398	1.0000e-004	0.0000	0.0424
Energy	0.0841	0.7645	0.6422	4.5900e-003		0.0581	0.0581		0.0581	0.0581	0.0000	2,851.2987	2,851.2987	0.0160	0.0153	2,856.2443
Mobile	0.9644	0.7593	8.9453	0.1439	2.4567	0.1305	2.5872	0.7903	0.1296	0.9199	0.0000	2,315.7334	2,315.7334	0.1775	0.1696	2,370.7135
Waste						0.0000	0.0000		0.0000	0.0000	296.4297	0.0000	296.4297	17.5185	0.0000	734.3921
Water						0.0000	0.0000		0.0000	0.0000	113.4881	692.0044	805.4924	11.6563	0.2752	1,178.9190
Total	**7.5594**	**1.5240**	**9.6079**	**0.1485**	**2.4567**	**0.1887**	**2.6454**	**0.7903**	**0.1878**	**0.9781**	**409.9178**	**5,859.0763**	**6,268.9940**	**29.3683**	**0.4601**	**7,140.3114**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.5099	1.0000e-004	0.0119	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0215	0.0215	4.0000e-005	0.0000	0.0226
Energy	0.0776	0.7057	0.5928	4.2300e-003		0.0536	0.0536		0.0536	0.0536	0.0000	2,609.8532	2,609.8532	0.0147	0.0141	2,614.4182
Mobile	0.9620	0.7528	8.8684	0.1423	2.4277	0.1290	2.5568	0.7810	0.1281	0.9091	0.0000	2,289.0826	2,289.0826	0.1760	0.1679	2,343.5109
Waste						0.0000	0.0000		0.0000	0.0000	74.1074	0.0000	74.1074	4.3796	0.0000	183.5980
Water						0.0000	0.0000		0.0000	0.0000	90.7905	554.3475	645.1379	9.3251	0.2202	943.8792
Total	**7.5495**	**1.4586**	**9.4730**	**0.1465**	**2.4277**	**0.1827**	**2.6104**	**0.7810**	**0.1817**	**0.9627**	**164.8979**	**5,453.3047**	**5,618.2026**	**13.8954**	**0.4021**	**6,085.4288**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.13**	**4.29**	**1.40**	**1.37**	**1.18**	**3.20**	**1.32**	**1.18**	**3.21**	**1.57**	**59.77**	**6.93**	**10.38**	**52.69**	**12.60**	**14.77**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2025	4/30/2025	5	86	
2	Road Construction/Utilities	Site Preparation	1/1/2025	4/30/2025	5	86	
3	Excavation/Mass Site Grading	Grading	1/1/2025	4/30/2025	5	86	

4	Concrete Pour	Building Construction	5/1/2025	8/29/2025	5	87	
5	Paving/Landscap/Site Finishes	Paving	9/1/2025	12/31/2025	5	88	
6	Architectural Coating	Architectural Coating	9/1/2025	12/31/2025	5	88	

Acres of Grading (Site Preparation Phase): 129

Acres of Grading (Grading Phase): 1505

Acres of Paving: 50.87

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,330,760; Non-Residential Outdoor: 776,920; Striped Parking Area: 132,954 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Road Construction/Utilities	Excavators	2	8.00	158	0.38
Road Construction/Utilities	Off-Highway Trucks	1	4.00	402	0.38
Road Construction/Utilities	Rubber Tired Dozers	3	8.00	247	0.40
Road Construction/Utilities	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Road Construction/Utilities	Trenchers	2	8.00	78	0.50
Excavation/Mass Site Grading	Excavators	0	8.00	158	0.38
Excavation/Mass Site Grading	Graders	2	8.00	187	0.41
Excavation/Mass Site Grading	Off-Highway Trucks	3	8.00	402	0.38
Excavation/Mass Site Grading	Other Construction Equipment	1	8.00	172	0.42
Excavation/Mass Site Grading	Rollers	1	8.00	80	0.38
Excavation/Mass Site Grading	Rubber Tired Dozers	1	8.00	247	0.40
Excavation/Mass Site Grading	Rubber Tired Loaders	1	8.00	203	0.36
Excavation/Mass Site Grading	Scrapers	16	8.00	367	0.48
Excavation/Mass Site Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Concrete Pour	Cranes	2	7.00	231	0.29
Concrete Pour	Forklifts	10	8.00	89	0.20
Concrete Pour	Generator Sets	36	8.00	84	0.74
Concrete Pour	Off-Highway Trucks	8	8.00	402	0.38
Concrete Pour	Other General Industrial Equipment	57	8.00	88	0.34
Concrete Pour	Pumps	2	8.00	84	0.74
Concrete Pour	Rollers	2	8.00	80	0.38
Concrete Pour	Tractors/Loaders/Backhoes	14	7.00	97	0.37
Concrete Pour	Welders	0	8.00	46	0.45
Paving/Landscap/Site Finishes	Graders	2	8.00	187	0.41
Paving/Landscap/Site Finishes	Off-Highway Trucks	3	8.00	402	0.38
Paving/Landscap/Site Finishes	Other Construction Equipment	2	8.00	172	0.42
Paving/Landscap/Site Finishes	Other General Industrial Equipment	6	8.00	88	0.34
Paving/Landscap/Site Finishes	Pavers	0	8.00	130	0.42
Paving/Landscap/Site Finishes	Paving Equipment	1	8.00	132	0.36
Paving/Landscap/Site Finishes	Rollers	6	8.00	80	0.38
Paving/Landscap/Site Finishes	Scrapers	1	8.00	367	0.48
Paving/Landscap/Site Finishes	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Architectural Coating	Air Compressors	3	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	10,742.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Road Construction/Utilities	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Mass Site Grading	25	63.00	0.00	76,420.00	14.70	6.90	50.00	LD_Mix	HDT_Mix	HHDT
Concrete Pour	131	1,580.00	618.00	12,212.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving/Landscap/Site Finishes	25	63.00	0.00	5,204.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating		3	316.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1624	0.0000	1.1624	0.1760	0.0000	0.1760	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0900	0.8255	0.8350	1.6700e-003		0.0367	0.0367		0.0341	0.0341	0.0000	146.1899	146.1899	0.0408	0.0000	147.2104
Total	**0.0900**	**0.8255**	**0.8350**	**1.6700e-003**	**1.1624**	**0.0367**	**1.1991**	**0.1760**	**0.0341**	**0.2101**	**0.0000**	**146.1899**	**146.1899**	**0.0408**	**0.0000**	**147.2104**

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3.2 Demolition - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0123	0.6210	0.1815	2.9000e-003	0.0925	6.1100e-003	0.0986	0.0254	5.8400e-003	0.0313	0.0000	287.0340	287.0340	0.0120	0.0455	300.8911
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9400e-003	1.3300e-003	0.0181	6.0000e-005	7.0700e-003	3.0000e-005	7.1000e-003	1.8800e-003	3.0000e-005	1.9100e-003	0.0000	5.1162	5.1162	1.2000e-004	1.3000e-004	5.1576
Total	**0.0143**	**0.6223**	**0.1995**	**2.9600e-003**	**0.0996**	**6.1400e-003**	**0.1057**	**0.0273**	**5.8700e-003**	**0.0332**	**0.0000**	**292.1501**	**292.1501**	**0.0121**	**0.0456**	**306.0487**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4307	0.0000	0.4307	0.0652	0.0000	0.0652	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0299	0.1721	0.9918	1.6700e-003		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	146.1897	146.1897	0.0408	0.0000	147.2102
Total	**0.0299**	**0.1721**	**0.9918**	**1.6700e-003**	**0.4307**	**6.2800e-003**	**0.4369**	**0.0652**	**6.2800e-003**	**0.0715**	**0.0000**	**146.1897**	**146.1897**	**0.0408**	**0.0000**	**147.2102**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0123	0.6210	0.1815	2.9000e-003	0.0883	6.1100e-003	0.0944	0.0244	5.8400e-003	0.0302	0.0000	287.0340	287.0340	0.0120	0.0455	300.8911
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9400e-003	1.3300e-003	0.0181	6.0000e-005	6.7000e-003	3.0000e-005	6.7400e-003	1.7900e-003	3.0000e-005	1.8200e-003	0.0000	5.1162	5.1162	1.2000e-004	1.3000e-004	5.1576
Total	**0.0143**	**0.6223**	**0.1995**	**2.9600e-003**	**0.0950**	**6.1400e-003**	**0.1012**	**0.0262**	**5.8700e-003**	**0.0321**	**0.0000**	**292.1501**	**292.1501**	**0.0121**	**0.0456**	**306.0487**

3.3 Road Construction/Utilities - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8453	0.0000	0.8453	0.4344	0.0000	0.4344	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1580	1.5049	1.3399	2.6600e-003		0.0709	0.0709		0.0653	0.0653	0.0000	233.4415	233.4415	0.0755	0.0000	235.3290
Total	**0.1580**	**1.5049**	**1.3399**	**2.6600e-003**	**0.8453**	**0.0709**	**0.9162**	**0.4344**	**0.0653**	**0.4997**	**0.0000**	**233.4415**	**233.4415**	**0.0755**	**0.0000**	**235.3290**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Road Construction/Utilities - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8900e-003	2.6500e-003	0.0361	1.1000e-004	0.0141	6.0000e-005	0.0142	3.7600e-003	6.0000e-005	3.8200e-003	0.0000	10.2323	10.2323	2.4000e-004	2.6000e-004	10.3153
Total	**3.8900e-003**	**2.6500e-003**	**0.0361**	**1.1000e-004**	**0.0141**	**6.0000e-005**	**0.0142**	**3.7600e-003**	**6.0000e-005**	**3.8200e-003**	**0.0000**	**10.2323**	**10.2323**	**2.4000e-004**	**2.6000e-004**	**10.3153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3132	0.0000	0.3132	0.1610	0.0000	0.1610	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0325	0.1409	1.5806	2.6600e-003		4.3300e-003	4.3300e-003		4.3300e-003	4.3300e-003	0.0000	233.4412	233.4412	0.0755	0.0000	235.3287
Total	**0.0325**	**0.1409**	**1.5806**	**2.6600e-003**	**0.3132**	**4.3300e-003**	**0.3175**	**0.1610**	**4.3300e-003**	**0.1653**	**0.0000**	**233.4412**	**233.4412**	**0.0755**	**0.0000**	**235.3287**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Road Construction/Utilities - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8900e-003	2.6500e-003	0.0361	1.1000e-004	0.0134	6.0000e-005	0.0135	3.5800e-003	6.0000e-005	3.6400e-003	0.0000	10.2323	10.2323	2.4000e-004	2.6000e-004	10.3153
Total	**3.8900e-003**	**2.6500e-003**	**0.0361**	**1.1000e-004**	**0.0134**	**6.0000e-005**	**0.0135**	**3.5800e-003**	**6.0000e-005**	**3.6400e-003**	**0.0000**	**10.2323**	**10.2323**	**2.4000e-004**	**2.6000e-004**	**10.3153**

3.4 Excavation/Mass Site Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0916	0.0000	1.0916	0.2337	0.0000	0.2337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6070	5.5960	4.6933	0.0137		0.2197	0.2197		0.2022	0.2022	0.0000	1,205.1863	1,205.1863	0.3898	0.0000	1,214.9309
Total	**0.6070**	**5.5960**	**4.6933**	**0.0137**	**1.0916**	**0.2197**	**1.3113**	**0.2337**	**0.2022**	**0.4359**	**0.0000**	**1,205.1863**	**1,205.1863**	**0.3898**	**0.0000**	**1,214.9309**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Excavation/Mass Site Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1452	9.8302	2.1313	0.0499	1.6438	0.1080	1.7518	0.4514	0.1033	0.5547	0.0000	4,932.6924	4,932.6924	0.2092	0.7820	5,170.9433
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.1700e-003	5.5700e-003	0.0759	2.3000e-004	0.0297	1.4000e-004	0.0298	7.8900e-003	1.2000e-004	8.0100e-003	0.0000	21.4879	21.4879	5.0000e-004	5.4000e-004	21.6620
Total	**0.1533**	**9.8358**	**2.2072**	**0.0501**	**1.6735**	**0.1081**	**1.7816**	**0.4593**	**0.1034**	**0.5627**	**0.0000**	**4,954.1803**	**4,954.1803**	**0.2097**	**0.7825**	**5,192.6053**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4044	0.0000	0.4044	0.0866	0.0000	0.0866	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5025	4.5578	5.2971	0.0137		0.1779	0.1779		0.1641	0.1641	0.0000	1,205.1849	1,205.1849	0.3898	0.0000	1,214.9294
Total	**0.5025**	**4.5578**	**5.2971**	**0.0137**	**0.4044**	**0.1779**	**0.5823**	**0.0866**	**0.1641**	**0.2507**	**0.0000**	**1,205.1849**	**1,205.1849**	**0.3898**	**0.0000**	**1,214.9294**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Excavation/Mass Site Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1452	9.8302	2.1313	0.0499	1.5697	0.1080	1.6777	0.4332	0.1033	0.5365	0.0000	4,932.6924	4,932.6924	0.2092	0.7820	5,170.9433
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.1700e-003	5.5700e-003	0.0759	2.3000e-004	0.0282	1.4000e-004	0.0283	7.5100e-003	1.2000e-004	7.6300e-003	0.0000	21.4879	21.4879	5.0000e-004	5.4000e-004	21.6620
Total	**0.1533**	**9.8358**	**2.2072**	**0.0501**	**1.5979**	**0.1081**	**1.7060**	**0.4408**	**0.1034**	**0.5442**	**0.0000**	**4,954.1803**	**4,954.1803**	**0.2097**	**0.7825**	**5,192.6053**

3.5 Concrete Pour - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0891	9.5851	13.8628	0.0248		0.4127	0.4127		0.3923	0.3923	0.0000	2,159.2446	2,159.2446	0.4309	0.0000	2,170.0164
Total	**1.0891**	**9.5851**	**13.8628**	**0.0248**		**0.4127**	**0.4127**		**0.3923**	**0.3923**	**0.0000**	**2,159.2446**	**2,159.2446**	**0.4309**	**0.0000**	**2,170.0164**

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3.5 Concrete Pour - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0140	0.7059	0.2063	3.3000e-003	0.1052	6.9400e-003	0.1121	0.0289	6.6400e-003	0.0355	0.0000	326.3134	326.3134	0.0136	0.0517	342.0668
Vendor	0.0290	0.9947	0.3888	4.6600e-003	0.1695	6.9800e-003	0.1765	0.0489	6.6800e-003	0.0556	0.0000	453.0955	453.0955	0.0115	0.0669	473.3207
Worker	0.2072	0.1412	1.9249	5.9500e-003	0.7536	3.4400e-003	0.7570	0.2002	3.1700e-003	0.2033	0.0000	545.1696	545.1696	0.0126	0.0138	549.5873
Total	**0.2502**	**1.8418**	**2.5199**	**0.0139**	**1.0283**	**0.0174**	**1.0457**	**0.2780**	**0.0165**	**0.2945**	**0.0000**	**1,324.5785**	**1,324.5785**	**0.0377**	**0.1324**	**1,364.9748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2985	1.4316	15.6671	0.0248		0.0469	0.0469		0.0461	0.0461	0.0000	2,159.2420	2,159.2420	0.4309	0.0000	2,170.0138
Total	**0.2985**	**1.4316**	**15.6671**	**0.0248**		**0.0469**	**0.0469**		**0.0461**	**0.0461**	**0.0000**	**2,159.2420**	**2,159.2420**	**0.4309**	**0.0000**	**2,170.0138**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Concrete Pour - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0140	0.7059	0.2063	3.3000e-003	0.1004	6.9400e-003	0.1074	0.0277	6.6400e-003	0.0344	0.0000	326.3134	326.3134	0.0136	0.0517	342.0668
Vendor	0.0290	0.9947	0.3888	4.6600e-003	0.1624	6.9800e-003	0.1693	0.0472	6.6800e-003	0.0538	0.0000	453.0955	453.0955	0.0115	0.0669	473.3207
Worker	0.2072	0.1412	1.9249	5.9500e-003	0.7144	3.4400e-003	0.7179	0.1905	3.1700e-003	0.1937	0.0000	545.1696	545.1696	0.0126	0.0138	549.5873
Total	**0.2502**	**1.8418**	**2.5199**	**0.0139**	**0.9772**	**0.0174**	**0.9945**	**0.2654**	**0.0165**	**0.2819**	**0.0000**	**1,324.5785**	**1,324.5785**	**0.0377**	**0.1324**	**1,364.9748**

3.6 Paving/Landscap/Site Finishes - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2480	2.2172	2.6444	5.6400e-003		0.0948	0.0948		0.0872	0.0872	0.0000	494.9570	494.9570	0.1601	0.0000	498.9589
Paving	0.0666					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3147**	**2.2172**	**2.6444**	**5.6400e-003**		**0.0948**	**0.0948**		**0.0872**	**0.0872**	**0.0000**	**494.9570**	**494.9570**	**0.1601**	**0.0000**	**498.9589**

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving/Landscap/Site Finishes - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.9700e-003	0.3008	0.0879	1.4100e-003	0.0448	2.9600e-003	0.0478	0.0123	2.8300e-003	0.0151	0.0000	139.0546	139.0546	5.8100e-003	0.0220	145.7677
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3600e-003	5.7000e-003	0.0776	2.4000e-004	0.0304	1.4000e-004	0.0305	8.0700e-003	1.3000e-004	8.2000e-003	0.0000	21.9876	21.9876	5.1000e-004	5.6000e-004	22.1658
Total	**0.0143**	**0.3065**	**0.1655**	**1.6500e-003**	**0.0752**	**3.1000e-003**	**0.0783**	**0.0204**	**2.9600e-003**	**0.0233**	**0.0000**	**161.0423**	**161.0423**	**6.3200e-003**	**0.0226**	**167.9336**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0905	0.5445	3.2836	5.6400e-003		0.0192	0.0192		0.0183	0.0183	0.0000	494.9564	494.9564	0.1601	0.0000	498.9583
Paving	0.0666					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1572**	**0.5445**	**3.2836**	**5.6400e-003**		**0.0192**	**0.0192**		**0.0183**	**0.0183**	**0.0000**	**494.9564**	**494.9564**	**0.1601**	**0.0000**	**498.9583**

3.6 Paving/Landscap/Site Finishes - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.9700e-003	0.3008	0.0879	1.4100e-003	0.0428	2.9600e-003	0.0458	0.0118	2.8300e-003	0.0146	0.0000	139.0546	139.0546	5.8100e-003	0.0220	145.7677
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3600e-003	5.7000e-003	0.0776	2.4000e-004	0.0288	1.4000e-004	0.0290	7.6800e-003	1.3000e-004	7.8100e-003	0.0000	21.9876	21.9876	5.1000e-004	5.6000e-004	22.1658
Total	**0.0143**	**0.3065**	**0.1655**	**1.6500e-003**	**0.0716**	**3.1000e-003**	**0.0747**	**0.0195**	**2.9600e-003**	**0.0225**	**0.0000**	**161.0423**	**161.0423**	**6.3200e-003**	**0.0226**	**167.9336**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	7.5102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0226	0.1512	0.2388	3.9000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003	0.0000	33.7030	33.7030	1.8400e-003	0.0000	33.7489
Total	**7.5327**	**0.1512**	**0.2388**	**3.9000e-004**		**6.8000e-003**	**6.8000e-003**		**6.8000e-003**	**6.8000e-003**	**0.0000**	**33.7030**	**33.7030**	**1.8400e-003**	**0.0000**	**33.7489**

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0419	0.0286	0.3894	1.2000e-003	0.1525	7.0000e-004	0.1532	0.0405	6.4000e-004	0.0411	0.0000	110.2872	110.2872	2.5500e-003	2.7800e-003	111.1809
Total	**0.0419**	**0.0286**	**0.3894**	**1.2000e-003**	**0.1525**	**7.0000e-004**	**0.1532**	**0.0405**	**6.4000e-004**	**0.0411**	**0.0000**	**110.2872**	**110.2872**	**2.5500e-003**	**2.7800e-003**	**111.1809**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	7.5102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0226	0.1512	0.2388	3.9000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003	0.0000	33.7029	33.7029	1.8400e-003	0.0000	33.7489
Total	**7.5327**	**0.1512**	**0.2388**	**3.9000e-004**		**6.8000e-003**	**6.8000e-003**		**6.8000e-003**	**6.8000e-003**	**0.0000**	**33.7029**	**33.7029**	**1.8400e-003**	**0.0000**	**33.7489**

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0419	0.0286	0.3894	1.2000e-003	0.1445	7.0000e-004	0.1452	0.0385	6.4000e-004	0.0392	0.0000	110.2872	110.2872	2.5500e-003	2.7800e-003	111.1809
Total	**0.0419**	**0.0286**	**0.3894**	**1.2000e-003**	**0.1445**	**7.0000e-004**	**0.1452**	**0.0385**	**6.4000e-004**	**0.0392**	**0.0000**	**110.2872**	**110.2872**	**2.5500e-003**	**2.7800e-003**	**111.1809**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

Employee Vanpool/Shuttle

Provide Riade Sharing Program

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9620	0.7528	8.8684	0.1423	2.4277	0.1290	2.5568	0.7810	0.1281	0.9091	0.0000	2,289.0826	2,289.0826	0.1760	0.1679	2,343.5109
Unmitigated	0.9644	0.7593	8.9453	0.1439	2.4567	0.1305	2.5872	0.7903	0.1296	0.9199	0.0000	2,315.7334	2,315.7334	0.1775	0.1696	2,370.7135

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	1,548.60	1,548.60	1548.60	6,099,694	6,027,860
Other Asphalt Surfaces	129.68	129.68	129.68	510,787	504,772
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	345.00	345.00	345.00	1,267,552	1,252,625
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	2,023.28	2,023.28	2,023.28	7,878,033	7,785,257

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	6.90	33.00	48.00	19.00	92	5	3
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.587967	0.056532	0.173573	0.132281	0.025040	0.000000	0.000000	0.000000	0.000000	0.000000	0.024607	0.000000	0.000000
Other Asphalt Surfaces	0.587967	0.056532	0.173573	0.132281	0.025040	0.000000	0.000000	0.000000	0.000000	0.000000	0.024607	0.000000	0.000000
Parking Lot	0.545300	0.056532	0.173573	0.132281	0.025040	0.006914	0.012148	0.017464	0.000548	0.000245	0.024607	0.000958	0.004391
Refrigerated Warehouse-Rail	0.587967	0.056532	0.173573	0.132281	0.025040	0.000000	0.000000	0.000000	0.000000	0.000000	0.024607	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.545300	0.056532	0.173573	0.132281	0.025040	0.006914	0.012148	0.017464	0.000548	0.000245	0.024607	0.000958	0.004391

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,841.6661	1,841.6661	0.0000	0.0000	1,841.6661
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,019.0464	2,019.0464	0.0000	0.0000	2,019.0464
NaturalGas Mitigated	0.0776	0.7057	0.5928	4.2300e-003		0.0536	0.0536		0.0536	0.0536	0.0000	768.1871	768.1871	0.0147	0.0141	772.7520
NaturalGas Unmitigated	0.0841	0.7645	0.6422	4.5900e-003		0.0581	0.0581		0.0581	0.0581	0.0000	832.2523	832.2523	0.0160	0.0153	837.1979

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	102900	5.5000e-004	5.0400e-003	4.2400e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4911	5.4911	1.1000e-004	1.0000e-004	5.5238
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1.29325e+007	0.0697	0.6340	0.5325	3.8000e-003		0.0482	0.0482		0.0482	0.0482	0.0000	690.1275	690.1275	0.0132	0.0127	694.2285
Unrefrigerated Warehouse-Rail	2.56042e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6337	136.6337	2.6200e-003	2.5000e-003	137.4456
Total		**0.0841**	**0.7645**	**0.6422**	**4.5800e-003**		**0.0581**	**0.0581**		**0.0581**	**0.0581**	**0.0000**	**832.2523**	**832.2523**	**0.0160**	**0.0153**	**837.1979**

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	66885	3.6000e-004	3.2800e-003	2.7500e-003	2.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	3.5692	3.5692	7.0000e-005	7.0000e-005	3.5905
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1.26508e+007	0.0682	0.6201	0.5209	3.7200e-003		0.0471	0.0471		0.0471	0.0471	0.0000	675.0922	675.0922	0.0129	0.0124	679.1039
Unrefrigerated Warehouse-Rail	1.67765e+006	9.0500e-003	0.0822	0.0691	4.9000e-004		6.2500e-003	6.2500e-003		6.2500e-003	6.2500e-003	0.0000	89.5257	89.5257	1.7200e-003	1.6400e-003	90.0577
Total		**0.0776**	**0.7057**	**0.5927**	**4.2300e-003**		**0.0536**	**0.0536**		**0.0536**	**0.0536**	**0.0000**	**768.1871**	**768.1871**	**0.0147**	**0.0141**	**772.7520**

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	275700	40.6430	0.0000	0.0000	40.6430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	505100	74.4606	0.0000	0.0000	74.4606
Refrigerated Warehouse-Rail	9.96e +006	1,468.2785	0.0000	0.0000	1,468.2785
Unrefrigerated Warehouse-Rail	2.95531e +006	435.6643	0.0000	0.0000	435.6643
Total		**2,019.0464**	**0.0000**	**0.0000**	**2,019.0464**

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	208500	30.7366	0.0000	0.0000	30.7366
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	328315	48.3994	0.0000	0.0000	48.3994
Refrigerated Warehouse-Rail	9.6695e+006	1,425.4537	0.0000	0.0000	1,425.4537
Unrefrigerated Warehouse-Rail	2.28654e+006	337.0765	0.0000	0.0000	337.0765
Total		**1,841.6661**	**0.0000**	**0.0000**	**1,841.6661**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.5099	1.0000e-004	0.0119	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0215	0.0215	4.0000e-005	0.0000	0.0226
Unmitigated	6.5109	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0398	0.0398	1.0000e-004	0.0000	0.0424

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.7580					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8800e-003	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0398	0.0398	1.0000e-004	0.0000	0.0424
Total	**6.5109**	**1.9000e-004**	**0.0204**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0398**	**0.0398**	**1.0000e-004**	**0.0000**	**0.0424**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.7580					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-004	1.0000e-004	0.0119	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0215	0.0215	4.0000e-005	0.0000	0.0226
Total	**6.5099**	**1.0000e-004**	**0.0119**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0215**	**0.0215**	**4.0000e-005**	**0.0000**	**0.0226**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	645.1379	9.3251	0.2202	943.8792
Unmitigated	805.4924	11.6563	0.2752	1,178.9190

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.33201 / 3.26801	17.2789	0.1737	4.1000e-003	22.8450
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	57.8125 / 0	129.3137	1.8838	0.0445	189.6646
Unrefrigerated Warehouse-Rail	294.575 / 0	658.8998	9.5988	0.2267	966.4094
Total		**805.4924**	**11.6563**	**0.2752**	**1,178.9190**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	4.26561 / 3.06866	14.5671	0.1390	3.2800e-003	19.0200
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	46.25 / 0	103.4510	1.5071	0.0356	151.7317
Unrefrigerated Warehouse-Rail	235.66 / 0	527.1199	7.6790	0.1813	773.1275
Total		**645.1379**	**9.3251**	**0.2202**	**943.8792**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.1074	4.3796	0.0000	183.5980
Unmitigated	296.4297	17.5185	0.0000	734.3921

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	27.9	5.6635	0.3347	0.0000	14.0310
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	235	47.7029	2.8192	0.0000	118.1819
Unrefrigerated Warehouse-Rail	1197.41	243.0634	14.3646	0.0000	602.1793
Total		**296.4297**	**17.5185**	**0.0000**	**734.3921**

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	6.975	1.4159	0.0837	0.0000	3.5077
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	58.75	11.9257	0.7048	0.0000	29.5455
Unrefrigerated Warehouse-Rail	299.353	60.7659	3.5912	0.0000	150.5448
Total		**74.1074**	**4.3796**	**0.0000**	**183.5980**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

Speedway Commerce Center (Phase 2 Passenger Cars) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Speedway Commerce Center (Phase 2 Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (Phase 2 Trucks)(*Mobile Source/Truck Operations Only)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Refrigerated Warehouse-Rail	250.00	1000sqft	5.74	250,000.00	0
Unrefrigerated Warehouse-Rail	1,273.84	1000sqft	29.24	1,273,840.00	0
Other Asphalt Surfaces	17.74	Acre	17.74	772,754.40	0
Parking Lot	33.13	Acre	33.13	1,443,142.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2026
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	325	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 factor adjusted per RPS

Land Use -

Construction Phase - per construction schedule

Off-road Equipment - Anticipated equipment

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

Speedway Commerce Center (Phase 2 Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vehicle Trips - Phase2 Trucks run

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products -

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Phase2 trucks run

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	0.00
tblFleetMix	HHD	0.02	0.64
tblFleetMix	HHD	0.02	0.60
tblFleetMix	HHD	0.02	0.60
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.9140e-003	0.12
tblFleetMix	LHD2	6.9140e-003	0.17
tblFleetMix	LHD2	6.9140e-003	0.17
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	4.3910e-003	0.00
tblFleetMix	MH	4.3910e-003	0.00
tblFleetMix	MH	4.3910e-003	0.00
tblFleetMix	MHD	0.01	0.24
tblFleetMix	MHD	0.01	0.23
tblFleetMix	MHD	0.01	0.23
tblFleetMix	OBUS	5.4800e-004	0.00
tblFleetMix	OBUS	5.4800e-004	0.00
tblFleetMix	OBUS	5.4800e-004	0.00
tblFleetMix	SBUS	9.5800e-004	0.00
tblFleetMix	SBUS	9.5800e-004	0.00
tblFleetMix	SBUS	9.5800e-004	0.00
tblFleetMix	UBUS	2.4500e-004	0.00
tblFleetMix	UBUS	2.4500e-004	0.00
tblFleetMix	UBUS	2.4500e-004	0.00

Speedway Commerce Center (Phase 2 Trucks) - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	325
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	3.2731e-008
tblVehicleEF	HHD	8.62	5.26
tblVehicleEF	HHD	0.33	0.77
tblVehicleEF	HHD	2.0270e-003	9.7248e-004
tblVehicleEF	HHD	1,349.94	794.42
tblVehicleEF	HHD	1,232.49	1,500.44
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.24
tblVehicleEF	HHD	3.0000e-006	1.3919e-006
tblVehicleEF	HHD	7.03	3.93
tblVehicleEF	HHD	2.11	1.59
tblVehicleEF	HHD	2.33	2.66
tblVehicleEF	HHD	2.8590e-003	1.9831e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	3.3924e-007
tblVehicleEF	HHD	2.7350e-003	1.8926e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9130e-003	8.8063e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	3.1192e-007

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	1.0000e-006	9.6189e-005
tblVehicleEF	HHD	4.5000e-005	2.6249e-005
tblVehicleEF	HHD	0.58	0.32
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	1.9000e-005	2.8077e-005
tblVehicleEF	HHD	1.0000e-006	1.6842e-007
tblVehicleEF	HHD	0.01	6.7504e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.1510e-007
tblVehicleEF	HHD	1.0000e-006	9.6189e-005
tblVehicleEF	HHD	4.5000e-005	2.6249e-005
tblVehicleEF	HHD	0.67	0.56
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.15
tblVehicleEF	HHD	1.9000e-005	2.8077e-005
tblVehicleEF	HHD	1.0000e-006	1.8440e-007
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	3.1227e-008
tblVehicleEF	HHD	8.50	5.19
tblVehicleEF	HHD	0.33	0.77
tblVehicleEF	HHD	1.8980e-003	9.1812e-004
tblVehicleEF	HHD	1,333.02	786.14
tblVehicleEF	HHD	1,232.49	1,500.44
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.20	0.24
tblVehicleEF	HHD	3.0000e-006	1.3605e-006

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	6.69	3.75
tblVehicleEF	HHD	1.99	1.51
tblVehicleEF	HHD	2.33	2.66
tblVehicleEF	HHD	2.5230e-003	1.7515e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	3.3924e-007
tblVehicleEF	HHD	2.4140e-003	1.6711e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9130e-003	8.8063e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	3.1192e-007
tblVehicleEF	HHD	3.0000e-006	1.4473e-004
tblVehicleEF	HHD	5.3000e-005	2.9004e-005
tblVehicleEF	HHD	0.62	0.33
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	1.9000e-005	3.0040e-005
tblVehicleEF	HHD	1.0000e-006	1.6116e-007
tblVehicleEF	HHD	0.01	6.6719e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.1425e-007
tblVehicleEF	HHD	3.0000e-006	1.4473e-004
tblVehicleEF	HHD	5.3000e-005	2.9004e-005
tblVehicleEF	HHD	0.70	0.58
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.15
tblVehicleEF	HHD	1.9000e-005	3.0040e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	1.0000e-006	1.7645e-007
tblVehicleEF	HHD	0.03	0.22
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	3.2545e-008
tblVehicleEF	HHD	8.78	5.35
tblVehicleEF	HHD	0.33	0.77
tblVehicleEF	HHD	1.9980e-003	9.6487e-004
tblVehicleEF	HHD	1,373.31	805.87
tblVehicleEF	HHD	1,232.49	1,500.44
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.22	0.13
tblVehicleEF	HHD	0.20	0.24
tblVehicleEF	HHD	3.0000e-006	1.3839e-006
tblVehicleEF	HHD	7.50	4.17
tblVehicleEF	HHD	2.08	1.57
tblVehicleEF	HHD	2.33	2.66
tblVehicleEF	HHD	3.3220e-003	2.3029e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	3.3924e-007
tblVehicleEF	HHD	3.1790e-003	2.1986e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9130e-003	8.8063e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	3.1192e-007
tblVehicleEF	HHD	2.0000e-006	9.5783e-005
tblVehicleEF	HHD	5.3000e-005	2.5993e-005
tblVehicleEF	HHD	0.53	0.29

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	2.0000e-005	2.9448e-005
tblVehicleEF	HHD	1.0000e-006	1.6748e-007
tblVehicleEF	HHD	0.01	6.8587e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	1.1498e-007
tblVehicleEF	HHD	2.0000e-006	9.5783e-005
tblVehicleEF	HHD	5.3000e-005	2.5993e-005
tblVehicleEF	HHD	0.61	0.53
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.15
tblVehicleEF	HHD	2.0000e-005	2.9448e-005
tblVehicleEF	HHD	1.0000e-006	1.8337e-007
tblVehicleEF	LDA	1.5350e-003	1.8026e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.51	0.63
tblVehicleEF	LDA	1.86	2.46
tblVehicleEF	LDA	230.85	253.98
tblVehicleEF	LDA	47.39	63.30
tblVehicleEF	LDA	3.7420e-003	3.8476e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	7.1089e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2160e-003	1.1349e-003
tblVehicleEF	LDA	1.5800e-003	1.8741e-003
tblVehicleEF	LDA	0.02	2.4881e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1200e-003	1.0441e-003
tblVehicleEF	LDA	1.4530e-003	1.7231e-003
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	5.4470e-003	6.4517e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	2.2840e-003	2.5107e-003
tblVehicleEF	LDA	4.6900e-004	6.2583e-004
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.9200e-003	9.4045e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	1.7620e-003	1.9173e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.62	0.85
tblVehicleEF	LDA	1.55	2.07
tblVehicleEF	LDA	252.00	275.48
tblVehicleEF	LDA	46.82	62.57
tblVehicleEF	LDA	3.5080e-003	3.4206e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.14	0.19
tblVehicleEF	LDA	0.04	7.1089e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	1.2160e-003	1.1349e-003
tblVehicleEF	LDA	1.5800e-003	1.8741e-003
tblVehicleEF	LDA	0.02	2.4881e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1200e-003	1.0441e-003
tblVehicleEF	LDA	1.4530e-003	1.7231e-003
tblVehicleEF	LDA	0.09	0.38
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	6.1750e-003	6.7716e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.13	0.21
tblVehicleEF	LDA	2.4930e-003	2.7233e-003
tblVehicleEF	LDA	4.6300e-004	6.1856e-004
tblVehicleEF	LDA	0.09	0.38
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	8.9820e-003	9.8713e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.15	0.23
tblVehicleEF	LDA	1.4980e-003	1.7878e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.48	0.59
tblVehicleEF	LDA	1.83	2.47
tblVehicleEF	LDA	225.89	250.03
tblVehicleEF	LDA	47.34	63.32
tblVehicleEF	LDA	3.5890e-003	3.7474e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDA	0.14	0.21
tblVehicleEF	LDA	0.04	7.1089e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.2160e-003	1.1349e-003
tblVehicleEF	LDA	1.5800e-003	1.8741e-003
tblVehicleEF	LDA	0.02	2.4881e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.1200e-003	1.0441e-003
tblVehicleEF	LDA	1.4530e-003	1.7231e-003
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	5.3110e-003	6.4012e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	2.2350e-003	2.4716e-003
tblVehicleEF	LDA	4.6800e-004	6.2594e-004
tblVehicleEF	LDA	0.05	0.30
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.7210e-003	9.3307e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDT1	3.9900e-003	7.3205e-003
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.92	1.65
tblVehicleEF	LDT1	2.06	5.49
tblVehicleEF	LDT1	275.61	328.38
tblVehicleEF	LDT1	57.91	86.11

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	6.1380e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.15
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	0.04	8.8125e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.6110e-003	1.9526e-003
tblVehicleEF	LDT1	2.1360e-003	3.1075e-003
tblVehicleEF	LDT1	0.02	3.0844e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.7960e-003
tblVehicleEF	LDT1	1.9640e-003	2.8573e-003
tblVehicleEF	LDT1	0.13	0.84
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.28	0.58
tblVehicleEF	LDT1	2.7270e-003	3.2464e-003
tblVehicleEF	LDT1	5.7300e-004	8.5129e-004
tblVehicleEF	LDT1	0.13	0.84
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.02	0.05
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.31	0.63
tblVehicleEF	LDT1	4.5340e-003	7.7653e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	1.12	2.21

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	1.71	4.57
tblVehicleEF	LDT1	297.62	353.76
tblVehicleEF	LDT1	57.21	84.38
tblVehicleEF	LDT1	5.6990e-003	9.5218e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	0.20	0.38
tblVehicleEF	LDT1	0.04	8.8125e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.6110e-003	1.9526e-003
tblVehicleEF	LDT1	2.1360e-003	3.1075e-003
tblVehicleEF	LDT1	0.02	3.0844e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.7960e-003
tblVehicleEF	LDT1	1.9640e-003	2.8573e-003
tblVehicleEF	LDT1	0.28	1.09
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.21	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.23	0.50
tblVehicleEF	LDT1	2.9450e-003	3.4972e-003
tblVehicleEF	LDT1	5.6600e-004	8.3415e-004
tblVehicleEF	LDT1	0.28	1.09
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.21	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.26	0.54

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	3.9000e-003	7.2596e-003
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.88	1.55
tblVehicleEF	LDT1	2.02	5.50
tblVehicleEF	LDT1	270.39	323.72
tblVehicleEF	LDT1	57.85	86.14
tblVehicleEF	LDT1	5.8810e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.14
tblVehicleEF	LDT1	0.21	0.41
tblVehicleEF	LDT1	0.04	8.8125e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.6110e-003	1.9526e-003
tblVehicleEF	LDT1	2.1360e-003	3.1075e-003
tblVehicleEF	LDT1	0.02	3.0844e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.7960e-003
tblVehicleEF	LDT1	1.9640e-003	2.8573e-003
tblVehicleEF	LDT1	0.14	0.84
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.28	0.58
tblVehicleEF	LDT1	2.6760e-003	3.2003e-003
tblVehicleEF	LDT1	5.7200e-004	8.5162e-004
tblVehicleEF	LDT1	0.14	0.84
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.09	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT1	0.02	0.05
tblVehicleEF	LDT1	0.10	0.08
tblVehicleEF	LDT1	0.30	0.64
tblVehicleEF	LDT2	2.7750e-003	2.5378e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.72	0.79
tblVehicleEF	LDT2	2.40	3.04
tblVehicleEF	LDT2	286.47	330.95
tblVehicleEF	LDT2	60.44	82.51
tblVehicleEF	LDT2	5.3020e-003	5.4109e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3436e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3040e-003	1.2048e-003
tblVehicleEF	LDT2	1.6720e-003	1.9415e-003
tblVehicleEF	LDT2	0.02	2.9203e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2000e-003	1.1083e-003
tblVehicleEF	LDT2	1.5370e-003	1.7851e-003
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	9.6456e-003
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.25	0.31
tblVehicleEF	LDT2	2.8340e-003	3.2714e-003
tblVehicleEF	LDT2	5.9800e-004	8.1574e-004

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tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.27	0.34
tblVehicleEF	LDT2	3.1730e-003	2.6976e-003
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.88	1.06
tblVehicleEF	LDT2	1.99	2.55
tblVehicleEF	LDT2	307.21	353.76
tblVehicleEF	LDT2	59.66	81.59
tblVehicleEF	LDT2	4.9520e-003	4.8227e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.20	0.26
tblVehicleEF	LDT2	0.04	8.3436e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3040e-003	1.2048e-003
tblVehicleEF	LDT2	1.6720e-003	1.9415e-003
tblVehicleEF	LDT2	0.02	2.9203e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2000e-003	1.1083e-003
tblVehicleEF	LDT2	1.5370e-003	1.7851e-003
tblVehicleEF	LDT2	0.17	0.40
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.15	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.03

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.21	0.27
tblVehicleEF	LDT2	3.0390e-003	3.4969e-003
tblVehicleEF	LDT2	5.9000e-004	8.0661e-004
tblVehicleEF	LDT2	0.17	0.40
tblVehicleEF	LDT2	0.14	0.08
tblVehicleEF	LDT2	0.15	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.23	0.30
tblVehicleEF	LDT2	2.7100e-003	2.5170e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.68	0.74
tblVehicleEF	LDT2	2.36	3.04
tblVehicleEF	LDT2	281.56	326.75
tblVehicleEF	LDT2	60.37	82.53
tblVehicleEF	LDT2	5.0850e-003	5.2735e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.22	0.28
tblVehicleEF	LDT2	0.04	8.3436e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3040e-003	1.2048e-003
tblVehicleEF	LDT2	1.6720e-003	1.9415e-003
tblVehicleEF	LDT2	0.02	2.9203e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2000e-003	1.1083e-003
tblVehicleEF	LDT2	1.5370e-003	1.7851e-003
tblVehicleEF	LDT2	0.08	0.32
tblVehicleEF	LDT2	0.13	0.08

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	9.5696e-003
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	2.7850e-003	3.2299e-003
tblVehicleEF	LDT2	5.9700e-004	8.1593e-004
tblVehicleEF	LDT2	0.08	0.32
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.27	0.35
tblVehicleEF	LHD1	4.3860e-003	4.8663e-003
tblVehicleEF	LHD1	4.3340e-003	2.4553e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.58	0.57
tblVehicleEF	LHD1	0.92	1.93
tblVehicleEF	LHD1	9.02	8.72
tblVehicleEF	LHD1	612.33	344.05
tblVehicleEF	LHD1	10.03	16.10
tblVehicleEF	LHD1	8.5400e-004	7.1535e-004
tblVehicleEF	LHD1	0.04	4.7169e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.01	0.08
tblVehicleEF	LHD1	0.26	0.38
tblVehicleEF	LHD1	9.9000e-004	7.8650e-004
tblVehicleEF	LHD1	0.08	0.05

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.01	4.8012e-003
tblVehicleEF	LHD1	8.8180e-003	6.7689e-004
tblVehicleEF	LHD1	2.2400e-004	1.9290e-004
tblVehicleEF	LHD1	9.4700e-004	7.5247e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5040e-003	1.2003e-003
tblVehicleEF	LHD1	8.4140e-003	6.2237e-004
tblVehicleEF	LHD1	2.0600e-004	1.7737e-004
tblVehicleEF	LHD1	2.5580e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2900e-003	0.00
tblVehicleEF	LHD1	0.05	0.01
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.7000e-005	8.4700e-005
tblVehicleEF	LHD1	5.9570e-003	3.4013e-003
tblVehicleEF	LHD1	9.9000e-005	1.5921e-004
tblVehicleEF	LHD1	2.5580e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.2900e-003	0.00
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	4.4000e-003	4.8841e-003
tblVehicleEF	LHD1	4.4160e-003	1.7639e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	0.59	0.11
tblVehicleEF	LHD1	0.86	1.83
tblVehicleEF	LHD1	9.02	8.72
tblVehicleEF	LHD1	612.35	194.35
tblVehicleEF	LHD1	9.93	15.94
tblVehicleEF	LHD1	8.5600e-004	7.1756e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.94	0.53
tblVehicleEF	LHD1	0.25	0.36
tblVehicleEF	LHD1	9.9000e-004	7.8650e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9357e-003
tblVehicleEF	LHD1	8.8180e-003	9.5549e-003
tblVehicleEF	LHD1	2.2400e-004	1.9290e-004
tblVehicleEF	LHD1	9.4700e-004	7.5247e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5040e-003	1.2339e-003
tblVehicleEF	LHD1	8.4140e-003	9.1415e-003
tblVehicleEF	LHD1	2.0600e-004	1.7737e-004
tblVehicleEF	LHD1	5.0260e-003	0.16
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.8810e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.21	0.07
tblVehicleEF	LHD1	0.06	0.09
tblVehicleEF	LHD1	8.7000e-005	8.4700e-005

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	5.9580e-003	1.8415e-003
tblVehicleEF	LHD1	9.8000e-005	1.5756e-004
tblVehicleEF	LHD1	5.0260e-003	0.16
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.8810e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.21	0.07
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	4.3890e-003	4.8683e-003
tblVehicleEF	LHD1	4.3430e-003	1.7639e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.58	0.11
tblVehicleEF	LHD1	0.90	1.92
tblVehicleEF	LHD1	9.02	8.72
tblVehicleEF	LHD1	612.33	194.35
tblVehicleEF	LHD1	10.01	16.09
tblVehicleEF	LHD1	8.5500e-004	7.1598e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.99	0.56
tblVehicleEF	LHD1	0.26	0.37
tblVehicleEF	LHD1	9.9000e-004	7.8650e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9357e-003
tblVehicleEF	LHD1	8.8180e-003	9.5549e-003
tblVehicleEF	LHD1	2.2400e-004	1.9290e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD1	9.4700e-004	7.5247e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5040e-003	1.2339e-003
tblVehicleEF	LHD1	8.4140e-003	9.1415e-003
tblVehicleEF	LHD1	2.0600e-004	1.7737e-004
tblVehicleEF	LHD1	2.7570e-003	0.13
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2680e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.23	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	8.7000e-005	8.4700e-005
tblVehicleEF	LHD1	5.9570e-003	1.8415e-003
tblVehicleEF	LHD1	9.9000e-005	1.5903e-004
tblVehicleEF	LHD1	2.7570e-003	0.13
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.2680e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.23	0.06
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD2	2.9450e-003	3.2491e-003
tblVehicleEF	LHD2	3.0680e-003	8.4743e-004
tblVehicleEF	LHD2	7.2680e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.39	0.23
tblVehicleEF	LHD2	0.52	1.16
tblVehicleEF	LHD2	14.10	13.54

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tblVehicleEF	LHD2	612.80	226.94
tblVehicleEF	LHD2	7.09	9.95
tblVehicleEF	LHD2	1.7980e-003	1.6378e-003
tblVehicleEF	LHD2	0.06	2.7122e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.09	0.04
tblVehicleEF	LHD2	0.17	0.25
tblVehicleEF	LHD2	1.4530e-003	1.3094e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8100e-003
tblVehicleEF	LHD2	0.01	3.3290e-004
tblVehicleEF	LHD2	1.0800e-004	8.8794e-005
tblVehicleEF	LHD2	1.3900e-003	1.2528e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7060e-003	7.0251e-004
tblVehicleEF	LHD2	0.01	3.0609e-004
tblVehicleEF	LHD2	1.0000e-004	8.1643e-005
tblVehicleEF	LHD2	1.2570e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9200e-004	0.00
tblVehicleEF	LHD2	0.05	3.7921e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3500e-004	1.2983e-004
tblVehicleEF	LHD2	5.9080e-003	2.2436e-003
tblVehicleEF	LHD2	7.0000e-005	9.8381e-005
tblVehicleEF	LHD2	1.2570e-003	0.08

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tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9200e-004	0.00
tblVehicleEF	LHD2	0.06	5.5334e-003
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	2.9540e-003	3.2608e-003
tblVehicleEF	LHD2	3.0940e-003	2.6435e-003
tblVehicleEF	LHD2	6.9430e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.40	0.15
tblVehicleEF	LHD2	0.49	1.10
tblVehicleEF	LHD2	14.10	13.54
tblVehicleEF	LHD2	612.80	374.67
tblVehicleEF	LHD2	7.04	9.85
tblVehicleEF	LHD2	1.8000e-003	1.6392e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.03	0.68
tblVehicleEF	LHD2	0.16	0.24
tblVehicleEF	LHD2	1.4530e-003	1.3094e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.9093e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0800e-004	8.8794e-005
tblVehicleEF	LHD2	1.3900e-003	1.2528e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7060e-003	1.9773e-003

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tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0000e-004	8.1643e-005
tblVehicleEF	LHD2	2.4210e-003	0.10
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4810e-003	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	1.3500e-004	1.2983e-004
tblVehicleEF	LHD2	5.9080e-003	3.5502e-003
tblVehicleEF	LHD2	7.0000e-005	9.7392e-005
tblVehicleEF	LHD2	2.4210e-003	0.10
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4810e-003	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	2.9470e-003	3.2503e-003
tblVehicleEF	LHD2	3.0710e-003	2.6435e-003
tblVehicleEF	LHD2	7.2070e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.39	0.15
tblVehicleEF	LHD2	0.52	1.15
tblVehicleEF	LHD2	14.10	13.54
tblVehicleEF	LHD2	612.80	374.67
tblVehicleEF	LHD2	7.08	9.94
tblVehicleEF	LHD2	1.7980e-003	1.6382e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	1.07	0.71
tblVehicleEF	LHD2	0.16	0.24
tblVehicleEF	LHD2	1.4530e-003	1.3094e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.9093e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0800e-004	8.8794e-005
tblVehicleEF	LHD2	1.3900e-003	1.2528e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7060e-003	1.9773e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0000e-004	8.1643e-005
tblVehicleEF	LHD2	1.2650e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.7200e-004	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	1.3500e-004	1.2983e-004
tblVehicleEF	LHD2	5.9080e-003	3.5502e-003
tblVehicleEF	LHD2	7.0000e-005	9.8280e-005
tblVehicleEF	LHD2	1.2650e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.7200e-004	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.32	0.56
tblVehicleEF	MCY	0.25	0.17
tblVehicleEF	MCY	19.37	0.56
tblVehicleEF	MCY	8.87	7.64
tblVehicleEF	MCY	210.88	0.56
tblVehicleEF	MCY	60.33	46.87
tblVehicleEF	MCY	0.07	0.56
tblVehicleEF	MCY	0.02	7.5844e-003
tblVehicleEF	MCY	1.15	0.56
tblVehicleEF	MCY	0.27	0.13
tblVehicleEF	MCY	0.01	0.56
tblVehicleEF	MCY	4.0000e-003	0.56
tblVehicleEF	MCY	1.9620e-003	0.56
tblVehicleEF	MCY	2.8020e-003	3.2848e-003
tblVehicleEF	MCY	5.0400e-003	0.56
tblVehicleEF	MCY	1.0000e-003	0.56
tblVehicleEF	MCY	1.8320e-003	0.56
tblVehicleEF	MCY	2.6300e-003	3.0822e-003
tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.81	3.59
tblVehicleEF	MCY	0.78	0.00
tblVehicleEF	MCY	2.18	0.56
tblVehicleEF	MCY	0.39	0.56
tblVehicleEF	MCY	1.87	1.24
tblVehicleEF	MCY	2.0870e-003	0.56
tblVehicleEF	MCY	5.9700e-004	4.6339e-004

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tblVehicleEF	MCY	1.45	2.51
tblVehicleEF	MCY	0.81	3.59
tblVehicleEF	MCY	0.78	0.00
tblVehicleEF	MCY	2.70	0.56
tblVehicleEF	MCY	0.39	0.56
tblVehicleEF	MCY	2.03	1.35
tblVehicleEF	MCY	0.32	0.48
tblVehicleEF	MCY	0.21	0.15
tblVehicleEF	MCY	19.51	0.48
tblVehicleEF	MCY	7.97	6.87
tblVehicleEF	MCY	210.93	0.48
tblVehicleEF	MCY	58.05	45.17
tblVehicleEF	MCY	0.06	0.48
tblVehicleEF	MCY	0.01	7.4420e-003
tblVehicleEF	MCY	0.98	0.48
tblVehicleEF	MCY	0.25	0.12
tblVehicleEF	MCY	0.01	0.48
tblVehicleEF	MCY	4.0000e-003	0.48
tblVehicleEF	MCY	1.9620e-003	0.48
tblVehicleEF	MCY	2.8020e-003	3.2848e-003
tblVehicleEF	MCY	5.0400e-003	0.48
tblVehicleEF	MCY	1.0000e-003	0.48
tblVehicleEF	MCY	1.8320e-003	0.48
tblVehicleEF	MCY	2.6300e-003	3.0822e-003
tblVehicleEF	MCY	3.13	3.74
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.08	0.00
tblVehicleEF	MCY	2.13	0.48
tblVehicleEF	MCY	0.39	0.48

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MCY	1.60	1.09
tblVehicleEF	MCY	2.0870e-003	0.48
tblVehicleEF	MCY	5.7400e-004	4.4655e-004
tblVehicleEF	MCY	3.13	3.74
tblVehicleEF	MCY	1.26	3.76
tblVehicleEF	MCY	2.08	0.00
tblVehicleEF	MCY	2.64	0.48
tblVehicleEF	MCY	0.39	0.48
tblVehicleEF	MCY	1.75	1.19
tblVehicleEF	MCY	0.32	0.54
tblVehicleEF	MCY	0.24	0.17
tblVehicleEF	MCY	18.54	0.54
tblVehicleEF	MCY	8.53	7.53
tblVehicleEF	MCY	209.44	0.54
tblVehicleEF	MCY	59.57	46.65
tblVehicleEF	MCY	0.06	0.54
tblVehicleEF	MCY	0.02	7.5906e-003
tblVehicleEF	MCY	1.11	0.54
tblVehicleEF	MCY	0.26	0.13
tblVehicleEF	MCY	0.01	0.54
tblVehicleEF	MCY	4.0000e-003	0.54
tblVehicleEF	MCY	1.9620e-003	0.54
tblVehicleEF	MCY	2.8020e-003	3.2848e-003
tblVehicleEF	MCY	5.0400e-003	0.54
tblVehicleEF	MCY	1.0000e-003	0.54
tblVehicleEF	MCY	1.8320e-003	0.54
tblVehicleEF	MCY	2.6300e-003	3.0822e-003
tblVehicleEF	MCY	1.70	2.60
tblVehicleEF	MCY	1.07	3.60

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tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.14	0.54
tblVehicleEF	MCY	0.45	0.54
tblVehicleEF	MCY	1.80	1.22
tblVehicleEF	MCY	2.0730e-003	0.54
tblVehicleEF	MCY	5.9000e-004	4.6118e-004
tblVehicleEF	MCY	1.70	2.60
tblVehicleEF	MCY	1.07	3.60
tblVehicleEF	MCY	0.70	0.00
tblVehicleEF	MCY	2.66	0.54
tblVehicleEF	MCY	0.45	0.54
tblVehicleEF	MCY	1.96	1.33
tblVehicleEF	MDV	3.4430e-003	3.5196e-003
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.80	0.94
tblVehicleEF	MDV	2.68	3.42
tblVehicleEF	MDV	358.68	405.46
tblVehicleEF	MDV	75.12	101.56
tblVehicleEF	MDV	7.3710e-003	7.7147e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.09
tblVehicleEF	MDV	0.27	0.38
tblVehicleEF	MDV	0.04	8.5818e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3620e-003	1.3049e-003
tblVehicleEF	MDV	1.6900e-003	2.0284e-003
tblVehicleEF	MDV	0.02	3.0036e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2560e-003	1.2032e-003

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tblVehicleEF	MDV	1.5540e-003	1.8650e-003
tblVehicleEF	MDV	0.11	0.44
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.31	0.44
tblVehicleEF	MDV	3.5450e-003	4.0062e-003
tblVehicleEF	MDV	7.4300e-004	1.0041e-003
tblVehicleEF	MDV	0.11	0.44
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MDV	3.9420e-003	3.7427e-003
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.97	1.26
tblVehicleEF	MDV	2.22	2.86
tblVehicleEF	MDV	380.41	428.94
tblVehicleEF	MDV	74.23	100.48
tblVehicleEF	MDV	6.9530e-003	6.9489e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.25	0.36
tblVehicleEF	MDV	0.04	8.5818e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3620e-003	1.3049e-003
tblVehicleEF	MDV	1.6900e-003	2.0284e-003

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tblVehicleEF	MDV	0.02	3.0036e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2560e-003	1.2032e-003
tblVehicleEF	MDV	1.5540e-003	1.8650e-003
tblVehicleEF	MDV	0.21	0.54
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.19	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	3.7610e-003	4.2384e-003
tblVehicleEF	MDV	7.3500e-004	9.9333e-004
tblVehicleEF	MDV	0.21	0.54
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.19	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.28	0.41
tblVehicleEF	MDV	3.3580e-003	3.4897e-003
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.75	0.88
tblVehicleEF	MDV	2.64	3.43
tblVehicleEF	MDV	353.53	401.14
tblVehicleEF	MDV	75.05	101.59
tblVehicleEF	MDV	7.1110e-003	7.5364e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	0.04	8.5818e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3620e-003	1.3049e-003
tblVehicleEF	MDV	1.6900e-003	2.0284e-003
tblVehicleEF	MDV	0.02	3.0036e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2560e-003	1.2032e-003
tblVehicleEF	MDV	1.5540e-003	1.8650e-003
tblVehicleEF	MDV	0.10	0.44
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.31	0.44
tblVehicleEF	MDV	3.4950e-003	3.9635e-003
tblVehicleEF	MDV	7.4300e-004	1.0043e-003
tblVehicleEF	MDV	0.10	0.44
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.34	0.48
tblVehicleEF	MH	7.6700e-003	4.4734e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.84	2.0961e-003
tblVehicleEF	MH	1.87	2.16
tblVehicleEF	MH	1,410.41	4.9695e-003
tblVehicleEF	MH	17.41	21.64
tblVehicleEF	MH	0.06	9.4303e-007
tblVehicleEF	MH	0.03	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	1.41	1.34
tblVehicleEF	MH	0.24	0.31
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.4465e-011
tblVehicleEF	MH	0.04	2.8721e-009
tblVehicleEF	MH	2.1900e-004	2.4935e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2980e-003	5.0648e-004
tblVehicleEF	MH	0.03	0.13
tblVehicleEF	MH	2.0200e-004	2.2927e-004
tblVehicleEF	MH	0.91	33.30
tblVehicleEF	MH	0.06	7.69
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.05	3.4603e-008
tblVehicleEF	MH	0.01	2.0519e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	3.6458e-005
tblVehicleEF	MH	1.7200e-004	2.1389e-004
tblVehicleEF	MH	0.91	33.30
tblVehicleEF	MH	0.06	7.69
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.07	4.6673e-003
tblVehicleEF	MH	0.01	2.0519e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	7.8670e-003	4.5845e-005
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.87	2.2329e-003
tblVehicleEF	MH	1.71	2.01
tblVehicleEF	MH	1,410.46	4.9697e-003

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tblVehicleEF	MH	17.14	21.38
tblVehicleEF	MH	0.06	8.7760e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.31	1.25
tblVehicleEF	MH	0.23	0.29
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.4465e-011
tblVehicleEF	MH	0.04	2.8721e-009
tblVehicleEF	MH	2.1900e-004	2.4935e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2980e-003	4.7755e-004
tblVehicleEF	MH	0.03	0.12
tblVehicleEF	MH	2.0200e-004	2.2927e-004
tblVehicleEF	MH	1.79	42.06
tblVehicleEF	MH	0.07	8.32
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.05	3.3176e-008
tblVehicleEF	MH	0.01	2.1264e-003
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	3.8838e-005
tblVehicleEF	MH	1.7000e-004	2.1137e-004
tblVehicleEF	MH	1.79	42.06
tblVehicleEF	MH	0.07	8.32
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.07	5.1976e-003
tblVehicleEF	MH	0.01	2.1264e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	7.6880e-003	4.4769e-005
tblVehicleEF	MH	0.02	0.03

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.84	2.1468e-003
tblVehicleEF	MH	1.85	2.16
tblVehicleEF	MH	1,410.42	4.9695e-003
tblVehicleEF	MH	17.38	21.64
tblVehicleEF	MH	0.06	9.2279e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.38	1.31
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.4465e-011
tblVehicleEF	MH	0.04	2.8721e-009
tblVehicleEF	MH	2.1900e-004	2.4935e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.2980e-003	4.9820e-004
tblVehicleEF	MH	0.03	0.12
tblVehicleEF	MH	2.0200e-004	2.2927e-004
tblVehicleEF	MH	1.02	33.27
tblVehicleEF	MH	0.07	7.66
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.05	3.3890e-008
tblVehicleEF	MH	0.02	2.0997e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.01	3.7340e-005
tblVehicleEF	MH	1.7200e-004	2.1397e-004
tblVehicleEF	MH	1.02	33.27
tblVehicleEF	MH	0.07	7.66
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.07	4.6473e-003
tblVehicleEF	MH	0.02	2.0997e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MHD	2.9940e-003	0.02
tblVehicleEF	MHD	9.6000e-004	7.6666e-003
tblVehicleEF	MHD	7.1190e-003	5.4980e-003
tblVehicleEF	MHD	0.33	0.64
tblVehicleEF	MHD	0.13	0.17
tblVehicleEF	MHD	0.75	0.61
tblVehicleEF	MHD	61.88	158.09
tblVehicleEF	MHD	924.73	1,101.97
tblVehicleEF	MHD	7.15	5.51
tblVehicleEF	MHD	9.0040e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	6.0410e-003	3.9950e-003
tblVehicleEF	MHD	0.33	0.81
tblVehicleEF	MHD	1.01	0.61
tblVehicleEF	MHD	1.77	1.46
tblVehicleEF	MHD	2.0700e-004	9.6497e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7130e-003	7.4672e-003
tblVehicleEF	MHD	8.3000e-005	6.0516e-005
tblVehicleEF	MHD	1.9800e-004	9.2251e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3750e-003	7.1401e-003
tblVehicleEF	MHD	7.6000e-005	5.5643e-005
tblVehicleEF	MHD	4.0900e-004	0.02
tblVehicleEF	MHD	0.01	3.9529e-003
tblVehicleEF	MHD	0.01	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	2.2400e-004	0.00
tblVehicleEF	MHD	9.7180e-003	0.01
tblVehicleEF	MHD	0.01	9.5581e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.8700e-004	1.4498e-003
tblVehicleEF	MHD	8.8120e-003	0.01
tblVehicleEF	MHD	7.1000e-005	5.4509e-005
tblVehicleEF	MHD	4.0900e-004	0.02
tblVehicleEF	MHD	0.01	3.9529e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.2400e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.5581e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	2.8540e-003	0.02
tblVehicleEF	MHD	9.7900e-004	7.6869e-003
tblVehicleEF	MHD	6.7960e-003	5.2832e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.13	0.17
tblVehicleEF	MHD	0.70	0.58
tblVehicleEF	MHD	61.59	156.56
tblVehicleEF	MHD	924.73	1,101.98
tblVehicleEF	MHD	7.06	5.46
tblVehicleEF	MHD	8.9300e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.9120e-003	3.9274e-003
tblVehicleEF	MHD	0.32	0.77
tblVehicleEF	MHD	0.95	0.57
tblVehicleEF	MHD	1.77	1.46

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	1.7800e-004	8.2435e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7130e-003	7.4672e-003
tblVehicleEF	MHD	8.3000e-005	6.0516e-005
tblVehicleEF	MHD	1.7000e-004	7.8798e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3750e-003	7.1401e-003
tblVehicleEF	MHD	7.6000e-005	5.5643e-005
tblVehicleEF	MHD	7.9800e-004	0.03
tblVehicleEF	MHD	0.02	4.2663e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	4.9600e-004	0.00
tblVehicleEF	MHD	9.7970e-003	0.01
tblVehicleEF	MHD	0.01	9.9260e-003
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	5.8400e-004	1.4354e-003
tblVehicleEF	MHD	8.8120e-003	0.01
tblVehicleEF	MHD	7.0000e-005	5.3931e-005
tblVehicleEF	MHD	7.9800e-004	0.03
tblVehicleEF	MHD	0.02	4.2663e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	4.9600e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.9260e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	3.2040e-003	0.02
tblVehicleEF	MHD	9.6100e-004	7.6667e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	7.0350e-003	5.4584e-003
tblVehicleEF	MHD	0.39	0.69
tblVehicleEF	MHD	0.13	0.17
tblVehicleEF	MHD	0.74	0.61
tblVehicleEF	MHD	62.28	160.20
tblVehicleEF	MHD	924.73	1,101.97
tblVehicleEF	MHD	7.13	5.51
tblVehicleEF	MHD	9.1100e-003	0.03
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.9980e-003	3.9779e-003
tblVehicleEF	MHD	0.35	0.85
tblVehicleEF	MHD	0.99	0.60
tblVehicleEF	MHD	1.77	1.46
tblVehicleEF	MHD	2.4800e-004	1.1591e-003
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7130e-003	7.4672e-003
tblVehicleEF	MHD	8.3000e-005	6.0516e-005
tblVehicleEF	MHD	2.3700e-004	1.1083e-003
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.3750e-003	7.1401e-003
tblVehicleEF	MHD	7.6000e-005	5.5643e-005
tblVehicleEF	MHD	4.2100e-004	0.02
tblVehicleEF	MHD	0.02	3.9312e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.1800e-004	0.00
tblVehicleEF	MHD	9.7270e-003	0.01
tblVehicleEF	MHD	0.01	9.7651e-003

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	5.9100e-004	1.4697e-003
tblVehicleEF	MHD	8.8120e-003	0.01
tblVehicleEF	MHD	7.1000e-005	5.4429e-005
tblVehicleEF	MHD	4.2100e-004	0.02
tblVehicleEF	MHD	0.02	3.9312e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.1800e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.7651e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	OBUS	8.9910e-003	0.02
tblVehicleEF	OBUS	5.0340e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.52	0.55
tblVehicleEF	OBUS	0.59	0.78
tblVehicleEF	OBUS	2.45	2.55
tblVehicleEF	OBUS	67.60	76.48
tblVehicleEF	OBUS	1,365.08	1,410.15
tblVehicleEF	OBUS	20.25	21.43
tblVehicleEF	OBUS	8.5650e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.25	0.28
tblVehicleEF	OBUS	0.85	0.99
tblVehicleEF	OBUS	0.69	0.70
tblVehicleEF	OBUS	8.5000e-005	4.3492e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	6.3820e-003	0.02
tblVehicleEF	OBUS	2.3500e-004	2.3364e-004
tblVehicleEF	OBUS	8.1000e-005	4.1550e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0850e-003	0.02
tblVehicleEF	OBUS	2.1600e-004	2.1483e-004
tblVehicleEF	OBUS	2.6690e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.4500e-004	6.8687e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0000e-004	2.1189e-004
tblVehicleEF	OBUS	2.6690e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	OBUS	9.0700e-003	0.02
tblVehicleEF	OBUS	5.1780e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.52	0.54
tblVehicleEF	OBUS	0.60	0.80

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	2.25	2.37
tblVehicleEF	OBUS	66.89	75.84
tblVehicleEF	OBUS	1,365.10	1,410.18
tblVehicleEF	OBUS	19.90	21.13
tblVehicleEF	OBUS	8.4600e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.27
tblVehicleEF	OBUS	0.78	0.92
tblVehicleEF	OBUS	0.67	0.69
tblVehicleEF	OBUS	7.5000e-005	3.7342e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3820e-003	0.02
tblVehicleEF	OBUS	2.3500e-004	2.3364e-004
tblVehicleEF	OBUS	7.2000e-005	3.5667e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0850e-003	0.02
tblVehicleEF	OBUS	2.1600e-004	2.1483e-004
tblVehicleEF	OBUS	5.1580e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.5390e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.3800e-004	6.8082e-004
tblVehicleEF	OBUS	0.01	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	1.9700e-004	2.0892e-004
tblVehicleEF	OBUS	5.1580e-003	0.18
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.07	0.08
tblVehicleEF	OBUS	2.5390e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	8.9240e-003	0.02
tblVehicleEF	OBUS	5.0500e-003	0.04
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.52	0.55
tblVehicleEF	OBUS	0.59	0.78
tblVehicleEF	OBUS	2.43	2.55
tblVehicleEF	OBUS	68.58	77.37
tblVehicleEF	OBUS	1,365.08	1,410.16
tblVehicleEF	OBUS	20.22	21.44
tblVehicleEF	OBUS	8.7220e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.27	0.29
tblVehicleEF	OBUS	0.83	0.97
tblVehicleEF	OBUS	0.68	0.69
tblVehicleEF	OBUS	9.8000e-005	5.1984e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.3820e-003	0.02
tblVehicleEF	OBUS	2.3500e-004	2.3364e-004
tblVehicleEF	OBUS	9.4000e-005	4.9675e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.0850e-003	0.02
tblVehicleEF	OBUS	2.1600e-004	2.1483e-004
tblVehicleEF	OBUS	2.7930e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	6.5400e-004	6.9523e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.0000e-004	2.1199e-004
tblVehicleEF	OBUS	2.7930e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1300e-003	0.00
tblVehicleEF	OBUS	0.04	0.10
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.13	0.14
tblVehicleEF	SBUS	0.05	0.53
tblVehicleEF	SBUS	5.3990e-003	1.36
tblVehicleEF	SBUS	4.5740e-003	6.8796e-003
tblVehicleEF	SBUS	2.19	2.98
tblVehicleEF	SBUS	0.47	4.99
tblVehicleEF	SBUS	0.59	0.86
tblVehicleEF	SBUS	329.54	270.90
tblVehicleEF	SBUS	1,067.20	1,213.30

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tblVehicleEF	SBUS	3.57	5.39
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.9190e-003	6.1232e-003
tblVehicleEF	SBUS	2.94	1.06
tblVehicleEF	SBUS	4.02	2.06
tblVehicleEF	SBUS	1.17	0.19
tblVehicleEF	SBUS	2.6920e-003	1.5046e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.8000e-005	5.3303e-005
tblVehicleEF	SBUS	2.5760e-003	1.4204e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.5545e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	4.9010e-005
tblVehicleEF	SBUS	8.0900e-004	0.07
tblVehicleEF	SBUS	6.0880e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.1350e-003	1.2283e-003
tblVehicleEF	SBUS	0.01	6.6061e-003
tblVehicleEF	SBUS	3.5000e-005	5.3252e-005
tblVehicleEF	SBUS	8.0900e-004	0.07
tblVehicleEF	SBUS	6.0880e-003	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.32	0.86
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.53
tblVehicleEF	SBUS	5.4670e-003	1.36
tblVehicleEF	SBUS	3.7780e-003	5.7632e-003
tblVehicleEF	SBUS	2.16	2.97
tblVehicleEF	SBUS	0.47	5.00
tblVehicleEF	SBUS	0.42	0.62
tblVehicleEF	SBUS	335.12	273.25
tblVehicleEF	SBUS	1,067.21	1,213.33
tblVehicleEF	SBUS	3.27	4.99
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.7740e-003	5.9076e-003
tblVehicleEF	SBUS	2.98	1.08
tblVehicleEF	SBUS	3.77	1.93
tblVehicleEF	SBUS	1.17	0.18
tblVehicleEF	SBUS	2.2790e-003	1.3503e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.8000e-005	5.3303e-005
tblVehicleEF	SBUS	2.1800e-003	1.2728e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.5545e-003
tblVehicleEF	SBUS	0.02	0.01

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	3.5000e-005	4.9010e-005
tblVehicleEF	SBUS	1.4630e-003	0.09
tblVehicleEF	SBUS	6.3280e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	7.8800e-004	0.00
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	9.4950e-003	0.02
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.1880e-003	1.2506e-003
tblVehicleEF	SBUS	0.01	6.6063e-003
tblVehicleEF	SBUS	3.2000e-005	4.9332e-005
tblVehicleEF	SBUS	1.4630e-003	0.09
tblVehicleEF	SBUS	6.3280e-003	0.01
tblVehicleEF	SBUS	0.32	0.86
tblVehicleEF	SBUS	7.8800e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	9.4950e-003	0.02
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.05	0.53
tblVehicleEF	SBUS	5.3960e-003	1.36
tblVehicleEF	SBUS	4.6760e-003	7.0873e-003
tblVehicleEF	SBUS	2.24	2.99
tblVehicleEF	SBUS	0.46	4.99
tblVehicleEF	SBUS	0.61	0.90
tblVehicleEF	SBUS	321.84	267.66
tblVehicleEF	SBUS	1,067.20	1,213.30
tblVehicleEF	SBUS	3.59	5.45
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.14	0.16

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	3.9540e-003	6.1982e-003
tblVehicleEF	SBUS	2.88	1.03
tblVehicleEF	SBUS	3.96	2.03
tblVehicleEF	SBUS	1.17	0.19
tblVehicleEF	SBUS	3.2630e-003	1.7178e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.8000e-005	5.3303e-005
tblVehicleEF	SBUS	3.1220e-003	1.6244e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.5545e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.5000e-005	4.9010e-005
tblVehicleEF	SBUS	7.5100e-004	0.07
tblVehicleEF	SBUS	6.2180e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0620e-003	1.1976e-003
tblVehicleEF	SBUS	0.01	6.6061e-003
tblVehicleEF	SBUS	3.6000e-005	5.3898e-005
tblVehicleEF	SBUS	7.5100e-004	0.07
tblVehicleEF	SBUS	6.2180e-003	0.01
tblVehicleEF	SBUS	0.32	0.86
tblVehicleEF	SBUS	4.0900e-004	0.00
tblVehicleEF	SBUS	0.09	1.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.21	2.14
tblVehicleEF	UBUS	0.02	7.9693e-003
tblVehicleEF	UBUS	32.80	28.86
tblVehicleEF	UBUS	1.40	1.05
tblVehicleEF	UBUS	1,717.18	1,567.15
tblVehicleEF	UBUS	16.38	7.52
tblVehicleEF	UBUS	0.28	0.30
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.33
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7210e-003	1.6888e-003
tblVehicleEF	UBUS	2.1500e-004	3.9714e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5860e-003	1.6101e-003
tblVehicleEF	UBUS	1.9700e-004	3.6516e-005
tblVehicleEF	UBUS	1.4120e-003	0.02
tblVehicleEF	UBUS	0.01	5.4916e-003
tblVehicleEF	UBUS	8.4100e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.4700e-003	5.0350e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7330e-003	9.6224e-004
tblVehicleEF	UBUS	1.6200e-004	7.4313e-005
tblVehicleEF	UBUS	1.4120e-003	0.02

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.01	5.4916e-003
tblVehicleEF	UBUS	8.4100e-004	0.00
tblVehicleEF	UBUS	4.30	2.19
tblVehicleEF	UBUS	1.4700e-003	5.0350e-004
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	4.21	2.14
tblVehicleEF	UBUS	0.02	7.2767e-003
tblVehicleEF	UBUS	32.80	28.86
tblVehicleEF	UBUS	1.15	0.90
tblVehicleEF	UBUS	1,717.18	1,567.15
tblVehicleEF	UBUS	15.96	7.26
tblVehicleEF	UBUS	0.28	0.30
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.33
tblVehicleEF	UBUS	0.15	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7210e-003	1.6888e-003
tblVehicleEF	UBUS	2.1500e-004	3.9714e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5860e-003	1.6101e-003
tblVehicleEF	UBUS	1.9700e-004	3.6516e-005
tblVehicleEF	UBUS	2.6730e-003	0.03
tblVehicleEF	UBUS	0.01	5.9609e-003
tblVehicleEF	UBUS	1.8680e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.4460e-003	5.2600e-004
tblVehicleEF	UBUS	0.06	0.03

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	3.7330e-003	9.6227e-004
tblVehicleEF	UBUS	1.5800e-004	7.1796e-005
tblVehicleEF	UBUS	2.6730e-003	0.03
tblVehicleEF	UBUS	0.01	5.9609e-003
tblVehicleEF	UBUS	1.8680e-003	0.00
tblVehicleEF	UBUS	4.30	2.19
tblVehicleEF	UBUS	1.4460e-003	5.2600e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.21	2.14
tblVehicleEF	UBUS	0.02	8.0256e-003
tblVehicleEF	UBUS	32.80	28.86
tblVehicleEF	UBUS	1.37	1.07
tblVehicleEF	UBUS	1,717.18	1,567.15
tblVehicleEF	UBUS	16.32	7.54
tblVehicleEF	UBUS	0.28	0.30
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.33
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7210e-003	1.6888e-003
tblVehicleEF	UBUS	2.1500e-004	3.9714e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5860e-003	1.6101e-003
tblVehicleEF	UBUS	1.9700e-004	3.6516e-005
tblVehicleEF	UBUS	1.4350e-003	0.02
tblVehicleEF	UBUS	0.01	5.4589e-003
tblVehicleEF	UBUS	8.2800e-004	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.6900e-003	5.2279e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7330e-003	9.6224e-004
tblVehicleEF	UBUS	1.6200e-004	7.4562e-005
tblVehicleEF	UBUS	1.4350e-003	0.02
tblVehicleEF	UBUS	0.01	5.4589e-003
tblVehicleEF	UBUS	8.2800e-004	0.00
tblVehicleEF	UBUS	4.30	2.19
tblVehicleEF	UBUS	1.6900e-003	5.2279e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TL	6.90	33.20
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CNW_TTP	41.00	100.00
tblVehicleTrips	CNW_TTP	41.00	100.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	0.00	39.64
tblVehicleTrips	ST_TR	2.12	0.74

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	1.74	0.32
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	0.00	39.64
tblVehicleTrips	SU_TR	2.12	0.74
tblVehicleTrips	SU_TR	1.74	0.32
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	0.00	39.64
tblVehicleTrips	WD_TR	2.12	0.74
tblVehicleTrips	WD_TR	1.74	0.32

2.0 Emissions Summary

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.5109	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0398	0.0398	1.0000e-004	0.0000	0.0424
Energy	0.0841	0.7645	0.6422	4.5900e-003		0.0581	0.0581		0.0581	0.0581	0.0000	2,851.2987	2,851.2987	0.0160	0.0153	2,856.2443
Mobile	0.3479	22.1361	11.4456	0.1935	5.7294	0.2976	6.0270	1.5290	0.2846	1.8136	0.0000	19,455.0158	19,455.0158	1.4127	2.9527	20,370.2411
Waste						0.0000	0.0000		0.0000	0.0000	296.4297	0.0000	296.4297	17.5185	0.0000	734.3921
Water						0.0000	0.0000		0.0000	0.0000	113.4881	692.0044	805.4924	11.6563	0.2752	1,178.9190
Total	**6.9429**	**22.9008**	**12.1083**	**0.1981**	**5.7294**	**0.3558**	**6.0851**	**1.5290**	**0.3428**	**1.8717**	**409.9178**	**22,998.3586**	**23,408.2764**	**30.6036**	**3.2432**	**25,139.8389**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.5099	1.0000e-004	0.0119	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0215	0.0215	4.0000e-005	0.0000	0.0226
Energy	0.0776	0.7057	0.5928	4.2300e-003		0.0536	0.0536		0.0536	0.0536	0.0000	2,609.8532	2,609.8532	0.0147	0.0141	2,614.4182
Mobile	0.3479	22.1361	11.4456	0.1935	5.7294	0.2976	6.0270	1.5290	0.2846	1.8136	0.0000	19,455.0158	19,455.0158	1.4127	2.9527	20,370.2411
Waste						0.0000	0.0000		0.0000	0.0000	74.1074	0.0000	74.1074	4.3796	0.0000	183.5980
Water						0.0000	0.0000		0.0000	0.0000	90.7905	554.3475	645.1379	9.3251	0.2202	943.8792
Total	**6.9353**	**22.8419**	**12.0502**	**0.1977**	**5.7294**	**0.3513**	**6.0806**	**1.5290**	**0.3383**	**1.8672**	**164.8979**	**22,619.2379**	**22,784.1358**	**15.1322**	**3.1870**	**24,112.1590**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.11**	**0.26**	**0.48**	**0.18**	**0.00**	**1.27**	**0.07**	**0.00**	**1.32**	**0.24**	**59.77**	**1.65**	**2.67**	**50.55**	**1.73**	**4.09**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2025	12/31/2024	5	0	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 50.87

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Employee Vanpool/Shuttle

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3479	22.1361	11.4456	0.1935	5.7294	0.2976	6.0270	1.5290	0.2846	1.8136	0.0000	19,455.0158	19,455.0158	1.4127	2.9527	20,370.2411
Unmitigated	0.3479	22.1361	11.4456	0.1935	5.7294	0.2976	6.0270	1.5290	0.2846	1.8136	0.0000	19,455.0158	19,455.0158	1.4127	2.9527	20,370.2411

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Other Asphalt Surfaces	703.21	703.21	703.21	8,498,196	8,498,196
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	185.00	185.00	185.00	2,235,688	2,235,688
Unrefrigerated Warehouse-Rail	410.18	410.18	410.18	4,956,978	4,956,978
Total	1,298.40	1,298.40	1,298.40	15,690,861	15,690,861

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-Rail	16.60	8.40	33.20	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.545300	0.056532	0.173573	0.132281	0.025040	0.006914	0.012148	0.017464	0.000548	0.000245	0.024607	0.000958	0.004391
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.000000	0.118984	0.243984	0.637032	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.545300	0.056532	0.173573	0.132281	0.025040	0.006914	0.012148	0.017464	0.000548	0.000245	0.024607	0.000958	0.004391
Refrigerated Warehouse-Rail	0.000000	0.000000	0.000000	0.000000	0.000000	0.169811	0.226415	0.603774	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.000000	0.000000	0.000000	0.000000	0.000000	0.169811	0.226415	0.603774	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,841.6661	1,841.6661	0.0000	0.0000	1,841.6661
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,019.0464	2,019.0464	0.0000	0.0000	2,019.0464
NaturalGas Mitigated	0.0776	0.7057	0.5928	4.2300e-003		0.0536	0.0536		0.0536	0.0536	0.0000	768.1871	768.1871	0.0147	0.0141	772.7520
NaturalGas Unmitigated	0.0841	0.7645	0.6422	4.5900e-003		0.0581	0.0581		0.0581	0.0581	0.0000	832.2523	832.2523	0.0160	0.0153	837.1979

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	102900	5.5000e-004	5.0400e-003	4.2400e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4911	5.4911	1.1000e-004	1.0000e-004	5.5238
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1.29325e+007	0.0697	0.6340	0.5325	3.8000e-003		0.0482	0.0482		0.0482	0.0482	0.0000	690.1275	690.1275	0.0132	0.0127	694.2285
Unrefrigerated Warehouse-Rail	2.56042e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6337	136.6337	2.6200e-003	2.5000e-003	137.4456
Total		**0.0841**	**0.7645**	**0.6422**	**4.5800e-003**		**0.0581**	**0.0581**		**0.0581**	**0.0581**	**0.0000**	**832.2523**	**832.2523**	**0.0160**	**0.0153**	**837.1979**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	66885	3.6000e-004	3.2800e-003	2.7500e-003	2.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	3.5692	3.5692	7.0000e-005	7.0000e-005	3.5905
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1.26508e+007	0.0682	0.6201	0.5209	3.7200e-003		0.0471	0.0471		0.0471	0.0471	0.0000	675.0922	675.0922	0.0129	0.0124	679.1039
Unrefrigerated Warehouse-Rail	1.67765e+006	9.0500e-003	0.0822	0.0691	4.9000e-004		6.2500e-003	6.2500e-003		6.2500e-003	6.2500e-003	0.0000	89.5257	89.5257	1.7200e-003	1.6400e-003	90.0577
Total		**0.0776**	**0.7057**	**0.5927**	**4.2300e-003**		**0.0536**	**0.0536**		**0.0536**	**0.0536**	**0.0000**	**768.1871**	**768.1871**	**0.0147**	**0.0141**	**772.7520**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	275700	40.6430	0.0000	0.0000	40.6430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	505100	74.4606	0.0000	0.0000	74.4606
Refrigerated Warehouse-Rail	9.96e +006	1,468.2785	0.0000	0.0000	1,468.2785
Unrefrigerated Warehouse-Rail	2.95531e +006	435.6643	0.0000	0.0000	435.6643
Total		**2,019.0464**	**0.0000**	**0.0000**	**2,019.0464**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	208500	30.7366	0.0000	0.0000	30.7366
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	328315	48.3994	0.0000	0.0000	48.3994
Refrigerated Warehouse-Rail	9.6695e+006	1,425.4537	0.0000	0.0000	1,425.4537
Unrefrigerated Warehouse-Rail	2.28654e+006	337.0765	0.0000	0.0000	337.0765
Total		**1,841.6661**	**0.0000**	**0.0000**	**1,841.6661**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.5099	1.0000e-004	0.0119	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0215	0.0215	4.0000e-005	0.0000	0.0226
Unmitigated	6.5109	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0398	0.0398	1.0000e-004	0.0000	0.0424

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.7580					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8800e-003	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0398	0.0398	1.0000e-004	0.0000	0.0424
Total	**6.5109**	**1.9000e-004**	**0.0204**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0398**	**0.0398**	**1.0000e-004**	**0.0000**	**0.0424**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.7580					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-004	1.0000e-004	0.0119	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0215	0.0215	4.0000e-005	0.0000	0.0226
Total	**6.5099**	**1.0000e-004**	**0.0119**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0215**	**0.0215**	**4.0000e-005**	**0.0000**	**0.0226**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	645.1379	9.3251	0.2202	943.8792
Unmitigated	805.4924	11.6563	0.2752	1,178.9190

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.33201 / 3.26801	17.2789	0.1737	4.1000e-003	22.8450
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	57.8125 / 0	129.3137	1.8838	0.0445	189.6646
Unrefrigerated Warehouse-Rail	294.575 / 0	658.8998	9.5988	0.2267	966.4094
Total		**805.4924**	**11.6563**	**0.2752**	**1,178.9190**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	4.26561 / 3.06866	14.5671	0.1390	3.2800e-003	19.0200
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	46.25 / 0	103.4510	1.5071	0.0356	151.7317
Unrefrigerated Warehouse-Rail	235.66 / 0	527.1199	7.6790	0.1813	773.1275
Total		**645.1379**	**9.3251**	**0.2202**	**943.8792**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.1074	4.3796	0.0000	183.5980
Unmitigated	296.4297	17.5185	0.0000	734.3921

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	27.9	5.6635	0.3347	0.0000	14.0310
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	235	47.7029	2.8192	0.0000	118.1819
Unrefrigerated Warehouse-Rail	1197.41	243.0634	14.3646	0.0000	602.1793
Total		**296.4297**	**17.5185**	**0.0000**	**734.3921**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	6.975	1.4159	0.0837	0.0000	3.5077
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	58.75	11.9257	0.7048	0.0000	29.5455
Unrefrigerated Warehouse-Rail	299.353	60.7659	3.5912	0.0000	150.5448
Total		**74.1074**	**4.3796**	**0.0000**	**183.5980**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Speedway Commerce Center (General Commercial)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	6.00	Acre	6.00	261,360.00	0
Strip Mall	261.36	1000sqft	6.00	261,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2027
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	316	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated with EMFAC 2021 which already includes SAFE rules adjustments
CO2 factor adjusted per RPS

Land Use -

Construction Phase - per construction schedule

Off-road Equipment - Anticipated equipment

Off-road Equipment - Per construction equipment list

Off-road Equipment - Per Construction equipment list

Trips and VMT - anticipated concrete truck trips

Demolition -

Grading -

Vehicle Trips - Commercial Trip gen

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Vehicle Emission Factors - EMFAC 2021

Road Dust - adjusted per CARB guidance for Riverside and SB counties

Consumer Products -

Construction Off-road Equipment Mitigation - SCAQMD rule compliance

Mobile Commute Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	300.00	140.00
tblConstructionPhase	NumDays	20.00	40.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	316
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	RoadSiltLoading	0.1	0.08
tblVehicleEF	HHD	0.03	0.21
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	2.9796e-008
tblVehicleEF	HHD	8.61	5.22
tblVehicleEF	HHD	0.33	0.73
tblVehicleEF	HHD	2.1130e-003	8.1098e-004
tblVehicleEF	HHD	1,323.59	777.20
tblVehicleEF	HHD	1,202.89	1,469.62
tblVehicleEF	HHD	0.02	8.7014e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.19	0.24
tblVehicleEF	HHD	3.0000e-006	1.8927e-006
tblVehicleEF	HHD	7.01	3.88
tblVehicleEF	HHD	2.08	1.53
tblVehicleEF	HHD	2.33	2.64
tblVehicleEF	HHD	2.8030e-003	1.8946e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	1.8067e-007
tblVehicleEF	HHD	2.6810e-003	1.8077e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9120e-003	8.8076e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.6612e-007
tblVehicleEF	HHD	1.0000e-006	6.1655e-005
tblVehicleEF	HHD	3.8000e-005	1.6831e-005
tblVehicleEF	HHD	0.58	0.31
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	1.5000e-005	1.8039e-005
tblVehicleEF	HHD	1.0000e-006	1.5331e-007
tblVehicleEF	HHD	0.01	6.5914e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	8.6023e-008
tblVehicleEF	HHD	1.0000e-006	6.1655e-005
tblVehicleEF	HHD	3.8000e-005	1.6831e-005
tblVehicleEF	HHD	0.66	0.55

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.07	0.14
tblVehicleEF	HHD	1.5000e-005	1.8039e-005
tblVehicleEF	HHD	1.0000e-006	1.6785e-007
tblVehicleEF	HHD	0.03	0.21
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	2.8427e-008
tblVehicleEF	HHD	8.50	5.16
tblVehicleEF	HHD	0.33	0.73
tblVehicleEF	HHD	1.9780e-003	7.6565e-004
tblVehicleEF	HHD	1,306.93	769.00
tblVehicleEF	HHD	1,202.89	1,469.62
tblVehicleEF	HHD	0.02	8.6295e-003
tblVehicleEF	HHD	0.21	0.12
tblVehicleEF	HHD	0.19	0.24
tblVehicleEF	HHD	2.0000e-006	1.8434e-006
tblVehicleEF	HHD	6.67	3.71
tblVehicleEF	HHD	1.96	1.45
tblVehicleEF	HHD	2.33	2.64
tblVehicleEF	HHD	2.4760e-003	1.6773e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	1.8067e-007
tblVehicleEF	HHD	2.3690e-003	1.5999e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9120e-003	8.8076e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.6612e-007

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	3.0000e-006	9.1508e-005
tblVehicleEF	HHD	4.4000e-005	1.8585e-005
tblVehicleEF	HHD	0.61	0.33
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	1.6000e-005	1.9289e-005
tblVehicleEF	HHD	1.0000e-006	1.4669e-007
tblVehicleEF	HHD	0.01	6.5138e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	8.5311e-008
tblVehicleEF	HHD	3.0000e-006	9.1508e-005
tblVehicleEF	HHD	4.4000e-005	1.8585e-005
tblVehicleEF	HHD	0.70	0.57
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.07	0.14
tblVehicleEF	HHD	1.6000e-005	1.9289e-005
tblVehicleEF	HHD	1.0000e-006	1.6061e-007
tblVehicleEF	HHD	0.03	0.21
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	0.00	2.9626e-008
tblVehicleEF	HHD	8.77	5.31
tblVehicleEF	HHD	0.33	0.73
tblVehicleEF	HHD	2.0820e-003	8.0463e-004
tblVehicleEF	HHD	1,346.60	788.52
tblVehicleEF	HHD	1,202.89	1,469.62
tblVehicleEF	HHD	0.02	8.6914e-003
tblVehicleEF	HHD	0.21	0.13
tblVehicleEF	HHD	0.19	0.24
tblVehicleEF	HHD	3.0000e-006	1.8803e-006

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	HHD	7.48	4.12
tblVehicleEF	HHD	2.05	1.51
tblVehicleEF	HHD	2.33	2.64
tblVehicleEF	HHD	3.2540e-003	2.1946e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.00	1.8067e-007
tblVehicleEF	HHD	3.1130e-003	2.0948e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9120e-003	8.8076e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.00	1.6612e-007
tblVehicleEF	HHD	1.0000e-006	6.1140e-005
tblVehicleEF	HHD	4.4000e-005	1.6669e-005
tblVehicleEF	HHD	0.53	0.29
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	1.6000e-005	1.8910e-005
tblVehicleEF	HHD	1.0000e-006	1.5245e-007
tblVehicleEF	HHD	0.01	6.6986e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.00	8.5923e-008
tblVehicleEF	HHD	1.0000e-006	6.1140e-005
tblVehicleEF	HHD	4.4000e-005	1.6669e-005
tblVehicleEF	HHD	0.61	0.53
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.07	0.14
tblVehicleEF	HHD	1.6000e-005	1.8910e-005

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tblVehicleEF	HHD	1.0000e-006	1.6692e-007
tblVehicleEF	LDA	1.3900e-003	1.6674e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.48	0.60
tblVehicleEF	LDA	1.79	2.33
tblVehicleEF	LDA	224.28	248.12
tblVehicleEF	LDA	46.00	61.78
tblVehicleEF	LDA	3.6010e-003	3.6834e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.14	0.20
tblVehicleEF	LDA	0.04	7.1486e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.1480e-003	1.0772e-003
tblVehicleEF	LDA	1.5110e-003	1.7997e-003
tblVehicleEF	LDA	0.02	2.5020e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.0570e-003	9.9093e-004
tblVehicleEF	LDA	1.3890e-003	1.6548e-003
tblVehicleEF	LDA	0.04	0.29
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	4.8540e-003	5.8776e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.15	0.23
tblVehicleEF	LDA	2.2190e-003	2.4528e-003
tblVehicleEF	LDA	4.5500e-004	6.1075e-004
tblVehicleEF	LDA	0.04	0.29
tblVehicleEF	LDA	0.08	0.08

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tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	7.0570e-003	8.5687e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.25
tblVehicleEF	LDA	1.5960e-003	1.7737e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.59	0.81
tblVehicleEF	LDA	1.49	1.97
tblVehicleEF	LDA	244.81	269.13
tblVehicleEF	LDA	45.45	61.09
tblVehicleEF	LDA	3.3770e-003	3.2740e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.13	0.19
tblVehicleEF	LDA	0.04	7.1486e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.1480e-003	1.0772e-003
tblVehicleEF	LDA	1.5110e-003	1.7997e-003
tblVehicleEF	LDA	0.02	2.5020e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.0570e-003	9.9093e-004
tblVehicleEF	LDA	1.3890e-003	1.6548e-003
tblVehicleEF	LDA	0.09	0.37
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	5.5020e-003	6.1687e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.12	0.20
tblVehicleEF	LDA	2.4220e-003	2.6605e-003

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tblVehicleEF	LDA	4.5000e-004	6.0389e-004
tblVehicleEF	LDA	0.09	0.37
tblVehicleEF	LDA	0.09	0.08
tblVehicleEF	LDA	0.08	0.00
tblVehicleEF	LDA	8.0020e-003	8.9934e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.13	0.22
tblVehicleEF	LDA	1.3560e-003	1.6538e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.46	0.56
tblVehicleEF	LDA	1.76	2.34
tblVehicleEF	LDA	219.46	244.26
tblVehicleEF	LDA	45.94	61.79
tblVehicleEF	LDA	3.4550e-003	3.5874e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.14	0.20
tblVehicleEF	LDA	0.04	7.1486e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.1480e-003	1.0772e-003
tblVehicleEF	LDA	1.5110e-003	1.7997e-003
tblVehicleEF	LDA	0.02	2.5020e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.0570e-003	9.9093e-004
tblVehicleEF	LDA	1.3890e-003	1.6548e-003
tblVehicleEF	LDA	0.04	0.30
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	4.7320e-003	5.8318e-003

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tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.14	0.23
tblVehicleEF	LDA	2.1710e-003	2.4146e-003
tblVehicleEF	LDA	4.5500e-004	6.1085e-004
tblVehicleEF	LDA	0.04	0.30
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	6.8790e-003	8.5019e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.16	0.26
tblVehicleEF	LDT1	3.4690e-003	6.5426e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	0.84	1.51
tblVehicleEF	LDT1	1.97	5.08
tblVehicleEF	LDT1	268.24	322.34
tblVehicleEF	LDT1	56.28	84.11
tblVehicleEF	LDT1	5.6100e-003	9.7572e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.06	0.13
tblVehicleEF	LDT1	0.20	0.39
tblVehicleEF	LDT1	0.04	8.8643e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.8077e-003
tblVehicleEF	LDT1	1.9890e-003	2.9125e-003
tblVehicleEF	LDT1	0.02	3.1025e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.3630e-003	1.6625e-003
tblVehicleEF	LDT1	1.8290e-003	2.6779e-003
tblVehicleEF	LDT1	0.12	0.80

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tblVehicleEF	LDT1	0.17	0.20
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.01	0.03
tblVehicleEF	LDT1	0.08	0.07
tblVehicleEF	LDT1	0.25	0.53
tblVehicleEF	LDT1	2.6540e-003	3.1867e-003
tblVehicleEF	LDT1	5.5700e-004	8.3151e-004
tblVehicleEF	LDT1	0.12	0.80
tblVehicleEF	LDT1	0.17	0.20
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.08	0.07
tblVehicleEF	LDT1	0.28	0.58
tblVehicleEF	LDT1	3.9450e-003	6.9405e-003
tblVehicleEF	LDT1	0.04	0.09
tblVehicleEF	LDT1	1.02	2.03
tblVehicleEF	LDT1	1.64	4.23
tblVehicleEF	LDT1	289.61	347.15
tblVehicleEF	LDT1	55.62	82.51
tblVehicleEF	LDT1	5.2100e-003	8.6910e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.19	0.36
tblVehicleEF	LDT1	0.04	8.8643e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.8077e-003
tblVehicleEF	LDT1	1.9890e-003	2.9125e-003
tblVehicleEF	LDT1	0.02	3.1025e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003

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tblVehicleEF	LDT1	1.3630e-003	1.6625e-003
tblVehicleEF	LDT1	1.8290e-003	2.6779e-003
tblVehicleEF	LDT1	0.25	1.03
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.19	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.07
tblVehicleEF	LDT1	0.21	0.46
tblVehicleEF	LDT1	2.8660e-003	3.4319e-003
tblVehicleEF	LDT1	5.5000e-004	8.1571e-004
tblVehicleEF	LDT1	0.25	1.03
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.19	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.08	0.07
tblVehicleEF	LDT1	0.23	0.50
tblVehicleEF	LDT1	3.3910e-003	6.4887e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	0.80	1.42
tblVehicleEF	LDT1	1.94	5.09
tblVehicleEF	LDT1	263.18	317.78
tblVehicleEF	LDT1	56.22	84.14
tblVehicleEF	LDT1	5.3730e-003	9.5105e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.06	0.13
tblVehicleEF	LDT1	0.20	0.38
tblVehicleEF	LDT1	0.04	8.8643e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.4820e-003	1.8077e-003

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tblVehicleEF	LDT1	1.9890e-003	2.9125e-003
tblVehicleEF	LDT1	0.02	3.1025e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.3630e-003	1.6625e-003
tblVehicleEF	LDT1	1.8290e-003	2.6779e-003
tblVehicleEF	LDT1	0.13	0.79
tblVehicleEF	LDT1	0.20	0.19
tblVehicleEF	LDT1	0.08	0.00
tblVehicleEF	LDT1	0.01	0.03
tblVehicleEF	LDT1	0.09	0.07
tblVehicleEF	LDT1	0.25	0.54
tblVehicleEF	LDT1	2.6040e-003	3.1416e-003
tblVehicleEF	LDT1	5.5600e-004	8.3180e-004
tblVehicleEF	LDT1	0.13	0.79
tblVehicleEF	LDT1	0.20	0.19
tblVehicleEF	LDT1	0.08	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.07
tblVehicleEF	LDT1	0.27	0.59
tblVehicleEF	LDT2	2.5150e-003	2.3492e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.68	0.75
tblVehicleEF	LDT2	2.32	2.88
tblVehicleEF	LDT2	277.09	324.25
tblVehicleEF	LDT2	58.39	80.67
tblVehicleEF	LDT2	4.9690e-003	5.1104e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.20	0.27

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tblVehicleEF	LDT2	0.04	8.4121e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.2400e-003	1.1459e-003
tblVehicleEF	LDT2	1.5990e-003	1.8585e-003
tblVehicleEF	LDT2	0.02	2.9443e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.1410e-003	1.0541e-003
tblVehicleEF	LDT2	1.4700e-003	1.7088e-003
tblVehicleEF	LDT2	0.08	0.31
tblVehicleEF	LDT2	0.11	0.07
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	9.8570e-003	8.8018e-003
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.23	0.29
tblVehicleEF	LDT2	2.7410e-003	3.2051e-003
tblVehicleEF	LDT2	5.7800e-004	7.9746e-004
tblVehicleEF	LDT2	0.08	0.31
tblVehicleEF	LDT2	0.11	0.07
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LDT2	2.8760e-003	2.4975e-003
tblVehicleEF	LDT2	0.04	0.06
tblVehicleEF	LDT2	0.83	1.01
tblVehicleEF	LDT2	1.93	2.42
tblVehicleEF	LDT2	297.09	346.54
tblVehicleEF	LDT2	57.65	79.79
tblVehicleEF	LDT2	4.6430e-003	4.5548e-003

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tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.19	0.25
tblVehicleEF	LDT2	0.04	8.4121e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.2400e-003	1.1459e-003
tblVehicleEF	LDT2	1.5990e-003	1.8585e-003
tblVehicleEF	LDT2	0.02	2.9443e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.1410e-003	1.0541e-003
tblVehicleEF	LDT2	1.4700e-003	1.7088e-003
tblVehicleEF	LDT2	0.17	0.39
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.14	0.00
tblVehicleEF	LDT2	0.01	9.2386e-003
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.19	0.25
tblVehicleEF	LDT2	2.9390e-003	3.4255e-003
tblVehicleEF	LDT2	5.7000e-004	7.8884e-004
tblVehicleEF	LDT2	0.17	0.39
tblVehicleEF	LDT2	0.13	0.08
tblVehicleEF	LDT2	0.14	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.05	0.02
tblVehicleEF	LDT2	0.21	0.28
tblVehicleEF	LDT2	2.4560e-003	2.3300e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.65	0.70
tblVehicleEF	LDT2	2.28	2.89

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tblVehicleEF	LDT2	272.36	320.15
tblVehicleEF	LDT2	58.33	80.68
tblVehicleEF	LDT2	4.7660e-003	4.9804e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.20	0.27
tblVehicleEF	LDT2	0.04	8.4121e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.2400e-003	1.1459e-003
tblVehicleEF	LDT2	1.5990e-003	1.8585e-003
tblVehicleEF	LDT2	0.02	2.9443e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.1410e-003	1.0541e-003
tblVehicleEF	LDT2	1.4700e-003	1.7088e-003
tblVehicleEF	LDT2	0.08	0.31
tblVehicleEF	LDT2	0.12	0.07
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	9.6140e-003	8.7328e-003
tblVehicleEF	LDT2	0.06	0.02
tblVehicleEF	LDT2	0.23	0.30
tblVehicleEF	LDT2	2.6940e-003	3.1646e-003
tblVehicleEF	LDT2	5.7700e-004	7.9762e-004
tblVehicleEF	LDT2	0.08	0.31
tblVehicleEF	LDT2	0.12	0.07
tblVehicleEF	LDT2	0.07	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.02
tblVehicleEF	LDT2	0.25	0.32
tblVehicleEF	LHD1	4.2800e-003	4.7227e-003

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tblVehicleEF	LHD1	3.9360e-003	2.1584e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.53	0.54
tblVehicleEF	LHD1	0.90	1.93
tblVehicleEF	LHD1	8.91	8.59
tblVehicleEF	LHD1	601.72	333.90
tblVehicleEF	LHD1	9.87	15.91
tblVehicleEF	LHD1	8.4700e-004	7.0557e-004
tblVehicleEF	LHD1	0.04	4.2136e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.89	0.07
tblVehicleEF	LHD1	0.25	0.36
tblVehicleEF	LHD1	9.9500e-004	7.8212e-004
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	4.8402e-003
tblVehicleEF	LHD1	8.2460e-003	6.6984e-004
tblVehicleEF	LHD1	2.1900e-004	1.7931e-004
tblVehicleEF	LHD1	9.5200e-004	7.4829e-004
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5060e-003	1.2101e-003
tblVehicleEF	LHD1	7.8670e-003	6.1589e-004
tblVehicleEF	LHD1	2.0100e-004	1.6487e-004
tblVehicleEF	LHD1	2.4490e-003	0.12
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2450e-003	0.00
tblVehicleEF	LHD1	0.05	0.01

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tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.06	0.09
tblVehicleEF	LHD1	8.6000e-005	8.3418e-005
tblVehicleEF	LHD1	5.8540e-003	3.3009e-003
tblVehicleEF	LHD1	9.8000e-005	1.5732e-004
tblVehicleEF	LHD1	2.4490e-003	0.12
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.2450e-003	0.00
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	4.2940e-003	4.7401e-003
tblVehicleEF	LHD1	4.0050e-003	1.6361e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.53	0.10
tblVehicleEF	LHD1	0.84	1.83
tblVehicleEF	LHD1	8.91	8.59
tblVehicleEF	LHD1	601.74	191.65
tblVehicleEF	LHD1	9.77	15.75
tblVehicleEF	LHD1	8.4900e-004	7.0770e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.84	0.48
tblVehicleEF	LHD1	0.24	0.35
tblVehicleEF	LHD1	9.9500e-004	7.8212e-004
tblVehicleEF	LHD1	0.08	0.03

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tblVehicleEF	LHD1	0.01	4.9678e-003
tblVehicleEF	LHD1	8.2460e-003	8.9102e-003
tblVehicleEF	LHD1	2.1900e-004	1.7931e-004
tblVehicleEF	LHD1	9.5200e-004	7.4829e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5060e-003	1.2420e-003
tblVehicleEF	LHD1	7.8670e-003	8.5247e-003
tblVehicleEF	LHD1	2.0100e-004	1.6487e-004
tblVehicleEF	LHD1	4.8040e-003	0.15
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.7680e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.05	0.09
tblVehicleEF	LHD1	8.6000e-005	8.3418e-005
tblVehicleEF	LHD1	5.8540e-003	1.8160e-003
tblVehicleEF	LHD1	9.7000e-005	1.5567e-004
tblVehicleEF	LHD1	4.8040e-003	0.15
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.7680e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD1	4.2830e-003	4.7246e-003
tblVehicleEF	LHD1	3.9450e-003	1.6361e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.17	0.18

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tblVehicleEF	LHD1	0.53	0.10
tblVehicleEF	LHD1	0.89	1.92
tblVehicleEF	LHD1	8.91	8.59
tblVehicleEF	LHD1	601.73	191.65
tblVehicleEF	LHD1	9.85	15.90
tblVehicleEF	LHD1	8.4700e-004	7.0619e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.88	0.50
tblVehicleEF	LHD1	0.25	0.36
tblVehicleEF	LHD1	9.9500e-004	7.8212e-004
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.01	4.9678e-003
tblVehicleEF	LHD1	8.2460e-003	8.9102e-003
tblVehicleEF	LHD1	2.1900e-004	1.7931e-004
tblVehicleEF	LHD1	9.5200e-004	7.4829e-004
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	2.5060e-003	1.2420e-003
tblVehicleEF	LHD1	7.8670e-003	8.5247e-003
tblVehicleEF	LHD1	2.0100e-004	1.6487e-004
tblVehicleEF	LHD1	2.6260e-003	0.12
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2230e-003	0.00
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.06	0.09
tblVehicleEF	LHD1	8.6000e-005	8.3418e-005

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tblVehicleEF	LHD1	5.8540e-003	1.8160e-003
tblVehicleEF	LHD1	9.7000e-005	1.5714e-004
tblVehicleEF	LHD1	2.6260e-003	0.12
tblVehicleEF	LHD1	0.08	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.2230e-003	0.00
tblVehicleEF	LHD1	0.06	0.04
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD2	2.8650e-003	3.1170e-003
tblVehicleEF	LHD2	2.8500e-003	7.1897e-004
tblVehicleEF	LHD2	6.7890e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.36	0.22
tblVehicleEF	LHD2	0.51	1.13
tblVehicleEF	LHD2	13.94	13.40
tblVehicleEF	LHD2	602.00	217.60
tblVehicleEF	LHD2	6.93	9.65
tblVehicleEF	LHD2	1.7840e-003	1.6296e-003
tblVehicleEF	LHD2	0.06	2.4229e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	0.98	0.04
tblVehicleEF	LHD2	0.16	0.23
tblVehicleEF	LHD2	1.4650e-003	1.3186e-003
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.01	2.8192e-003
tblVehicleEF	LHD2	0.01	3.2433e-004
tblVehicleEF	LHD2	1.0600e-004	8.0781e-005

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tblVehicleEF	LHD2	1.4010e-003	1.2615e-003
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	2.7080e-003	7.0481e-004
tblVehicleEF	LHD2	0.01	2.9821e-004
tblVehicleEF	LHD2	9.7000e-005	7.4275e-005
tblVehicleEF	LHD2	1.1920e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.6700e-004	0.00
tblVehicleEF	LHD2	0.05	3.1683e-003
tblVehicleEF	LHD2	0.08	0.03
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	1.3300e-004	1.2843e-004
tblVehicleEF	LHD2	5.8040e-003	2.1512e-003
tblVehicleEF	LHD2	6.9000e-005	9.5433e-005
tblVehicleEF	LHD2	1.1920e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6700e-004	0.00
tblVehicleEF	LHD2	0.05	4.6231e-003
tblVehicleEF	LHD2	0.08	0.03
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	2.8730e-003	3.1283e-003
tblVehicleEF	LHD2	2.8730e-003	2.5063e-003
tblVehicleEF	LHD2	6.4850e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.36	0.14
tblVehicleEF	LHD2	0.48	1.08
tblVehicleEF	LHD2	13.94	13.40

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tblVehicleEF	LHD2	602.00	372.57
tblVehicleEF	LHD2	6.87	9.56
tblVehicleEF	LHD2	1.7850e-003	1.6310e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	0.92	0.63
tblVehicleEF	LHD2	0.15	0.22
tblVehicleEF	LHD2	1.4650e-003	1.3186e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.9782e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0600e-004	8.0781e-005
tblVehicleEF	LHD2	1.4010e-003	1.2615e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7080e-003	1.9945e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7000e-005	7.4275e-005
tblVehicleEF	LHD2	2.2900e-003	0.09
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.4170e-003	0.00
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.08	0.03
tblVehicleEF	LHD2	0.03	0.05
tblVehicleEF	LHD2	1.3300e-004	1.2843e-004
tblVehicleEF	LHD2	5.8040e-003	3.5303e-003
tblVehicleEF	LHD2	6.8000e-005	9.4469e-005
tblVehicleEF	LHD2	2.2900e-003	0.09

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tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4170e-003	0.00
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.08	0.03
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	2.8660e-003	3.1182e-003
tblVehicleEF	LHD2	2.8530e-003	2.5063e-003
tblVehicleEF	LHD2	6.7330e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.36	0.14
tblVehicleEF	LHD2	0.50	1.13
tblVehicleEF	LHD2	13.94	13.40
tblVehicleEF	LHD2	602.00	372.57
tblVehicleEF	LHD2	6.92	9.64
tblVehicleEF	LHD2	1.7840e-003	1.6300e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.09
tblVehicleEF	LHD2	0.96	0.65
tblVehicleEF	LHD2	0.16	0.23
tblVehicleEF	LHD2	1.4650e-003	1.3186e-003
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.01	7.9782e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0600e-004	8.0781e-005
tblVehicleEF	LHD2	1.4010e-003	1.2615e-003
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	2.7080e-003	1.9945e-003

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tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7000e-005	7.4275e-005
tblVehicleEF	LHD2	1.1870e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.4700e-004	0.00
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	LHD2	1.3300e-004	1.2843e-004
tblVehicleEF	LHD2	5.8040e-003	3.5303e-003
tblVehicleEF	LHD2	6.8000e-005	9.5336e-005
tblVehicleEF	LHD2	1.1870e-003	0.08
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.4700e-004	0.00
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.32	0.54
tblVehicleEF	MCY	0.25	0.16
tblVehicleEF	MCY	19.12	0.54
tblVehicleEF	MCY	8.89	7.60
tblVehicleEF	MCY	210.77	0.54
tblVehicleEF	MCY	60.04	45.89
tblVehicleEF	MCY	0.07	0.54
tblVehicleEF	MCY	0.02	7.3016e-003
tblVehicleEF	MCY	1.15	0.54
tblVehicleEF	MCY	0.27	0.12

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tblVehicleEF	MCY	0.01	0.54
tblVehicleEF	MCY	4.0000e-003	0.54
tblVehicleEF	MCY	1.9870e-003	0.54
tblVehicleEF	MCY	2.7730e-003	3.2766e-003
tblVehicleEF	MCY	5.0400e-003	0.54
tblVehicleEF	MCY	1.0000e-003	0.54
tblVehicleEF	MCY	1.8550e-003	0.54
tblVehicleEF	MCY	2.6010e-003	3.0723e-003
tblVehicleEF	MCY	1.44	2.51
tblVehicleEF	MCY	0.80	3.59
tblVehicleEF	MCY	0.78	0.00
tblVehicleEF	MCY	2.16	0.54
tblVehicleEF	MCY	0.37	0.54
tblVehicleEF	MCY	1.85	1.20
tblVehicleEF	MCY	2.0860e-003	0.54
tblVehicleEF	MCY	5.9400e-004	4.5370e-004
tblVehicleEF	MCY	1.44	2.51
tblVehicleEF	MCY	0.80	3.59
tblVehicleEF	MCY	0.78	0.00
tblVehicleEF	MCY	2.69	0.54
tblVehicleEF	MCY	0.37	0.54
tblVehicleEF	MCY	2.02	1.31
tblVehicleEF	MCY	0.32	0.47
tblVehicleEF	MCY	0.21	0.15
tblVehicleEF	MCY	19.26	0.47
tblVehicleEF	MCY	7.98	6.82
tblVehicleEF	MCY	210.83	0.47
tblVehicleEF	MCY	57.74	44.18
tblVehicleEF	MCY	0.06	0.47

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tblVehicleEF	MCY	0.01	7.1660e-003
tblVehicleEF	MCY	0.98	0.47
tblVehicleEF	MCY	0.25	0.11
tblVehicleEF	MCY	0.01	0.47
tblVehicleEF	MCY	4.0000e-003	0.47
tblVehicleEF	MCY	1.9870e-003	0.47
tblVehicleEF	MCY	2.7730e-003	3.2766e-003
tblVehicleEF	MCY	5.0400e-003	0.47
tblVehicleEF	MCY	1.0000e-003	0.47
tblVehicleEF	MCY	1.8550e-003	0.47
tblVehicleEF	MCY	2.6010e-003	3.0723e-003
tblVehicleEF	MCY	3.12	3.70
tblVehicleEF	MCY	1.25	3.76
tblVehicleEF	MCY	2.06	0.00
tblVehicleEF	MCY	2.12	0.47
tblVehicleEF	MCY	0.37	0.47
tblVehicleEF	MCY	1.60	1.06
tblVehicleEF	MCY	2.0860e-003	0.47
tblVehicleEF	MCY	5.7100e-004	4.3681e-004
tblVehicleEF	MCY	3.12	3.70
tblVehicleEF	MCY	1.25	3.76
tblVehicleEF	MCY	2.06	0.00
tblVehicleEF	MCY	2.63	0.47
tblVehicleEF	MCY	0.37	0.47
tblVehicleEF	MCY	1.74	1.16
tblVehicleEF	MCY	0.32	0.53
tblVehicleEF	MCY	0.24	0.16
tblVehicleEF	MCY	18.31	0.53
tblVehicleEF	MCY	8.55	7.50

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tblVehicleEF	MCY	209.37	0.53
tblVehicleEF	MCY	59.29	45.68
tblVehicleEF	MCY	0.06	0.53
tblVehicleEF	MCY	0.02	7.3079e-003
tblVehicleEF	MCY	1.11	0.53
tblVehicleEF	MCY	0.26	0.12
tblVehicleEF	MCY	0.01	0.53
tblVehicleEF	MCY	4.0000e-003	0.53
tblVehicleEF	MCY	1.9870e-003	0.53
tblVehicleEF	MCY	2.7730e-003	3.2766e-003
tblVehicleEF	MCY	5.0400e-003	0.53
tblVehicleEF	MCY	1.0000e-003	0.53
tblVehicleEF	MCY	1.8550e-003	0.53
tblVehicleEF	MCY	2.6010e-003	3.0723e-003
tblVehicleEF	MCY	1.69	2.61
tblVehicleEF	MCY	1.06	3.60
tblVehicleEF	MCY	0.69	0.00
tblVehicleEF	MCY	2.13	0.53
tblVehicleEF	MCY	0.43	0.53
tblVehicleEF	MCY	1.79	1.19
tblVehicleEF	MCY	2.0720e-003	0.53
tblVehicleEF	MCY	5.8700e-004	4.5161e-004
tblVehicleEF	MCY	1.69	2.61
tblVehicleEF	MCY	1.06	3.60
tblVehicleEF	MCY	0.69	0.00
tblVehicleEF	MCY	2.65	0.53
tblVehicleEF	MCY	0.43	0.53
tblVehicleEF	MCY	1.95	1.29
tblVehicleEF	MDV	3.0780e-003	3.1843e-003

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tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.74	0.88
tblVehicleEF	MDV	2.56	3.22
tblVehicleEF	MDV	346.60	396.74
tblVehicleEF	MDV	72.46	99.21
tblVehicleEF	MDV	6.8890e-003	7.1299e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.24	0.35
tblVehicleEF	MDV	0.04	8.6359e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.2860e-003	1.2336e-003
tblVehicleEF	MDV	1.6140e-003	1.9391e-003
tblVehicleEF	MDV	0.02	3.0226e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.1860e-003	1.1371e-003
tblVehicleEF	MDV	1.4840e-003	1.7829e-003
tblVehicleEF	MDV	0.10	0.43
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.06	0.03
tblVehicleEF	MDV	0.28	0.40
tblVehicleEF	MDV	3.4260e-003	3.9201e-003
tblVehicleEF	MDV	7.1700e-004	9.8079e-004
tblVehicleEF	MDV	0.10	0.43
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02

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tblVehicleEF	MDV	0.06	0.03
tblVehicleEF	MDV	0.31	0.44
tblVehicleEF	MDV	3.5250e-003	3.3861e-003
tblVehicleEF	MDV	0.05	0.07
tblVehicleEF	MDV	0.91	1.18
tblVehicleEF	MDV	2.12	2.70
tblVehicleEF	MDV	367.44	419.59
tblVehicleEF	MDV	71.62	98.19
tblVehicleEF	MDV	6.5060e-003	6.4243e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.23	0.33
tblVehicleEF	MDV	0.04	8.6359e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.2860e-003	1.2336e-003
tblVehicleEF	MDV	1.6140e-003	1.9391e-003
tblVehicleEF	MDV	0.02	3.0226e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.1860e-003	1.1371e-003
tblVehicleEF	MDV	1.4840e-003	1.7829e-003
tblVehicleEF	MDV	0.21	0.52
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.19	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.24	0.35
tblVehicleEF	MDV	3.6320e-003	4.1460e-003
tblVehicleEF	MDV	7.0900e-004	9.7075e-004
tblVehicleEF	MDV	0.21	0.52

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.19	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.04
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	3.0040e-003	3.1574e-003
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.70	0.83
tblVehicleEF	MDV	2.52	3.23
tblVehicleEF	MDV	341.67	392.54
tblVehicleEF	MDV	72.39	99.23
tblVehicleEF	MDV	6.6500e-003	6.9653e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.24	0.35
tblVehicleEF	MDV	0.04	8.6359e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.2860e-003	1.2336e-003
tblVehicleEF	MDV	1.6140e-003	1.9391e-003
tblVehicleEF	MDV	0.02	3.0226e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.1860e-003	1.1371e-003
tblVehicleEF	MDV	1.4840e-003	1.7829e-003
tblVehicleEF	MDV	0.10	0.43
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.07	0.03
tblVehicleEF	MDV	0.28	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MDV	3.3770e-003	3.8786e-003
tblVehicleEF	MDV	7.1600e-004	9.8101e-004
tblVehicleEF	MDV	0.10	0.43
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.09	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.03
tblVehicleEF	MDV	0.31	0.44
tblVehicleEF	MH	6.8490e-003	3.8894e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.71	1.7200e-003
tblVehicleEF	MH	1.80	2.09
tblVehicleEF	MH	1,385.48	4.7799e-003
tblVehicleEF	MH	16.98	21.28
tblVehicleEF	MH	0.06	7.7897e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.36	1.31
tblVehicleEF	MH	0.24	0.31
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.2347e-011
tblVehicleEF	MH	0.03	2.6956e-009
tblVehicleEF	MH	2.1000e-004	2.3904e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.3020e-003	4.8504e-004
tblVehicleEF	MH	0.03	0.12
tblVehicleEF	MH	1.9300e-004	2.1978e-004
tblVehicleEF	MH	0.84	32.21
tblVehicleEF	MH	0.05	7.29
tblVehicleEF	MH	0.32	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	0.05	2.5237e-008
tblVehicleEF	MH	0.01	1.9717e-003
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	2.9950e-005
tblVehicleEF	MH	1.6800e-004	2.1040e-004
tblVehicleEF	MH	0.84	32.21
tblVehicleEF	MH	0.05	7.29
tblVehicleEF	MH	0.32	0.00
tblVehicleEF	MH	0.06	3.9120e-003
tblVehicleEF	MH	0.01	1.9717e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	7.0150e-003	3.9825e-005
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.73	1.8266e-003
tblVehicleEF	MH	1.65	1.94
tblVehicleEF	MH	1,385.52	4.7800e-003
tblVehicleEF	MH	16.72	21.04
tblVehicleEF	MH	0.06	7.2431e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.26	1.23
tblVehicleEF	MH	0.23	0.30
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.2347e-011
tblVehicleEF	MH	0.03	2.6956e-009
tblVehicleEF	MH	2.1000e-004	2.3904e-004
tblVehicleEF	MH	0.06	0.00
tblVehicleEF	MH	3.3020e-003	4.5733e-004
tblVehicleEF	MH	0.03	0.11
tblVehicleEF	MH	1.9300e-004	2.1978e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	1.66	40.27
tblVehicleEF	MH	0.06	7.86
tblVehicleEF	MH	0.74	0.00
tblVehicleEF	MH	0.05	2.4144e-008
tblVehicleEF	MH	0.01	2.0387e-003
tblVehicleEF	MH	0.08	0.09
tblVehicleEF	MH	0.01	3.1806e-005
tblVehicleEF	MH	1.6500e-004	2.0797e-004
tblVehicleEF	MH	1.66	40.27
tblVehicleEF	MH	0.06	7.86
tblVehicleEF	MH	0.74	0.00
tblVehicleEF	MH	0.06	4.3418e-003
tblVehicleEF	MH	0.01	2.0387e-003
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	6.8650e-003	3.8927e-005
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.71	1.7587e-003
tblVehicleEF	MH	1.79	2.09
tblVehicleEF	MH	1,385.49	4.7799e-003
tblVehicleEF	MH	16.95	21.29
tblVehicleEF	MH	0.06	7.6226e-007
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.33	1.29
tblVehicleEF	MH	0.24	0.31
tblVehicleEF	MH	0.13	0.00
tblVehicleEF	MH	0.01	3.2347e-011
tblVehicleEF	MH	0.03	2.6956e-009
tblVehicleEF	MH	2.1000e-004	2.3904e-004
tblVehicleEF	MH	0.06	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MH	3.3020e-003	4.7711e-004
tblVehicleEF	MH	0.03	0.12
tblVehicleEF	MH	1.9300e-004	2.1978e-004
tblVehicleEF	MH	0.93	32.25
tblVehicleEF	MH	0.06	7.25
tblVehicleEF	MH	0.32	0.00
tblVehicleEF	MH	0.05	2.4719e-008
tblVehicleEF	MH	0.01	2.0144e-003
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	3.0623e-005
tblVehicleEF	MH	1.6800e-004	2.1048e-004
tblVehicleEF	MH	0.93	32.25
tblVehicleEF	MH	0.06	7.25
tblVehicleEF	MH	0.32	0.00
tblVehicleEF	MH	0.06	3.8969e-003
tblVehicleEF	MH	0.01	2.0144e-003
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MHD	2.9530e-003	0.02
tblVehicleEF	MHD	8.7300e-004	7.6738e-003
tblVehicleEF	MHD	6.8340e-003	5.1155e-003
tblVehicleEF	MHD	0.33	0.63
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	0.71	0.56
tblVehicleEF	MHD	60.66	156.17
tblVehicleEF	MHD	908.42	1,083.52
tblVehicleEF	MHD	6.88	5.18
tblVehicleEF	MHD	8.8370e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.9440e-003	3.7665e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.32	0.79
tblVehicleEF	MHD	1.00	0.55
tblVehicleEF	MHD	1.78	1.44
tblVehicleEF	MHD	1.8200e-004	8.0832e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7440e-003	6.8142e-003
tblVehicleEF	MHD	8.1000e-005	5.6658e-005
tblVehicleEF	MHD	1.7400e-004	7.7261e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.4050e-003	6.5155e-003
tblVehicleEF	MHD	7.4000e-005	5.2095e-005
tblVehicleEF	MHD	3.8000e-004	0.02
tblVehicleEF	MHD	0.01	3.5803e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	2.1200e-004	0.00
tblVehicleEF	MHD	9.2550e-003	0.01
tblVehicleEF	MHD	0.01	8.8670e-003
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	5.7500e-004	1.4302e-003
tblVehicleEF	MHD	8.6570e-003	0.01
tblVehicleEF	MHD	6.8000e-005	5.1238e-005
tblVehicleEF	MHD	3.8000e-004	0.02
tblVehicleEF	MHD	0.01	3.5803e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.1200e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	8.8670e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	2.8150e-003	0.02
tblVehicleEF	MHD	8.9000e-004	7.6907e-003
tblVehicleEF	MHD	6.5240e-003	4.9165e-003
tblVehicleEF	MHD	0.29	0.60
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	0.67	0.53
tblVehicleEF	MHD	60.33	154.57
tblVehicleEF	MHD	908.42	1,083.53
tblVehicleEF	MHD	6.80	5.13
tblVehicleEF	MHD	8.7580e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.8150e-003	3.7016e-003
tblVehicleEF	MHD	0.31	0.76
tblVehicleEF	MHD	0.94	0.52
tblVehicleEF	MHD	1.78	1.44
tblVehicleEF	MHD	1.5600e-004	6.9242e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7440e-003	6.8142e-003
tblVehicleEF	MHD	8.1000e-005	5.6658e-005
tblVehicleEF	MHD	1.4900e-004	6.6172e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.4050e-003	6.5155e-003
tblVehicleEF	MHD	7.4000e-005	5.2095e-005
tblVehicleEF	MHD	7.3900e-004	0.02
tblVehicleEF	MHD	0.02	3.8555e-003
tblVehicleEF	MHD	0.01	0.02

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tblVehicleEF	MHD	4.6500e-004	0.00
tblVehicleEF	MHD	9.3210e-003	0.01
tblVehicleEF	MHD	0.01	9.1820e-003
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	5.7200e-004	1.4152e-003
tblVehicleEF	MHD	8.6570e-003	0.01
tblVehicleEF	MHD	6.7000e-005	5.0707e-005
tblVehicleEF	MHD	7.3900e-004	0.02
tblVehicleEF	MHD	0.02	3.8555e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	4.6500e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.1820e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	3.1590e-003	0.02
tblVehicleEF	MHD	8.7400e-004	7.6738e-003
tblVehicleEF	MHD	6.7530e-003	5.0783e-003
tblVehicleEF	MHD	0.39	0.68
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	0.70	0.56
tblVehicleEF	MHD	61.12	158.37
tblVehicleEF	MHD	908.42	1,083.52
tblVehicleEF	MHD	6.86	5.18
tblVehicleEF	MHD	8.9510e-003	0.02
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	5.9020e-003	3.7502e-003
tblVehicleEF	MHD	0.34	0.83
tblVehicleEF	MHD	0.99	0.54
tblVehicleEF	MHD	1.78	1.44

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tblVehicleEF	MHD	2.1700e-004	9.6836e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7440e-003	6.8142e-003
tblVehicleEF	MHD	8.1000e-005	5.6658e-005
tblVehicleEF	MHD	2.0700e-004	9.2573e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	7.4050e-003	6.5155e-003
tblVehicleEF	MHD	7.4000e-005	5.2095e-005
tblVehicleEF	MHD	3.8600e-004	0.02
tblVehicleEF	MHD	0.01	3.5621e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.0500e-004	0.00
tblVehicleEF	MHD	9.2620e-003	0.01
tblVehicleEF	MHD	0.01	9.0432e-003
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	5.7900e-004	1.4510e-003
tblVehicleEF	MHD	8.6570e-003	0.01
tblVehicleEF	MHD	6.8000e-005	5.1164e-005
tblVehicleEF	MHD	3.8600e-004	0.02
tblVehicleEF	MHD	0.01	3.5621e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	2.0500e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	9.0432e-003
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	OBUS	8.9710e-003	0.02
tblVehicleEF	OBUS	4.4810e-003	0.05

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.53	0.56
tblVehicleEF	OBUS	0.52	0.73
tblVehicleEF	OBUS	2.38	2.47
tblVehicleEF	OBUS	68.72	78.12
tblVehicleEF	OBUS	1,335.22	1,385.46
tblVehicleEF	OBUS	19.78	20.85
tblVehicleEF	OBUS	8.7900e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.26	0.28
tblVehicleEF	OBUS	0.83	0.96
tblVehicleEF	OBUS	0.70	0.70
tblVehicleEF	OBUS	8.8000e-005	4.0594e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.4070e-003	0.02
tblVehicleEF	OBUS	2.3300e-004	2.3024e-004
tblVehicleEF	OBUS	8.5000e-005	3.8773e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.1080e-003	0.02
tblVehicleEF	OBUS	2.1400e-004	2.1170e-004
tblVehicleEF	OBUS	2.6020e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1100e-003	0.00
tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.09	0.04

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	0.12	0.12
tblVehicleEF	OBUS	6.5600e-004	7.0014e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.9600e-004	2.0617e-004
tblVehicleEF	OBUS	2.6020e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1100e-003	0.00
tblVehicleEF	OBUS	0.03	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	9.0530e-003	0.02
tblVehicleEF	OBUS	4.6070e-003	0.05
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.53	0.55
tblVehicleEF	OBUS	0.53	0.75
tblVehicleEF	OBUS	2.18	2.30
tblVehicleEF	OBUS	67.99	77.45
tblVehicleEF	OBUS	1,335.24	1,385.47
tblVehicleEF	OBUS	19.45	20.56
tblVehicleEF	OBUS	8.6820e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.25	0.27
tblVehicleEF	OBUS	0.76	0.89
tblVehicleEF	OBUS	0.69	0.69
tblVehicleEF	OBUS	7.9000e-005	3.4939e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	6.4070e-003	0.02
tblVehicleEF	OBUS	2.3300e-004	2.3024e-004
tblVehicleEF	OBUS	7.5000e-005	3.3363e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.1080e-003	0.02
tblVehicleEF	OBUS	2.1400e-004	2.1170e-004
tblVehicleEF	OBUS	5.0300e-003	0.17
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.4870e-003	0.00
tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.4900e-004	6.9382e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.9200e-004	2.0329e-004
tblVehicleEF	OBUS	5.0300e-003	0.17
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.07	0.08
tblVehicleEF	OBUS	2.4870e-003	0.00
tblVehicleEF	OBUS	0.03	0.10
tblVehicleEF	OBUS	0.09	0.04
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	8.9010e-003	0.02
tblVehicleEF	OBUS	4.4960e-003	0.05
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.54	0.57
tblVehicleEF	OBUS	0.52	0.74

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	OBUS	2.36	2.48
tblVehicleEF	OBUS	69.74	79.04
tblVehicleEF	OBUS	1,335.22	1,385.46
tblVehicleEF	OBUS	19.76	20.86
tblVehicleEF	OBUS	8.9510e-003	0.01
tblVehicleEF	OBUS	0.08	0.12
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.28	0.29
tblVehicleEF	OBUS	0.81	0.94
tblVehicleEF	OBUS	0.69	0.70
tblVehicleEF	OBUS	1.0200e-004	4.8403e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.4070e-003	0.02
tblVehicleEF	OBUS	2.3300e-004	2.3024e-004
tblVehicleEF	OBUS	9.8000e-005	4.6244e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	6.1080e-003	0.02
tblVehicleEF	OBUS	2.1400e-004	2.1170e-004
tblVehicleEF	OBUS	2.7020e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.1050e-003	0.00
tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	6.6500e-004	7.0888e-004
tblVehicleEF	OBUS	0.01	0.01

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tblVehicleEF	OBUS	1.9500e-004	2.0626e-004
tblVehicleEF	OBUS	2.7020e-003	0.13
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.08
tblVehicleEF	OBUS	1.1050e-003	0.00
tblVehicleEF	OBUS	0.03	0.10
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	SBUS	0.05	0.54
tblVehicleEF	SBUS	5.1430e-003	1.36
tblVehicleEF	SBUS	4.6720e-003	6.8969e-003
tblVehicleEF	SBUS	2.26	3.01
tblVehicleEF	SBUS	0.45	4.96
tblVehicleEF	SBUS	0.61	0.85
tblVehicleEF	SBUS	326.88	271.34
tblVehicleEF	SBUS	1,051.18	1,204.44
tblVehicleEF	SBUS	3.64	5.37
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	4.0450e-003	6.2301e-003
tblVehicleEF	SBUS	2.82	1.01
tblVehicleEF	SBUS	3.78	1.91
tblVehicleEF	SBUS	1.23	0.19
tblVehicleEF	SBUS	2.4420e-003	1.4266e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	4.0000e-005	5.3778e-005
tblVehicleEF	SBUS	2.3360e-003	1.3451e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7280e-003	2.5521e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.7000e-005	4.9447e-005
tblVehicleEF	SBUS	8.5900e-004	0.07
tblVehicleEF	SBUS	6.4380e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	4.3500e-004	0.00
tblVehicleEF	SBUS	0.07	0.07
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.1100e-003	1.2030e-003
tblVehicleEF	SBUS	0.01	6.4856e-003
tblVehicleEF	SBUS	3.6000e-005	5.3137e-005
tblVehicleEF	SBUS	8.5900e-004	0.07
tblVehicleEF	SBUS	6.4380e-003	0.01
tblVehicleEF	SBUS	0.33	0.87
tblVehicleEF	SBUS	4.3500e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.05	0.54
tblVehicleEF	SBUS	5.2100e-003	1.36
tblVehicleEF	SBUS	3.8550e-003	5.7779e-003
tblVehicleEF	SBUS	2.24	3.00
tblVehicleEF	SBUS	0.45	4.97
tblVehicleEF	SBUS	0.43	0.62
tblVehicleEF	SBUS	331.85	273.50
tblVehicleEF	SBUS	1,051.20	1,204.46

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tblVehicleEF	SBUS	3.34	4.98
tblVehicleEF	SBUS	0.05	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	3.8940e-003	6.0110e-003
tblVehicleEF	SBUS	2.85	1.03
tblVehicleEF	SBUS	3.54	1.78
tblVehicleEF	SBUS	1.23	0.19
tblVehicleEF	SBUS	2.0680e-003	1.2870e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	4.0000e-005	5.3778e-005
tblVehicleEF	SBUS	1.9790e-003	1.2116e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7280e-003	2.5521e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.7000e-005	4.9447e-005
tblVehicleEF	SBUS	1.5570e-003	0.09
tblVehicleEF	SBUS	6.6880e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	8.3700e-004	0.00
tblVehicleEF	SBUS	0.07	0.07
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	3.1570e-003	1.2234e-003
tblVehicleEF	SBUS	0.01	6.4858e-003
tblVehicleEF	SBUS	3.3000e-005	4.9243e-005
tblVehicleEF	SBUS	1.5570e-003	0.09
tblVehicleEF	SBUS	6.6880e-003	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	SBUS	0.33	0.87
tblVehicleEF	SBUS	8.3700e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.05	0.54
tblVehicleEF	SBUS	5.1410e-003	1.36
tblVehicleEF	SBUS	4.7730e-003	7.1051e-003
tblVehicleEF	SBUS	2.30	3.02
tblVehicleEF	SBUS	0.45	4.96
tblVehicleEF	SBUS	0.62	0.89
tblVehicleEF	SBUS	320.01	268.36
tblVehicleEF	SBUS	1,051.18	1,204.44
tblVehicleEF	SBUS	3.67	5.44
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	4.0790e-003	6.3064e-003
tblVehicleEF	SBUS	2.77	0.98
tblVehicleEF	SBUS	3.72	1.88
tblVehicleEF	SBUS	1.23	0.19
tblVehicleEF	SBUS	2.9580e-003	1.6193e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	4.0000e-005	5.3778e-005
tblVehicleEF	SBUS	2.8300e-003	1.5295e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7280e-003	2.5521e-003
tblVehicleEF	SBUS	0.02	0.01

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tblVehicleEF	SBUS	3.7000e-005	4.9447e-005
tblVehicleEF	SBUS	7.9600e-004	0.08
tblVehicleEF	SBUS	6.5730e-003	0.01
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	4.3300e-004	0.00
tblVehicleEF	SBUS	0.07	0.07
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	3.0460e-003	1.1747e-003
tblVehicleEF	SBUS	0.01	6.4856e-003
tblVehicleEF	SBUS	3.6000e-005	5.3779e-005
tblVehicleEF	SBUS	7.9600e-004	0.08
tblVehicleEF	SBUS	6.5730e-003	0.01
tblVehicleEF	SBUS	0.33	0.87
tblVehicleEF	SBUS	4.3300e-004	0.00
tblVehicleEF	SBUS	0.09	1.45
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	UBUS	4.22	2.23
tblVehicleEF	UBUS	0.02	7.9917e-003
tblVehicleEF	UBUS	32.87	28.56
tblVehicleEF	UBUS	1.40	1.03
tblVehicleEF	UBUS	1,716.42	1,423.76
tblVehicleEF	UBUS	16.33	7.48
tblVehicleEF	UBUS	0.28	0.27
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.24
tblVehicleEF	UBUS	0.17	0.07
tblVehicleEF	UBUS	0.08	0.10

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tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7190e-003	1.7875e-003
tblVehicleEF	UBUS	2.1500e-004	3.9707e-005
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5840e-003	1.7045e-003
tblVehicleEF	UBUS	1.9800e-004	3.6509e-005
tblVehicleEF	UBUS	1.6470e-003	0.02
tblVehicleEF	UBUS	0.01	5.4661e-003
tblVehicleEF	UBUS	9.9900e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.9380e-003	5.0347e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7010e-003	9.6469e-004
tblVehicleEF	UBUS	1.6200e-004	7.3907e-005
tblVehicleEF	UBUS	1.6470e-003	0.02
tblVehicleEF	UBUS	0.01	5.4661e-003
tblVehicleEF	UBUS	9.9900e-004	0.00
tblVehicleEF	UBUS	4.31	2.28
tblVehicleEF	UBUS	1.9380e-003	5.0347e-004
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	4.22	2.23
tblVehicleEF	UBUS	0.02	7.2979e-003
tblVehicleEF	UBUS	32.87	28.56
tblVehicleEF	UBUS	1.15	0.88
tblVehicleEF	UBUS	1,716.42	1,423.76
tblVehicleEF	UBUS	15.91	7.23
tblVehicleEF	UBUS	0.28	0.27
tblVehicleEF	UBUS	0.02	0.01

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleEF	UBUS	0.36	0.24
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7190e-003	1.7875e-003
tblVehicleEF	UBUS	2.1500e-004	3.9707e-005
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5840e-003	1.7045e-003
tblVehicleEF	UBUS	1.9800e-004	3.6509e-005
tblVehicleEF	UBUS	3.0980e-003	0.03
tblVehicleEF	UBUS	0.02	5.9344e-003
tblVehicleEF	UBUS	2.1680e-003	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	1.9080e-003	5.2596e-004
tblVehicleEF	UBUS	0.06	0.03
tblVehicleEF	UBUS	3.7010e-003	9.6471e-004
tblVehicleEF	UBUS	1.5700e-004	7.1448e-005
tblVehicleEF	UBUS	3.0980e-003	0.03
tblVehicleEF	UBUS	0.02	5.9344e-003
tblVehicleEF	UBUS	2.1680e-003	0.00
tblVehicleEF	UBUS	4.31	2.28
tblVehicleEF	UBUS	1.9080e-003	5.2596e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.22	2.23
tblVehicleEF	UBUS	0.02	8.0474e-003
tblVehicleEF	UBUS	32.87	28.56
tblVehicleEF	UBUS	1.36	1.04
tblVehicleEF	UBUS	1,716.42	1,423.76

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tblVehicleEF	UBUS	16.27	7.50
tblVehicleEF	UBUS	0.28	0.27
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.36	0.24
tblVehicleEF	UBUS	0.16	0.07
tblVehicleEF	UBUS	0.08	0.10
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.7190e-003	1.7875e-003
tblVehicleEF	UBUS	2.1500e-004	3.9707e-005
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	6.3130e-003	7.1753e-003
tblVehicleEF	UBUS	2.5840e-003	1.7045e-003
tblVehicleEF	UBUS	1.9800e-004	3.6509e-005
tblVehicleEF	UBUS	1.6330e-003	0.02
tblVehicleEF	UBUS	0.02	5.4334e-003
tblVehicleEF	UBUS	9.8000e-004	0.00
tblVehicleEF	UBUS	0.06	0.04
tblVehicleEF	UBUS	2.2340e-003	5.2276e-004
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	3.7010e-003	9.6469e-004
tblVehicleEF	UBUS	1.6100e-004	7.4149e-005
tblVehicleEF	UBUS	1.6330e-003	0.02
tblVehicleEF	UBUS	0.02	5.4334e-003
tblVehicleEF	UBUS	9.8000e-004	0.00
tblVehicleEF	UBUS	4.31	2.28
tblVehicleEF	UBUS	2.2340e-003	5.2276e-004
tblVehicleEF	UBUS	0.08	0.03
tblVehicleTrips	ST_TR	42.04	37.75
tblVehicleTrips	SU_TR	20.43	37.75

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	WD_TR	44.32	37.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	1.4799	1.9583	2.4143	6.2800e-003	0.5588	0.0714	0.6302	0.1444	0.0667	0.2111	0.0000	567.9102	567.9102	0.0883	0.0253	577.6446
Maximum	**1.4799**	**1.9583**	**2.4143**	**6.2800e-003**	**0.5588**	**0.0714**	**0.6302**	**0.1444**	**0.0667**	**0.2111**	**0.0000**	**567.9102**	**567.9102**	**0.0883**	**0.0253**	**577.6446**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	1.3639	0.6417	2.6892	6.2800e-003	0.3331	0.0124	0.3455	0.0878	0.0122	0.1001	0.0000	567.9099	567.9099	0.0883	0.0253	577.6442
Maximum	**1.3639**	**0.6417**	**2.6892**	**6.2800e-003**	**0.3331**	**0.0124**	**0.3455**	**0.0878**	**0.0122**	**0.1001**	**0.0000**	**567.9099**	**567.9099**	**0.0883**	**0.0253**	**577.6442**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.84**	**67.23**	**-11.38**	**0.00**	**40.39**	**82.61**	**45.17**	**39.16**	**81.65**	**52.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0864	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6400e-003	6.6400e-003	2.0000e-005	0.0000	7.0700e-003
Energy	3.1000e-003	0.0282	0.0237	1.7000e-004		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	498.5852	498.5852	5.9000e-004	5.6000e-004	498.7675
Mobile	4.6206	3.5503	26.0717	0.3403	5.8873	0.3146	6.2019	1.8824	0.3222	2.2046	0.0000	6,171.7184	6,171.7184	0.6080	0.5648	6,355.2264
Waste						0.0000	0.0000		0.0000	0.0000	55.7068	0.0000	55.7068	3.2922	0.0000	138.0113
Water						0.0000	0.0000		0.0000	0.0000	6.1419	55.0275	61.1694	0.6308	0.0149	81.3790
Total	**5.7101**	**3.5785**	**26.0988**	**0.3405**	**5.8873**	**0.3167**	**6.2040**	**1.8824**	**0.3244**	**2.2068**	**61.8487**	**6,725.3377**	**6,787.1864**	**4.5317**	**0.5803**	**7,073.3913**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0864	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6400e-003	6.6400e-003	2.0000e-005	0.0000	7.0700e-003
Energy	2.1600e-003	0.0197	0.0165	1.2000e-004		1.4900e-003	1.4900e-003		1.4900e-003	1.4900e-003	0.0000	357.5375	357.5375	4.1000e-004	3.9000e-004	357.6647
Mobile	4.6153	3.5267	25.9009	0.3364	5.8193	0.3110	6.1303	1.8607	0.3186	2.1792	0.0000	6,103.9237	6,103.9237	0.6038	0.5596	6,285.7778
Waste						0.0000	0.0000		0.0000	0.0000	13.9267	0.0000	13.9267	0.8230	0.0000	34.5028
Water						0.0000	0.0000		0.0000	0.0000	4.9135	46.6484	51.5620	0.5047	0.0119	67.7297
Total	**5.7039**	**3.5464**	**25.9209**	**0.3365**	**5.8193**	**0.3125**	**6.1318**	**1.8607**	**0.3201**	**2.1807**	**18.8402**	**6,508.1163**	**6,526.9565**	**1.9320**	**0.5719**	**6,745.6821**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.11**	**0.90**	**0.68**	**1.16**	**1.15**	**1.32**	**1.16**	**1.15**	**1.32**	**1.18**	**69.54**	**3.23**	**3.83**	**57.37**	**1.44**	**4.63**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2026	1/29/2026	5	21	
2	Grading	Grading	2/1/2026	3/13/2026	5	30	
3	Building Costruction	Building Construction	3/13/2026	9/24/2026	5	140	

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4	Architectural Coating	Architectural Coating	9/1/2026	10/26/2026	5	40	
5	Paving/Landscap/Site Finishes	Paving	9/25/2026	10/22/2026	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 90

Acres of Paving: 6

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 392,040; Non-Residential Outdoor: 130,680; Striped Parking Area: 15,682 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Costruction	Cranes	1	7.00	231	0.29
Building Costruction	Forklifts	3	8.00	89	0.20
Building Costruction	Generator Sets	1	8.00	84	0.74
Building Costruction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Costruction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving/Landscap/Site Finishes	Pavers	2	8.00	130	0.42
Paving/Landscap/Site Finishes	Paving Equipment	2	8.00	132	0.36
Paving/Landscap/Site Finishes	Rollers	2	8.00	80	0.38

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	1,879.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Costruction	9	193.00	86.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	39.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving/Landscap/Site Finishes	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

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3.2 Demolition - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2033	0.0000	0.2033	0.0308	0.0000	0.0308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0220	0.2016	0.2039	4.1000e-004		8.9500e-003	8.9500e-003		8.3200e-003	8.3200e-003	0.0000	35.6975	35.6975	9.9700e-003	0.0000	35.9467
Total	**0.0220**	**0.2016**	**0.2039**	**4.1000e-004**	**0.2033**	**8.9500e-003**	**0.2122**	**0.0308**	**8.3200e-003**	**0.0391**	**0.0000**	**35.6975**	**35.6975**	**9.9700e-003**	**0.0000**	**35.9467**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1400e-003	0.1074	0.0317	5.0000e-004	0.0162	1.0600e-003	0.0172	4.4400e-003	1.0100e-003	5.4600e-003	0.0000	49.0852	49.0852	2.0300e-003	7.7800e-003	51.4543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	4.1200e-003	1.0000e-005	1.7300e-003	1.0000e-005	1.7300e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.2100	1.2100	3.0000e-005	3.0000e-005	1.2195
Total	**2.5800e-003**	**0.1077**	**0.0358**	**5.1000e-004**	**0.0179**	**1.0700e-003**	**0.0190**	**4.9000e-003**	**1.0200e-003**	**5.9300e-003**	**0.0000**	**50.2952**	**50.2952**	**2.0600e-003**	**7.8100e-003**	**52.6738**

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3.2 Demolition - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0753	0.0000	0.0753	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8500e-003	0.0210	0.2444	4.1000e-004		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	35.6975	35.6975	9.9700e-003	0.0000	35.9467
Total	**4.8500e-003**	**0.0210**	**0.2444**	**4.1000e-004**	**0.0753**	**6.5000e-004**	**0.0760**	**0.0114**	**6.5000e-004**	**0.0121**	**0.0000**	**35.6975**	**35.6975**	**9.9700e-003**	**0.0000**	**35.9467**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1400e-003	0.1074	0.0317	5.0000e-004	0.0155	1.0600e-003	0.0165	4.2700e-003	1.0100e-003	5.2800e-003	0.0000	49.0852	49.0852	2.0300e-003	7.7800e-003	51.4543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	4.1200e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6400e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2100	1.2100	3.0000e-005	3.0000e-005	1.2195
Total	**2.5800e-003**	**0.1077**	**0.0358**	**5.1000e-004**	**0.0171**	**1.0700e-003**	**0.0182**	**4.7100e-003**	**1.0200e-003**	**5.7200e-003**	**0.0000**	**50.2952**	**50.2952**	**2.0600e-003**	**7.8100e-003**	**52.6738**

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3.3 Grading - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0435	0.4191	0.3950	9.3000e-004		0.0170	0.0170		0.0156	0.0156	0.0000	81.7593	81.7593	0.0264	0.0000	82.4204
Total	**0.0435**	**0.4191**	**0.3950**	**9.3000e-004**	**0.1381**	**0.0170**	**0.1550**	**0.0548**	**0.0156**	**0.0704**	**0.0000**	**81.7593**	**81.7593**	**0.0264**	**0.0000**	**82.4204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.6000e-004	7.8500e-003	3.0000e-005	3.2900e-003	1.0000e-005	3.3000e-003	8.7000e-004	1.0000e-005	8.9000e-004	0.0000	2.3048	2.3048	5.0000e-005	6.0000e-005	2.3228
Total	**8.5000e-004**	**5.6000e-004**	**7.8500e-003**	**3.0000e-005**	**3.2900e-003**	**1.0000e-005**	**3.3000e-003**	**8.7000e-004**	**1.0000e-005**	**8.9000e-004**	**0.0000**	**2.3048**	**2.3048**	**5.0000e-005**	**6.0000e-005**	**2.3228**

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3.3 Grading - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0512	0.0000	0.0512	0.0203	0.0000	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0495	0.4950	9.3000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	81.7592	81.7592	0.0264	0.0000	82.4203
Total	**0.0114**	**0.0495**	**0.4950**	**9.3000e-004**	**0.0512**	**1.5200e-003**	**0.0527**	**0.0203**	**1.5200e-003**	**0.0218**	**0.0000**	**81.7592**	**81.7592**	**0.0264**	**0.0000**	**82.4203**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.6000e-004	7.8500e-003	3.0000e-005	3.1200e-003	1.0000e-005	3.1300e-003	8.3000e-004	1.0000e-005	8.4000e-004	0.0000	2.3048	2.3048	5.0000e-005	6.0000e-005	2.3228
Total	**8.5000e-004**	**5.6000e-004**	**7.8500e-003**	**3.0000e-005**	**3.1200e-003**	**1.0000e-005**	**3.1300e-003**	**8.3000e-004**	**1.0000e-005**	**8.4000e-004**	**0.0000**	**2.3048**	**2.3048**	**5.0000e-005**	**6.0000e-005**	**2.3228**

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3.4 Building Costruction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0957	0.8729	1.1259	1.8900e-003		0.0369	0.0369		0.0347	0.0347	0.0000	162.3436	162.3436	0.0382	0.0000	163.2977
Total	**0.0957**	**0.8729**	**1.1259**	**1.8900e-003**		**0.0369**	**0.0369**		**0.0347**	**0.0347**	**0.0000**	**162.3436**	**162.3436**	**0.0382**	**0.0000**	**163.2977**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.3900e-003	0.2211	0.0859	1.0200e-003	0.0380	1.5500e-003	0.0395	0.0110	1.4900e-003	0.0124	0.0000	99.4476	99.4476	2.4900e-003	0.0147	103.8833
Worker	0.0381	0.0250	0.3537	1.1300e-003	0.1481	6.4000e-004	0.1488	0.0393	5.9000e-004	0.0399	0.0000	103.7916	103.7916	2.2500e-003	2.5400e-003	104.6045
Total	**0.0445**	**0.2461**	**0.4396**	**2.1500e-003**	**0.1861**	**2.1900e-003**	**0.1883**	**0.0503**	**2.0800e-003**	**0.0524**	**0.0000**	**203.2392**	**203.2392**	**4.7400e-003**	**0.0172**	**208.4878**

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3.4 Building Costruction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0353	0.1801	1.2331	1.8900e-003		5.5100e-003	5.5100e-003		5.5100e-003	5.5100e-003	0.0000	162.3434	162.3434	0.0382	0.0000	163.2975
Total	**0.0353**	**0.1801**	**1.2331**	**1.8900e-003**		**5.5100e-003**	**5.5100e-003**		**5.5100e-003**	**5.5100e-003**	**0.0000**	**162.3434**	**162.3434**	**0.0382**	**0.0000**	**163.2975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.3900e-003	0.2211	0.0859	1.0200e-003	0.0364	1.5500e-003	0.0379	0.0106	1.4900e-003	0.0121	0.0000	99.4476	99.4476	2.4900e-003	0.0147	103.8833
Worker	0.0381	0.0250	0.3537	1.1300e-003	0.1404	6.4000e-004	0.1411	0.0375	5.9000e-004	0.0380	0.0000	103.7916	103.7916	2.2500e-003	2.5400e-003	104.6045
Total	**0.0445**	**0.2461**	**0.4396**	**2.1500e-003**	**0.1768**	**2.1900e-003**	**0.1790**	**0.0480**	**2.0800e-003**	**0.0501**	**0.0000**	**203.2392**	**203.2392**	**4.7400e-003**	**0.0172**	**208.4878**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2478					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4200e-003	0.0229	0.0362	6.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	5.1065	5.1065	2.8000e-004	0.0000	5.1135
Total	**1.2512**	**0.0229**	**0.0362**	**6.0000e-005**		**1.0300e-003**	**1.0300e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**5.1065**	**5.1065**	**2.8000e-004**	**0.0000**	**5.1135**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-003	1.4400e-003	0.0204	7.0000e-005	8.5500e-003	4.0000e-005	8.5900e-003	2.2700e-003	3.0000e-005	2.3100e-003	0.0000	5.9924	5.9924	1.3000e-004	1.5000e-004	6.0393
Total	**2.2000e-003**	**1.4400e-003**	**0.0204**	**7.0000e-005**	**8.5500e-003**	**4.0000e-005**	**8.5900e-003**	**2.2700e-003**	**3.0000e-005**	**2.3100e-003**	**0.0000**	**5.9924**	**5.9924**	**1.3000e-004**	**1.5000e-004**	**6.0393**

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3.5 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2478					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4200e-003	0.0229	0.0362	6.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	5.1065	5.1065	2.8000e-004	0.0000	5.1135
Total	**1.2512**	**0.0229**	**0.0362**	**6.0000e-005**		**1.0300e-003**	**1.0300e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**5.1065**	**5.1065**	**2.8000e-004**	**0.0000**	**5.1135**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-003	1.4400e-003	0.0204	7.0000e-005	8.1100e-003	4.0000e-005	8.1400e-003	2.1600e-003	3.0000e-005	2.2000e-003	0.0000	5.9924	5.9924	1.3000e-004	1.5000e-004	6.0393
Total	**2.2000e-003**	**1.4400e-003**	**0.0204**	**7.0000e-005**	**8.1100e-003**	**4.0000e-005**	**8.1400e-003**	**2.1600e-003**	**3.0000e-005**	**2.2000e-003**	**0.0000**	**5.9924**	**5.9924**	**1.3000e-004**	**1.5000e-004**	**6.0393**

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3.6 Paving/Landscap/Site Finishes - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0193	20.0193	6.4700e-003	0.0000	20.1811
Paving	7.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0170**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0193**	**20.0193**	**6.4700e-003**	**0.0000**	**20.1811**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.8000e-004	3.9300e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.1524	1.1524	2.0000e-005	3.0000e-005	1.1614
Total	**4.2000e-004**	**2.8000e-004**	**3.9300e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.1524**	**1.1524**	**2.0000e-005**	**3.0000e-005**	**1.1614**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving/Landscap/Site Finishes - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0192	20.0192	6.4700e-003	0.0000	20.1811
Paving	7.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0107**	**0.0122**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0192**	**20.0192**	**6.4700e-003**	**0.0000**	**20.1811**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.8000e-004	3.9300e-003	1.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.2000e-004	1.0000e-005	4.2000e-004	0.0000	1.1524	1.1524	2.0000e-005	3.0000e-005	1.1614
Total	**4.2000e-004**	**2.8000e-004**	**3.9300e-003**	**1.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.2000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.1524**	**1.1524**	**2.0000e-005**	**3.0000e-005**	**1.1614**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Transit Subsidy

Employee Vanpool/Shuttle

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6153	3.5267	25.9009	0.3364	5.8193	0.3110	6.1303	1.8607	0.3186	2.1792	0.0000	6,103.9237	6,103.9237	0.6038	0.5596	6,285.7778
Unmitigated	4.6206	3.5503	26.0717	0.3403	5.8873	0.3146	6.2019	1.8824	0.3222	2.2046	0.0000	6,171.7184	6,171.7184	0.6080	0.5648	6,355.2264

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Strip Mall	9,866.34	9,866.34	9866.34	18,771,652	18,554,948
Total	9,866.34	9,866.34	9,866.34	18,771,652	18,554,948

4.3 Trip Type Information

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547196	0.056762	0.174118	0.130529	0.024505	0.006824	0.012367	0.017399	0.000546	0.000242	0.024357	0.000961	0.004193
Strip Mall	0.547196	0.056762	0.174118	0.130529	0.024505	0.006824	0.012367	0.017399	0.000546	0.000242	0.024357	0.000961	0.004193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	336.1286	336.1286	0.0000	0.0000	336.1286
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	467.9014	467.9014	0.0000	0.0000	467.9014
NaturalGas Mitigated	2.1600e-003	0.0197	0.0165	1.2000e-004		1.4900e-003	1.4900e-003		1.4900e-003	1.4900e-003	0.0000	21.4089	21.4089	4.1000e-004	3.9000e-004	21.5361
NaturalGas Unmitigated	3.1000e-003	0.0282	0.0237	1.7000e-004		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	30.6838	30.6838	5.9000e-004	5.6000e-004	30.8661

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	574992	3.1000e-003	0.0282	0.0237	1.7000e-004		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	30.6838	30.6838	5.9000e-004	5.6000e-004	30.8661
Total		**3.1000e-003**	**0.0282**	**0.0237**	**1.7000e-004**		**2.1400e-003**	**2.1400e-003**		**2.1400e-003**	**2.1400e-003**	**0.0000**	**30.6838**	**30.6838**	**5.9000e-004**	**5.6000e-004**	**30.8661**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	401188	2.1600e-003	0.0197	0.0165	1.2000e-004		1.4900e-003	1.4900e-003		1.4900e-003	1.4900e-003	0.0000	21.4089	21.4089	4.1000e-004	3.9000e-004	21.5361
Total		**2.1600e-003**	**0.0197**	**0.0165**	**1.2000e-004**		**1.4900e-003**	**1.4900e-003**		**1.4900e-003**	**1.4900e-003**	**0.0000**	**21.4089**	**21.4089**	**4.1000e-004**	**3.9000e-004**	**21.5361**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	91476	13.1117	0.0000	0.0000	13.1117
Strip Mall	3.17291e+006	454.7897	0.0000	0.0000	454.7897
Total		**467.9014**	**0.0000**	**0.0000**	**467.9014**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	59459.4	8.5226	0.0000	0.0000	8.5226
Strip Mall	2.28559e+006	327.6059	0.0000	0.0000	327.6059
Total		**336.1286**	**0.0000**	**0.0000**	**336.1286**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0864	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6400e-003	6.6400e-003	2.0000e-005	0.0000	7.0700e-003
Unmitigated	1.0864	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6400e-003	6.6400e-003	2.0000e-005	0.0000	7.0700e-003

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1248					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9613					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.1000e-004	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6400e-003	6.6400e-003	2.0000e-005	0.0000	7.0700e-003
Total	**1.0864**	**3.0000e-005**	**3.4000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6400e-003**	**6.6400e-003**	**2.0000e-005**	**0.0000**	**7.0700e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1248					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9613					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.1000e-004	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6400e-003	6.6400e-003	2.0000e-005	0.0000	7.0700e-003
Total	**1.0864**	**3.0000e-005**	**3.4000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6400e-003**	**6.6400e-003**	**2.0000e-005**	**0.0000**	**7.0700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	51.5620	0.5047	0.0119	67.7297
Unmitigated	61.1694	0.6308	0.0149	81.3790

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	19.3596 / 11.8656	61.1694	0.6308	0.0149	81.3790
Total		**61.1694**	**0.6308**	**0.0149**	**81.3790**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	15.4877 / 11.1418	51.5620	0.5047	0.0119	67.7297
Total		**51.5620**	**0.5047**	**0.0119**	**67.7297**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.9267	0.8230	0.0000	34.5028
Unmitigated	55.7068	3.2922	0.0000	138.0113

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	274.43	55.7068	3.2922	0.0000	138.0113
Total		**55.7068**	**3.2922**	**0.0000**	**138.0113**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	68.6075	13.9267	0.8230	0.0000	34.5028
Total		**13.9267**	**0.8230**	**0.0000**	**34.5028**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Bernardino (SC)
Calendar Year: 2024, 2025, 2026
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Ye	Vehicle Category	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumption	Total_Activit	Total_Population	Horsepower_Hours_hhpy
San Bernard	2024	Industrial - Forklifts	Aggregate	100	Diesel	0.0036919	0.0044672	0.0053163	0.0553541	0.0421266	8.0711571	0.0024092	0.0022165	7.45111E-05	6.58757E-05	261859.8017	306065.89	392.7312337	25228131.43
San Bernard	2025	Industrial - Forklifts	Aggregate	100	Diesel	0.0034524	0.0041775	0.0049715	0.0557967	0.0395578	8.1724041	0.0020927	0.0019253	7.54544E-05	6.67021E-05	265144.6517	309907.71	395.9598098	25541283.26
San Bernard	2026	Industrial - Forklifts	Aggregate	100	Diesel	0.0031913	0.0038614	0.0045954	0.0561937	0.0367682	8.2758844	0.0017556	0.0016152	7.64189E-05	6.75467E-05	268501.956	313883.31	399.4763952	25865233.48

g/hph

	HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2024	0.0484571	0.0586331	0.0697782	0.7265422	0.5529269	105.93674	0.0316215	0.0290918	0.000977984	0.000864641	3437000.979
2025	0.044759	0.0541583	0.0644529	0.723372	0.5128443	105.9505	0.0271305	0.0249601	0.000978222	0.000864754	3437447.418
2026	0.0408547	0.0494341	0.0588307	0.7193947	0.470708	105.94828	0.0224757	0.0206777	0.000978319	0.000864736	3437375.338

Phase 1a Forklifts	63	
Phase 1b Forklifts	38	
Phase 2 Forklifts	31	
HP	89	
Hours per Day	12	
Days per Year	365	
1 pound =	453.5924	grams

Emissions Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2	MT/yr	PM10 tons/yr
Phase 1a Forklifts	8.70	82.02	107.77	0.15	4.69	4.32	15,714	2,602	0.856
Phase 1b Forklifts	4.85	45.89	64.72	0.09	2.43	2.23	9,480	1,569	0.443
Phase 2 Forklifts	3.61	34.36	52.51	0.07	1.64	1.51	7,733	1,280	0.299

Based on aggregated emission rates obtained from CARB OFFROAD Version 1.0.1.
Number of forklifts per SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results, June 2014.

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Bernardino (SC)
Calendar Year: 2024, 2025, 2026
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Ye	Vehicle Category	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumption	Total_Activi	Total_Popul	Horsepower_Hours_
San Bernarc	2024	Cargo Handling Equipme	Aggregate	175	Diesel	0.0033694	0.004077	0.004852	0.2022431	0.0131492	31.238822	0.000545314	0.000501689	0.000288717	0.000254967	1013509.19	302936.45	70.784985	50230292.24
San Bernarc	2024	Cargo Handling Equipme	Aggregate	300	Diesel	0.000379	0.0004586	0.0005458	0.007841	0.0014355	3.5547135	5.78061E-05	5.31816E-05	3.28537E-05	2.90131E-05	115328.7653	28578.91	6.6778288	5715782.002
San Bernarc	2025	Cargo Handling Equipme	Aggregate	175	Diesel	0.0035297	0.0042709	0.0050828	0.2122202	0.0134795	32.716425	0.000572028	0.000526266	0.000302374	0.000267027	1061448.373	317265.4	73.267648	52606194.89
San Bernarc	2025	Cargo Handling Equipme	Aggregate	300	Diesel	0.0004027	0.0004872	0.0005798	0.008252	0.0015058	3.7228522	6.0962E-05	5.6085E-05	3.44075E-05	3.03854E-05	120783.8385	29930.698	6.9120422	5986139.609
San Bernarc	2026	Cargo Handling Equipme	Aggregate	175	Diesel	0.0037304	0.0045138	0.0053718	0.2238812	0.0140813	34.433668	0.000604104	0.000555775	0.000318244	0.000281043	1117162.421	333918.25	76.116556	55367425.83
San Bernarc	2026	Cargo Handling Equipme	Aggregate	300	Diesel	0.0004261	0.0005156	0.0006136	0.0087021	0.001587	3.9182598	6.43518E-05	5.92037E-05	3.62135E-05	3.19803E-05	127123.6255	31501.722	7.1808072	6300344.314

g/hph

	HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2024	0.022212	0.0268766	0.0319853	1.3332265	0.0866822	205.93248	0.003594817	0.003307232	0.001903282	0.001680793	6681252.608
2024	0.0219573	0.0265683	0.0316185	0.4542455	0.0831627	205.93248	0.003348838	0.003080931	0.001903289	0.001680793	6681252.608
2025	0.0222176	0.0268833	0.0319934	1.335813	0.0848464	205.93248	0.00360061	0.003312562	0.001903281	0.001680793	6681252.608
2025	0.022274	0.0269515	0.0320745	0.4564673	0.0832961	205.93248	0.00337216	0.003102387	0.00190328	0.001680793	6681252.608
2026	0.0223101	0.0269952	0.0321265	1.3389343	0.0842142	205.93248	0.003612877	0.003323846	0.001903279	0.001680793	6681252.608
2026	0.0223968	0.0271001	0.0322514	0.457355	0.0834098	205.93248	0.003382146	0.003111574	0.001903276	0.001680793	6681252.608

	HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2024	1.5722792	1.9024579	2.2640821	94.372417	6.1357948	14576.928	0.254459098	0.234102371	0.134723758	0.118974925	472932368
	0.146627	0.1774187	0.2111429	3.033374	0.5553463	1375.1819	0.022362965	0.020573928	0.01270984	0.01122405	44616261.14
	1.7189062	2.0798766	2.475225	97.405791	6.691141	15952.11	0.276822064	0.254676298	0.147433597	0.130198974	517548629.2
	0.0221901	0.02685	0.0319537	1.2574523	0.0863787	205.93248	0.003573612	0.003287723	0.001903282	0.001680793	6681252.608
2025	1.6278324	1.9696772	2.3440787	97.871875	6.2164955	15088.189	0.26380825	0.24270359	0.139448951	0.123147767	489519660.9
	0.1539585	0.1862898	0.2217003	3.1551209	0.5757462	1423.414	0.023308511	0.02144383	0.01315555	0.011617714	46181100.09
	1.7817909	2.155967	2.565779	101.027	6.7922417	16511.603	0.287116761	0.26414742	0.1526045	0.13476548	535700761
	0.0222225	0.0268892	0.0320004	1.2600073	0.0847127	205.93248	0.003580916	0.003294443	0.001903281	0.001680793	6681252.608
2026	1.6981682	2.0547835	2.4453622	101.91507	6.4100959	15674.871	0.274999725	0.252999747	0.144871015	0.127936193	508553940.9
	0.1608269	0.1946006	0.2315908	3.2841784	0.5989497	1478.7615	0.024286539	0.022343616	0.013667058	0.012069452	47976786.88
	1.8589951	2.2493841	2.676953	105.19925	7.0090455	17153.633	0.299286265	0.275343364	0.158538073	0.140005646	556530727.8
	0.0223176	0.0270043	0.0321373	1.2629361	0.0841449	205.93248	0.003592986	0.003305547	0.001903278	0.001680793	6681252.608

Phase 1a Yard Trucks	11	
Phase 1b Yard Trucks	7	
Phase 2 Yard Trucks	6	
HP	190	
Hours per Day	12	
Days per Year	365	
1 pound =	453.5924	grams

Emissions Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2	MT/yr	PM10 tons/yr
Phase 1a Yard Trucks	1.48	4.78	69.53	0.11	0.20	0.18	11386.40	1,885	0.036
Phase 1b Yard Trucks	0.95	2.98	44.33	0.07	0.13	0.12	7245.89	1,200	0.023
Phase 2 Yard Trucks	0.81	2.54	38.09	0.06	0.11	0.10	6210.77	1,028	0.020

Based on aggregated emission rates obtained from CARB OFFROAD Version 1.0.1.
Number of yard trucks/hostlers per SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results, June 2014.

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Bernardino (SC)
Calendar Year: 2024, 2025, 2026
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Ye	Vehicle Category	Model Year	Horsepov	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consun	Total_Activity_h	Total_Popul	Horsepower_H
San Bernard	2024	Transportation Refridgeration Unit - Instate Gen	Aggregate	50	Diesel	0.0007554	0.007706	0.0010872	0.0008391	0.007912	1.27	0.0002108	0.0001939	2.103E-06	3.003E-08	43573.82	81753.38	104.61	4087669
San Bernard	2024	Transportation Refridgeration Unit - Instate Trail	Aggregate	50	Diesel	0.026786	0.2329544	0.0385631	0.0297566	0.1910643	42.75875	0.0045071	0.0041445	6.713E-05	9.587E-07	1390948.4	1828821.67	1020.72	91441083.5
San Bernard	2024	Transportation Refridgeration Unit - Out-Of-Stat	Aggregate	50	Diesel	0.0006201	0.0063419	0.0008929	0.0006901	0.0059298	0.8376	0.0001987	0.0001828	1.44E-06	2.057E-08	29832.09	55199.04	445.05	2759952
San Bernard	2024	Transportation Refridgeration Unit - Out-Of-Stat	Aggregate	50	Diesel	0.008641	0.08803	0.012446	0.0096	0.072615	11.86	0.0019308	0.0017771	1.872E-05	2.675E-07	387779.76	511213.93	1879.37	25560696.5
San Bernard	2025	Transportation Refridgeration Unit - Instate Gen	Aggregate	50	Diesel	0.0006642	0.0067791	0.0009562	0.0007381	0.0066875	1.13735	0.0001453	0.0001338	1.886E-06	2.695E-08	39085.53	74503.45	95.32	3725172.5
San Bernard	2025	Transportation Refridgeration Unit - Instate Trail	Aggregate	50	Diesel	0.0253247	0.222842	0.0364613	0.0281461	0.1778423	41.92013	0.003683	0.0033882	6.576E-05	9.393E-07	1362528.3	1803623.46	1012.24	90181173
San Bernard	2025	Transportation Refridgeration Unit - Out-Of-Stat	Aggregate	50	Diesel	0.000506	0.005158	0.0007276	0.0005613	0.0048641	0.73616	0.0001378	0.0001267	1.251E-06	1.787E-08	25920.78	48800.71	393.49	2440035.5
San Bernard	2025	Transportation Refridgeration Unit - Out-Of-Stat	Aggregate	50	Diesel	0.0080032	0.081729	0.011527	0.0088901	0.066572	11.24	0.0015398	0.0014179	1.774E-05	2.533E-07	367457.78	487548.96	1792.37	24377448
San Bernard	2026	Transportation Refridgeration Unit - Instate Gen	Aggregate	50	Diesel	0.0006129	0.0062535	0.0008826	0.000681	0.005937	1.04	0.0001077	9.907E-05	1.741E-06	2.487E-08	36075.91	69374.17	88.75	3468708.5
San Bernard	2026	Transportation Refridgeration Unit - Instate Trail	Aggregate	50	Diesel	0.0242506	0.2056307	0.0349233	0.0269448	0.1845979	41.00801	0.002932	0.002699	6.434E-05	9.177E-07	1333084.9	1775225.22	989.96	88761261
San Bernard	2026	Transportation Refridgeration Unit - Out-Of-Stat	Aggregate	50	Diesel	0.0004397	0.0044875	0.0006325	0.0004884	0.0041898	0.64159	0.000105	9.653E-05	1.128E-06	1.611E-08	23362.88	44468.92	358.55	2223446
San Bernard	2026	Transportation Refridgeration Unit - Out-Of-Stat	Aggregate	50	Diesel	0.0076604	0.078243	0.0110337	0.0085131	0.062662	10.88	0.0012259	0.0011282	3.795E-08	2.456E-07	356229.55	475444.91	1747.87	23772245.5

Annual TRU Hours per Truck	730.84
Daily Hours per Truck	2.00

g/hph

	HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2024	0.0611924	0.6242365	0.0880703	0.0679726	0.6409239	102.87833	0.0170746	0.0157088	0.0001704	2.433E-06	3529765.2
2024	0.0969978	0.8435784	0.1396454	0.1077549	0.6918853	154.83871	0.0163211	0.0150081	0.0002431	3.472E-06	5036925.8
2024	0.0744007	0.7608758	0.1071278	0.0827894	0.7114337	100.4919	0.023843	0.0219347	0.0001727	2.468E-06	3579134.8
2024	0.1119405	1.1403914	0.1612327	0.1243639	0.9406966	153.64128	0.0250127	0.0230216	0.0002425	3.465E-06	5023522.6
2025	0.0590394	0.6025895	0.0849968	0.0656056	0.5944472	101.09825	0.0129183	0.0118916	0.0001677	2.395E-06	3474285.7
2025	0.0929874	0.8182332	0.1338788	0.1033471	0.6530029	153.92269	0.0135233	0.0124409	0.0002415	3.449E-06	5002942.9
2025	0.0686646	0.6999727	0.0987344	0.0761746	0.6600886	99.901493	0.0187049	0.0171934	0.0001698	2.424E-06	3517611.1
2025	0.1087105	1.1101556	0.1565756	0.1207576	0.9042724	152.67713	0.0209157	0.0192599	0.0002409	3.44E-06	4991316.6
2026	0.0585045	0.5969683	0.0842543	0.0650045	0.5667547	99.279925	0.0102831	0.0094574	0.0001662	2.374E-06	3443859.3
2026	0.0904681	0.7671149	0.1302828	0.1005189	0.688651	152.98228	0.0109379	0.0100688	0.00024	3.423E-06	4973135.1
2026	0.0654751	0.6683036	0.0941954	0.0727323	0.6239684	95.549167	0.01563	0.0143761	0.0001679	2.399E-06	3479330.6
2026	0.1067031	1.0898612	0.1536904	0.1185805	0.8728306	151.54953	0.0170758	0.0157149	5.287E-07	3.421E-06	4961987.2

Weighting

	HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2024	6.4013322	65.301385	9.2130373	7.1106141	67.047049	10762.102	1.78617	1.6432967	0.0178209	0.0002545	369248740
2024	99.00764	861.05736	142.5388	109.9876	706.22114	158046.97	16.659292	15.319111	0.2481402	0.0035437	5.141E+09
2024	33.112039	338.62777	47.677214	36.84544	316.62356	44723.919	10.611305	9.7620525	0.0768759	0.0010983	1.593E+09
2024	210.37761	2143.2173	303.01582	233.72585	1767.9169	288748.81	47.008111	43.266063	0.4556636	0.0065115	9.441E+09
	348.89862	3408.2039	502.44488	387.66951	2857.8087	502281.8	76.064878	69.990523	0.7985006	0.0114079	1.654E+10
	0.1011374	0.9879568	0.1456468	0.1123761	0.8284104	145.59948	0.0220494	0.0202886	0.0002315	3.307E-06	4795852.2
2025	5.6276345	57.438831	8.1018991	6.2535298	56.662711	9636.6854	1.2313707	1.1335084	0.015983	0.0002283	331168909
2025	94.125616	828.24833	135.51752	104.6121	660.99563	155806.7	13.6888	12.593172	0.2444185	0.0034912	5.064E+09
2025	27.018847	275.43226	38.851007	29.97395	259.73828	39310.238	7.3602035	6.765445	0.0668001	0.000954	1.384E+09
2025	194.84937	1989.8096	280.64133	216.44222	1620.7907	273653.9	37.488637	34.520807	0.431784	0.006166	8.946E+09
	321.62147	3150.929	463.11175	357.2818	2598.1873	478407.53	59.769012	55.012932	0.7589855	0.0108394	1.573E+10
	0.0976558	0.9567346	0.1406173	0.1084835	0.7889025	145.26162	0.018148	0.0167039	0.0002305	3.291E-06	4774908.4
2026	5.1922756	52.980935	7.4775683	5.7691481	50.299482	8811.0934	0.9126259	0.8393414	0.0147511	0.0002107	305642510
2026	89.559763	759.41303	128.97476	99.509654	681.73693	151446.34	10.828098	9.9677147	0.2376145	0.0033891	4.923E+09
2026	23.476109	239.62025	33.773773	26.078158	223.72388	34259.154	5.6041502	5.1545452	0.0602065	0.0008602	1.248E+09
2026	186.50319	1904.9357	268.63092	207.26337	1525.5944	264888.88	29.846257	27.467613	0.000924	0.00598	8.673E+09
	304.73134	2956.9499	438.85703	338.62033	2481.3547	459405.47	47.191131	43.429214	0.3134961	0.0104399	1.515E+10
	0.0956731	0.9283608	0.1377831	0.1063129	0.7790435	144.23445	0.0148161	0.013635	9.842E-05	3.278E-06	4756248.5

Phase 1a Trucks	229	
Phase 1b Trucks	137	
Phase 2 Trucks	185	
TRU HP	50	
Onsite Idling Time	0.25	hours
Total Idling Time	2.00	hours
1 pound =	453.5924	grams

Emissions Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2	MT/yr
Phase 1a Transport Refrigeration Units	49.94	41.87	5.68	0.01	1.11	1.03	7359.15	1,218
Phase 1b Transport Refrigeration Units	28.93	23.85	3.28	0.01	0.55	0.51	4392.42	727
Phase 2 Transport Refrigeration Units	37.91	31.81	4.34	0.00	0.60	0.56	5889.43	975
Onsite Emissions								
Phase 1a	6.23	5.23	0.71	0.00	0.14	0.13		
Phase 1b	3.61	2.98	0.41	0.00	0.07	0.06		
Phase 2	4.73	3.97	0.54	0.00	0.08	0.07		

Based on aggregated TRU emission rates obtained from CARB OFFROAD Version 1.0.1.
TRU time from CARB OFFROAD for San Bernardino County.

Emergency Backup Generator Emissions

	Fuel Type	Quantity	HP	LF	Hours/Year per Unit	Hours per Day	HP-hr per day	Total hp-hr per year
Phase 1a								
Standard Generator	Diesel	2	750	0.74	50	1	1,500	75,000
Cold Storage Generator	Diesel	1	3,634	0.74	50	1	3,634	181,700
Phase 1b								
Standard Generator	Diesel	2	750	0.74	50	1	1,500	75,000
Phase 2								
Standard Generator	Diesel	1	750	0.74	50	1	750	37,500
Cold Storage Generator	Diesel	1	3,634	0.74	50	1	3,634	181,700

Emissions Rates (g/hp-hr)

	HC	ROG	TOG	CO	NO_X	CO_2	PM_{10}	$PM_{2.5}$	PM	SO_X
Standard Warehouse	0.14	1.0205827	1.1249089	2.6	2.85	521.63114	0.15	0.15	0.15	0.00494
Cold Storage	0.02	0.02	1.1249089	0.45	3.79	518	0.05	0.05	0.05	0.006

From CalEEMod Guide Appenix D, Table 12.1 and updated with Tier 4 Standards (CARB 2017 Off-Road Diesel Emission Factor Update for NOx and PM)

Emissions (pounds/day)

	HC	ROG	TOG	CO	NO_X	CO_2	PM_{10}	$PM_{2.5}$	PM	SO_X
Phase 1a										
Standard Warehouse	0.46	3.38	3.72	8.60	9.42	1725.00	0.50	0.50	0.50	0.02
Cold Storage	0.16	0.16	9.01	3.61	30.36	4150.01	0.40	0.40	0.40	0.05
Total	0.62	3.54	12.73	12.20	39.79	5875.01	0.90	0.90	0.90	0.06
Phase 1b										
Standard Generator	0.46	3.38	3.72	8.60	9.42	1725.00	0.50	0.50	0.50	0.02
Phase 2										
Standard Generator	0.23	1.69	1.86	4.30	4.71	862.50	0.25	0.25	0.25	0.01
Cold Storage Generator	0.16	0.16	9.01	3.61	30.36	4150.01	0.40	0.40	0.40	0.05
Total	0.39	1.85	10.87	7.90	35.08	5012.51	0.65	0.65	0.65	0.06
Total (lbs/day, all phases)	1.48	8.76	27.32	28.71	84.29	12612.52	2.04	2.04	2.04	0.14

Emissions (tons/year)

Phase 1a	HC	ROG	TOG	CO	NO_X	CO_2	PM_{10}	$PM_{2.5}$	PM	SO_X
Standard Warehouse	0.01	0.08	0.09	0.21	0.24	43.12	0.01	0.01	0.01	0.00
Cold Storage	0.00	0.00	0.23	0.09	0.76	103.75	0.01	0.01	0.01	0.00
Total	0.02	0.09	0.32	0.31	0.99	146.88	0.02	0.02	0.02	0.00
Phase 1b										
Standard Generator	0.01	0.08	0.09	0.21	0.24	43.12	0.01	0.01	0.01	0.00
Phase 2										
Standard Generator	0.01	0.04	0.05	0.11	0.12	21.56	0.01	0.01	0.01	0.00
Cold Storage Generator	0.00	0.00	0.23	0.09	0.76	103.75	0.01	0.01	0.01	0.00
Total	0.01	0.05	0.27	0.20	0.88	125.31	0.02	0.02	0.02	0.00
Total (tons/yr, all phases)	0.04	0.22	0.68	0.72	2.11	315.31	0.05	0.05	0.05	0.00

GHG Emissions (metric tons)	CO_2
Phase 1a	133.24
Phase 1b	39.12
Phase 2	286.05

Electric Equipment Emissions

Equipment	Number of Equipment[1]	Hours per Day[1]	Days per Year[1]	Equipment Size[2] (hp)	Equipment Size (kW)	Load Factor[2]	SCE electricity emission factor[3] (MT CO_2e/MWh)	Emissions (MT CO_2e/year)
Phase 1a (2024)								
Forklift	63	12	365	89	66.4	0.20	0.156	572.8
Yard Truck	11	12	365	190	141.7	0.44	0.156	469.7
Phase 1b (2025)								
Forklift	38	12	365	89	66.4	0.20	0.152	335.8
Yard Truck	7	12	365	190	141.7	0.44	0.152	290.5
Phase 2 (2026)								
Forklift	31	12	365	89	66.4	0.20	0.148	266.1
Yard Truck	6	12	365	190	141.7	0.44	0.148	241.9

Notes:

[1] Project-specific data.

[2] Equipment size and load factors based on CalEEMod Appendix D, Table 3.3

[3] CO_2e intensity factor for SCE accounts for the projected RPS improvements consistent with SB 100.

Conversion Factors:

0.7457 kW/hp
1000 kW/MW

APPENDIX I

Geosyntec consultants

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September 3, 2020

Jeffrey P. Carlin
Alston & Bird
333 S. Hope Street, Suite 1600
Los Angeles, CA 90071

Subject: Summary Assessment of Environmental Conditions and Land Use Restrictions at the Auto Club Speedway property, 9300 Cherry Avenue, Fontana, California 92335

Dear Mr. Carlin:

Geosyntec Consultants (Geosyntec) prepared this summary assessment of historical environmental conditions and related land use restrictions at the Auto Club Speedway Property (Site), at 9300 Cherry Avenue, Fontana, California 92335 (Figure 1). The purpose of the summary assessment is to support California Environmental Quality Act (CEQA) compliance for proposed modifications to the Auto Club Speedway to develop a ½ mile track as discussed below (Modified Project). This assessment is prepared on behalf of the applicant, California Speedway, LLC.

The Modified Project generally includes demolition of the existing two-mile race track and certain support structures (i.e., lighting, fencing, etc.), demolition of a portion of the existing grandstands and support facilities (i.e., entrance gates, restrooms, concession stands, etc.), and the development of a new ½ mile short-track and support facilities (i.e., modified entrance gates, restrooms, concession stands, etc.) on approximately 98-acres of the 522.30-acre Site, along with parking, entrance, and stormwater detention basins. The Modified Project would retain a portion of the existing grandstands and certain support facilities. The existing drag strip, Go-Kart track, and parking facilities would not be affected by the proposed modifications.

It is anticipated that after the completion of the Auto Club 400 NASCAR Cup Series race in the spring of 2021, demolition of the existing track and selective facilities will begin the next day. Under this anticipated scenario, between the start of construction and its scheduled completion approximately 11 months later in 2022, no events will be scheduled at the Speedway, although some ancillary activities (Go-Kart racing, drag racing, etc.) which are not located within the 98-acre footprint where construction activities will occur may continue if they are not affected by the cons-

truction. Construction activities could occur later, including commencing in 2022 or later, or over multiple years with phased demolition and construction development.

The conclusions contained in this summary assessment by Geosyntec are based upon our review of publicly available information obtained from the Department of Toxic Substances Control (DTSC) ENVIROSTOR website, State Water Resources Control Board (SWRCB) GeoTracker website, documentation provided by or on behalf of California Speedway, LLC or its affiliates, and on-site reconnaissance.

BACKGROUND SITE HISTORY

The Site is located within the former boundaries of the Kaiser Steel Mill, which was originally located on approximately 1,200 acres in Fontana (Figure 2). The Kaiser Steel Mill was owned and operated by the Kaiser Steel Corporation from approximately 1942 to 1983. The steel mill was an integrated steel production plant producing steel plates for the Pacific Coast shipbuilding industry during World War II. After World War II, Kaiser initiated a series of expansions to supply a wider range of products, including everything from steel plates and pipe to structural shapes, as well as tin plates for cans. By the late 1970s, the steel mill was the biggest integrated steel mill on the West Coast. By 1983 the facility closed, portions of the property were sold or transferred, and Kaiser Steel entered bankruptcy, re-emerging in 1988 as Kaiser Steel Resources, Inc.

Hazardous waste was first identified on the property in 1983 during demolition activities. An environmental assessment at the property was conducted in 1985, with subsequent investigations in 1988 and 1989. Thirty-two areas were investigated, with 12 areas identified as requiring no further action by the regulatory agency (ultimately the DTSC), and 20 recommended for remedial investigation. Two phases of remedial investigation were completed, the first in April 1990 evaluated the 20 potential areas, and concluded that three areas required further investigation and/or remediation. Additional investigations and remediation were conducted for the By-products Plant, additional remediation was conducted for the East Slag Pile Landfill, and limited material removal was also completed for the Cooling Tower Sludge Pit and the Furnace Dust and Mill Scale Piles (Figure 2a).

CCG Ontario, LLC (CCG) acquired 529 acres of the former Kaiser Steel Mill in August 2000 and entered into an Imminent and Substantial Endangerment Determination Consent Order with the DTSC for the environmental liabilities associated with the acquisition. CCG assumed responsibility for implementing final remedies at the former Kaiser Steel Mill, and impacted areas were divided into four separate operable units, two of which (Operable Units Nos. 1 and 2) contain portions of the Site:

- Operable Unit No. 1 – Tar pits; Southwest Corner Parcel, Former Heckett Slag Processing Area, the Tar Pits, and Napa Lots Area. The Southwest Corner Parcel and the Former Heckett Slag Processing Area are within the Site.
- Operable Unit No. 2 – By-Products area; Coke Quench Sumps and Blast Furnace Sumps. The By-Products area and sumps are located within the Site.
- Operable Unit No. 3 – East Slag Pit Landfill area, not included within the Site.
- Operable Unit No. 4 – Chem West Area, not included within the Site.

Constituents of concern at the property included total recoverable petroleum hydrocarbons (TRPH), polyaromatic hydrocarbons (PAHs), various metals and volatile organic compounds (VOCs).

In 2008, Operable Unit No. 5 was established for groundwater at the former Kaiser Steel Mill. 34 groundwater monitoring wells have been installed across the former Kaiser Steel Mill. Two groundwater monitoring wells were installed in Operable Unit No. 2 on the Site, as indicated on the figure below.



Excerpt from *Remedial Investigation Report for Site-Wide Groundwater, Iris Environmental, September 1, 2016 – Figure 6*

On June 7, 2012 DTSC issued a Resource Conservation Recovery Act (RCRA) Corrective

Action Completeness Determination (CACD) for portions of the former Kaiser Steel Mill, with institutional controls in place, operations and maintenance, and land use covenants (LUCs). Groundwater investigation and remediation was excluded from the CACD. In September 2016, the final Remedial Investigation (RI)/Feasibility Study (FS)/Remedial Action Plan (RAP) for Operable Unit No.5 was submitted and approved by the DTSC, with a selected remedy of long-term groundwater monitoring and LUCs on the property.

The southern portion of the former Kaiser Steel Mill is being used by California Steel Corporation for steel production. The Auto Club Speedway, owned and operated by California Speedway, LLC, occupies parcels on the northern portion of the former Kaiser Steel Mill (Figure 3). California Speedway, LLC's predecessor purchased the two portions of the former Kaiser Steel Mill in 1994 and started construction of the race track and associated facilities and stands in 1995. The first NASCAR race took place in June 1997, and in February 2008 the racetrack was renamed the Auto Club Speedway. The Speedway property consists of eight contiguous parcels (Parcels 09, 10, 11, 12, 17, 18, 19 and 20), totaling approximately 520 acres (Figures 5 to 11).

ENVIRONMENTAL CONDITIONS AND RESTRICTIONS

The following section describes the known current environmental conditions for the Auto Club Speedway Property, and summarizes existing LUCs and limitations.

Auto Club Speedway Property

The Auto Club Speedway Property consists of Parcels 09, 10, 11, 12, 17, 19 and 20, totaling 520.38 acres with most of the acreage, 425.43 acres in Parcel 09 (Figure 4). The Auto Club Speedway Property contains portions of Operable Unit No. 1 with the Former Heckett Slag Processing Area, and the Southwest Parcel; and encompasses Operable Unit No. 2 (Figure 12), containing the By-Products Area, the Coke Quench Sumps and the Blast Furnace Sumps (Figure 13).

Operable Unit No.1 Former Heckett Slag Processing Area – Parcel 09

The Former Heckett Slag Processing Area is located within the northeastern portion of Operable Unit No. 1 and northern portion of Operable Unit 2 (Figure 12 and below). The Former Heckett Slag Processing Area covers approximately 35 acres that was formerly used for processing and storing steel mill slag. The slag was crushed, screened and stockpiled, then sold for construction use in road base and railroad ballast. Sampling in the area as part of the site-wide investigation in 1995, demonstrated the presence of metals and PAHs in surficial soils. A health risk assessment based on on-site residential exposure scenario, indicated "concentrations were within an acceptable risk range to protect human

health" (DTSC, 1995). As an additional remedial measure, residual slag was either removed and used to construct the California Speedway, or buried at depths of 20 feet below ground surface (bgs).

No documentation of geotechnical conditions was identified on the ENVIROSTOR website. Given that remedial activities included excavation and burial activities, an assessment of geotechnical conditions may be required.

Current use

This area of the Site is currently used as the Back Stretch of the Speedway racetrack, the infield, additional racetrack areas, the westerly portion of the drag racing track and associated garages and a portion of surface parking leased by a local car dealership for storing inventory. The location of the Former Heckett Slag Processing Area is illustrated on the figure below.

Current environmental conditions

Metals and PAHs are present at depths of greater than 20 feet bgs at concentrations that were not considered a human health risk in 1995 using an on-site residential exposure scenario. Slag material was subsequently removed or buried at depths of 20 feet bgs, thereby diminishing the potential health risks further. There is a low likelihood that the continued presence of metals and PAHs at depths of greater than 20 feet bgs would be present at unacceptable risk levels under industrial/commercial land scenarios.

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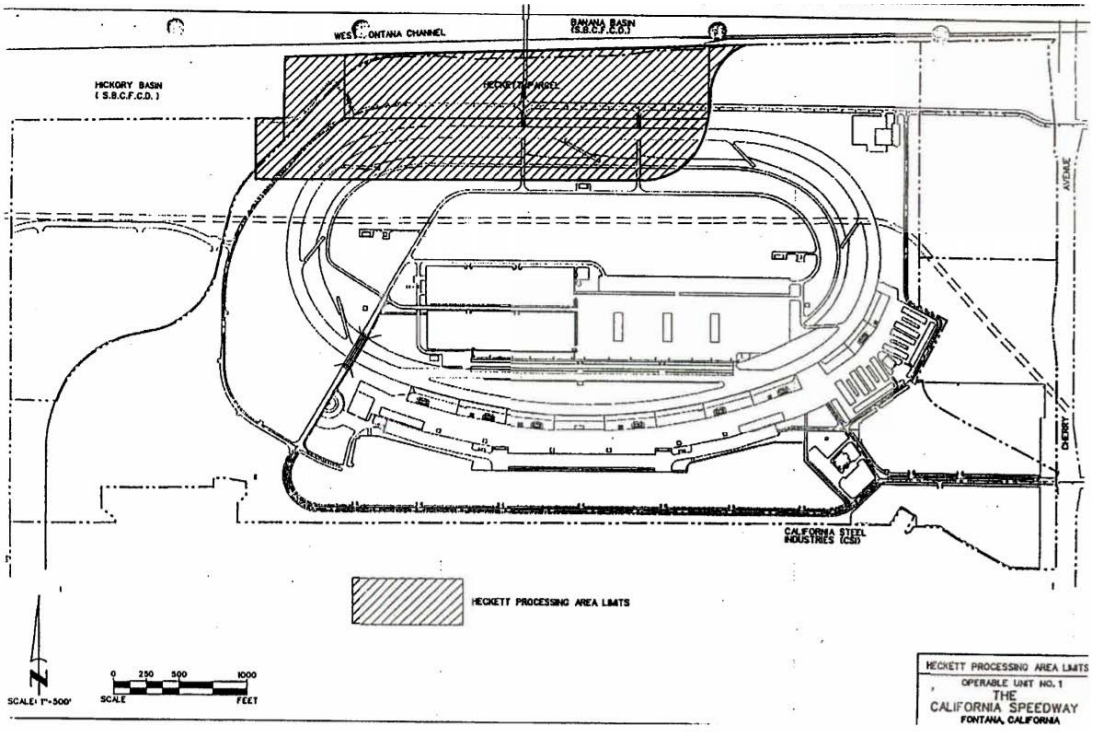


Excerpt from *Kaiser Steel - Heckett Slag Processing Area of OU-1 - Remedial Action Completion - approval letter 3-18-96 (1)*

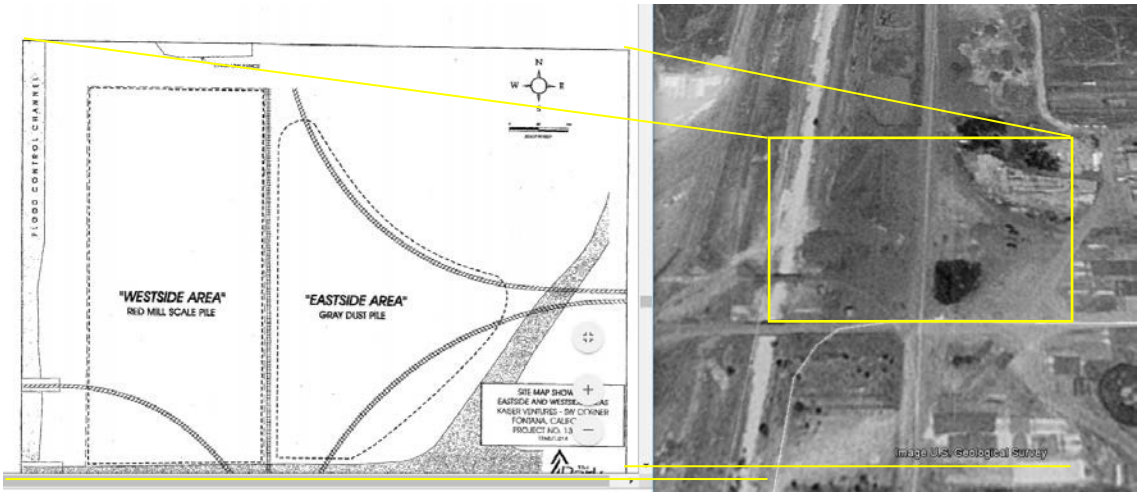
Current deed restrictions

Based on a review of the DTSC ENVIROSTOR Land Use Restrictions webpage (https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001356), no current deed restrictions or LUCs were found for the Former Heckett Slag Processing Area.

Summary

- Contaminants identified — Metals and PAHs
- Remediation completed — Yes
- DTSC closure — Yes
- Ongoing O&M — No
- LUCs or deed restrictions — None reported
- Geotechnical concerns — Potential

Operable Unit No. 1 - Southwest Corner Parcel – Parcel 09



The Southwest Corner Parcel is approximately 9 acres and located in the southwest corner of the Auto Club Speedway property, within Parcel 09 (Figure 4). The parcel was split into the Westside Area and the Eastside Area by a rail line running north-south (Figure 14).

Site map from the *Report of Remedial Action at the Red Mill Scale/Gray Dust Pile Area of Operable Unit No.1 Southwest Corner of Former Kaiser Steel Facility Fontana, California* (Park Report, 1996) compared to an aerial photograph from 1994 (Google Earth) of the Southwest Corner of the Kaiser Steel Mill.

Three additional rail spurs were also present diverging from or onto, the north-south rail line during investigation and remediation activities in the mid-1990s. The north-south rail line and the rail spur in the Westside Area are currently present, while the other two rail spurs are no longer present.

The Westside Area was used for stockpiling red mill scale, slag and other recyclable products from the steel making process. The Eastside Area was used to stockpile gray dust or filter cake material from Kaiser Steel's emission control equipment. The Southwest Corner Parcel was included within the *Remedial Action Plan, Tar Pits Area, August 1993* and the *Park Remedial Workplan Letter, dated February 14, 1996*. Soil remediation was conducted between January 2 and March 15, 1996.

Eastside Area surface soils impacted by gray dust or filter cake were excavated, screened and disposed of, while recyclable slag and debris that had been stockpiled on the Westside Area were removed. Confirmation soil sampling and additional excavation was

conducted until remedial site goals were achieved.

No documentation of geotechnical conditions was identified on the ENVIROSTOR website, given remedial activities included excavation and burial activities, an assessment of geotechnical conditions may be required.

Current use

The area is currently in use for two railway spurs, two flood detention basins and paved for surface parking.

Current environmental conditions

On April 10, 1996, the DTSC confirmed that no further remedial work was required for the Southwest Corner Parcel, as remediation had been completed in accordance with the *Remedial Action Plan, Tar Pits Area, August 1993* and the *Park Remedial Workplan Letter, dated February 14, 1996*. According to this report, remedial goals for soils affected by polynuclear aromatic hydrocarbons (PAHs) with a future residential scenario are commonly set at 1.0 milligrams per kilogram (mg/kg). Remedial goals for the Westside and Eastside Areas were established at 1.0 mg/kg for PAHs, and statistical sampling indicated that concentrations within both areas were 0.45 mg/kg, below PAH remedial goals. Site background concentrations for metals also were achieved (Park Report, 1996). A risk screening analysis was conducted and a cumulative carcinogenic risk of 1.42E-05 and a cumulative hazard (non-carcinogen) index of 1.46E-08 were identified. The Park Report concluded that these values were within published remedial health goals.

Current deed restrictions

Based on a review of the DTSC ENVIROSTOR Land Use Restrictions webpage (https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001356), no current deed restrictions or LUCs were found for the Southwest Corner Parcel. This area of the Site appears to be used for flood management and may be subject to permitting requirements with the San Bernardino County Flood Control District (SBCFCD).

Summary

- Contaminants identified — Metals and PAHs
- Remediation completed — Yes
- DTSC closure — Yes
- Ongoing O&M — No
- LUCs or deed restrictions — None reported, potential SBCFCD permitting
- Geotechnical concerns — Potential

Geosyntec consultants

Operable Unit No. 2 – Auto Club Speedway Property

Operable Unit No. 2 consists of approximately 340 acres of the northern portion of the former Kaiser Steel plant and contained the By-products Area (Figure 13). This area included an approximately 16-acre portion in which volatile portions of the coking operations were processed to produce other valuable materials or by-products (Figure 13).

Approximately 18 single-walled, steel, underground storage tanks (USTs) of either 10,000- or 20,000-gallon capacity were located in the By-products Area (Figure 13). These USTs contained light oils, motor fuels, and various aromatic hydrocarbons.

Soils in the area had elevated concentrations of PAHs and VOCs. Remedial activities conducted in the By-products Area in the mid-1990s included:

- Soil excavation;
- Excavation of USTs;
- An in-situ soil vapor extraction system (VES) to remove VOCs associated with the USTs,
- Removal of materials in the Cooling Tower and Blast Furnace Areas with verification sampling; and
- A 12.75-acre cap of low permeability synthetic membrane with soil layers and concrete or asphalt (Cap) paving with a gas collection system (GCS) under the Cap (Figure 15).

Three groundwater monitoring wells were installed to a depth of approximately 385 to 410 feet bgs within Operable Unit No. 2. The Cap, VES, GCS and groundwater monitoring wells were collectively referred to as Response Structures. On completion of remedial activities and installation of the Response Structures, long term monitoring and maintenance of these Response Structures was initiated in agreement with the DTSC in 1995. Operations and maintenance activities include:

- Inspection of the Cap for stability, settlement, cover, unusual conditions and any corrective action;
- Inspection of the gas vent pipes for damage, odor or vapors; and
- Implementation of any corrective actions on the Response Structures as required.

The area where the Cap has been implemented is known as the Capped Property, and the area where the Coke Quench Sumps and Slag Quench Pits used to be located is known as the Restricted Property (Figure 13). A third area, known as the A&C Recycling Center,

and formerly located in the southeast corner of Operable Unit No. 2, reportedly had remedial action to remove metal and PAH affected soil. On December 2, 1996, the DTSC responded to a soil verification sampling and analysis report prepared by the Park Corporation, confirming no additional remedial action was required in relation to the A&C Recycling Center (*No Further Remedial Action at the former A&C Recycling Area, DTSC, December 2, 1996*).

Current use

The land within Operable Unit No. 2 is owned and operated by California Speedway, LLC for the Auto Club Speedway. The area consists of race tracks, drag racing strip, garages, hospitality areas, driving schools, grandstands, and parking lots. Portions of the Auto Club Speedway overlay the Capped or Restricted Property.

Current environmental conditions

The Capped Property land use covenants prevent puncturing or breaching the protective cap or overburden material, both the Capped Property and Restricted Property have been developed with no access to soil, and as such soil conditions have to be inferred from vapor extracted from the VES. Based on the remediation conducted at the Site, it is reasonable to assume that residual elevated concentrations of metals, VOCs and PAHs likely persist beneath the Capped Property and in portions of the Restricted Property.

Current deed restrictions – Capped Property

Based on a review of the DTSC ENVIROSTOR Land Use Restrictions webpage (https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001356), the *Capped Property* is subject to deed restrictions or LUCs specified in the *Covenant to Restrict Use of Property*, Docket Number 19950393082 and dated November 14, 1995 (Capped Property Covenant). The covenant consists of the following preclusions:

- A residence, including any mobile home or factory-built housing, constructed or installed for use as permanently-occupied residential human habitation.
- A long-term care hospital for humans. Nothing herein shall restrict use of the Capped Property for any infirmary, medical aid station, or emergency medical care facility where there is no intent for any patient to remain in such facility for more than 24 hours (e.g. as may be associated with the motor sport complex).
- A traditional public or private school for persons under 21 years of age. Nothing herein shall restrict use of the Capped Property for any specified training programs related to then-existing facilities on the Capped Property (e.g. a driving "school" related to the motor sport complex).
- A day care center for children.

In addition, the covenant specifies activities that are precluded that could interfere with the Cap or VES and consist of:

- No activities which will disturb the Cap and/or the VES (e.g. excavation, grading, removal, trenching, filing, earth movement, or mining) shall be permitted on the Capped Property without prior review and approval by DTSC.
- All uses, and development of the Capped Property shall preserve the integrity of the Cap and operation of the VES.
- Any proposed alteration of the Cap and/or the VES shall require written approval by the Department, except for the addition of non-invasive surface materials ("Non-invasive Surface Materials" means any materials, including soil, asphalt, concrete, and structures, placed upon or over the Cap which does not disturb the Cap or the VES, or impair the integrity or operation of either.
- Covenantor shall notify DTSC of each of the following: (i) The type, cause, location, and date of any disturbance to the Cap and/or VES which could affect the ability of the Cap to contain subsurface Hazardous Substances in the Capped Property and/or the VES to operate properly, and (ii) the type and date of repair of such disturbance. Notification to DTSC shall be made as provided below within ten (10) working days of both the discovery of any such disturbance(s) and the completion of any repairs.

The surveyed location of the Capped Property is defined on the Capped Property Covenant, included in Appendix A.

Current deed restrictions – Restricted Property

Based on a review of the DTSC ENVIROSTOR Land Use Restrictions webpage (https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001356), the *Restricted Property* is subject to deed restrictions or LUCs specified in the *Covenant to Restrict Use of Property*, Docket Number 19950393083 and dated November 14, 1995 (Restricted Property Covenant). The covenant consists of the same preclusions as the Capped Property.

In addition, the Restricted Property Covenant specifies that the Covenantor agrees that the Owner to provide to DTSC written notice at least fourteen (14) days prior to any excavations in the Restricted Property which presents a significant likelihood of disturbing the Hazardous Substances in the Restricted Property. The surveyed location of the Restricted Property is defined on the Restricted Property Covenant, included in Appendix A.

Current deed restrictions – Groundwater Monitoring Wells

Based on a review of the DTSC ENVIROSTOR Land Use Restrictions webpage (https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001356), no specific land use restrictions were listed for groundwater monitoring wells in Operable Unit No. 2. However, the Former Kaiser Steel Facility Groundwater Remedial Action Plan, submitted to the California Office and Planning and Research by the DTSC on

September 13, 2016 proposed groundwater monitoring and recordation of a LUC to restrict the use of groundwater beneath the former Kaiser Steel Mill. The existing groundwater monitoring wells in Operable Unit No. 2 are required to remain intact or be replaced if damaged and remain accessible for groundwater gauging and sampling. Groundwater monitoring was proposed to be performed for a period of up to 30 years and will include annual gauging and sampling of a network of groundwater monitoring wells, as well as an annual reporting of the results of groundwater monitoring to the DTSC. Groundwater beneath the Site cannot be used for municipal or industrial process water or drinking water. DTSC will have entry and access rights to the former Kaiser Steel Mill Site for inspection, monitoring, and other necessary activities. If the Site is transferredto another entity, the land use controls will be included in the appropriate transfer documents to ensure their continuing application. DTSC will conduct a protectiveness review every five years to ensure that the remedy continues to adequately protect human health and the environment.

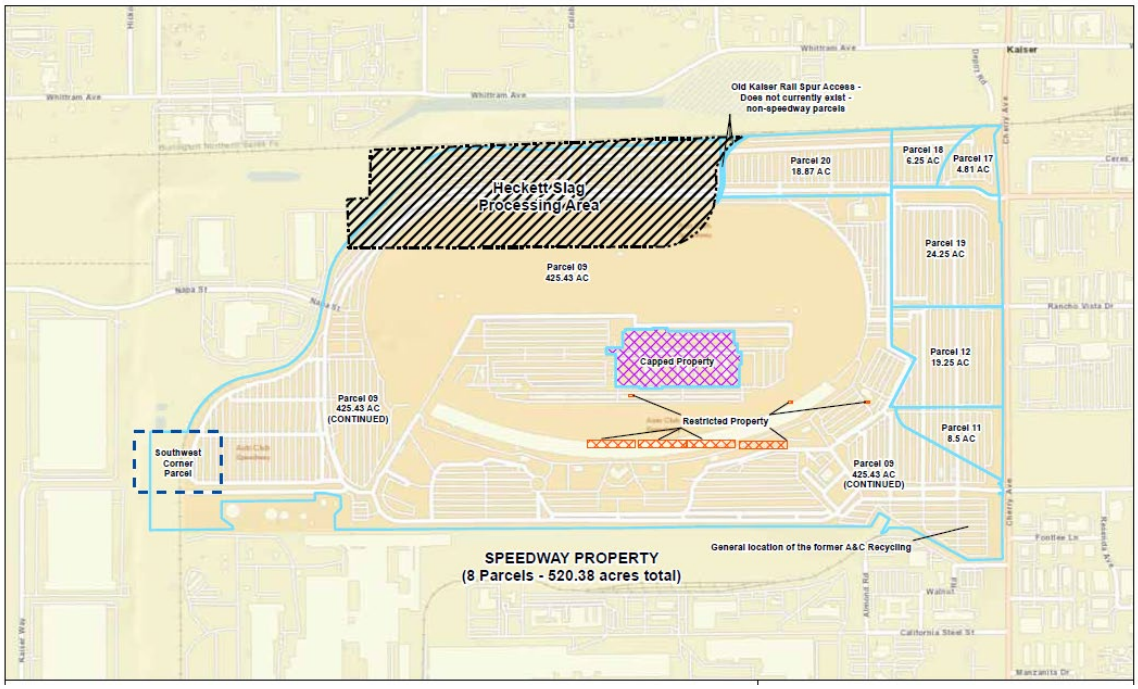
Summary

- Contaminants identified — Metals, PAH and VOCs
- Remediation completed — Yes, excluding groundwater as part of operable unit No. 5
- Ongoing O&M — Yes
- LUCs or deed restrictions — Yes, Capped Property, Restricted Property and Groundwater Monitoring Wells
- Geotechnical concerns — Potential

DISCUSSION OF KEY FINDINGS & OBSERVATIONS

Geosyntec has conducted an initial review of available documents on the DTSC ENVIROSTOR website for the former Kaiser Steel Mill located at 9300 Cherry Avenue, Fontana, California. The purpose of the review was to identify LUCs on portions of the former Kaiser Steel Mill owned by California Speedway, LLC. Based on our review we have identified the following findings (also illustrated on Figure 16 and excerpted below):

- Several areas of the Auto Club Speedway Property were subject to historical remediation activities, and with the exception of ongoing groundwater monitoring, other areas have received no further action designation from the DTSC or "closure", two of these areas received closure with LUCs.
- The Capped Property located in the infield of the racetrack and beneath garages has a LUC.
- The Restricted Property located under the racetrack and grandstands have a LUC.
- The Southwest Corner parcel of the Site appears to be used for flood management and may be subject to permitting requirements with the SBCFCD.



Excerpt from Figure 16, Site Overview Showing Areas of Interest

MODIFED PROJECT LUCS IMPACT

Based on the planned modifications to the Auto Club Speedway, depicted on Figures 17 and 18, the proposed short track would be consistent with the LUCs for the capped or restricted properties and the assessed site conditions. The proposed short track is also compatible with the current property site use.

Geosyntec consultants

CLOSURE

Geosyntec appreciates the opportunity to assist Alston & Bird with this *Summary Assessment of Environmental Conditions at the Auto Club Speedway property, 9300 Cherry Avenue, Fontana, California 92335.* We look forward to continuing to work with you and the Auto Club Speedway on this project.

Sincerely,



Chris Lieder, PG
Principal Geologist

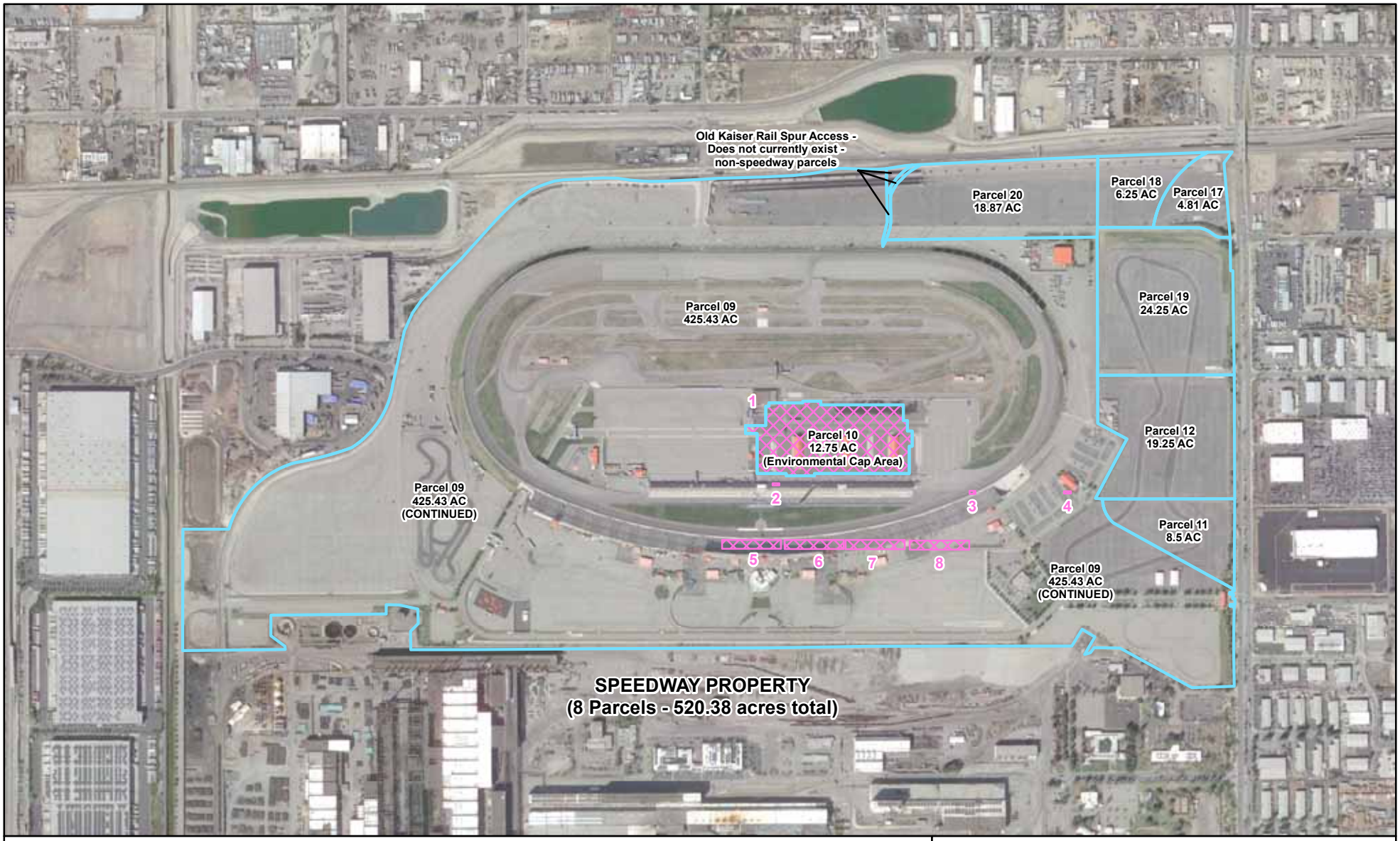
Figures

Figure 1	Site Overview
Figure 2	Former Kaiser Steel Mill
Figure 2a	Sampling of Former Kaiser Steel Mill
Figure 3	Overview Street Map
Figure 4	Speedway Lot Parcels
Figure 5	Speedway Lot Parcel 10
Figure 6	Speedway Lot Parcel 11
Figure 7	Speedway Lot Parcel 12
Figure 8	Speedway Lot Parcel 17
Figure 9	Speedway Lot Parcel 18
Figure 10	Speedway Lot Parcel 19
Figure 11	Speedway Lot Parcel 20
Figure 12	Operable Units
Figure 13	OU-2 Areas Iris Environmental
Figure 14	Southwest Corner Parcel
Figure 15	Riser Vent Pipe Location, Iris Environmental
Figure 16	Site Overview Showing Areas of Interest
Figure 17	Conceptual Site Plan
Figure 18	Overview of Conceptual Site Plan

Appendices

Appendix A:	Covenant to Restrict Use of Property – Capped Property
	Covenant to Restrict Use of Property – Restricted Property

Figures



Legend

- Parcel Boundary
- Environmental Hazard Area

Notes

AC: acres

Environmental Hazard Areas:

1. "By Products Cap" (Garage area)
2. Coke Quench Sump = A
3. Coke Quench Sump = B
4. Coke Quench Sump = C
5. Blast Furnace Slag Quench Pit = D
6. Blast Furnace Slag Quench Pit = E
7. Blast Furnace Slag Quench Pit = F
8. Blast Furnace Slag Quench Pit = G

N

0 1,000 Feet

Site Parcel Map and Environmental Hazard Areas

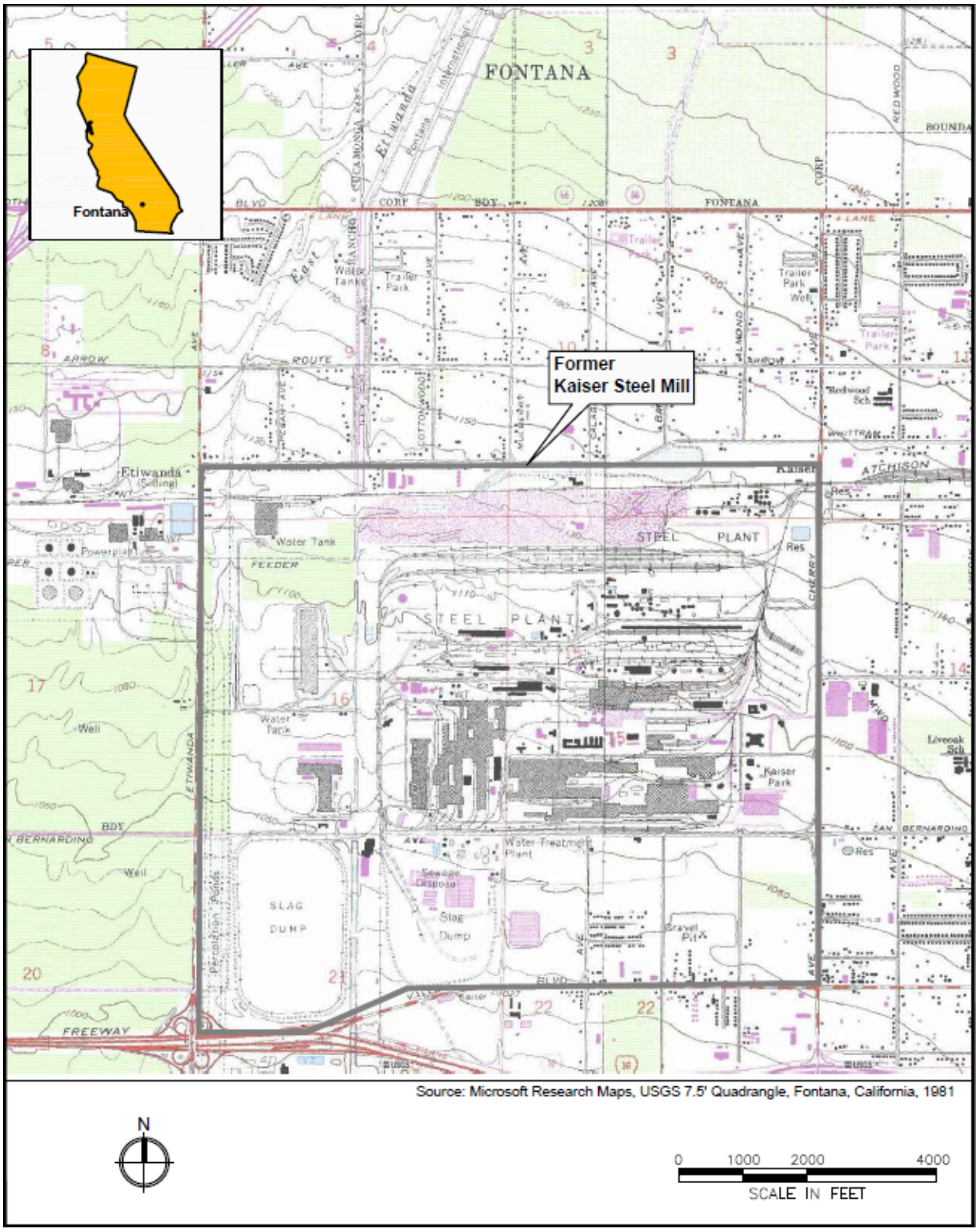
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 1

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig01_Site_Parcel_Env_Hazards.mxd 9/1/2020 (Author: PFitzgibbon) 9:49:24 AM



Source: Second Semi-Annual 2017 Groundwater Monitoring Report, Operable Unit No. 2, By-Products Area (Auto Club Speedway), RPS, February 15, 2018.

Former Kaiser Steel Mill

Auto Club Speedway
Fontana, California

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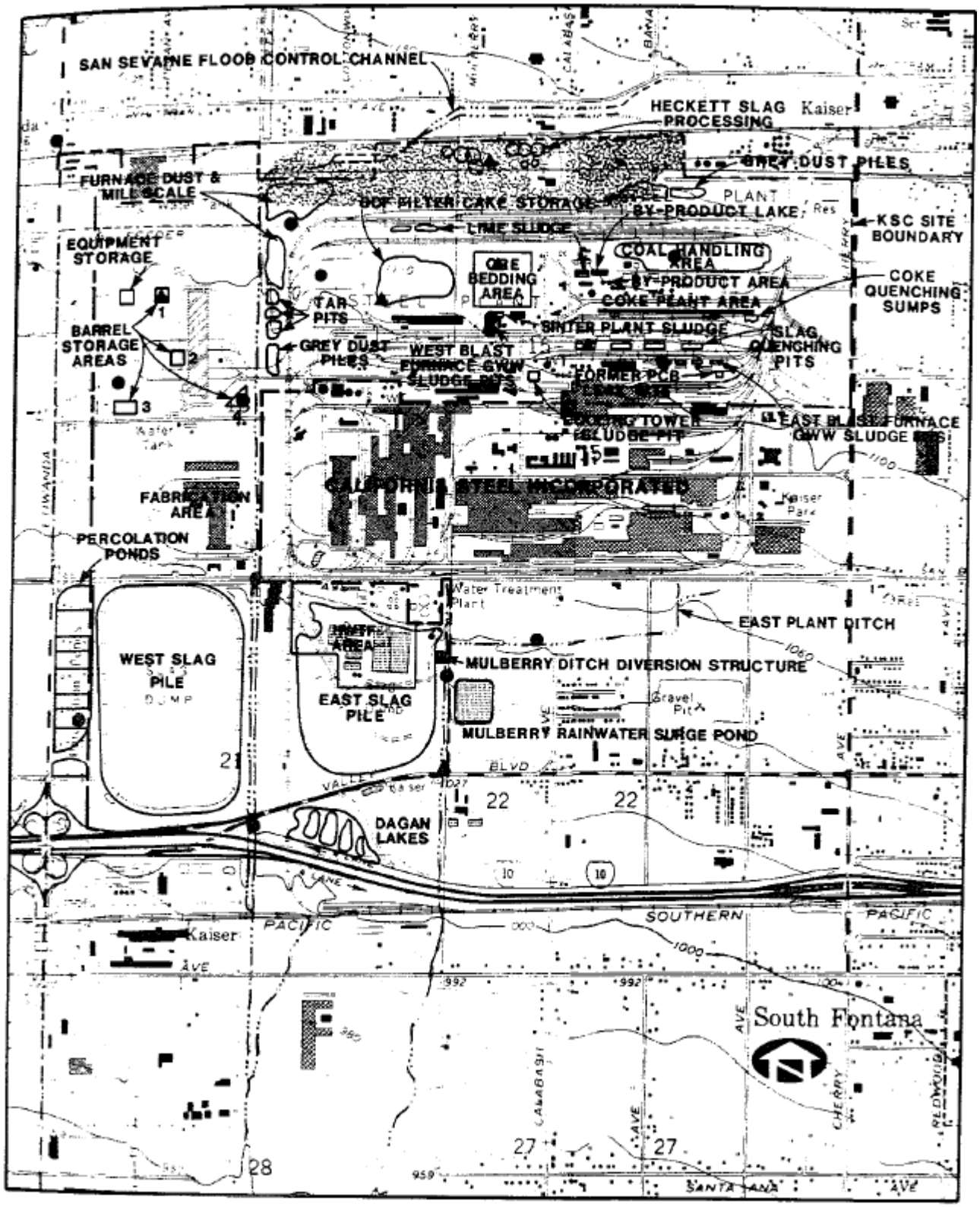
Figure 2

Santa Barbara-01\DataP:\GIS\HY1702 - ACS\Projects\2018 Parcel Assessment\Fig02_Former_Kaiser_Steel_Mill.svg SAntonelli 20181113



Legend

- ▲ SURFACE GRAB
- ● SOIL BORING

Source: RCRA Facility Assessment Report for Kaiser Steel Resources, Inc., Fontana, California, January 1989.

Sampling of Former Kaiser Steel Mill

Auto Club Speedway
Fontana, California

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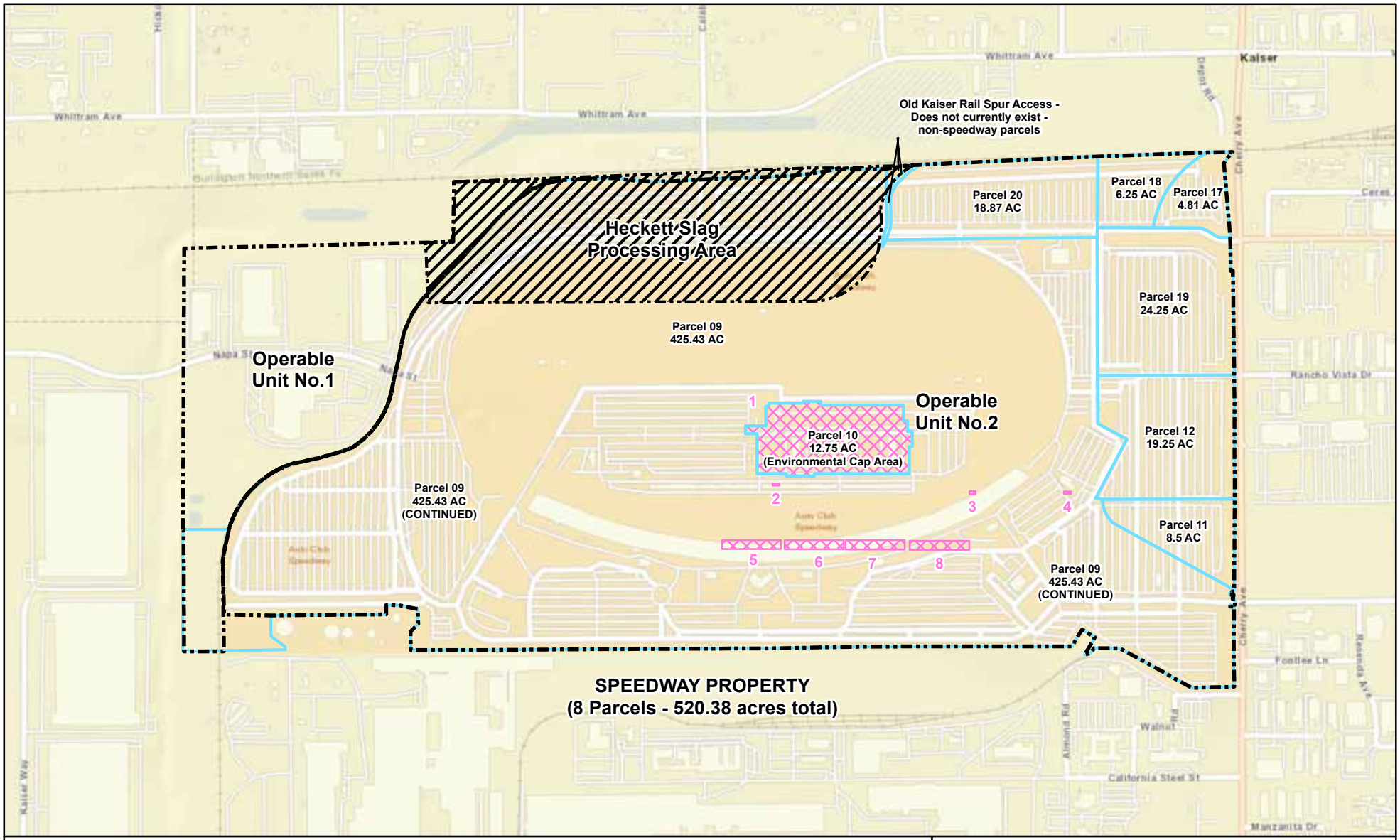
Figure 2a

Santa Barbara-01\DataP:\GIS\HY1702 - ACS\Projects\2018 Parcel Assessment\Fig02a_Sampling_of_Former_Kaiser_Steel_Mill.svg SMGA 20181113



Legend

- Approximate Heckett Slag Processing Area
- Approximate Operable Unit Boundary
- Parcel Boundary
- Environmental Hazard Area

Notes

AC: acres

Environmental Hazard Areas:

1. "By Products Cap" (Garage area)
2. Coke Quench Sump = A
3. Coke Quench Sump = B
4. Coke Quench Sump = C
5. Blast Furnace Slag Quench Pit = D
6. Blast Furnace Slag Quench Pit = E
7. Blast Furnace Slag Quench Pit = F
8. Blast Furnace Slag Quench Pit = G

N

0 1,000 Feet

Site Parcel Map and Environmental Hazard Areas

Auto Club Speedway
Fontana, California

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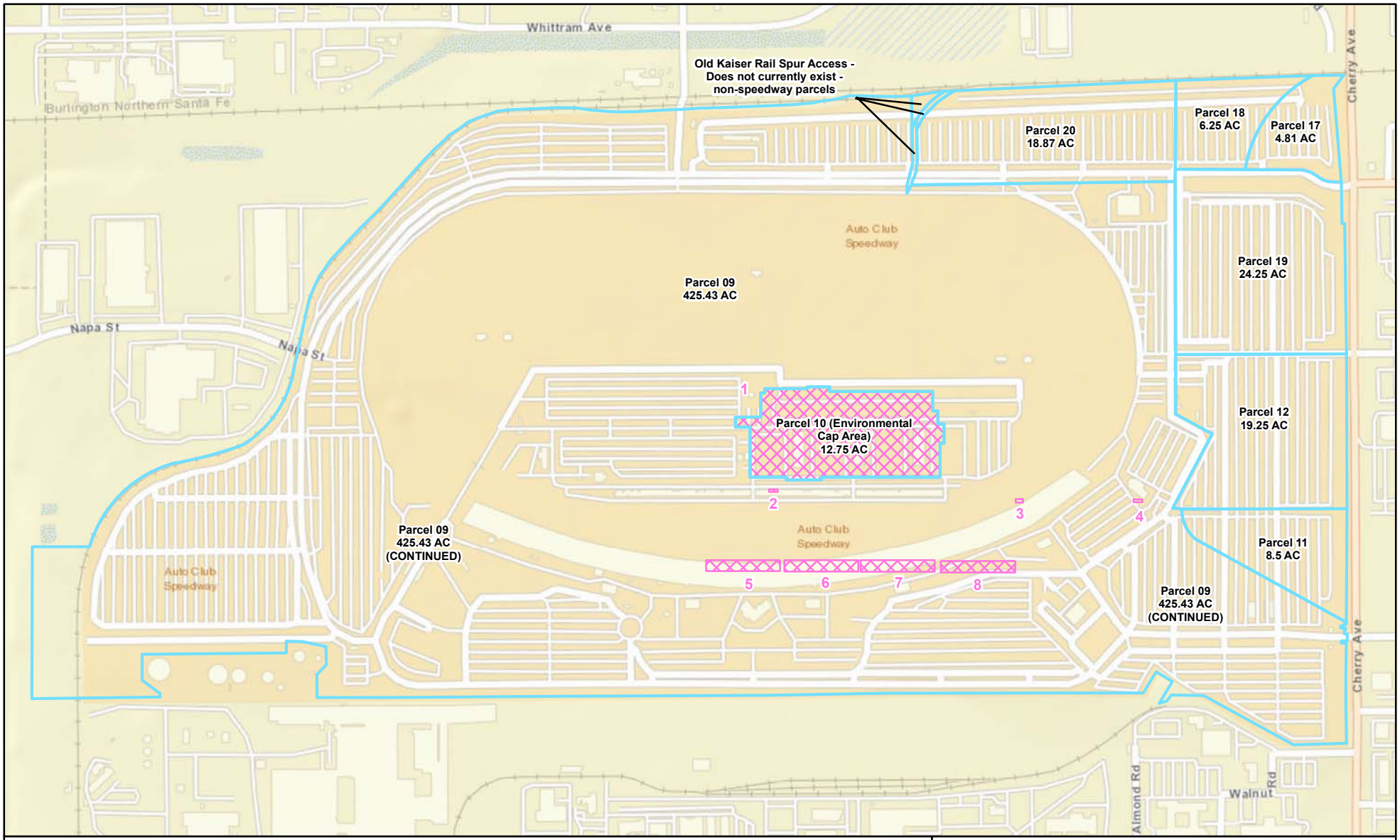
Figure 3

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig03_Site_Overview_StreetMap.mxd 9/1/2020 (Author: PFitzgibbon) 10:21:04 AM



Legend

- Parcel Boundary
- Environmental Hazard Area

Notes

AC: acres

Environmental Hazard Areas:

1. "By Products Cap" (Garage area)
2. Coke Quench Sump = A
3. Coke Quench Sump = B
4. Coke Quench Sump = C
5. Blast Furnace Slag Quench Pit = D
6. Blast Furnace Slag Quench Pit = E
7. Blast Furnace Slag Quench Pit = F
8. Blast Furnace Slag Quench Pit = G

N

0 800 Feet

Speedway Lot Parcel Map with Environmental Hazard Areas

Auto Club Speedway
Fontana, California

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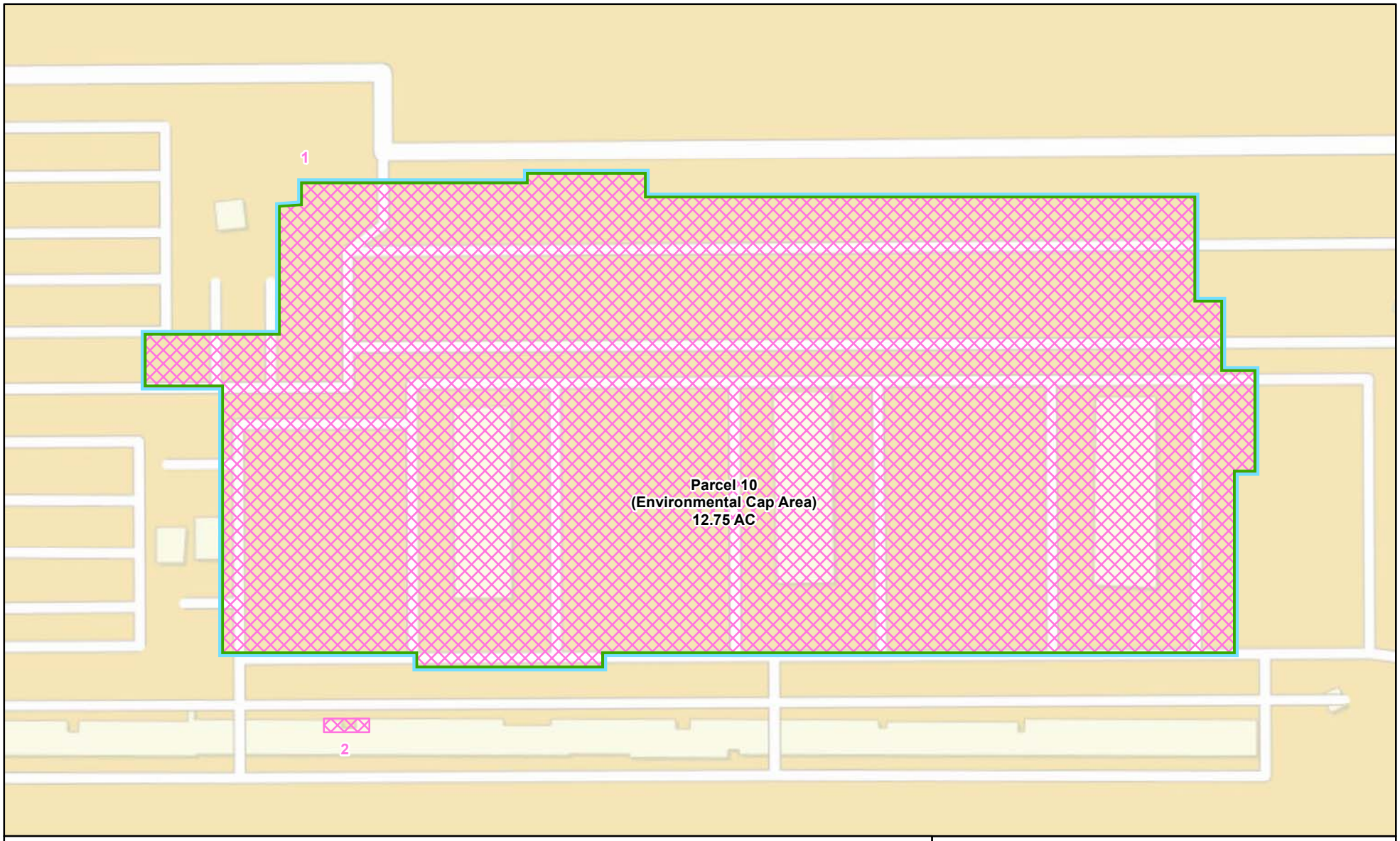
Figure 4

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig04_Speedway_Lot_Parcels.mxd 7/29/2020 (Author: SMcKnight) 5:45:06 PM



Legend

- Parcel 10 Boundary
- Other Parcel Boundary
- Environmental Hazard Area

Notes

AC: acres

Environmental Hazard Areas:

1. "By Products Cap" (Garage area)
2. Coke Quench Sump = A

N

0 150 Feet

Parcel 10 Map with Environmental Hazard Areas

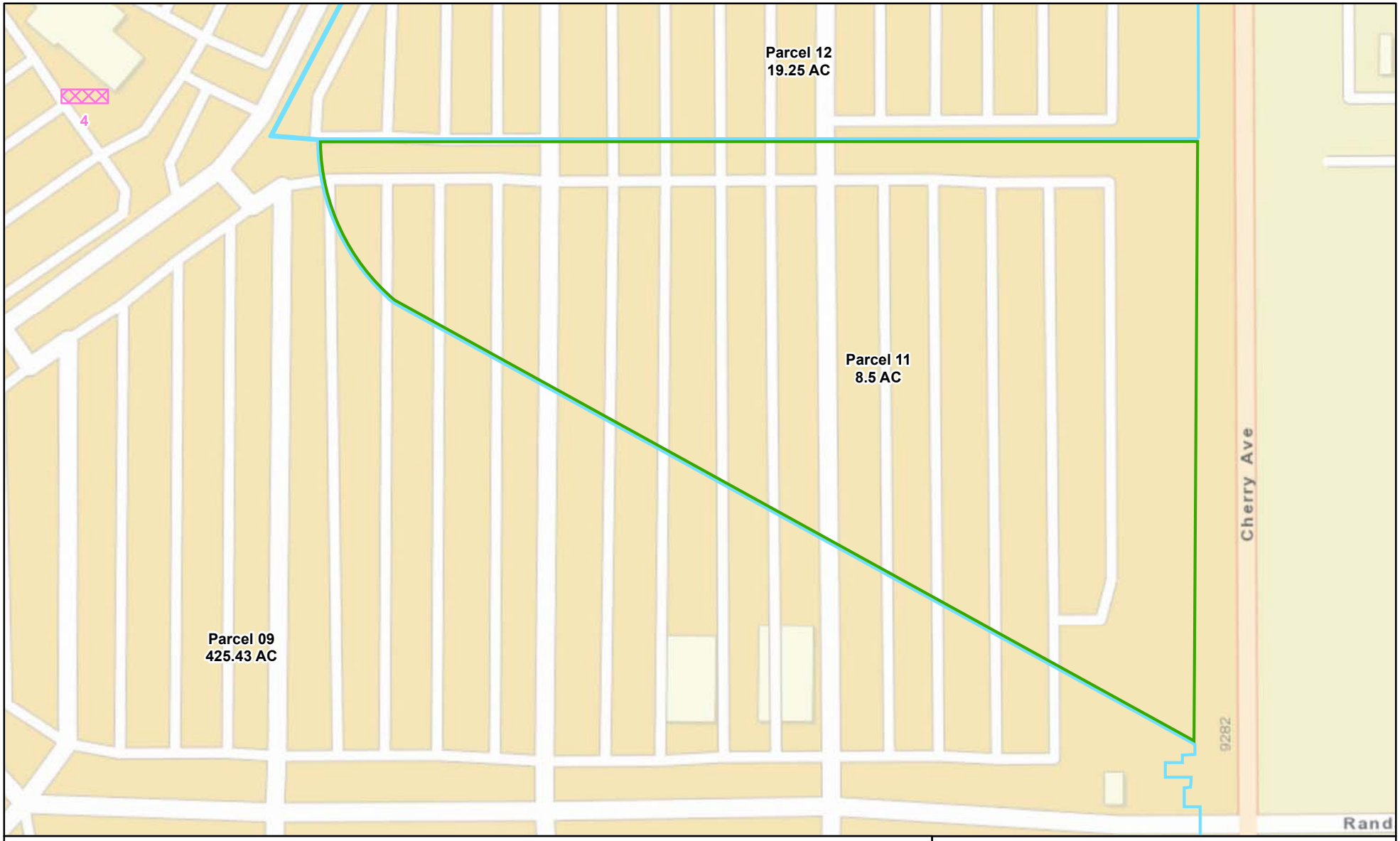
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 5

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig05_SpeedwayLot_Parcel10.mxd 11/13/2018 (Author: PFitzgibbon) 9:17:57 AM



Legend

- Parcel 11 Boundary
- Other Parcel Boundary
- Environmental Hazard Area

Notes

AC: acres

Environmental Hazard Areas:

4. Coke Quench Sump = C

N

0 150 Feet

Parcel 11 Map

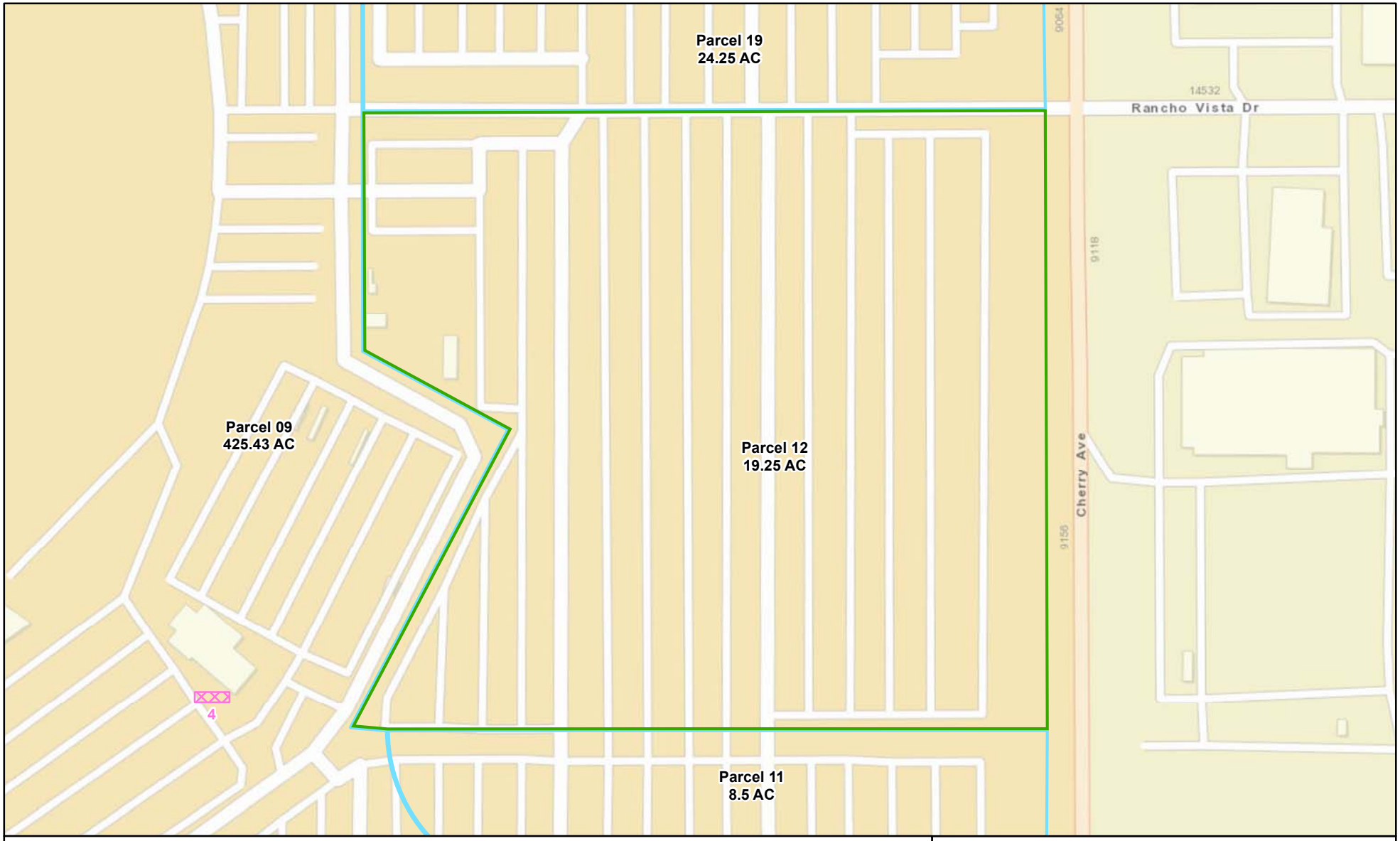
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 6

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig06_SpeedwayLot_Parcel11.mxd 7/29/2020 (Author: PFitzgibbon) 1:38:36 PM



Legend

- Parcel 12 Boundary
- Other Parcel Boundary
- Environmental Hazard Area

Notes

AC: acres

Environmental Hazard Areas:

4. Coke Quench Sump = C

N

0 200 Feet

Parcel 12 Map

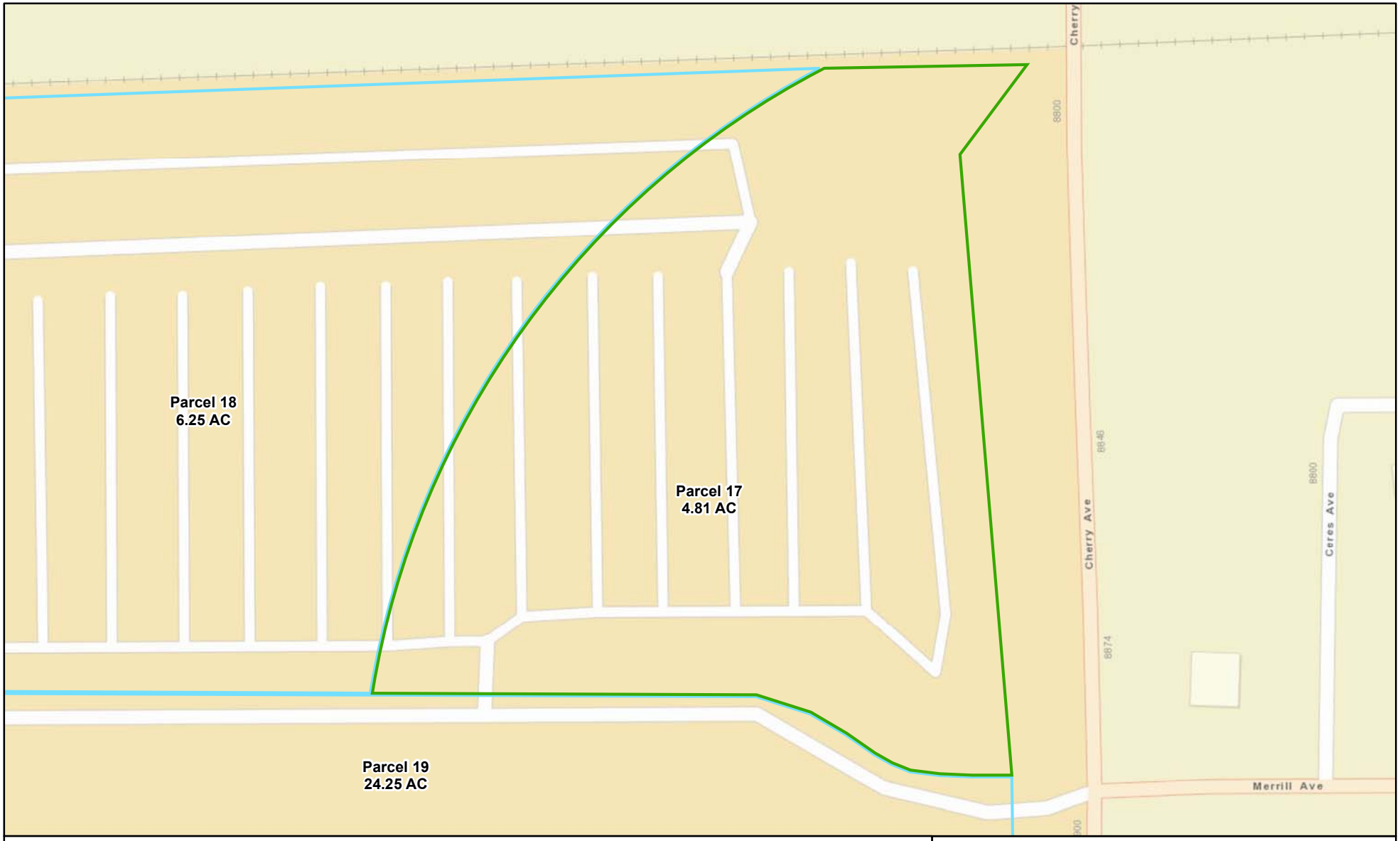
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 7

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig07_SpeedwayLot_Parcel12.mxd 7/29/2020 (Author: PFitzgibbon) 1:41:23 PM



Legend

- Parcel 17 Boundary
- Other Parcel Boundary

Note
AC: acres

N

0 120 Feet

Parcel 17 Map

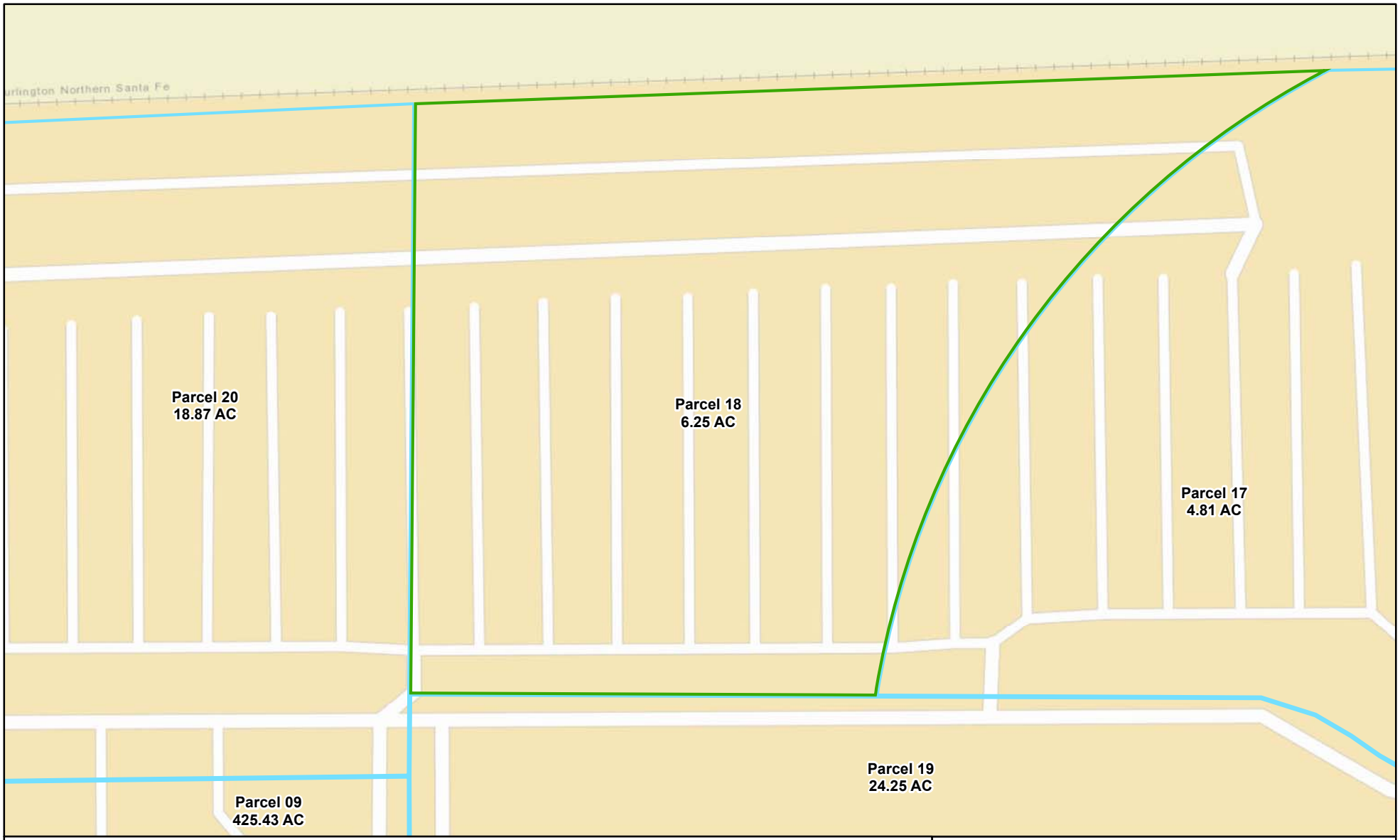
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 8

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig08_SpeedwayLot_Parcel17.mxd 7/29/2020 (Author: PFitzgibbon) 1:44:31 PM



Legend

- Parcel 18 Boundary
- Other Parcel Boundary

Note
AC: acres

N

0 120 Feet

Parcel 18 Map

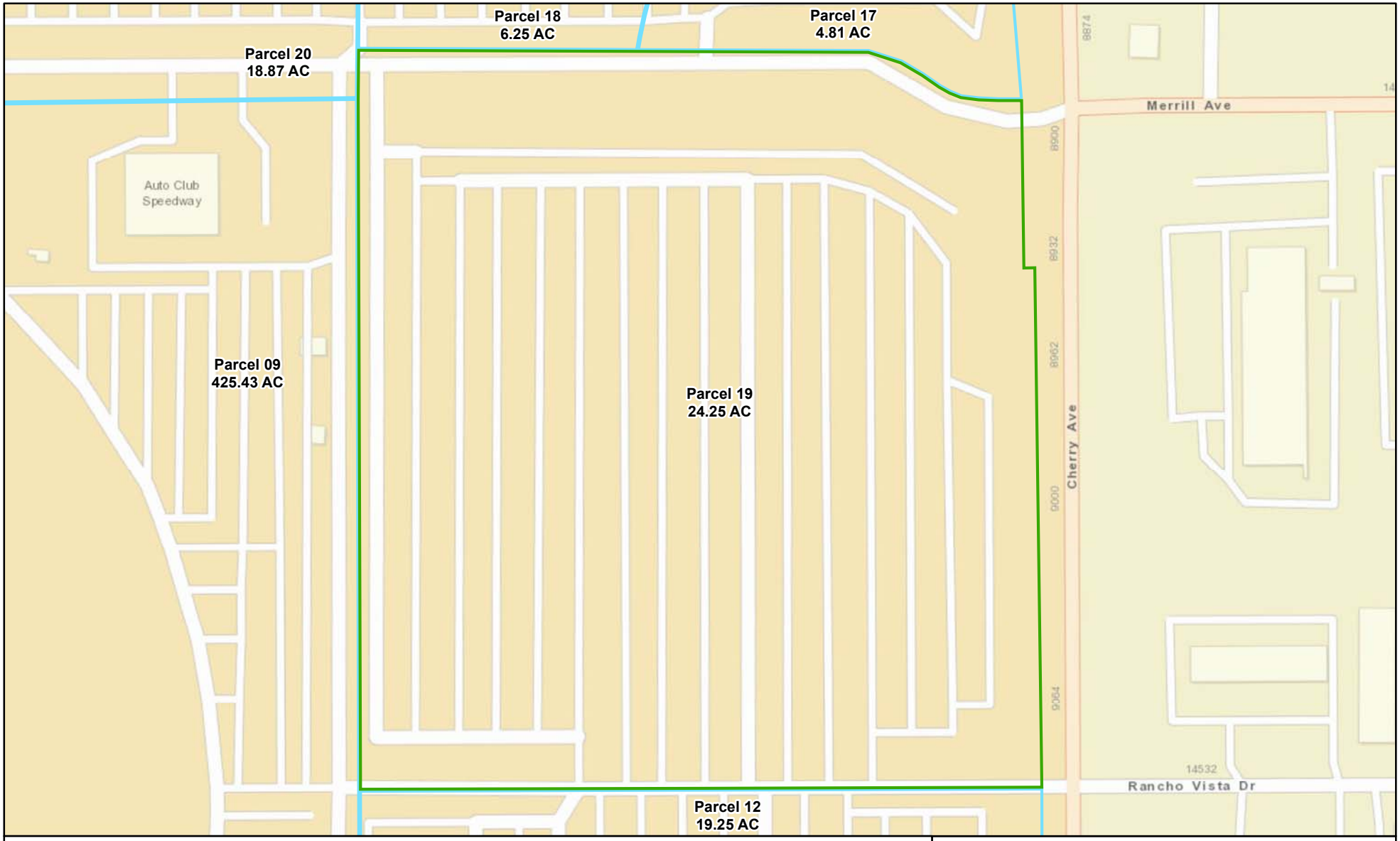
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 9

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig09_SpeedwayLot_Parcel18.mxd 7/29/2020 (Author: PFitzgibbon) 2:15:28 PM



Legend

- Parcel 19 Boundary
- Other Parcel Boundary

Note
AC: acres

N

0 200 Feet

Parcel 19 Map

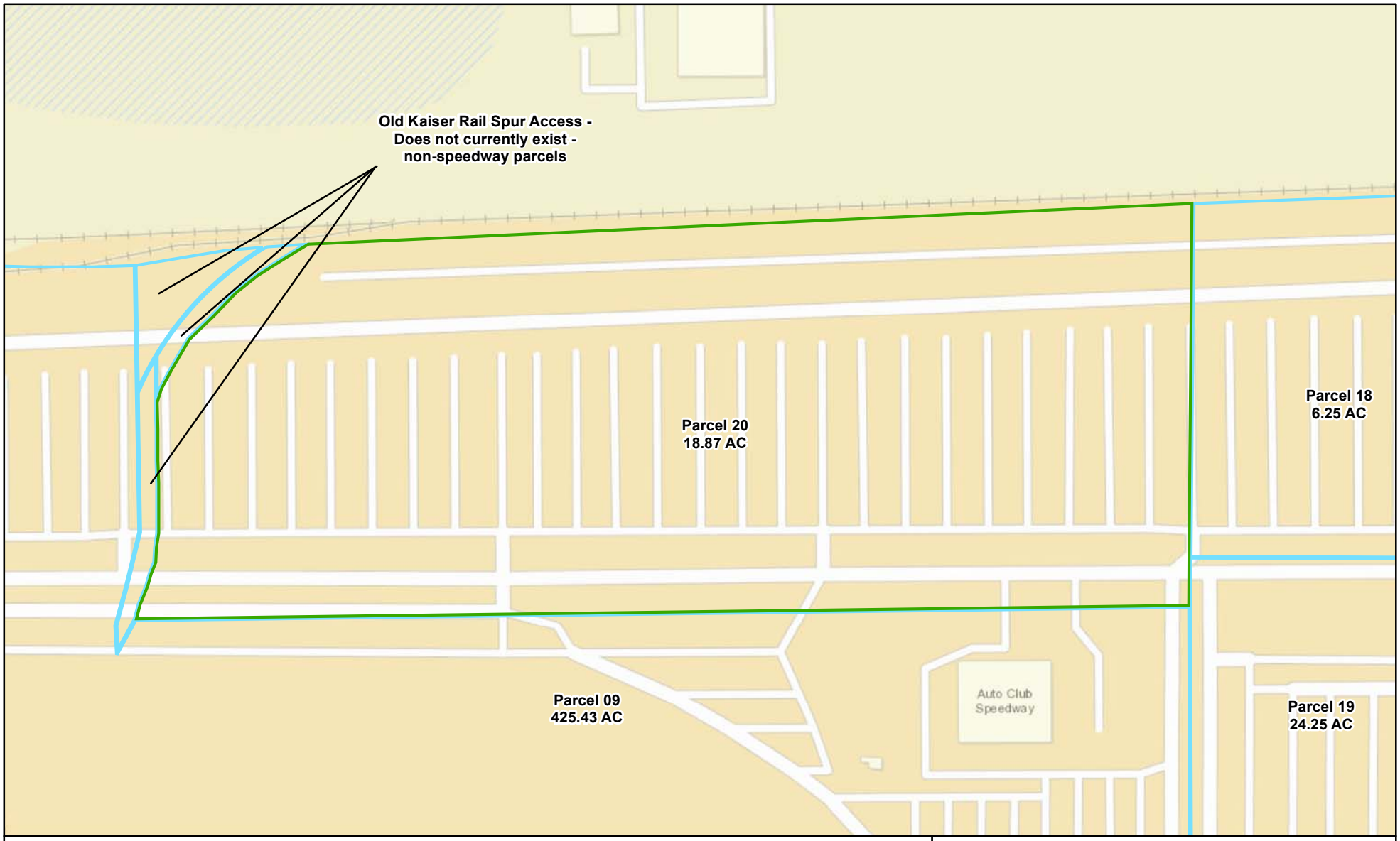
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 10

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig10_SpeedwayLot_Parcel19.mxd 7/29/2020 (Author: PFitzgibbon) 2:30:28 PM



Legend

- Parcel 20 Boundary
- Other Parcel Boundary

Note
AC: acres

N

0 200 Feet

Parcel 20 Map

Auto Club Speedway
Fontana, California

Geosyntec consultants

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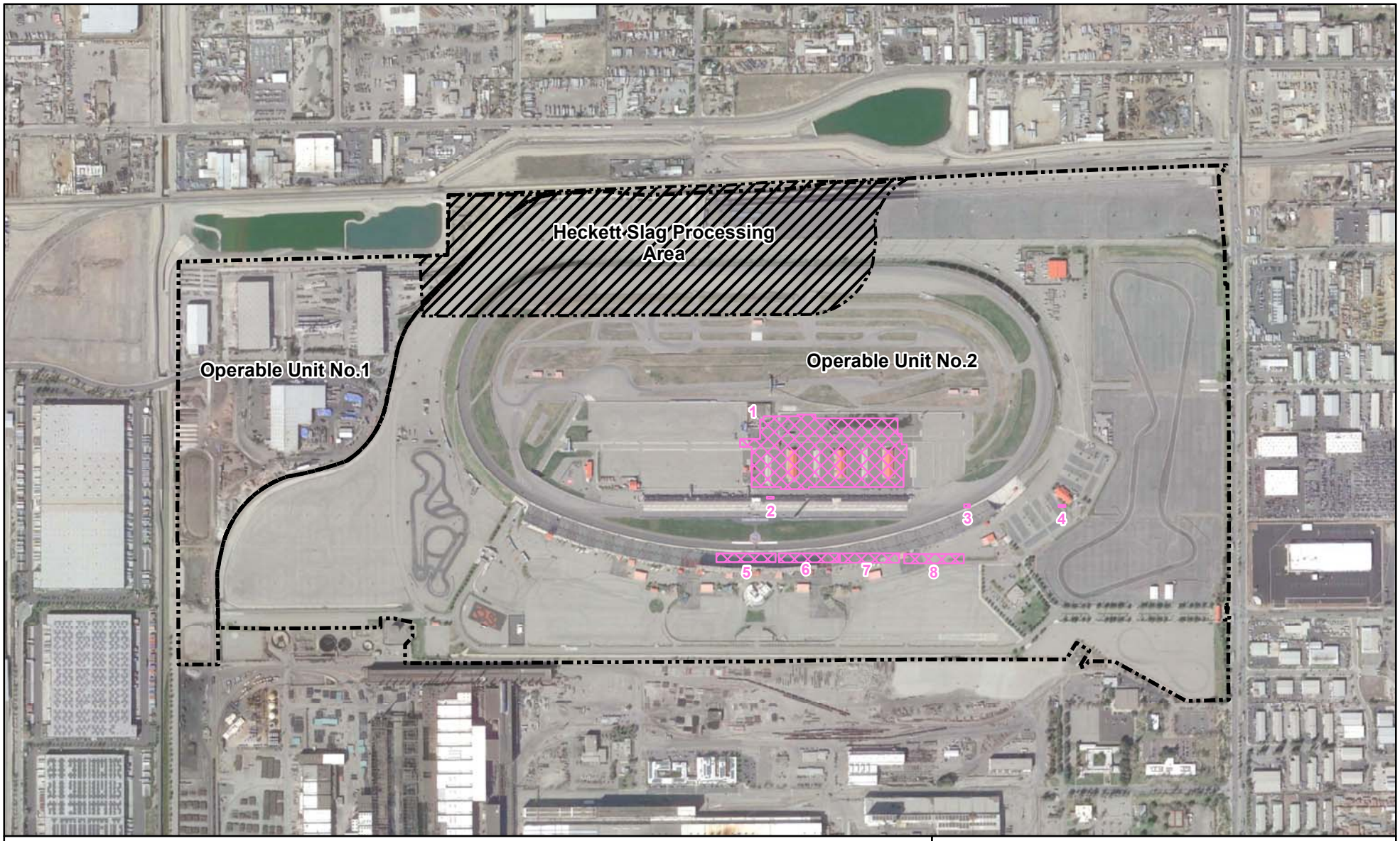
Figure 11

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig11_SpeedwayLot_Parcel20.mxd 7/29/2020 (Author: PFitzgibbon) 2:36:16 PM



Legend

- Approximate Heckett Slag Processing Area
- Approximate Operable Unit Boundary
- Environmental Hazard Area

Notes

Environmental Hazard Areas:

1. "By Products Cap" (Garage area)
2. Coke Quench Sump = A
3. Coke Quench Sump = B
4. Coke Quench Sump = C
5. Blast Furnace Slag Quench Pit = D
6. Blast Furnace Slag Quench Pit = E
7. Blast Furnace Slag Quench Pit = F
8. Blast Furnace Slag Quench Pit = G

N

0 1,000 Feet

Operable Units No.1 and No.2

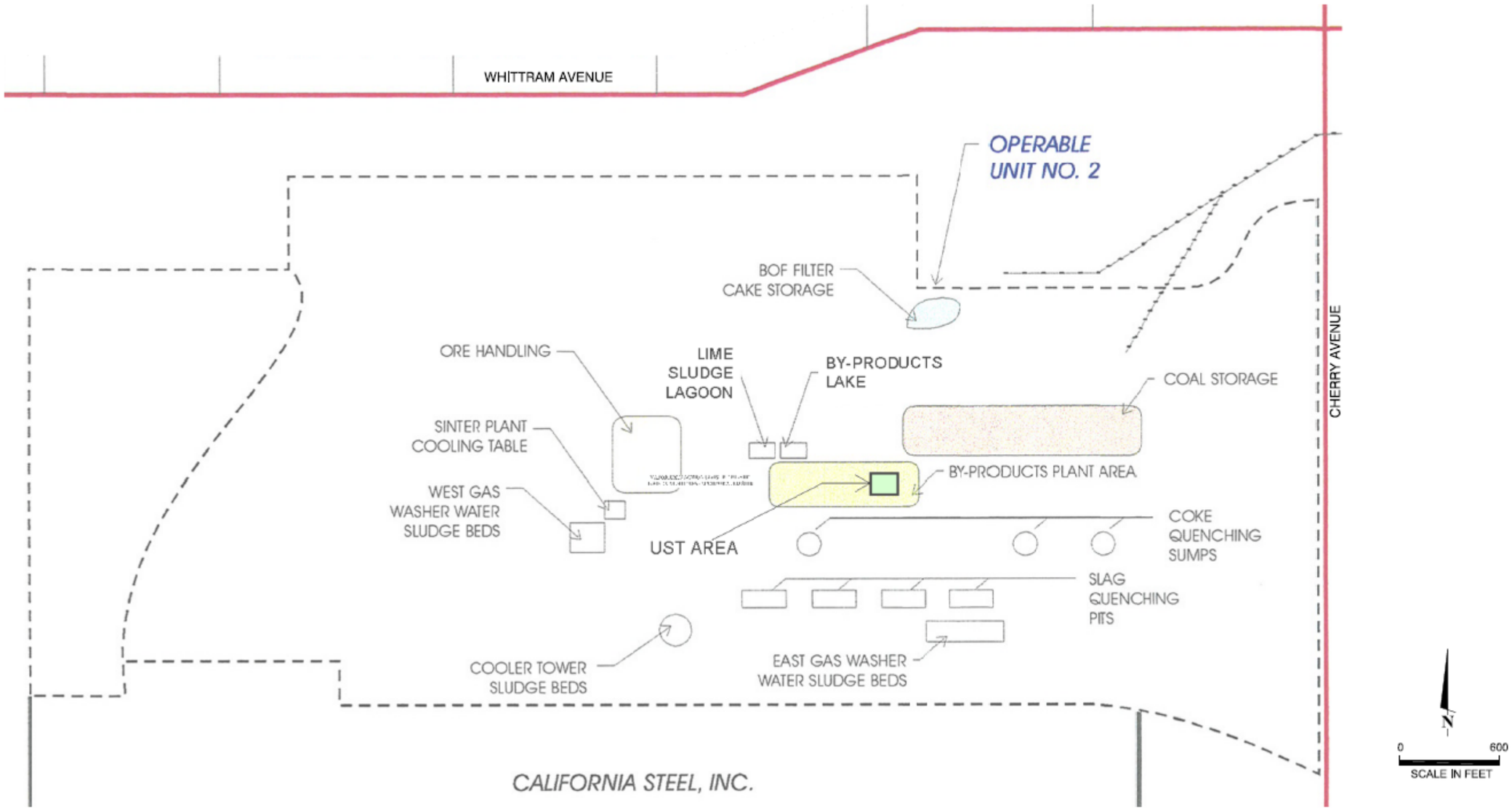
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 12

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig12_Operable_Units.mxd 7/29/2020 (Author: PFitzgibbon) 2:55:56 PM



Source: Third Five-Year Review Report, Auto Club Speedway Operable Unit No. 2, By Products Area, Iris Environmental, June 6 ,2014.

OU-2 Areas

Former Kaiser Steel Mill
Fontana, California

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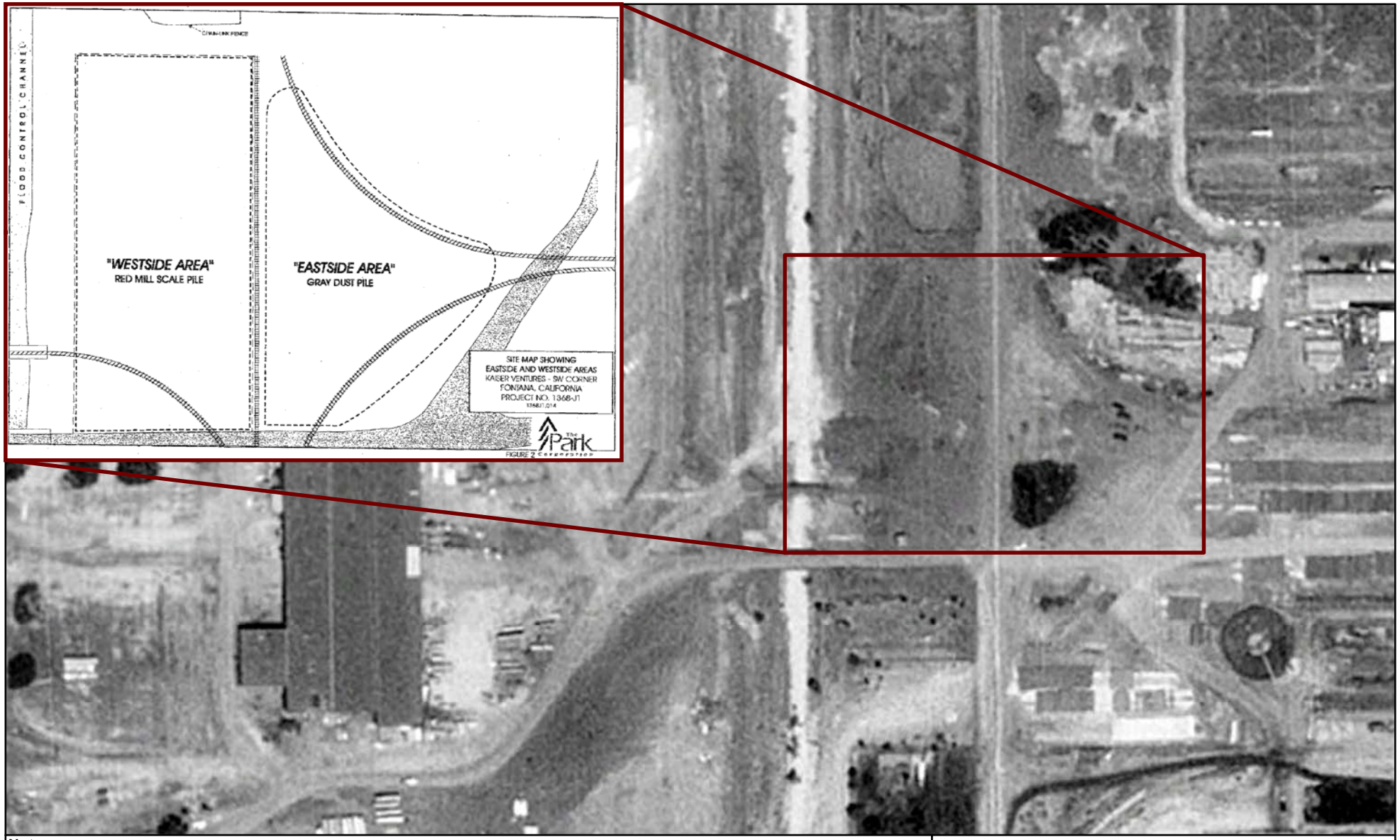
Figure 13

Santa Barbara-01\Data P:\GIS\HY1702 - ACS\Projects\2018 Parcel Assessment\Fig15_OU-2_Areas_Iris_Enviro.svg SAntonelli 20181109



Notes
Source for basemap: Google Earth historical imagery, May 1994.
Source for Site Map inset: Report of Remedial Action at the Red Mill Scale/Gray Dust Pile Area of Operable Unit No. 1, Southwest Corner of Former Kaiser Steel Facility, Fontana, California. The Park Corporation, April 17, 1996.

N

0 250 Feet

Southwest Corner Parcel

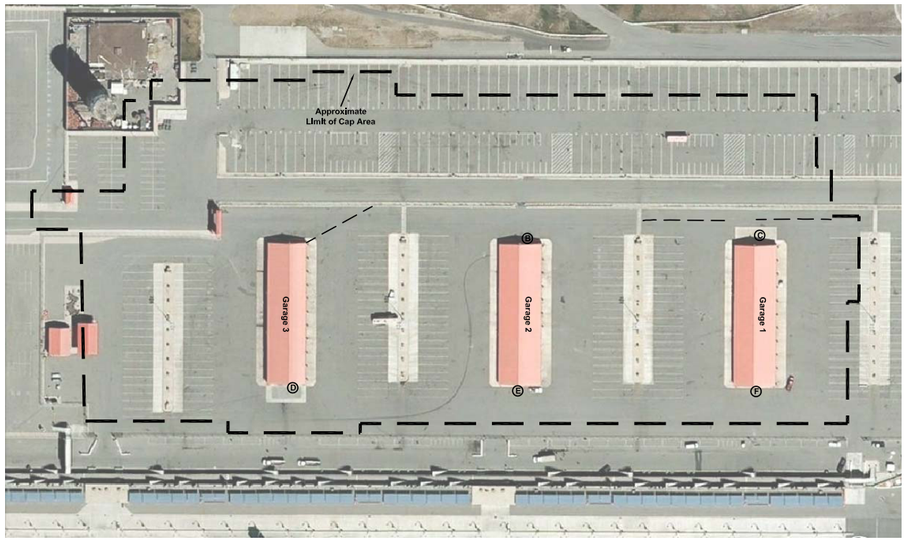
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 14

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig14_Southwest_Corner_Parcel.mxd 7/29/2020 (Author: PFitzgibbon) 2:59:40 PM



Explanation

Ⓑ Riser/vent pipe location

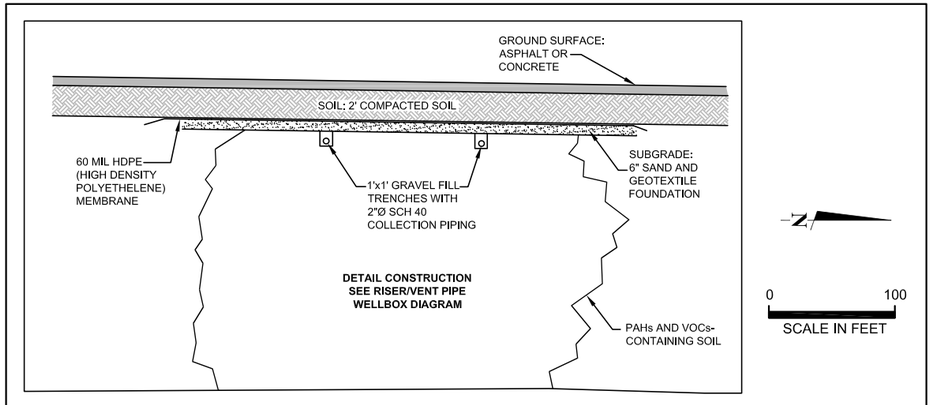
N

0 200

SCALE IN FEET

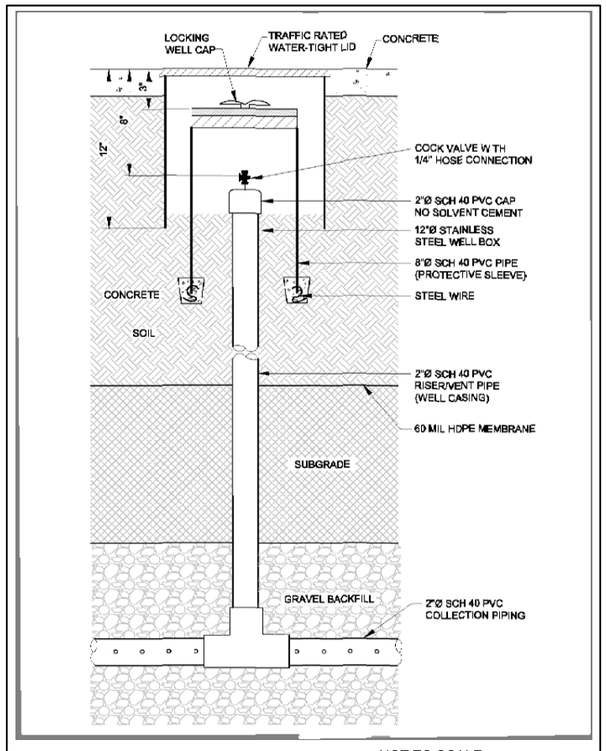
Locations of Riser/Vent Pipes

Source: Google Earth
Imagery Date: February, 2009



By Product CAP Area Cross Section

Source: Annual Inspection and Monitoring Report, Synthetic Membrane Cover for Area Containing Impacted Soil by Shaw Environmental, Inc dated August 2009



NOT TO SCALE

Source: Annual Inspection and Monitoring Report, Synthetic Membrane Cover for Area Containing Impacted Soil by Shaw Environmental, Inc dated August 2009

Riser/Vent Pipe Wellbox Diagram

Source: Third Five-Year Review Report, Auto Club Speedway Operable Unit No. 2, By Products Area, Iris Environmental, June 6 ,2014.

Riser/Vent Pipe Location Map

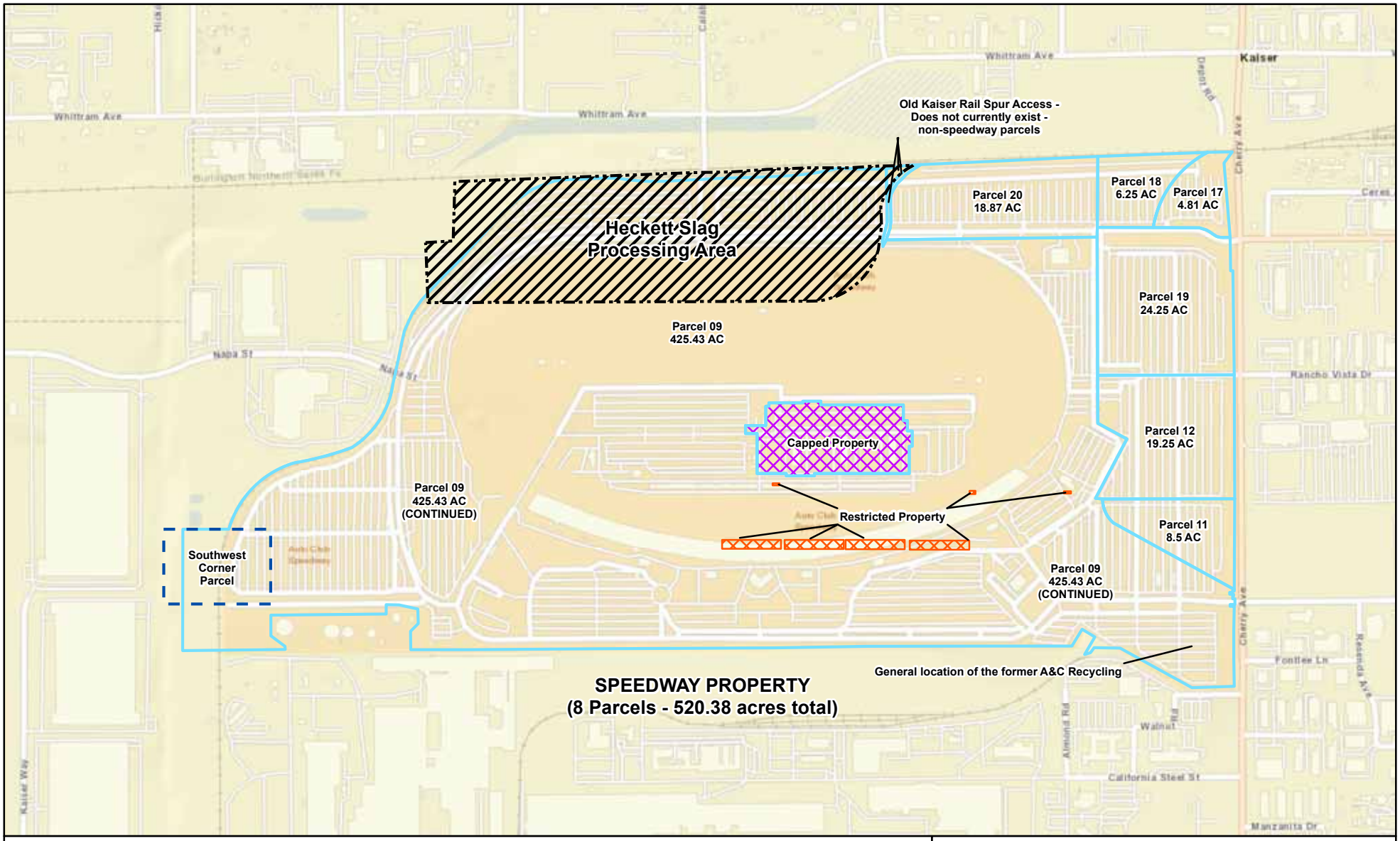
Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 15

Santa Barbara-01\Data P:\GIS\HY1702 - ACS\Projects\2018 Parcel Assessment\Fig17_Riser_Vent_Pipe_Location_Iris_Enviro.svg SAntonelli 20181109



Legend

- Southwest Corner Parcel Area
- Approximate Heckett Slag Processing Area
- Capped Property
- Restricted Property
- Parcel Boundary

Note
AC: acres

N

0 1,000 Feet

Site Overview Showing Areas of Interest

Auto Club Speedway
Fontana, California

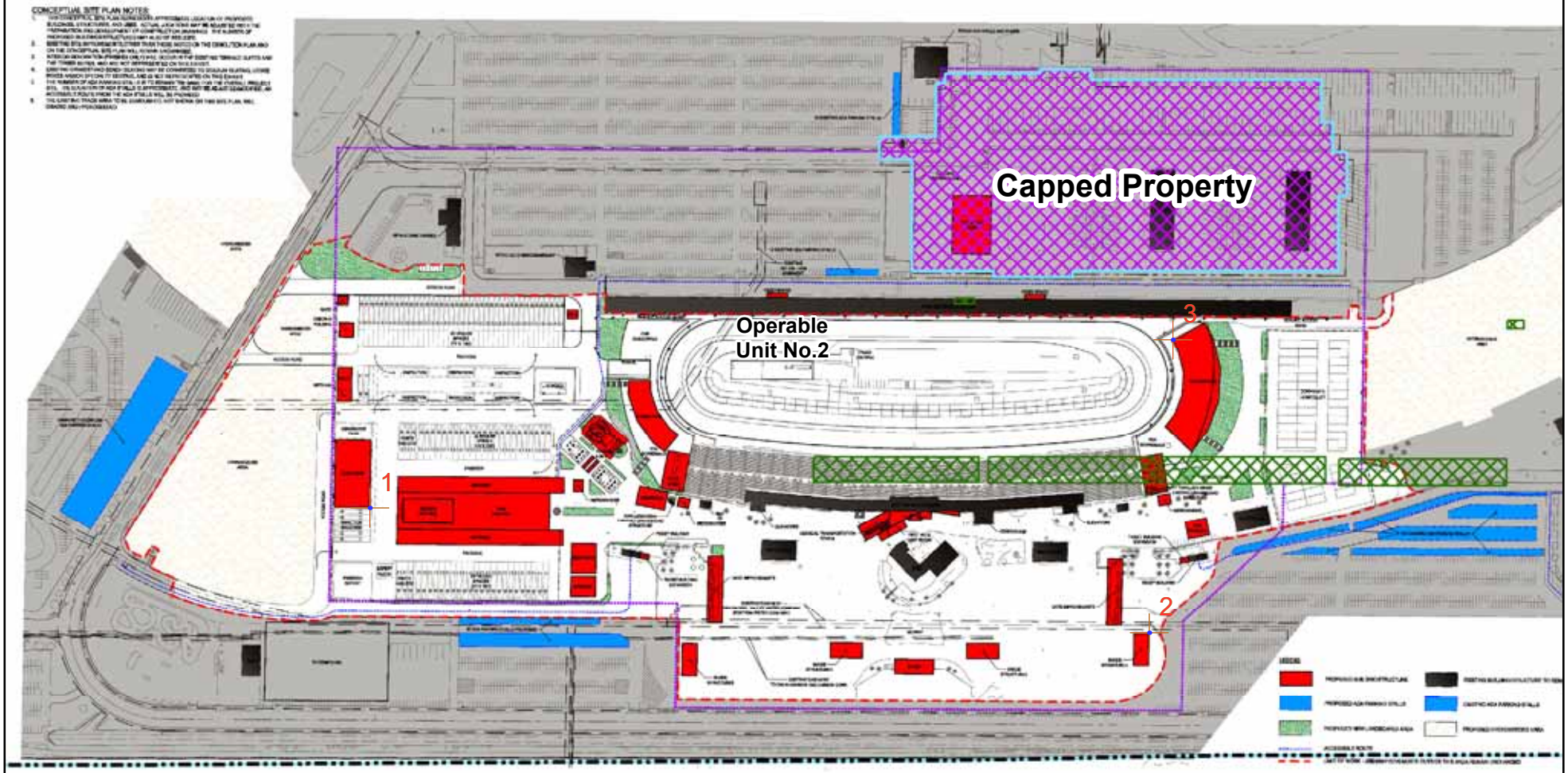
Geosyntec consultants

Santa Barbara | September 2020

Figure 16

SantaBarbara-01\P:\GIS\HY1702 - ACS\Projects\2020 Parcel Assessment\Fig16_Site_Areas_LU.mxd 7/29/2020 (Author: PFitzgibbon) 5:46:13 PM

CONCEPTUAL SITE PLAN



Legend

- Approximate Heckett Slag Processing Area
- Approximate Operable Unit Boundary
- Southwest Corner Parcel
- Parcel Boundary
- Capped Property
- Restricted Property

Note
AC: acres

N

0 400 Feet

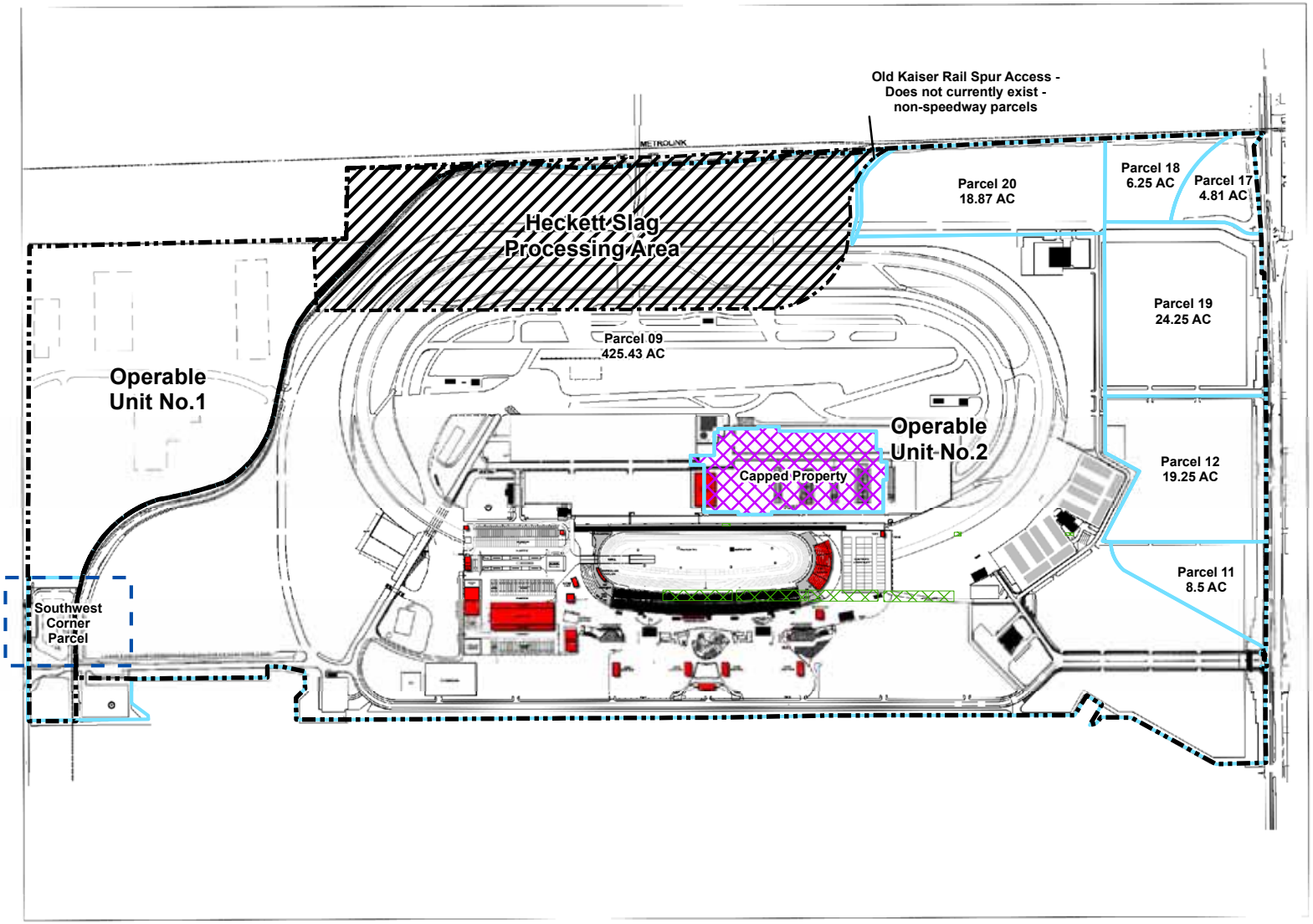
Conceptual Site Plan

Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 17



Legend

- Approximate Heckett Slag Processing Area
- Approximate Operable Unit Boundary
- Southwest Corner Parcel
- Parcel Boundary
- Capped Property
- Restricted Property

Note
AC: acres

N

0 1,000 Feet

Overview of Conceptual Plan

Auto Club Speedway
Fontana, California

Geosyntec consultants

Santa Barbara | September 2020

Figure 18

Appendix A

RECORDING REQUESTED BY:
CHICAGO TITLE CO.
Attention: Mr. Lee R. Redmond III
Kaiser Ventures Inc.
3633 E. Inland Empire Blvd., Suite 850
Ontario, California 91764

WHEN RECORDED MAIL TO:

Attention: Mr. Peter A. Garcia
California Environmental Protection Agency
Department of Toxic Substances Control
245 West Broadway, Suite 350
Long Beach, California, 90802

Recorded in Official Records, County of
San Bernardino, Errol J. Mackzum, Recorder

Doc No. 19950393082
3:00pm 11/14/95

Chicago Title # 607

PG	FEE	APF	GIMS	PH CPY	CRT CPY	ADD NM	PEN PR	PCOR
50	7	147						
			5				607	T
NON ST	LN	SVY	CIT-CO	TRANS TAX		NO FEE	CHRG	EXAM

S USE

COVENANT TO RESTRICT USE OF PROPERTY

(Re: a Portion of the Kaiser Ventures Inc. (Formerly Known as Kaiser Resources Inc.)
Mill Site, Operable Unit No. 2, Former By-Products Plant Area)

This Covenant and Agreement ("Covenant") has an effective date of September 20, 1995, by and between Kaiser Ventures Inc., formerly known as Kaiser Resources Inc., and its successors and assigns (the "Covenantor"), the current owner of the subject property to be restricted herein, and the California Environmental Protection Agency, Department of Toxic Substances Control (the "Department"), the government agency with statutory oversight responsibility with respect to hazardous substances response actions at the subject property. The Covenantor and Department may be collectively referred to herein as the "Parties." This Covenant is made with reference to the following facts:

A. The Capped Property (as defined below) is a limited portion of the site of the former World War II era Kaiser Steel Mill (13425 San Bernardino Avenue, Fontana), located in the area now generally bounded by Etiwanda Avenue on the west, Whittram Avenue on the north, Cherry Avenue on the east, and Valley Blvd. on the south, County of San Bernardino, State of California (the "Site"). The area to be restricted herein ("Capped Property"), more particularly described and depicted in Exhibit "A" (San Bernardino County, Parcel #6 of Parcel Map No. 14723) attached hereto and incorporated herein by this reference, where operations were located that recovered and temporarily stored various valuable by-products recovered from the coke oven gas stream.

B. On August 22, 1988, the Department's predecessor in interest (California Department of Health Services) issued to Covenantor's predecessor in interest (Kaiser Steel Corporation) a Consent Order pursuant to California Health and Safety Code ("H&S Code") §§ 205, 25355.1(a)(1)(B), and 25355.5(a)(1)(C). The purpose of this Consent Order was "to ensure that any release or threatened release of a hazardous substance or hazardous waste to the air, soil, surface water and ground water at or from the Facility [i.e., the Site] is thoroughly investigated and that appropriate remedial actions are taken." In furtherance of the Consent Order, and pursuant to the Department's applicable statutory authority referenced therein and elsewhere, the Department is requiring this Covenant as part of the remedial actions at the Site.

C. As of 1995, land within a two (2) mile radius of the Capped Property supports a mixture of primarily industrial and low-density residential uses. There is also a considerable amount of vacant, currently unproductive agricultural land for which industrial development is planned. The nearest residences to the Site are located approximately 2,000 feet to the north of the border of the Site and 2,000 feet to the east of the border of the Site. The nearest sensitive population to the Site is an elementary school located 3,400 feet to the southeast of the border of the Site.

D. All or a portion of the Capped Property contains hazardous substances ("Hazardous Substances") which include or may include one or more of the following contaminants of concern (as reported in the March 1995, Remedial Action Plan, Operable Unit No. 2 ("RAP"), which became effective upon the Department's approval on May 1, 1995): acenaphthene, anthracene, antimony, arsenic, barium, benz(a)anthracene, benzene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, beryllium, cadmium, chrysene, chromium (including hexavalent), copper, cyanide, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, lead, maganese, mercury, molybdenum, naphthalene, nickel, phenol, pyrene, selenium, silver, styrene, tetrachloroethylene, thallium, toluene, vanadium, xylene, and zinc. The Department considers the concentrations of certain polynuclear aromatics (e.g., benzo(a)pyrene) and certain trace metals to be above acceptable health risk-based levels.

E. Covenantor, in compliance with applicable law, and under the supervision and authority of the Department, is undertaking a response action ("Response Action") at several areas of the Site pursuant to the RAP, which response action Covenantor asserts is in compliance with applicable requirements of the National Contingency Plan (40 C.F.R. § 300, *et. seq.*). The Response Action includes installing and maintaining, pursuant to the RAP, a synthetic membrane cover ("Cap") over the Capped Property. The Cap consists of a low permeability synthetic membrane and other associated layers over the Hazardous Substances, as more particularly described in the engineering drawing attached as Exhibit "B" hereto. The Response Action also includes the installation and operation of: (1) a passive gas collection system ("GCS") on the Capped Property which removes miscellaneous gas/vapors migrating upward from under the Cap, (2) a vapor extraction system ("VES"), on a limited portion of the Capped Property where there were formerly located underground storage tanks, more particularly described and depicted in Exhibit "C" hereto, which remediates certain volatile organic compound-impacted soils, and (3) groundwater monitoring wells ("Monitoring Wells"), which are not on the Capped Property. The operation and maintenance ("O&M") of the Cap, GCS, VES, and Monitoring Wells is pursuant to an O&M Manual incorporated into the O&M Agreement between Covenantor and the Department dated September 20, 1995.

F. This Covenant does not nullify or otherwise modify any releases from liability granted by the Department pursuant to H&S Code §§ 25364 and 25364.1 (California AB 2589, as amended by AB 3201) or other law of similar import.

G. The Department has approved this Response Action as being sufficiently protective of human health and the environment.

ARTICLE I
PARAMETERS OF COVENANT

1. Restrictions to Run With the Land. This Covenant sets forth protective provisions, covenants, restrictions, and conditions (collectively referred to as "Restrictions"), upon and subject to which the Capped Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. Each and every of the Restrictions: (a) shall run with the land pursuant to H&S Code § 25355.5, (b) shall inure to the benefit of and pass with each and every portion of the Capped Property, (c) shall apply to and bind the respective successors in interest to the Capped Property, (d) are for the benefit of, and shall be enforceable by, the Department, (e) are imposed upon the entire Capped Property unless expressly stated as applicable only to a specific portion thereof, and (f) are imposed pursuant to H&S Code §§ 25355.5 and 25356.1.

2. Concurrence of Owners/Occupants. Each and every owner ("Owner" shall mean the Covenantor or its successors in interest, including heirs and assigns, who hold title to all or any portion of the Capped Property) and occupants ("Occupants" shall mean lessees or other possessors of any portion of the Capped Property whose occupancy has a significant likelihood of disturbing or impairing the Cap and/or any other possessors of any portion of the Capped Property who hold such interest(s) for more than three (3) consecutive months) shall be deemed to be in accord with this Covenant and shall further be deemed to unconditionally agree, for and among themselves, their heirs, successors, and assignees (and for any agents thereof), to the Restrictions as herein established (such that their interest(s) and/or possessory rights in the Capped Property are taken subject to such Restrictions).

ARTICLE II
RESTRICTIONS

3. Incorporation into Deeds and Leases. Covenantor agrees that the Restrictions set forth herein shall be incorporated by reference in each and all deeds, and leases to Occupants, for any portion of the Capped Property.

4. Restrictions on Use. Covenantor agrees to restrict the use of the Capped Property in accordance with the restrictions set forth herein in order to protect the present and future public health and safety from potential harm to persons which may result from hazardous substances which exist on the Capped Property. The Restrictions provided herein shall apply only to the Capped Property. Covenantor agrees not to use the Capped Property for any of the following purposes:

(a) A residence, including any mobile home or factory built housing, constructed or installed for use as permanently-occupied residential human habitation.

(b) A long-term care hospital for humans. Nothing herein shall restrict use of the Capped Property for any infirmary, medical aid station, or emergency medical care facility where there is no intent for any patient to remain in such facility for more than 24 hours (e.g., as may be associated with the motor sport complex).

(c) A traditional public or private school for persons under 21 years of age. Nothing herein shall restrict use of the Capped Property for any specialized training programs related to then-existing facilities on the Capped Property (e.g., a driving "school" related to the motor sport complex).

(d) A day care center for children.

5. Non-Interference with Cap and VES. Covenantor agrees:

(a) No activities which will disturb the Cap and/or the VES (e.g., excavation, grading, removal, trenching, filling, earth movement, or mining) shall be permitted on the Capped Property without prior review and approval by the Department.

(b) All uses and development of the Capped Property shall preserve the integrity of the Cap and operation of the VES.

(c) Any proposed alteration of the Cap and/or the VES shall require written approval by the Department, except for the addition of non-invasive surface materials ("Non-Invasive Surface Materials" means any materials, including soil, asphalt, concrete, and structures, placed upon or over the Cap which does not disturb the Cap or the VES, or impair the integrity or operation of either).

(d) Covenantor shall notify the Department of each of the following: (i) The type, cause, location and date of any disturbance to the Cap and/or VES which could affect the ability of the Cap to contain subsurface Hazardous Substances in the Capped Property and/or the VES to operate properly, and (ii) the type and date of repair of such disturbance. Notification to the Department shall be made as provided below within ten (10) working days of both the discovery of any such disturbance(s) and the completion of any repairs.

6. Notice in Agreements. Covenantor agrees that the Owner shall furnish in writing to Occupants and/or to the Owner's successor in interest to any part of the Capped Property, as either part of another written agreement (e.g., a lease), or as a stand alone instrument, the following statement:

"All or a portion of the land described herein contains hazardous substances. Such condition renders the land and the owner, lessee, or other possessor of the land subject to requirements, restrictions, provisions, and liabilities contained in Chapter 6.5 and 6.8 of Division 20 of the California Health and Safety Code. This statement is not a declaration that a hazard exists and does not address the liability of any party."

7. Conveyance of Capped Property. Covenantor agrees that the Owner shall provide notice to the Department not later than thirty (30) days prior to any conveyance of any ownership interest in the Capped Property (excluding mortgages, liens, and other non-possessory encumbrances). The Department shall not, by reason of this Covenant, have authority to approve, disprove, or otherwise affect such proposed conveyance, except as otherwise provided by law, by administrative order, or by reason of this Covenant.

8. Access for Implementing O&M. Covenantor agrees that all Owners and Occupants shall forever grant reasonable right of entry and access, to the entity or person responsible for implementing the O&M Agreement or any portion thereof, for the purpose of implementing such O&M Agreement.

ARTICLE III
ENFORCEMENT

9. Enforcement. Failure of the Covenantor and/or Owner to comply with any of the Restrictions specifically applicable to it shall be grounds for the Department, by reason of this Covenant, to require that the Covenantor and/or Owner modify or remove any improvements ("Improvements" herein shall mean all buildings, roads, driveways, and paved parking areas, constructed or placed upon any portion of the Capped Property) constructed in violation of the Restrictions. Violation of this Covenant shall be grounds for the Department to file civil and/or criminal actions against the Covenantor and/or Owner as provided by law.

ARTICLE IV
VARIANCE, TERMINATION, AND TERM

10. Variance. Covenantor, any Owner or, with the Owner's written consent, any Occupant of the Capped Property or any portion thereof may apply to the Department for a written variance from the provisions of this Covenant. Such application shall be made in accordance with H&S Code § 25233.

11. Termination. Covenantor, any Owner or, with the Owner's written consent, any Occupant of the Capped Property or any portion thereof may apply to the Department for a termination of the Restrictions or other term of this Covenant as they apply to all or any portion of the Capped Property. Such application shall be made in accordance with H&S Code § 25234.

12. Term. Unless ended in accordance with the "termination" paragraph above, by law, or by other valid method, this Covenant shall continue in effect in perpetuity.

ARTICLE V
MISCELLANEOUS

13. No Dedication Intended. Nothing set forth in this Covenant shall be constructed to be a gift or dedication, or offer of a gift or dedication, of the Site, Capped Property, or any portion thereof to the general public or anyone else for any purpose whatsoever. In addition, nothing in this Covenant shall be deemed to constitute a covenant, encumbrance, or restriction on the use of any property other than the Capped Property.

14. Headings. Headings at the beginning of each numbered article of this Covenant are solely for the convenience of the Parties and are not a part of the Covenant.

15. Code References. All references to Code sections include successor provisions, if any.

16. Department References. All references to the Department include successor agencies/departments or other successor entity.

17. Recordation. The Covenantor shall record this Covenant, with all referenced Exhibits, in the County of San Bernardino within ten (10) days of the Covenantor's receipt of a fully executed original.

18. Notices. Whenever any person gives or serves any notice ("Notice" as used herein includes any demand or other communication with respect to this Covenant), each such Notice shall be in writing and shall be deemed effective: (1) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served, or (2) three (3) business days after deposit in the mail, if mailed by United States mail, postage paid certified, return receipt requested:

To Covenantor: Kaiser Ventures Inc.
3633 E. Inland Empire Boulevard, Suite 850
Ontario, California 91764
Attention: Lee R. Redmond III

To Department: Department of Toxic Substances Control
Region 4, Site Mitigation Cleanup Operations
245 West Broadway, Suite 350
Long Beach, California 90802
Attention: Peter A. Garcia

Any party may change its address or the individual to whose attention a notice is to be sent by giving such written notice in compliance with the provisions of this section.

19. Partial Invalidity. If any portion of the Restrictions or other term set forth herein is determined by a court of competent jurisdiction to be invalid for any reason, the surviving portions of this Covenant shall remain in full force and effect as if such portion found invalid had not been included herein.

IN WITNESS WHEREOF, the Parties execute this Covenant.

"COVENANTOR"

KAISER VENTURES INC.
a Delaware corporation

Date: 9.26, 1995

By: _____
Lee R. Redmond III
V.P. Real Estate

"DEPARTMENT"

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Date: 9/26, 1995

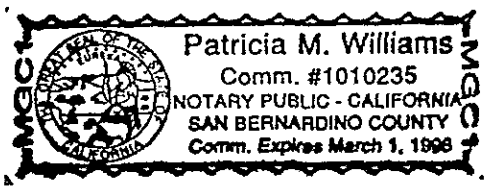
By: _____
Hamid Saebfar, Chief
Site Mitigation Cleanup Operations
Southern California Branch

C:\COVCAP13.ASC

STATE OF California)
)
COUNTY OF San Bernardino)

On September 26, 1995 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Lee R. Redmond, III, Vice President of Real Estate for Kaiser Ventures Inc., personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person(s), or entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.



Patricia M. Williams

Notary Public

STATE OF California)
)
COUNTY OF San Bernardino)

On September 26, 1995 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Hamid Saebfar, Chief of Site Mitigation Cleanup Operations, Southern California Branch of the California Environmental Protection Agency, Department of Toxic Substances Control, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person(s), or entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Patricia M. Williams
Comm. #1010235
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
Comm. Expires March 1, 1998

Patricia M. Williams

Notary Public

RECORDING REQUESTED BY:
CHICAGO TITLE CO.
Attention: Mr. Lee R. Redmond III
Kaiser Ventures Inc.
3633 E. Inland Empire Blvd., Suite 850
Ontario, California 91764

WHEN RECORDED MAIL TO:

Attention: Mr. Peter A. Garcia
California Environmental Protection Agency
Department of Toxic Substances Control
245 West Broadway, Suite 350
Long Beach, California, 90802

Recorded in Official Records, County of
San Bernardino, Errol J. Mackzum, Recorder

Doc No. 19950393083
3:00pm 11/14/95

Chicago Title # 607

PG	FEE	APF	GIMS	PH CPY	CRT CPY	ADD NM	PEN PR	PCOR
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R'S US

COVENANT TO RESTRICT USE OF PROPERTY

(Re: a Portion of the Kaiser Ventures Inc. (Formerly Known as Kaiser Resources Inc.)
Mill Site, Operable Unit No. 2, Former By-Products Plant Area)

This Covenant and Agreement ("Covenant") has an effective date of September 20, 1995, by and between Kaiser Ventures Inc., formerly known as Kaiser Resources Inc., and its successors and assigns (the "Covenantor"), the current owner of the subject property to be restricted herein, and the California Environmental Protection Agency, Department of Toxic Substances Control (the "Department"), the government agency with statutory oversight responsibility with respect to hazardous substances response actions at the subject property. The Covenantor and Department may be collectively referred to herein as the "Parties." This Covenant is made with reference to the following facts:

A. The Restricted Property (as defined below) is a limited portion of the site of the former World War II era Kaiser Steel Mill (13425 San Bernardino Avenue, Fontana), located in the area now generally bounded by Etiwanda Avenue on the west, Whittram Avenue on the north, Cherry Avenue on the east, and Valley Blvd. on the south, County of San Bernardino, State of California (the "Site"). The limited areas of the Site to be restricted herein ("Restricted Property"), totaling approximately 2.3 acres, are more particularly described and depicted in Exhibit "A" (a portion of San Bernardino County Parcel #4 of Parcel Map No. 14723) attached hereto and incorporated herein by this reference.

B. On August 22, 1988, the Department's predecessor in interest (California Department of Health Services) issued to Covenantor's predecessor in interest (Kaiser Steel Corporation) a Consent Order pursuant to California Health and Safety Code ("H&S Code") §§ 205, 25355.1(a)(1)(B), and 25355.5(a)(1)(C). The purpose of this Consent Order was "to ensure that any release or threatened release of a hazardous substance or hazardous waste to the air, soil, surface water and ground water at or from the Facility [i.e., the Site] is thoroughly investigated and that appropriate remedial actions are taken." In furtherance of the Consent Order, and pursuant to the Department's applicable statutory authority referenced therein and elsewhere, the Department is requiring this Covenant as part of the remedial actions at the Site.

C. As of 1995, land within a two (2) mile radius of the Restricted Property supports a mixture of primarily industrial and low-density residential uses. There is also a considerable amount of vacant, currently unproductive agricultural land for which industrial development is planned. The nearest residences to the Site are located approximately 2,000 feet to the north of the border of the Site and 2,000 feet to the east of the border of the Site. The nearest sensitive population to the Site is an elementary school located 3,400 feet to the southeast of the border of the Site.

D. All or a portion of the Restricted Property contains hazardous substances ("Hazardous Substances") which include or may include one or more of the following contaminants of concern (as reported in the March 1995, Remedial Action Plan, Operable Unit No. 2 ("RAP"), which became effective upon the Department's approval on May 1, 1995): acenaphthene, anthracene, antimony, arsenic, barium, benz(a)anthracene, benzene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, beryllium cadmium, chrysene, chromium (including hexavalent), copper, cyanide, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, lead, maganese, mercury, molybdenum, naphthalene, nickel, phenol, pyrene, selenium, silver, styrene, tetrachloroethylene, thallium, toluene, vanadium, xylene, and zinc. The Department considers the concentrations of certain polynuclear aromatics (e.g., benzo(a)pyrene) and certain trace metals to be above acceptable health risk-based levels.

E. Covenantor, in compliance with applicable law, and under the supervision and authority of the Department, is undertaking a response action ("Response Action") at several areas of the Site pursuant to the RAP, which response action Covenantor asserts is in compliance with applicable requirements of the National Contingency Plan (40 C.F.R. § 300, *et. seq.*).

F. This Covenant does not nullify or otherwise modify any releases from liability granted by the Department pursuant to H&S Code §§ 25364 and 25364.1 (California AB 2589, as amended by AB 3201) or other law of similar import.

G. As shown in Exhibit "A," it is anticipated that the Restricted Property will be covered by seven (7) to thirty-five (35) feet of clean fill, asphalt, and/or concrete in connection with construction of a planned motor sports complex. The Department has approved this Response Action as being sufficiently protective of human health and the environment.

ARTICLE I
PARAMETERS OF COVENANT

1. Restrictions to Run With the Land. This Covenant sets forth protective provisions, covenants, restrictions, and conditions (collectively referred to as "Restrictions"), upon and subject to which the Restricted Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. Each and every of the Restrictions: (a) shall run with the land pursuant to H&S Code § 25355.5, (b) shall inure to the benefit of and pass with each and every portion of the Restricted Property, (c) shall apply to and bind the respective successors in interest to the Restricted Property, (d) are for the benefit of, and shall be enforceable by, the Department, (e) are imposed upon the entire Restricted Property unless expressly stated as applicable only to a specific portion thereof, and (f) are imposed pursuant to H&S Code §§ 25355.5 and 25356.1.

2. Concurrence of Owners/Occupants. Each and every owner ("Owner" shall mean the Covenantor or its successors in interest, including heirs and assigns, who hold title to all or any portion of the Restricted Property) and occupants ("Occupants" shall mean lessees or other possessors of any portion of the Restricted Property whose occupancy has a significant likelihood of violating the Restrictions) shall be deemed to be in accord with this Covenant and shall further be deemed to unconditionally agree, for and among themselves, their heirs, successors, and assignees (and for any agents thereof), to the Restrictions as herein established (such that their interest(s) and/or possessory rights in the Restricted Property are taken subject to such Restrictions).

ARTICLE II
RESTRICTIONS

3. Incorporation into Deeds and Leases. Covenantor agrees that the Restrictions set forth herein shall be incorporated by reference in each and all deeds, and leases to Occupants, for any portion of the Restricted Property.

Restrictions on Use. Covenantor agrees to restrict the use of the Restricted Property in accordance with the restrictions set forth herein in order to protect the present and future public health and safety from potential harm to persons which may result from hazardous substances which exist on the Restricted Property. The Restrictions provided herein shall apply only to the Restricted Property. Covenantor agrees not to use the Restricted Property for any of the following purposes:

(a) A residence, including any mobile home or factory built housing, constructed or installed for use as permanently-occupied residential human habitation.

(b) A long-term care hospital for humans. Nothing herein shall restrict use of the Restricted Property for any infirmary, medical aid station, or emergency medical care facility where there is no intent for any patient to remain in such facility for more than 24 hours (e.g., as may be associated with the motor sport complex).

(c) A traditional public or private school for persons under 21 years of age. Nothing herein shall restrict use of the Restricted Property for any specialized training programs related to then-existing facilities on the Restricted Property (e.g., a driving "school" related to the motor sport complex).

(d) A day care center for children.

Additionally, Covenantor agrees that the Owner to provide to the Department written notice at least fourteen (14) days prior to any excavations in the Restricted Property which present a significant likelihood of disturbing the Hazardous Substances in the Restricted Property

5. Notice in Agreements. Covenantor agrees that the Owner shall furnish in writing to Occupants and/or to the Owner's successor in interest to any part of the Restricted Property, as either part of another written agreement (e.g., a lease), or as a stand alone instrument, the following statement:

> "All or a portion of the land described herein contains hazardous substances. Such condition renders the land and the owner, lessee, or other possessor of the land subject to requirements, restrictions, provisions, and liabilities contained in Chapter 6.5 and 6.8 of Division 20 of the California Health and Safety Code. This statement is not a declaration that a hazard exists and does not address the liability of any party."

6. Conveyance of Restricted Property. Covenantor agrees that the Owner shall provide notice to the Department not later than thirty (30) days prior to any conveyance of any ownership interest in the Restricted Property (excluding mortgages, liens, and other non-possessory encumbrances). The Department shall not, by reason of this Covenant, have authority to approve, disprove, or otherwise affect such proposed conveyance, except as otherwise provided by law, by administrative order, or by reason of this Covenant.

ARTICLE III
ENFORCEMENT

7. Enforcement. Failure of the Covenantor and/or Owner to comply with any of the Restrictions specifically applicable to it shall be grounds for the Department, by reason of this Covenant, to require that the Covenantor and/or Owner to modify or remove any improvements ("Improvements" herein shall mean all buildings, roads, driveways, and paved parking areas, constructed or placed upon any portion of the Restricted Property) constructed in violation of the Restrictions. Violation of this Covenant shall be grounds for the Department to file civil and/or criminal actions against the Covenantor and/or Owner as provided by law.

ARTICLE IV
VARIANCE, TERMINATION, AND TERM

10. Variance. Covenantor, any Owner, and/or, with the Owner's written consent, any Occupant of the Restricted Property or any portion thereof may apply to the Department for a written variance from the provisions of this Covenant. Such application shall be made in accordance with H&S Code § 25233.

11. Termination. Covenantor, any Owner, and/or, with the Owner's written consent, any Occupant of the Restricted Property or any portion thereof may apply to the Department for a termination of the Restrictions or other term of this Covenant as they apply to all or any portion of the Restricted Property. Such application shall be made in accordance with H&S Code § 25234.

12. Term. Unless ended in accordance with the "termination" paragraph above, by law, or by other valid method, this Covenant shall continue in effect in perpetuity.

ARTICLE V
MISCELLANEOUS

13. No Dedication Intended. Nothing set forth in this Covenant shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Site, Restricted Property, or any portion thereof to the general public or anyone else for any purpose whatsoever. In addition, nothing in this Covenant shall be deemed to constitute a covenant, encumbrance, or restriction on the use of any property other than the Restricted Property.

14. Headings. Headings at the beginning of each numbered article of this Covenant are solely for the convenience of the Parties and are not a part of the Covenant.

15. Code References. All references to Code sections include successor provisions, if any.

16. Department References. All references to the Department include successor agencies/departments or other successor entity.

17. Recordation. The Covenantor shall record this Covenant, with all referenced Exhibits, in the County of San Bernardino within ten (10) days of the Covenantor's receipt of a fully executed original.

18. Notices. Whenever any person gives or serves any notice ("Notice" as used herein includes any demand or other communication with respect to this Covenant), each such Notice shall be in writing and shall be deemed effective: (1) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served, or (2) three (3) business days after deposit in the mail, if mailed by United States mail, postage paid certified, return receipt requested:

To Covenantor: Kaiser Ventures Inc.
3633 E. Inland Empire Boulevard, Suite 850
Ontario, California 91764
Attention: Lee R. Redmond III

To Department: Department of Toxic Substances Control
Region 4, Site Mitigation Cleanup Operations
245 West Broadway, Suite 350
Long Beach, California 90802
Attention: Peter A. Garcia

Any party may change its address or the individual to whose attention a notice is to be sent by giving such written notice in compliance with the provisions of this section.

19. Partial Invalidity. If any portion of the restrictions or other term set forth herein is determined by a court of competent jurisdiction to be invalid for any reason, the surviving portions of this Covenant shall remain in full force and effect as if such portion found invalid had not been included herein.

IN WITNESS WHEREOF, the Parties execute this Covenant.

"COVENANTOR"

KAISER VENTURES INC.
a Delaware corporation

Date: 7-26, 1995

By: _____
Lee R. Redmond III
V.P. Real Estate

"DEPARTMENT"

CALIFORNIA ENVIRONMENTAL PROTECTION
AGENCY, DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Date: 7/26, 1995

By: _____
Hamid Saebfar, Chief
Site Mitigation Cleanup Operations
Southern California Branch

\DOCS\147701\PRODUCT\COVADD12.WPD

STATE OF California)
)
COUNTY OF San Bernardino

On April 26, 1995 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Lee R. Redmond, III, Vice President of Real Estate for Kaiser Ventures Inc., personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person(s), or entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Patricia M. Williams
Comm. #1010235
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
Comm. Expires March 1, 1998

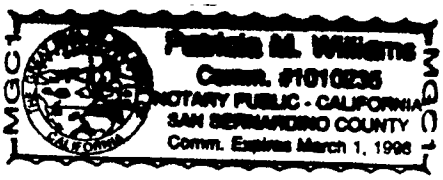
Patricia M. Williams

Notary Public

STATE OF California)
)
COUNTY OF San Bernardino)

On September 26, 1995 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Hamid Saebfar, Chief of Site Mitigation Cleanup Operations, Southern California Branch of the California Environmental Protection Agency, Department of Toxic Substances Control, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person(s), or entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.



Patricia M. Williams

Notary Public

EXHIBIT "A"

SURVEYOR'S STATEMENT
OF CERTIFICATION

I hereby certify to Kaiser Ventures, a California Corporation, that I am a Licensed Land Surveyor in the State of California and I further state that the legal descriptions of Operable Unit No. 2, By-Products Cap, Coke Quench Sumps and Slag Quench Pits were prepared by me or under my direction and that they meet the normal prudent standards of the Industry.

James John Imbiorski, L.S. 4430, Exp. 9-30-97

11/6/95
Date



EXHIBIT A-2
Sheet 1 of 1

CIVIL ENGINEER'S
CERTIFICATION OF GRADE

I hereby certify to Kaiser Ventures, a California Corporation, that I am a Registered Civil Engineer in the State of California and I further state that the reference of depth to finish grade is based on plans and field surveys prepared and performed by me or under my direction, and that they meet the normal product standards of the Industry. Referenced depths are as designed and represented in the Construction Documents dated August 16, 1995.

C. Curt Ingraham, RCE 44780, Exp. 3-31-98

11/3/95
Date



LEGAL DESCRIPTION
FOR
COKE QUENCH SUMP AREAS
OF
OPERABLE UNIT NO. 2

In the unincorporated territory of the County of San Bernardino, State of California, being portions of Parcel 4 of Parcel Map No. 14723, recorded in Book 179, Pages 9 through 13, inclusive, of Parcel Maps, on file in the office of the County Recorder of said County, being more particularly described as follows:

COMMENCING at the centerline intersection of Cherry Avenue and San Bernardino Avenue as shown on said Parcel Map 14723; thence North 00°07'35" West, 2646.06 feet along said centerline of Cherry Avenue to the centerline intersection of Cherry Avenue and Randall Avenue as shown on said Parcel Map No. 14723, said point hereinafter referred to as Point 'A'.

Parcel A

COMMENCING at Point 'A' hereinbefore described; thence North 76°18'35" West, 3569.70 feet to the POINT OF BEGINNING for this description; thence North 89°41'07" East, 51.50 feet; thence South 00°18'53" East, 17.20 feet; thence South 89°41'07" West, 51.50 feet; thence North 00°18'53" West, 17.20 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'A' at a depth of 25 feet below finish grade.

Parcel B

COMMENCING at Point 'A' hereinbefore described; thence North 68°22'12" West. 2164.35 feet to the POINT OF BEGINNING for this description; thence North 89°14'07" East, 45.00 feet; thence South 00°45'53" East, 16.50 feet; thence South 89°14'07" West, 45.00 feet; thence North 00°45'53" West, 16.50 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'B' at a depth of 35 feet below finish grade.

Parcel C

COMMENCING at Point 'A' hereinbefore described; thence North 58°36'32" West, 1540.81 feet to the POINT OF BEGINNING for this description; thence North 89°20'59" East, 56.00 feet; thence South 00°39'01" East, 17.00 feet; thence South 89°20'59" West, 56.00 feet; thence North 00°39'01" West, 17.00 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'C' at a depth of 19 feet below finish grade.

Unless otherwise noted, all bearings and distances in this description are grid, based on the California Coordinate System (NAD 83), Zone 5. To obtain ground distance, divide the grid distances herein by 0.99993670.

This description prepared under my direction:

James John Imbiorski, L.S. 4430, Exp. 9-30-97

11/6/95
Date



AE 94-40

O:\JOB-NO\1994\94-40\LEGAL7.SAM 10/30/95

LEGAL DESCRIPTION
FOR
SLAG QUENCH PITS
OF
OPERABLE UNIT NO. 2

In the unincorporated territory of the County of San Bernardino, State of California, being portions of Parcel 4 of Parcel Map No. 14723, recorded in Book 179, Pages 9 through 13, inclusive, of Parcel Maps, on file in the office of the County Recorder of said County, being more particularly described as follows:

COMMENCING at the centerline intersection of Cherry Avenue and San Bernardino Avenue as shown on said Parcel Map 14723; thence North 00°07'35" West, 2646.06 feet along said centerline of Cherry Avenue to the centerline intersection of Cherry Avenue and Randall Avenue as shown on said Parcel Map No. 14723, said point hereinafter referred to as Point 'A'.

Parcel D

COMMENCING at Point 'A' hereinbefore described; thence North 84°41'33" West, 3855.67 feet to the POINT OF BEGINNING for this description; thence North 89°45'00" East, 440.00 feet; thence North 00°15'00" West, 65.00 feet; thence South 89°45'00" West, 440.00 feet; thence South 00°15'00" East, 65.00 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'D' at a depth of 8 to 31 feet below finish grade.

Parcel E

COMMENCING at Point 'A' hereinbefore described; thence North 83°55'26" West, 3393.37 feet to the POINT OF BEGINNING for this description; thence North 89°45'00" East, 440.00 feet; thence North 00°15'00" West, 65.00 feet; thence South 89°45'00" West, 440.00 feet; thence South 00°15'00" East, 65.00 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'E' at a depth of 7 feet below finish grade.

Parcel F

COMMENCING at Point 'A' hereinbefore described; thence North 82°56'01" West, 2947.31 feet to the POINT OF BEGINNING for this description; thence North 89°45'00" East, 440.00 feet; thence North 00°15'00" West, 65.00 feet; thence South 89°45'00" West, 440.00 feet; thence South 00°15'00" East, 65.00 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'F' at a depth of 7 feet below finish grade.

Parcel G

COMMENCING at Point 'A' hereinbefore described; thence North 81°33'31" West, 2476.21 feet to the POINT OF BEGINNING for this description; thence North 89°45'00" East, 440.00 feet; thence North 00°15'00" West, 65.00 feet; thence South 89°45'00" West, 440.00 feet; thence South 00°15'00" East, 65.00 feet to the POINT OF BEGINNING.

Note: The following is not a part of the legal description but is for informational purposes only. Potentially hazardous substances could be encountered within Parcel 'G' at a depth of 9 feet below finish grade.

Unless otherwise noted, all bearings and distances in this description are grid, based on the California Coordinate System (NAD 83), Zone 5. To obtain ground distance, divide the grid distances herein by 0.99993670.

This description prepared under my direction:

James John Imbiorski, L.S. 4430, Exp. 9-30-97

11/6/95
Date



EXHIBIT "A-5"

LAYOUT OF PLAT TO ACCOMPANY LEGAL DESCRIPTION

Sheet 1	Sheet 2
Sheet 3	Sheet 4

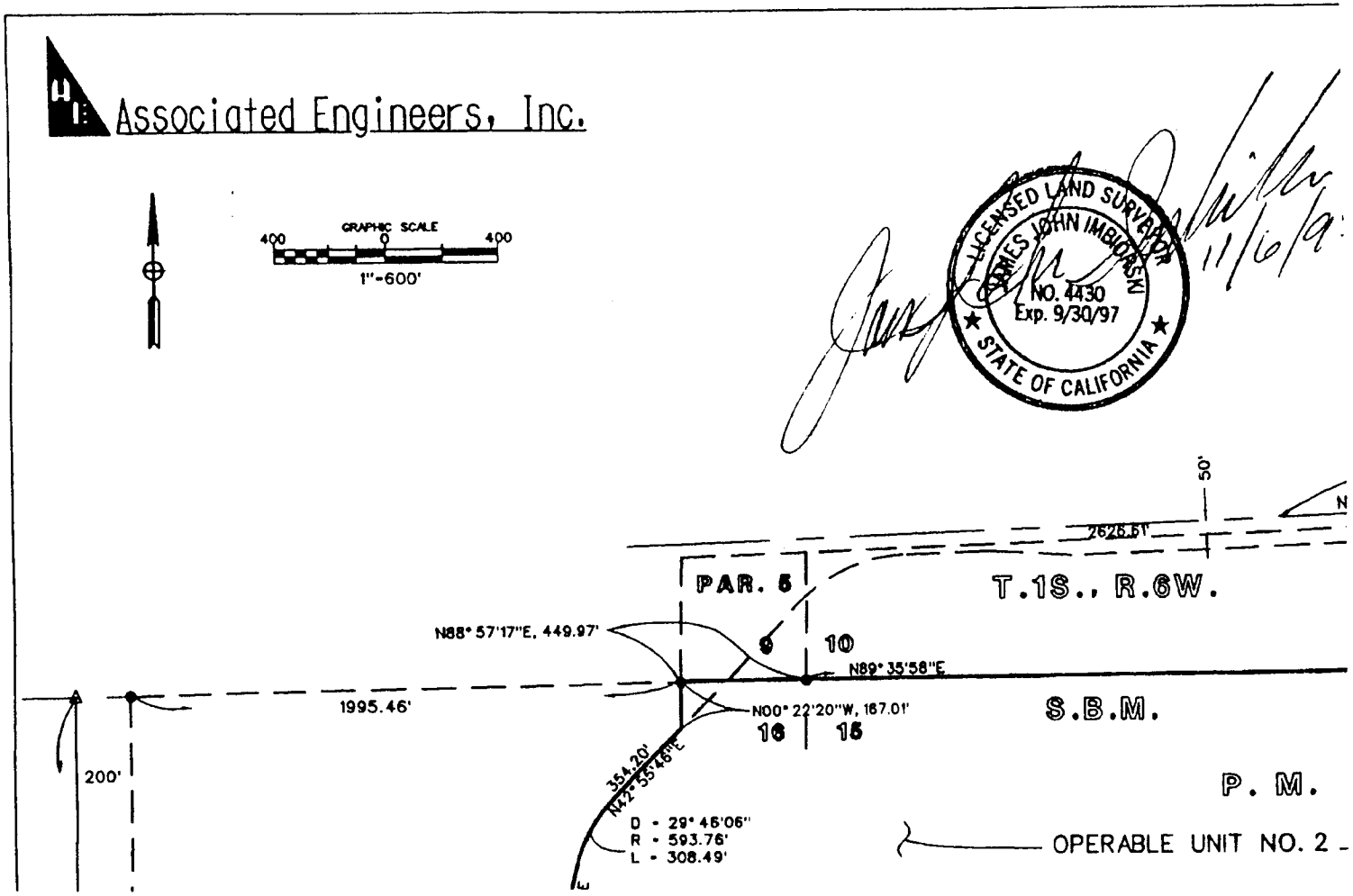
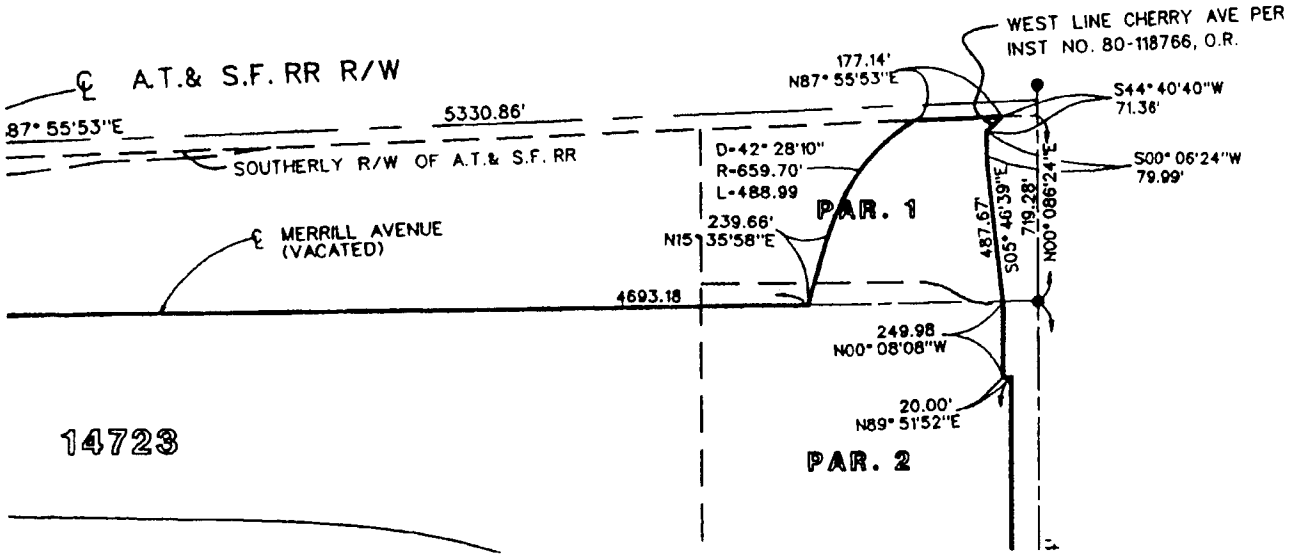
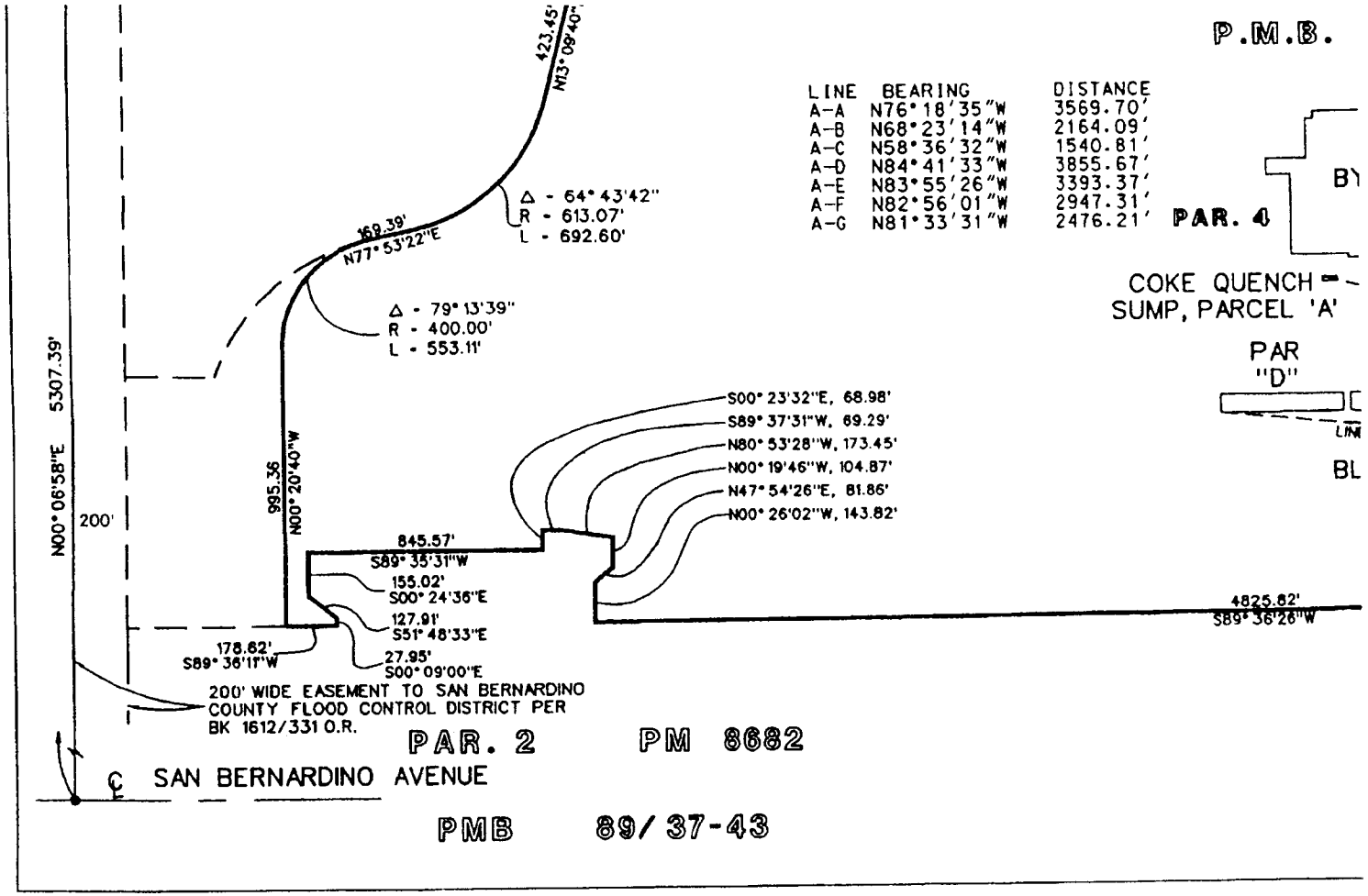

Associated Engineers, Inc.
GRAPHIC SCALE
400
0
400
1"=600'
LICENSED LAND SURVEYOR
JAMES JOHN IMBIORSKI
NO. 4430
Exp. 9/30/97
STATE OF CALIFORNIA
11/16/9
50'
N
2626.61'
PAR. 5
T.1S., R.6W.
N88° 57'17"E, 449.97'
9
10
N89° 35'38"E
1995.46'
N00° 22'20"W, 167.01'
16
15
S.B.M.
200'
354.20'
N42° 55'46"E
D = 29° 46'06"
R = 593.76'
L = 308.49'
P. M.
OPERABLE UNIT NO. 2

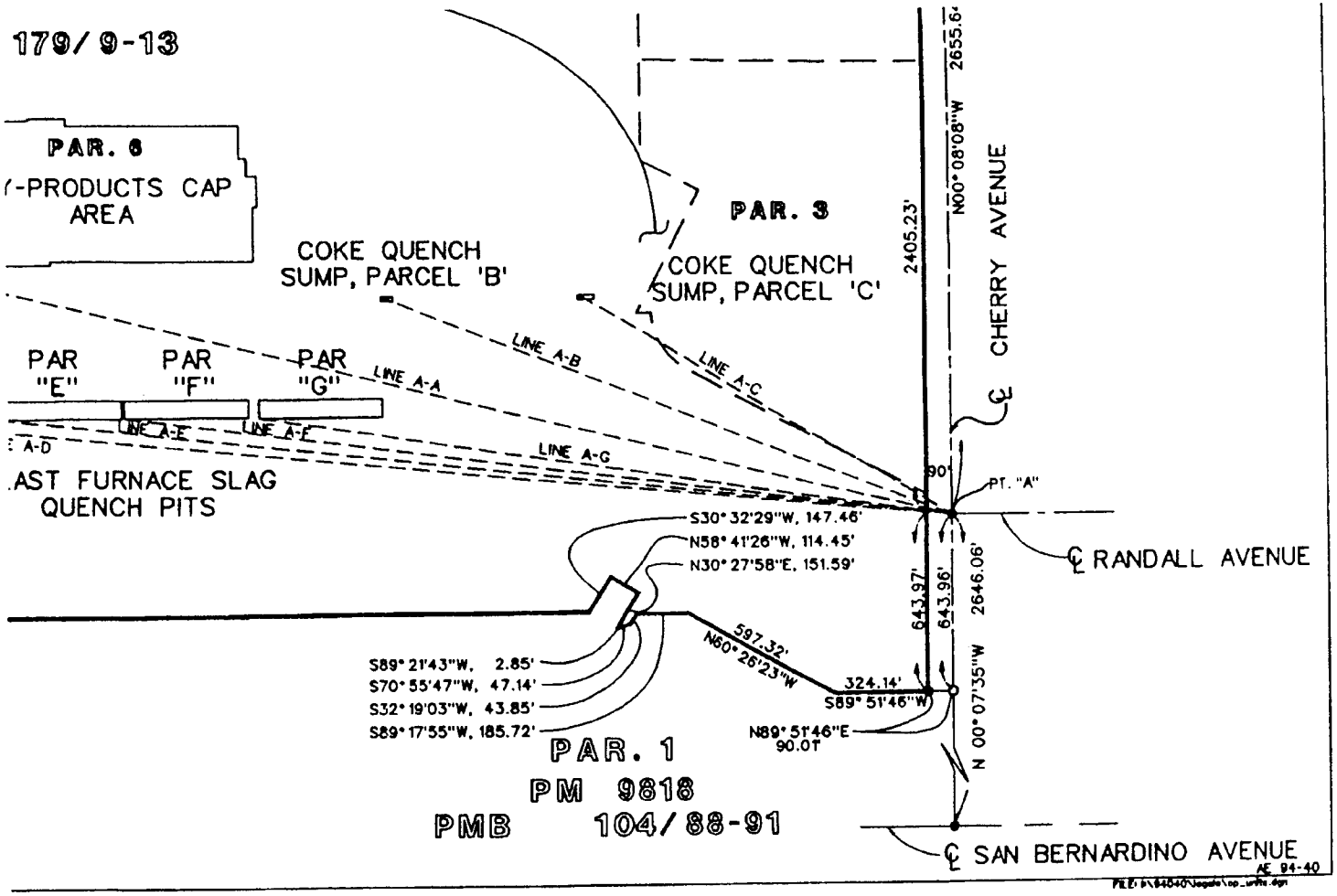
EXHIBIT 'A-5'
PLAT TO ACCOMPANY LEGAL DESCRIPTION

UNLESS OTHERWISE NOTED, ALL BEARINGS AND DISTANCES SHOWN ARE GRID, BASED ON THE CALIFORNIA COORDINATE SYSTEM (NAD 83), ZONE 5. TO OBTAIN GROUND DISTANCES, DIVIDE THE GRID DISTANCE SHOWN HEREIN BY 0.99993670.



P.M.B.


LINE BEARING DISTANCE
A-A N76°18'35"W 3569.70'
A-B N68°23'14"W 2164.09'
A-C N58°36'32"W 1540.81'
A-D N84°41'33"W 3855.67'
A-E N83°55'26"W 3393.37'
A-F N82°56'01"W 2947.31'
A-G N81°33'31"W 2476.21'
PAR. 4
COKE QUENCH SUMP, PARCEL 'A'
PAR "D"
423.45'
N13°09'40"E
Δ - 64°43'42"
R - 613.07'
L - 692.60'
169.39'
N77°53'22"E
Δ - 79°13'39"
R - 400.00'
L - 553.11'
N00°06'58"E 5307.39'
200'
995.36
N00°20'40"W
S00°23'32"E, 68.98'
S89°37'31"W, 69.29'
N80°53'28"W, 173.45'
N00°19'46"W, 104.87'
N47°54'26"E, 81.86'
N00°26'02"W, 143.82'
845.57'
S89°35'31"W
155.02'
S00°24'36"E
127.91'
S51°48'33"E
178.62'
S89°36'17"W
27.95'
S00°09'00"E
4825.82'
S89°36'26"W
200' WIDE EASEMENT TO SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT PER BK 1612/331 O.R.
PAR. 2
PM 8682
℄ SAN BERNARDINO AVENUE
PMB 89/37-43


179/9-13
PAR. 6
(-PRODUCTS CAP AREA
COKE QUENCH SUMP, PARCEL 'B'
PAR. 3
COKE QUENCH SUMP, PARCEL 'C'
PAR "E"
PAR "F"
PAR "G"
LINE A-A
LINE A-B
LINE A-C
LINE A-D
LINE A-E
LINE A-E
LINE A-G
AST FURNACE SLAG QUENCH PITS
2405.23'
N00°08'08"W 2655.6'
CHERRY AVENUE
90°
PT. "A"
RANDALL AVENUE
S30°32'29"W, 147.46'
N58°41'26"W, 114.45'
N30°27'58"E, 151.59'
643.97'
643.96'
2646.06'
597.32'
N60°26'23"W
324.14'
S89°51'46"W
N89°51'46"E
90.0T
N 00°07'35"W
S89°21'43"W, 2.85'
S70°55'47"W, 47.14'
S32°19'03"W, 43.85'
S89°17'55"W, 185.72'
PAR. 1
PM 9818
PMB 104/88-91
SAN BERNARDINO AVENUE
AE 94-40

APPENDIX J

Speedway Commerce Center II
San Bernardino County, California

Preliminary Drainage Study

Prepared for:
California Speedway, LLC
9300 Cherry Avenue
Fontana, CA 92335
(909) 429-5000

Prepared By:

ALBERT A. WEBB ASSOCIATES
3788 McCray Street
Riverside, CA 92506

Original Date Prepared: December 2021
Revision Date(s): April 2022

Eric Hays, P.E.
Senior Engineer

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SECTION 1 - SUMMARY

PURPOSE

The purpose of this report is to document the hydrologic and hydraulic analyses performed in support of the Speedway Commerce Center II Specific Plan project located in unincorporated San Bernardino County, California. The project site is located at north of the San Bernardino Freeway (I-10) and San Bernardino Avenue and is bounded by Cherry Avenue to the east, the Burlington Northern and Santa Fe (BNSF) Railroad to the north, the West Valley Materials Recycling Facility to the west, and California Steel Industries to the south. The Specific Plan area is comprised of approximately 432.7 acres of the approximately 522 acres site of land presently occupied by the Auto Club Speedway (ACS) and associated uses. This report will summarize the hydrologic and hydraulic analyses that were conducted in order to determine the necessary drainage improvements required to provide flood protection for the proposed building and safely convey the runoff through the site.

The scope of this report will include the following:

- Determine the peak 100-year and 10-year flow rates for the developed condition using the San Bernardino County Hydrology Manual Rational Method.
- Determine the required storm drain facilities, alignment, and sizes required to flood protect the project site.
- Determine the necessary basin area and volume required for water quality treatment and to mitigate for increases in runoff.
- Summarize the hydrology and hydraulic results.

DESCRIPTION OF WATERSHED

As previously described, the Specific Plan area is comprised of approximately 432.7 acres of the approximately 522 acres of land presently occupied by the Auto Club Speedway (ACS) and associated uses. Existing elevations across the site vary from 1,144 feet above mean sea level (msl) at the northeast corner to 1,084 feet msl at the southwestern corner, sloping to the southwest. The existing drainage pattern for the site and the general area is characterized by sheet flow.

Under existing conditions, the project site naturally drains from the northeast to the southwest. An open stormwater channel exists on the south side of the site. This channel intercepts all runoff within the project area, and outlets into existing drainage basin located at the southwest corner of the site. An additional offsite area on the east of site, approximately 23.4 acres, drains south to the existing channel as well. All offsite flows are intercepted by Cherry Ave to the east and existing San Sevaine Channel to the north of the site.

The site is within a flood hazard zone "X" FP2, where the flood hazard is inside a 500 Year Flood Plain (SBC, 2010a, b). The site is not listed by the County of San Bernardino (SBC,2010a, b), as being in any mapped dam inundation hazard zone. A seiche is a wave or sloshing of a body of water that is at least partially impounded caused by strong wind or seismic shaking. The site is not downstream of large bodies of water or tanks which potentially could causes flooding and inundate the project site. The risk of seiche damage following a seismic event at the site is considered low. Furthermore, the probability of said conditions occurring during a 100-Year storm is very miniscule. In our engineering opinion, the proposed project site bears very low risk, if any, from such an event.

PROPOSED CONDITIONS

The existing drainage pattern is maintained in the proposed conditions. All flows onsite drain in a north east - south westerly manner consistent with existing pattern. Flows originate at northeast corner of the site and traverse through the site via storm drain network, picking up flows from remaining onsite areas, and are ultimately conveyed to the existing San Sevaine channel located southwesterly of the site.

A 164 feet long weir outlet structure is proposed to convey the 885 cfs 100-Year flow. The outlet structure is located in the south of the existing basin which is in the southwest corner of the site. The existing basin is used to treat water quality as a natural infiltration basin. Water depth of 1.4 feet and 2.1 feet freeboard is used to design the size of the weir. See Appendix C for details. It is worthy to note that in the 100-year flood conditions, when the existing basin reaches its maximin capacity, the actual captured volume of water quality treatment is the sum of the above-ground storage volume and 3-hour infiltrated volume of basin.

METHODOLOGY

HYDROLOGY

Hydrologic calculations were performed in accordance with the San Bernardino County Hydrology Manual, dated August 1986. The Rational Method was utilized in determining peak 1-Hour flow rates.

The hydrological parameters, including rainfall values and soil types were derived from the San Bernardino County Hydrology Manual. The isohyetal maps and soil map have been included in Section 2.

Rational Method calculations were performed using a computer program developed by CivilDesign Corporation and Joseph E. Bonadiman and Associates Inc. The computer program is commonly referred to as CivilD which incorporates the hydrological parameters outlined in the San Bernardino County Hydrology Manual.

The Rational Method was used to determine the peak flow rates to size and design the drainage facilities need to convey onsite flows through the site to the existing basin to existing San Sevaine channel. The flow rates were computed by generating a hydrologic "link-node" model in which the overall area is divided into separate drainage sub-areas, and then each tributary is linked to a concentration point (node) determined by the proposed layout and grading.

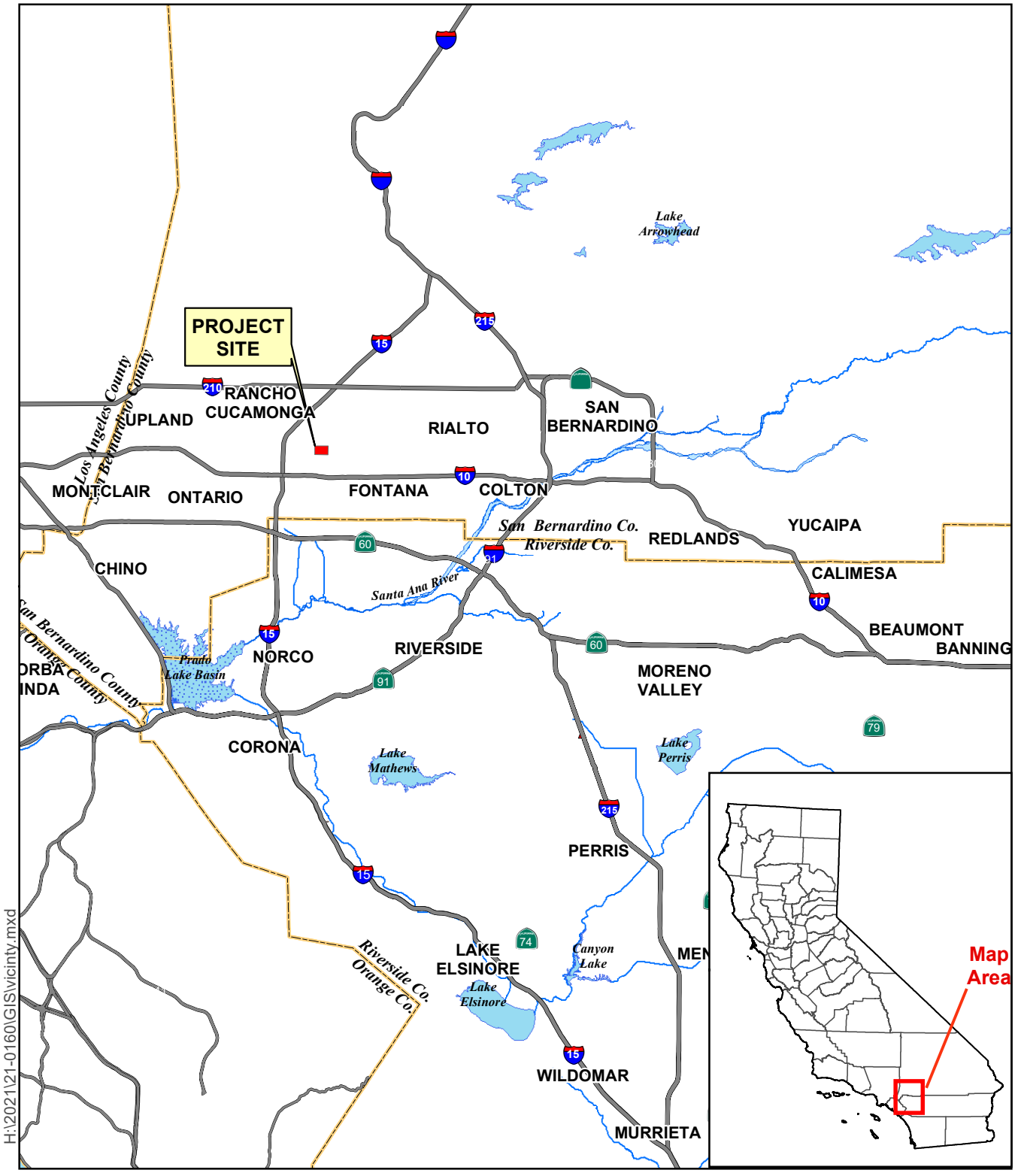
FIG. 1 VICINITY MAP

FIG. 2 USGS TOPOGRAPHY MAP

FIG. 3 AERIAL PHOTOGRAPH

FIG. 4 RECEIVING WATERBODIES

FIG. 5 SOILS MAP

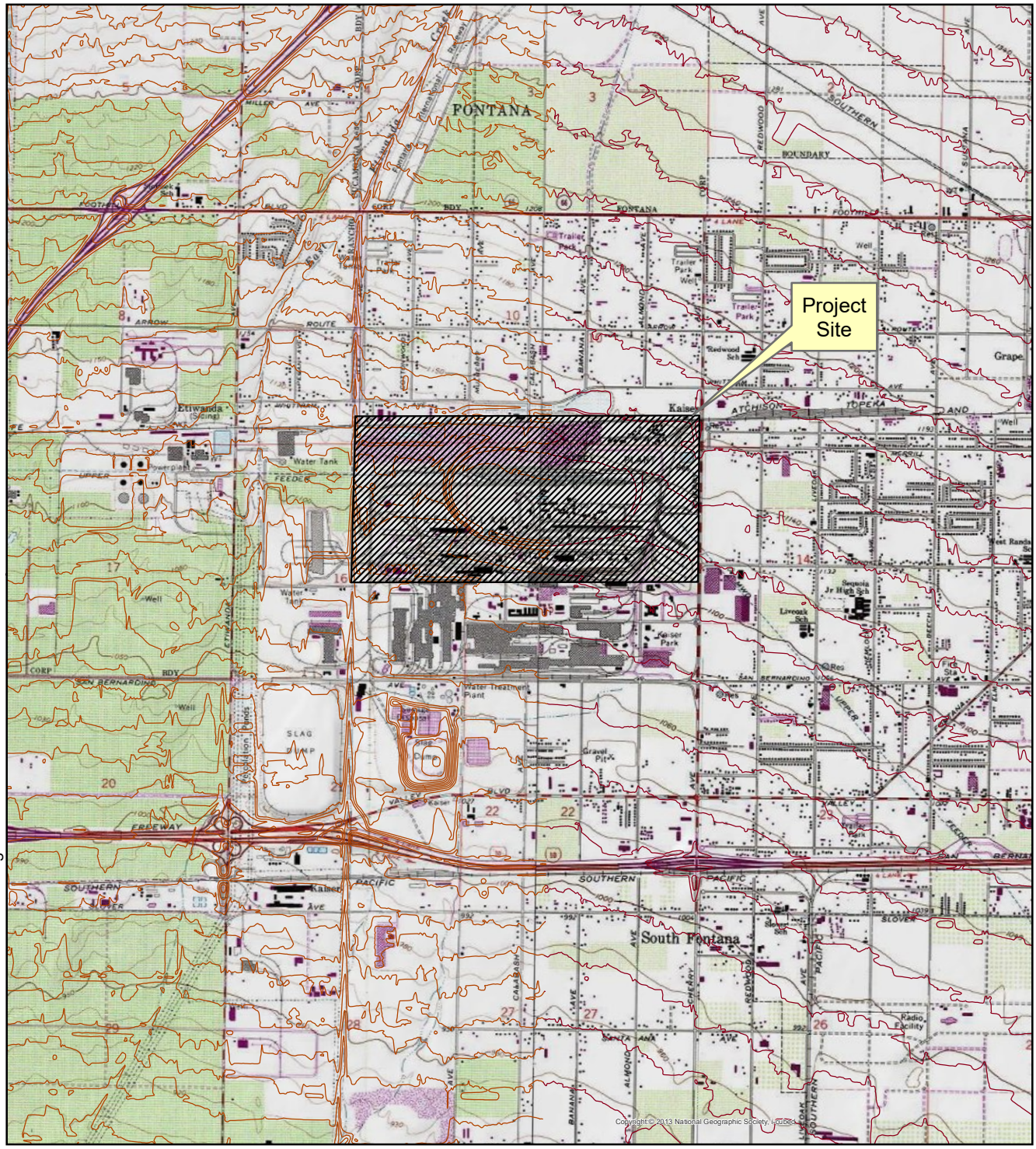


N
W WEBB E
S

0 4 8 12 Miles

ALBERT A. WEBB ASSOCIATES

Vicinity Map



\\elsinore\WO4\2021\21-0160\GIS\usgs.mxd

Source: USGS 7.5 min

Legend

Project Extents

N
W E
S

0 1,900 3,800 5,700 Feet

ALBERT A. WEBB ASSOCIATES

USGS Topographic Map



\\elsinore\WO4\2021\21-0160\GIS\aerial.mxd

Sources: Eagle Aerial, 2020

Legend

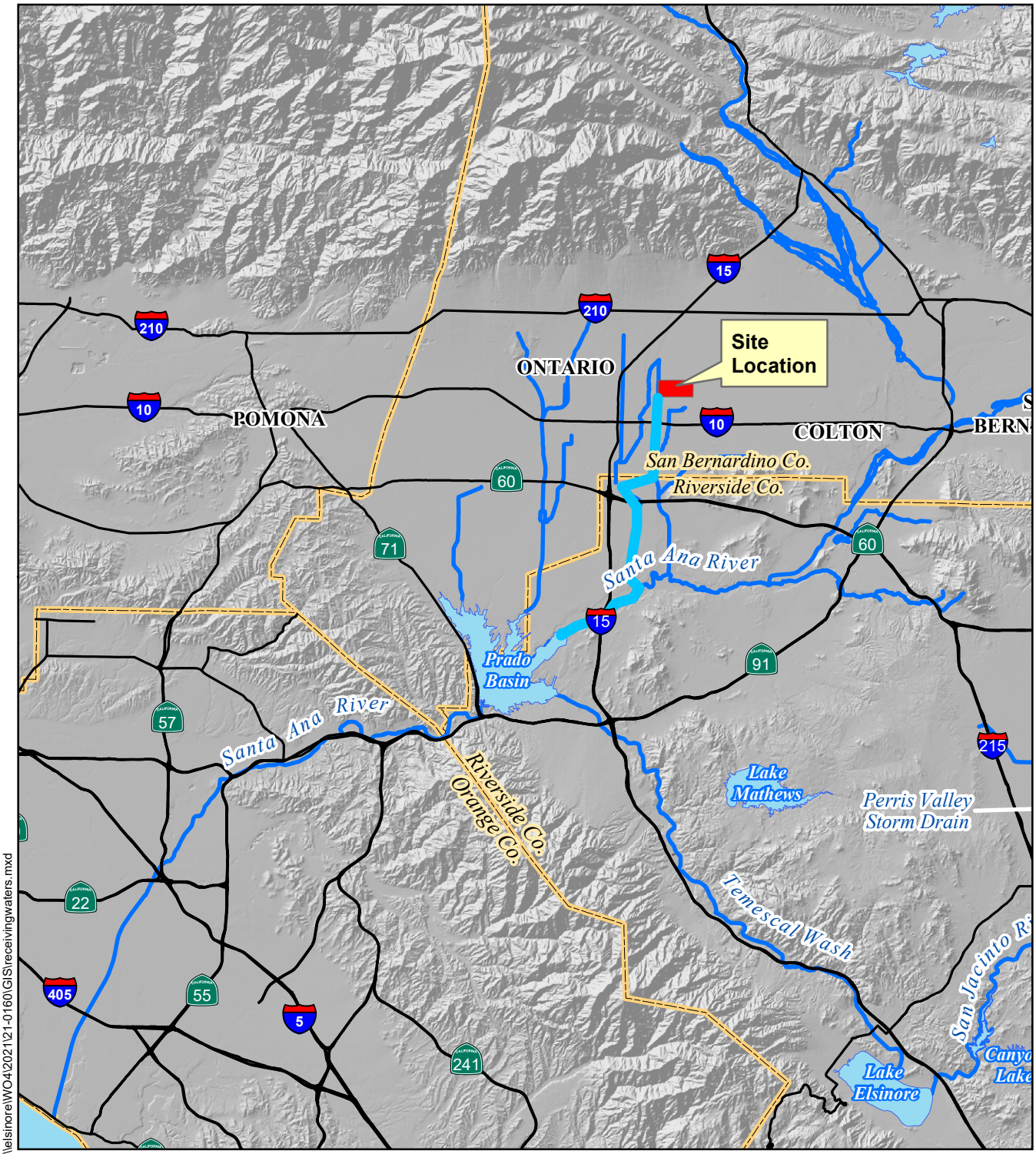
Project Location

N
W WEBB E
S

0 1,500 3,000
Feet

ALBERT A. WEBB ASSOCIATES

Aerial Map



\Elsinore\WO4\2021\21-0160\GIS\receivingwaters.mxd

LEGEND

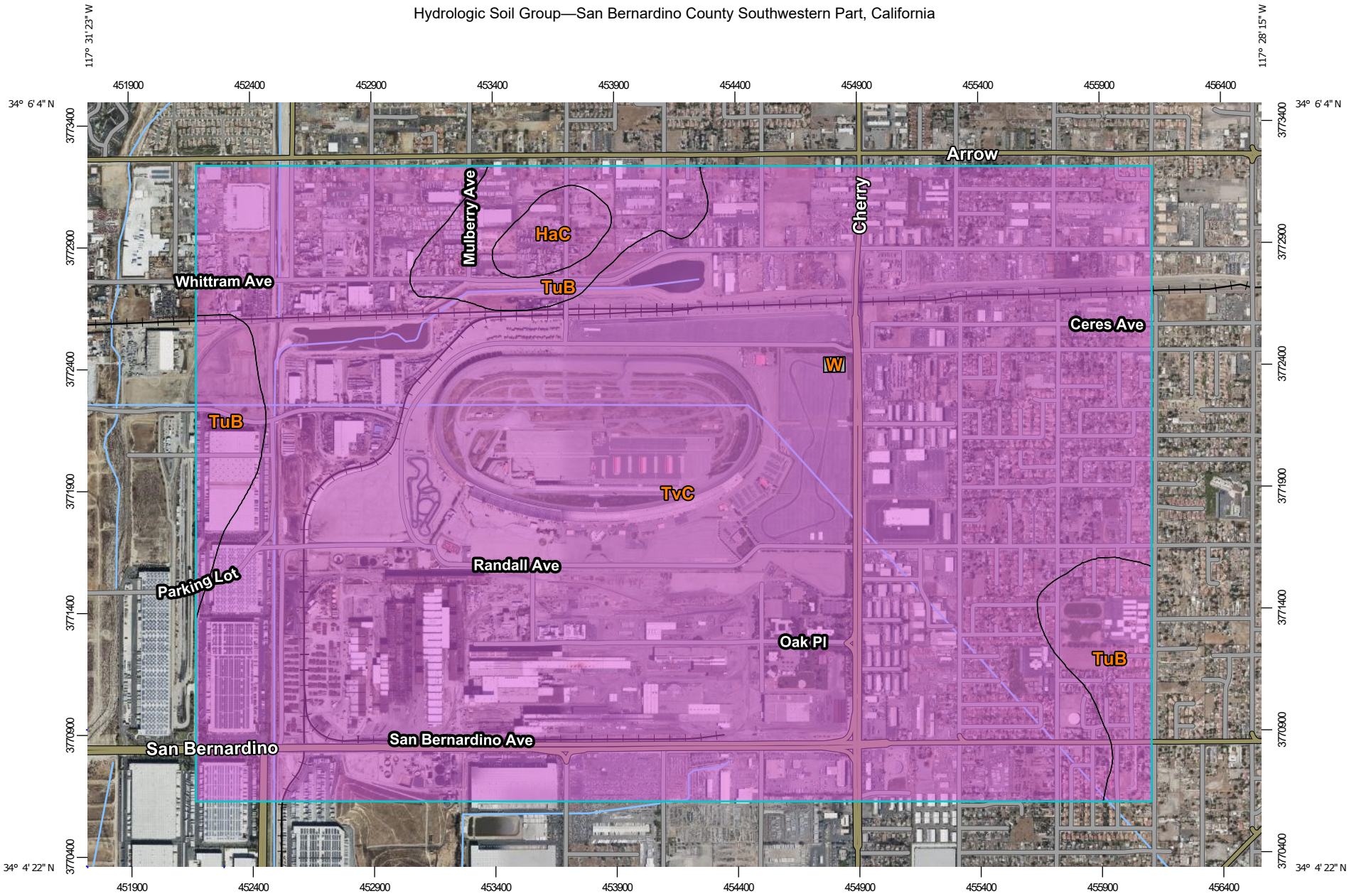
Receiving Waters

N
W E
S
WEBB

0 3 6 9
Miles

ALBERT A. WEBB ASSOCIATES

Receiving Waters Map


117° 31' 23" W
117° 28' 15" W
34° 6' 4" N
34° 4' 22" N
451900
452400
452900
453400
453900
454400
454900
455400
455900
456400
3773400
3772900
3772400
3771900
3771400
3770900
3770400
Arrow
Mulberry Ave
Cherry
HaC
TuB
Whittram Ave
Ceres Ave
W
TuB
TvC
Randall Ave
Parking Lot
Oak Pl
TuB
San Bernardino
San Bernardino Ave
Map Scale: 1:22,100 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 300 600 1200 1800
Feet
0 1000 2000 4000 6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County Southwestern Part, California
Survey Area Data: Version 13, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 10, 2018—Feb 6, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HaC	Hanford coarse sandy loam, 2 to 9 percent slopes	A	30.6	1.2%
TuB	Tujunga loamy sand, 0 to 5 percent slopes	A	225.5	8.8%
TvC	Tujunga gravelly loamy sand, 0 to 9 percent slopes	A	2,290.8	89.9%
W	Water		1.4	0.1%
Totals for Area of Interest			**2,548.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

SECTION 2 - HYDROLOGY ANALYSIS

HYDROLOGY PARAMETERS

The San Bernardino County Hydrology Manual was used to determine several of the hydrological parameters. The following rainfall depths were utilized in the hydrology analyses, which were obtained from the isohyetal maps provided in the San Bernardino County Hydrology Manual:

Table 1 – Precipitation Values

	Duration
Storm Event	1-Hour (inches)
10-Year	0.95
100-Year	1.35

The value for slope of intensity was determined to be 0.6. The isohyetal maps have been included in Appendix A.

Based on USDA Natural Resources Conservation Service (NRCS) soil data, the project site is classified as soil type A. The soils map is included in Appendix A.

The cover type was determined based on the existing land cover and proposed land use of the site. Hydrological computations for the existing condition were done using 'Commercial' landuse. The commercial cover type was also used to represent the existing and proposed condition. The table below summarizes the runoff index values and the recommended values for percentage of impervious cover for each category:

Table 2 – Cover Type

Cover Type	Soil Group A	Soil Group B	Soil Group C	Soil Group D	Percentage of Impervious Cover
Commercial	32	56	69	75	90%

ON-SITE RATIONAL METHOD HYDROLOGY

The rational method was used to determine peak flow rates in order to adequately size the proposed subsurface storm drains and associated inlets used to convey on-site flows to the existing basin, and eventually to San Sevaine channel. The study commences at node 100 in the northeast corner and ends at node 508 in the southwest corner of the site. Onsite flows are collected by a system of underground chambers and storm drain network. The underground chambers are only provided for Water Quality treatment and provide no mitigation of flood. See Preliminary Water Quality Management Plan (WQMP) report for more details on water quality. Almost all storm drains are directed to the existing channel (stretching from nodes 500 to 506) located along the south boundary of the project. From thereon, flows are conveyed by a combination of existing and proposed box culverts. These flows are then confluenced

with flows from another storm drain system running along the westerly boundary of the project (from nodes 104 to 508). Finally, all flows are conveyed to the existing basin located at the southwest corner of the project and thereon to the existing basin to the existing San Sevaine channel. The project was modeled as commercial land use which assumes a 10% pervious cover.

The following table summarizes the rational method results at key points:

Table 3 – Existing Conditions Rational Method Results

Point of Interest	10-Year Peak Flow Rate (cfs)	100-Year Peak Flow Rate (cfs)
Node 109 – Flow from east regions tributary to channel	234.0	347.2
Node 204 – Flow from north regions tributary to channel	61.0	92.3
Node 305 – Flow from central regions tributary to channel	268.4	403.8
Node 113 – Total flow produced from the project site and tributary to channel	504.5	762.2

Table 4 – Proposed Conditions Rational Method Result

Point of Interest	10-Year Peak Flow Rate (cfs)	100-Year Peak Flow Rate (cfs)
Node 108 – Flow from northeast and northwest corner of site tributary to channel	83.1	127.3
Node 213 – Flow from east regions tributary to channel	186.3	280.9
Node 406 – Flow from north central regions tributary to channel	92.4	138.1
Node 508 – Total flow produced from the project site and tributary to channel	577.9	885.8

The rational method output files and hydrology map have been included in Appendix A.

SECTION 3 - CONCLUSION

The current project site is substantially in paved condition and as such no significant differences are observed in the peak flow rates. Although the proposed condition results in an approximately 16% increase in peak flows, the existing storm drain system is designed for a much higher peak flow. Please see Appendix B referencing plans entitled *California Speedway Storm Drain Improvement Plan*. Existing system has a capacity to convey 1,135 cfs. It must also be noted that the existing channel running along the southern border of the project, together with the portion of existing upstream storm drain and the portion of existing downstream box culvert have enough capacity to convey the proposed flows. Also, note that the project site is exempt from HCOC per the HCOC exempt map (see Appendix D). A review of the aerial imagery shows hardened facilities downstream of the project which substantiate the HCOC exempt status. As such, the proposed project conditions will not cause any downstream impacts. See table below:

	Proposed Flows (cfs)	Designed Flows* (cfs)
Existing Channel	**1,135**	885
Existing Box	**949**	688
Existing Strom Drain	260	45

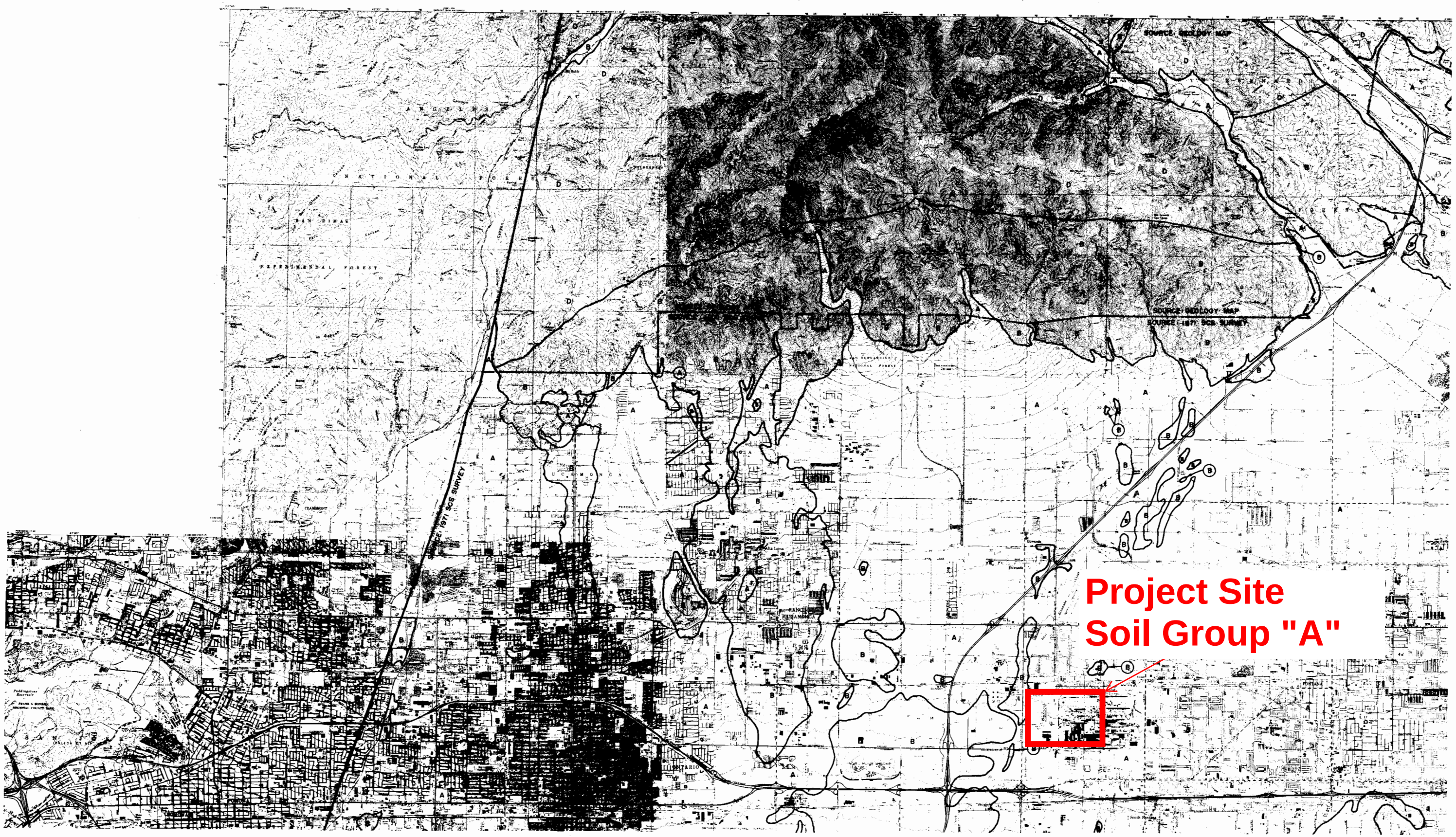
* See Appendix B referencing plans entitled *California Speedway Storm Drain Improvement Plan*.

Therefore, based on the analysis performed it can be safely concluded that:

- The proposed drainage improvements will adequately convey flows to the existing San Sevaine channel and provide flood protection for the 100-year storm event.
- The existing basin on the south-west corner of site will provide adequate water quality treatment for all onsite streets' tributary areas and central tributary area of site (Refer to DMA 8 in the WQMP Report). Please see more information in WQMP Report.
- The proposed project will not impact flooding condition to upstream or downstream properties.

APPENDIX A – HYDROLOGY ANALYSIS

HYDROLOGIC SOILS GROUP MAP



SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

HYDROLOGIC SOILS GROUP MAP
FOR
SOUTHWEST-A AREA

FIGURE C-13

ISOHYETAL MAPS

PROJECT SITE
10YR1HR=0.95"

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

REDUCED DRAWING
SCALE 1" = 4 MILES

LEGEND:
.8 ISOLINES PRECIPITATION (INCHES)

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

VALLEY AREA
ISOHYETALS
Y_{10} - 10 YEAR 1 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973

APPROVED BY _____ FLOOD CONTROL ENGINEER

DATE	SCALE	FILE NO.	DRWG. NO.
1982	1"=2 Mi.	WRD-1	3 of 12

FIGURE B-3

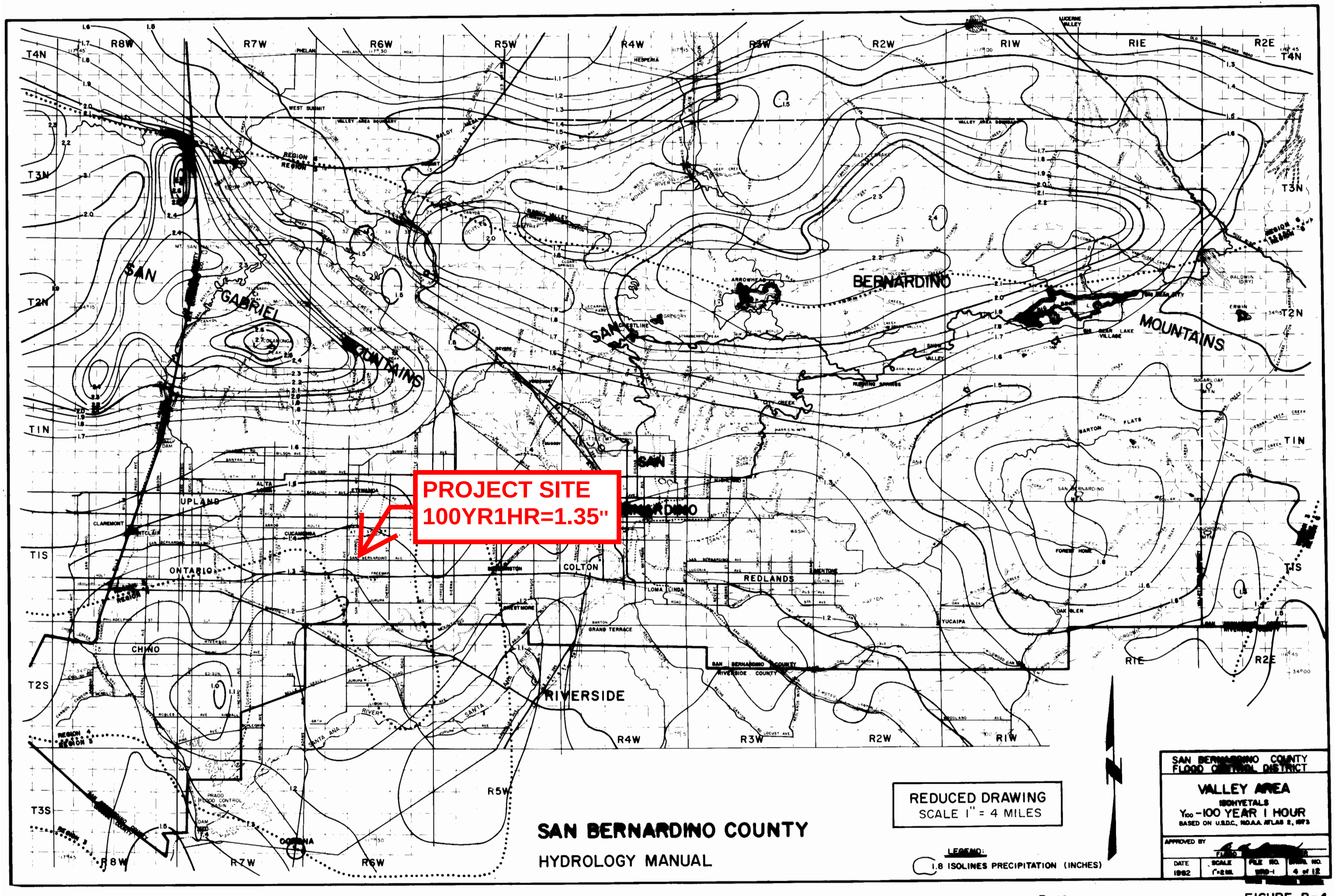

PROJECT SITE
100YR1HR=1.35"
SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
1.8 ISOLINES PRECIPITATION (INCHES)
SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
Y100 -100 YEAR 1 HOUR
BASED ON U.S.D.C., NOAA ATLAS 2, 1973
APPROVED BY
DATE 1982
SCALE 1"=2MI.
FILE NO. WMD-1
DRWG. NO. 4 of 12
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
RIVERSIDE
REDLANDS
COLTON
UPLAND
ONTARIO
CHINO
CLAREMONT
LOMA LINDA
YUCAIPA
BEAR LAKE VILLAGE
BIG BEAR CITY
ARROWHEAD
CRESTLINE
SAN BERNARDINO
RIVERSIDE COUNTY
SAN BERNARDINO COUNTY
PRADO FLOOD CONTROL BASIN
T4N
T3N
T2N
T1N
T1S
T2S
T3S
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E

FIGURE B-4

10-YEAR ONSITE HYDROLOGY (RATIONAL METHOD)

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 04/12/22

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.950 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 585.500(Ft.)
Top (of initial area) elevation = 1165.000(Ft.)
Bottom (of initial area) elevation = 1150.000(Ft.)
Difference in elevation = 15.000(Ft.)
Slope = 0.02562 s(%)= 2.56
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.094 min.
Rainfall intensity = 3.160(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.872
Subarea runoff = 16.813(CFS)
Total initial stream area = 6.100(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.098(In/Hr)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
______________________________________________________________________________
Upstream point elevation =  1150.000(Ft.)
Downstream point elevation =  1145.000(Ft.)
Channel length thru subarea  =   555.100(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     30.828(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     30.828(CFS)
Depth of flow =   0.294(Ft.), Average velocity =   3.570(Ft/s)
Channel flow top width =   58.773(Ft.)
Flow Velocity =    3.57(Ft/s)
Travel time  =    2.59 min.
Time of concentration =   10.69 min.
Critical depth =      0.359(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.675(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =     27.955(CFS) for   13.200(Ac.)
Total runoff =     44.767(CFS)
Effective area this stream =       19.30(Ac.)
Total Study Area (Main Stream No. 1) =       19.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.338(Ft.), Average velocity =   3.919(Ft/s)
Critical depth =      0.416(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
______________________________________________________________________________
Upstream point elevation =  1145.000(Ft.)
Downstream point elevation =  1129.000(Ft.)
Channel length thru subarea  =  1407.500(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
```

```
Estimated mean flow rate at midpoint of channel =     53.310(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     53.310(CFS)
Depth of flow =   0.345(Ft.), Average velocity =   4.467(Ft/s)
Channel flow top width =   69.091(Ft.)
Flow Velocity =    4.47(Ft/s)
Travel time  =    5.25 min.
Time of concentration =   15.94 min.
Critical depth =      0.445(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.105(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =     17.003(CFS) for   14.900(Ac.)
Total runoff =     61.770(CFS)
Effective area this stream =       34.20(Ac.)
Total Study Area (Main Stream No. 1) =       34.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.365(Ft.), Average velocity =   4.635(Ft/s)
Critical depth =      0.473(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     34.200(Ac.)
Runoff from this stream =     61.770(CFS)
Time of concentration =   15.94 min.
Rainfall intensity =     2.105(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
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Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   608.600(Ft.)
Top (of initial area) elevation =  1165.000(Ft.)
Bottom (of initial area) elevation =  1141.000(Ft.)
Difference in elevation =    24.000(Ft.)
Slope =    0.03943  s(%)=       3.94
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.541 min.
Rainfall intensity =      3.297(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.873
Subarea runoff =     14.974(CFS)
Total initial stream area =        5.200(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      105.000 to Point/Station      106.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1141.000(Ft.)
Downstream point elevation =  1132.000(Ft.)
Channel length thru subarea  =   742.700(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     30.765(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     30.765(CFS)
Depth of flow =   0.278(Ft.), Average velocity =   3.988(Ft/s)
Channel flow top width =   55.550(Ft.)
Flow Velocity =    3.99(Ft/s)
Travel time  =    3.10 min.
Time of concentration =   10.65 min.
Critical depth =      0.359(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.681(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
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rational method)(Q=KCIA) is C = 0.867
Subarea runoff =     31.528(CFS) for   14.800(Ac.)
Total runoff =     46.501(CFS)
Effective area this stream =       20.00(Ac.)
Total Study Area (Main Stream No. 1) =       54.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.324(Ft.), Average velocity =   4.422(Ft/s)
Critical depth =      0.422(Ft.)


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Process from Point/Station      106.000 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1127.000(Ft.)
Downstream point/station elevation =  1124.000(Ft.)
Pipe length  =   340.76(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    46.501(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    46.501(CFS)
Normal flow depth in pipe =   25.36(In.)
Flow top width inside pipe =   27.84(In.)
Critical Depth =   27.07(In.)
Pipe flow velocity =      9.50(Ft/s)
Travel time through pipe =    0.60 min.
Time of concentration (TC) =    11.24 min.


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Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     20.000(Ac.)
Runoff from this stream =     46.501(CFS)
Time of concentration =   11.24 min.
Rainfall intensity =     2.595(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     61.77    34.200     15.94    0.098      2.105
2     46.50    20.000     11.24    0.098      2.595
Qmax(1) =
           1.000 *    1.000 *    61.770) +
           0.804 *    1.000 *    46.501) + =      99.144
```

```
Qmax(2) =
          1.244 *    0.705 *    61.770) +
          1.000 *    1.000 *    46.501) + =     100.719

Total of 2 streams to confluence:
Flow rates before confluence point:
      61.770      46.501
Maximum flow rates at confluence using above data:
       99.144      100.719
Area of streams before confluence:
       34.200       20.000
Effective area values after confluence:
       54.200       44.127
Results of confluence:
Total flow rate =    100.719(CFS)
Time of concentration =    11.243 min.
Effective stream area after confluence =     44.127(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      54.20(Ac.)


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Process from Point/Station      103.000 to Point/Station      107.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1124.000(Ft.)
Downstream point/station elevation =  1115.000(Ft.)
Pipe length  =   780.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   100.719(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =   100.719(CFS)
Normal flow depth in pipe =   32.11(In.)
Flow top width inside pipe =   35.64(In.)
Critical Depth =   36.91(In.)
Pipe flow velocity =     12.76(Ft/s)
Travel time through pipe =    1.02 min.
Time of concentration (TC) =    12.26 min.


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Process from Point/Station      107.000 to Point/Station      107.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
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Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    12.26 min.
Rainfall intensity =      2.463(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.864
Subarea runoff =     46.644(CFS) for   25.100(Ac.)
Total runoff =    147.364(CFS)
Effective area this stream =       69.23(Ac.)
Total Study Area (Main Stream No. 1) =       79.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1115.000(Ft.)
Downstream point/station elevation =  1110.000(Ft.)
Pipe length  =   618.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   147.364(CFS)
Nearest computed pipe diameter  =     51.00(In.)
Calculated individual pipe flow  =   147.364(CFS)
Normal flow depth in pipe =   40.50(In.)
Flow top width inside pipe =   41.24(In.)
Critical Depth =   43.03(In.)
Pipe flow velocity =     12.19(Ft/s)
Travel time through pipe =    0.85 min.
Time of concentration (TC) =    13.11 min.


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Process from Point/Station      108.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    13.11 min.
Rainfall intensity =      2.366(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.863
Subarea runoff =     16.852(CFS) for   11.200(Ac.)
Total runoff =    164.216(CFS)
Effective area this stream =       80.43(Ac.)
Total Study Area (Main Stream No. 1) =       90.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
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Process from Point/Station      108.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1110.000(Ft.)
Downstream point/station elevation =  1104.000(Ft.)
Pipe length  =   630.80(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   164.216(CFS)
Nearest computed pipe diameter  =     51.00(In.)
Calculated individual pipe flow  =   164.216(CFS)
Normal flow depth in pipe =   41.67(In.)
Flow top width inside pipe =   39.43(In.)
Critical Depth =   44.90(In.)
Pipe flow velocity =     13.23(Ft/s)
Travel time through pipe =    0.79 min.
Time of concentration (TC) =    13.90 min.


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Process from Point/Station      109.000 to Point/Station      109.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    13.90 min.
Rainfall intensity =      2.284(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.861
Subarea runoff =     69.823(CFS) for   38.500(Ac.)
Total runoff =    234.038(CFS)
Effective area this stream =      118.93(Ac.)
Total Study Area (Main Stream No. 1) =      129.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      109.000 to Point/Station      110.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1104.000(Ft.)
Downstream point elevation =  1097.000(Ft.)
Channel length thru subarea  =  1122.600(Ft.)
Channel base width      =   11.000(Ft.)
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```
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    245.218(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    7.200(Ft.)
Flow(q) thru subarea =    245.218(CFS)
Depth of flow =   1.811(Ft.), Average velocity =   9.870(Ft/s)
Channel flow top width =   16.434(Ft.)
Flow Velocity =    9.87(Ft/s)
Travel time  =    1.90 min.
Time of concentration =   15.80 min.
Critical depth =      2.234(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.116(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =     22.267(CFS) for   22.200(Ac.)
Total runoff =    256.305(CFS)
Effective area this stream =      141.13(Ac.)
Total Study Area (Main Stream No. 1) =      151.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   1.858(Ft.), Average velocity =  10.008(Ft/s)
Critical depth =      2.297(Ft.)


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Process from Point/Station      110.000 to Point/Station      111.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1097.000(Ft.)
Downstream point elevation =  1091.000(Ft.)
Channel length thru subarea  =  1304.600(Ft.)
Channel base width      =   11.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    262.368(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    7.200(Ft.)
Flow(q) thru subarea =    262.368(CFS)
Depth of flow =   2.053(Ft.), Average velocity =   9.078(Ft/s)
Channel flow top width =   17.158(Ft.)
Flow Velocity =    9.08(Ft/s)
Travel time  =    2.40 min.
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Time of concentration =   18.19 min.
Critical depth =      2.328(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.944(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =     12.071(CFS) for   20.400(Ac.)
Total runoff =    268.376(CFS)
Effective area this stream =      161.53(Ac.)
Total Study Area (Main Stream No. 1) =      171.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.079(Ft.), Average velocity =   9.141(Ft/s)
Critical depth =      2.359(Ft.)


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Process from Point/Station      111.000 to Point/Station      112.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1091.000(Ft.)
Downstream point elevation =  1082.000(Ft.)
Channel length thru subarea  =  2229.000(Ft.)
Channel base width      =   11.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    275.685(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    7.200(Ft.)
Flow(q) thru subarea =    275.685(CFS)
Depth of flow =   2.190(Ft.), Average velocity =   8.810(Ft/s)
Channel flow top width =   17.571(Ft.)
Flow Velocity =    8.81(Ft/s)
Travel time  =    4.22 min.
Time of concentration =   22.41 min.
Critical depth =      2.406(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
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Rainfall intensity =      1.715(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =     14.528(CFS) for   32.800(Ac.)
Total runoff =    282.904(CFS)
Effective area this stream =      194.33(Ac.)
Total Study Area (Main Stream No. 1) =      204.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.223(Ft.), Average velocity =   8.880(Ft/s)
Critical depth =      2.438(Ft.)


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Process from Point/Station      112.000 to Point/Station      112.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    194.327(Ac.)
Runoff from this stream =    282.904(CFS)
Time of concentration =   22.41 min.
Rainfall intensity =     1.715(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      300.000 to Point/Station      301.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   989.820(Ft.)
Top (of initial area) elevation =  1158.000(Ft.)
Bottom (of initial area) elevation =  1125.000(Ft.)
Difference in elevation =    33.000(Ft.)
Slope =    0.03334  s(%)=       3.33
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.473 min.
Rainfall intensity =      2.875(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869
Subarea runoff =     20.249(CFS)
Total initial stream area =        8.100(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)
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Process from Point/Station      301.000 to Point/Station      302.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1125.000(Ft.)
Downstream point elevation =  1122.000(Ft.)
Channel length thru subarea  =   686.100(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     33.408(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     33.408(CFS)
Depth of flow =   0.347(Ft.), Average velocity =   2.778(Ft/s)
Channel flow top width =   69.361(Ft.)
Flow Velocity =    2.78(Ft/s)
Travel time  =    4.12 min.
Time of concentration =   13.59 min.
Critical depth =      0.371(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.316(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =     26.260(CFS) for   15.200(Ac.)
Total runoff =     46.510(CFS)
Effective area this stream =       23.30(Ac.)
Total Study Area (Main Stream No. 1) =      227.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.393(Ft.), Average velocity =   3.017(Ft/s)
Critical depth =      0.422(Ft.)


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Process from Point/Station      302.000 to Point/Station      303.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1122.000(Ft.)
Downstream point elevation =  1119.000(Ft.)
Channel length thru subarea  =  1118.000(Ft.)
Channel base width      =    0.000(Ft.)
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Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     62.278(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     62.278(CFS)
Depth of flow =   0.480(Ft.), Average velocity =   2.703(Ft/s)
Channel flow top width =   96.008(Ft.)
Flow Velocity =    2.70(Ft/s)
Travel time  =    6.89 min.
Time of concentration =   20.48 min.
Critical depth =      0.475(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.810(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =     31.480(CFS) for   27.300(Ac.)
Total runoff =     77.989(CFS)
Effective area this stream =       50.60(Ac.)
Total Study Area (Main Stream No. 1) =      255.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.522(Ft.), Average velocity =   2.859(Ft/s)
Critical depth =      0.520(Ft.)


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Process from Point/Station      303.000 to Point/Station      304.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1119.000(Ft.)
Downstream point elevation =  1118.000(Ft.)
Channel length thru subarea  =   607.400(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     91.325(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     91.325(CFS)
Depth of flow =   0.607(Ft.), Average velocity =   2.476(Ft/s)
Channel flow top width =  121.460(Ft.)
Flow Velocity =    2.48(Ft/s)
Travel time  =    4.09 min.
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Time of concentration =   24.57 min.
Critical depth =      0.555(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.623(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =     26.616(CFS) for   25.600(Ac.)
Total runoff =    104.605(CFS)
Effective area this stream =       76.20(Ac.)
Total Study Area (Main Stream No. 1) =      280.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.639(Ft.), Average velocity =   2.562(Ft/s)
Critical depth =      0.586(Ft.)


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Process from Point/Station      304.000 to Point/Station      305.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1113.000(Ft.)
Downstream point/station elevation =  1104.000(Ft.)
Pipe length  =  1188.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   104.605(CFS)
Nearest computed pipe diameter  =     45.00(In.)
Calculated individual pipe flow  =   104.605(CFS)
Normal flow depth in pipe =   36.66(In.)
Flow top width inside pipe =   34.98(In.)
Critical Depth =   37.51(In.)
Pipe flow velocity =     10.86(Ft/s)
Travel time through pipe =    1.82 min.
Time of concentration (TC) =    26.40 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      305.000 to Point/Station      305.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
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Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    26.40 min.
Rainfall intensity =      1.555(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =     24.698(CFS) for   22.400(Ac.)
Total runoff =    129.303(CFS)
Effective area this stream =       98.60(Ac.)
Total Study Area (Main Stream No. 1) =      303.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      305.000 to Point/Station      305.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     98.600(Ac.)
Runoff from this stream =    129.303(CFS)
Time of concentration =   26.40 min.
Rainfall intensity =     1.555(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      306.000 to Point/Station      307.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   866.600(Ft.)
Top (of initial area) elevation =  1159.000(Ft.)
Bottom (of initial area) elevation =  1124.000(Ft.)
Difference in elevation =    35.000(Ft.)
Slope =    0.04039  s(%)=       4.04
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.645 min.
Rainfall intensity =      3.038(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.871
Subarea runoff =     25.931(CFS)
Total initial stream area =        9.800(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)
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Process from Point/Station      307.000 to Point/Station      308.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1124.000(Ft.)
Downstream point elevation =  1122.000(Ft.)
Channel length thru subarea  =   677.600(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     43.510(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     43.510(CFS)
Depth of flow =   0.412(Ft.), Average velocity =   2.561(Ft/s)
Channel flow top width =   82.441(Ft.)
Flow Velocity =    2.56(Ft/s)
Travel time  =    4.41 min.
Time of concentration =   13.05 min.
Critical depth =      0.410(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.372(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.863
Subarea runoff =     35.068(CFS) for   20.000(Ac.)
Total runoff =     61.000(CFS)
Effective area this stream =       29.80(Ac.)
Total Study Area (Main Stream No. 1) =      332.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.468(Ft.), Average velocity =   2.786(Ft/s)
Critical depth =      0.471(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      308.000 to Point/Station      309.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1122.000(Ft.)
Downstream point elevation =  1118.000(Ft.)
Channel length thru subarea  =  1272.900(Ft.)
Channel base width      =    0.000(Ft.)
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```
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     84.203(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     84.203(CFS)
Depth of flow =   0.522(Ft.), Average velocity =   3.092(Ft/s)
Channel flow top width =  104.368(Ft.)
Flow Velocity =    3.09(Ft/s)
Travel time  =    6.86 min.
Time of concentration =   19.92 min.
Critical depth =      0.535(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.841(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =     46.323(CFS) for   38.600(Ac.)
Total runoff =    107.323(CFS)
Effective area this stream =       68.40(Ac.)
Total Study Area (Main Stream No. 1) =      371.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.572(Ft.), Average velocity =   3.285(Ft/s)
Critical depth =      0.590(Ft.)


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Process from Point/Station      309.000 to Point/Station      305.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1118.000(Ft.)
Downstream point elevation =  1109.000(Ft.)
Channel length thru subarea  =  1010.600(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =    126.154(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    126.154(CFS)
Depth of flow =   0.500(Ft.), Average velocity =   5.056(Ft/s)
Channel flow top width =   99.904(Ft.)
Flow Velocity =    5.06(Ft/s)
Travel time  =    3.33 min.
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Time of concentration =   23.25 min.
Critical depth =      0.629(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.678(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.848
Subarea runoff =     37.598(CFS) for   33.500(Ac.)
Total runoff =    144.921(CFS)
Effective area this stream =      101.90(Ac.)
Total Study Area (Main Stream No. 1) =      404.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.526(Ft.), Average velocity =   5.234(Ft/s)
Critical depth =      0.664(Ft.)


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Process from Point/Station      305.000 to Point/Station      305.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =    101.900(Ac.)
Runoff from this stream =    144.921(CFS)
Time of concentration =   23.25 min.
Rainfall intensity =     1.678(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    129.30    98.600     26.40    0.098      1.555
2    144.92   101.900     23.25    0.098      1.678
Qmax(1) =
           1.000 *    1.000 *   129.303) +
           0.922 *    1.000 *   144.921) + =     262.934
Qmax(2) =
           1.084 *    0.881 *   129.303) +
           1.000 *    1.000 *   144.921) + =     268.425

Total of 2 streams to confluence:
Flow rates before confluence point:
```

```
     129.303     144.921
Maximum flow rates at confluence using above data:
      262.934      268.425
Area of streams before confluence:
       98.600      101.900
Effective area values after confluence:
      200.500      188.741
Results of confluence:
Total flow rate =    268.425(CFS)
Time of concentration =    23.248 min.
Effective stream area after confluence =    188.741(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     200.50(Ac.)


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Process from Point/Station      305.000 to Point/Station      112.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1104.000(Ft.)
Downstream point/station elevation =  1082.000(Ft.)
Pipe length  =  1880.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   268.425(CFS)
Nearest computed pipe diameter  =     60.00(In.)
Calculated individual pipe flow  =   268.425(CFS)
Normal flow depth in pipe =   46.78(In.)
Flow top width inside pipe =   49.73(In.)
Critical Depth =   54.33(In.)
Pipe flow velocity =     16.33(Ft/s)
Travel time through pipe =    1.92 min.
Time of concentration (TC) =    25.17 min.


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Process from Point/Station      112.000 to Point/Station      112.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =    188.741(Ac.)
Runoff from this stream =    268.425(CFS)
Time of concentration =   25.17 min.
Rainfall intensity =     1.600(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)
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```
1    129.30    98.600     26.40    0.098      1.555
2    268.42   188.741     25.17    0.098      1.600
Qmax(1) =
           1.000 *    1.000 *   129.303) +
           0.970 *    1.000 *   268.425) + =     389.668
Qmax(2) =
           1.031 *    0.953 *   129.303) +
           1.000 *    1.000 *   268.425) + =     395.526

Total of 2 streams to confluence:
Flow rates before confluence point:
     129.303     268.425
Maximum flow rates at confluence using above data:
      389.668      395.526
Area of streams before confluence:
       98.600      188.741
Effective area values after confluence:
      287.341      282.752
Results of confluence:
Total flow rate =    395.526(CFS)
Time of concentration =    25.167 min.
Effective stream area after confluence =    282.752(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     287.34(Ac.)


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Process from Point/Station      112.000 to Point/Station      113.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1082.000(Ft.)
Downstream point elevation =  1077.000(Ft.)
Channel length thru subarea  =  1314.500(Ft.)
Channel base width      =   19.000(Ft.)
Slope or 'Z' of left channel bank =  16.000
Slope or 'Z' of right channel bank =   2.000
Manning's 'N'    = 0.015
Maximum depth of channel  =   16.000(Ft.)
Flow(q) thru subarea =    395.526(CFS)
Depth of flow =   1.702(Ft.), Average velocity =   6.770(Ft/s)
Channel flow top width =   49.642(Ft.)
Flow Velocity =    6.77(Ft/s)
Travel time  =    3.24 min.
Time of concentration =   28.40 min.
Critical depth =      1.797(Ft.)


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Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MAIN STREAMS ****
____________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =    282.752(Ac.)
Runoff from this stream =    395.526(CFS)
Time of concentration =   28.40 min.
Rainfall intensity =     1.488(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Program is now starting with Main Stream No. 2


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Process from Point/Station      200.000 to Point/Station      201.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   715.800(Ft.)
Top (of initial area) elevation =  1154.000(Ft.)
Bottom (of initial area) elevation =  1147.000(Ft.)
Difference in elevation =     7.000(Ft.)
Slope =    0.00978  s(%)=       0.98
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.635 min.
Rainfall intensity =      2.683(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.867
Subarea runoff =     10.469(CFS)
Total initial stream area =        4.500(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      201.000 to Point/Station      202.000
**** IMPROVED CHANNEL TRAVEL TIME ****
____________________________________________________________________________
Upstream point elevation =  1147.000(Ft.)
Downstream point elevation =  1138.000(Ft.)
Channel length thru subarea  =   847.900(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
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Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     20.430(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     20.430(CFS)
Depth of flow =   0.244(Ft.), Average velocity =   3.425(Ft/s)
Channel flow top width =   48.843(Ft.)
Flow Velocity =    3.43(Ft/s)
Travel time  =    4.13 min.
Time of concentration =   14.76 min.
Critical depth =      0.305(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.204(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =     19.857(CFS) for   11.500(Ac.)
Total runoff =     30.326(CFS)
Effective area this stream =       16.00(Ac.)
Total Study Area (Main Stream No. 2) =      420.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.283(Ft.), Average velocity =   3.781(Ft/s)
Critical depth =      0.355(Ft.)


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Process from Point/Station      202.000 to Point/Station      203.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1138.000(Ft.)
Downstream point elevation =  1133.000(Ft.)
Channel length thru subarea  =  1046.300(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     36.885(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     36.885(CFS)
Depth of flow =   0.354(Ft.), Average velocity =   2.944(Ft/s)
Channel flow top width =   70.796(Ft.)
Flow Velocity =    2.94(Ft/s)
Travel time  =    5.92 min.
Time of concentration =   20.68 min.
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Critical depth =      0.385(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.800(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =     13.026(CFS) for   12.300(Ac.)
Total runoff =     43.351(CFS)
Effective area this stream =       28.30(Ac.)
Total Study Area (Main Stream No. 2) =      433.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.376(Ft.), Average velocity =   3.065(Ft/s)
Critical depth =      0.410(Ft.)


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Process from Point/Station      203.000 to Point/Station      204.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1133.000(Ft.)
Downstream point elevation =  1112.000(Ft.)
Channel length thru subarea  =  2668.200(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     52.209(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     52.209(CFS)
Depth of flow =   0.367(Ft.), Average velocity =   3.871(Ft/s)
Channel flow top width =   73.446(Ft.)
Flow Velocity =    3.87(Ft/s)
Travel time  =   11.49 min.
Time of concentration =   32.17 min.
Critical depth =      0.441(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.381(In/Hr) for a    10.0 year storm
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Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.836
Subarea runoff =     17.619(CFS) for   24.500(Ac.)
Total runoff =     60.970(CFS)
Effective area this stream =       52.80(Ac.)
Total Study Area (Main Stream No. 2) =      457.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.389(Ft.), Average velocity =   4.025(Ft/s)
Critical depth =      0.471(Ft.)


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Process from Point/Station      204.000 to Point/Station      113.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1107.000(Ft.)
Downstream point elevation =  1077.000(Ft.)
Channel length thru subarea  =  2159.100(Ft.)
Channel base width      =    4.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =     89.470(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    4.000(Ft.)
Flow(q) thru subarea =     89.470(CFS)
Depth of flow =   1.348(Ft.), Average velocity =  11.017(Ft/s)
Channel flow top width =    8.045(Ft.)
Flow Velocity =   11.02(Ft/s)
Travel time  =    3.27 min.
Time of concentration =   35.44 min.
Critical depth =      1.938(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.303(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.832
Subarea runoff =     56.935(CFS) for   55.900(Ac.)
Total runoff =    117.905(CFS)
Effective area this stream =      108.70(Ac.)
Total Study Area (Main Stream No. 2) =      513.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   1.562(Ft.), Average velocity =  11.900(Ft/s)
Critical depth =      2.250(Ft.)
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Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =    108.700(Ac.)
Runoff from this stream =    117.905(CFS)
Time of concentration =   35.44 min.
Rainfall intensity =     1.303(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    395.53   282.752     28.40    0.098      1.488
2    117.91   108.700     35.44    0.098      1.303
Qmax(1) =
           1.000 *    1.000 *   395.526) +
           1.153 *    0.802 *   117.905) + =     504.534
Qmax(2) =
           0.867 *    1.000 *   395.526) +
           1.000 *    1.000 *   117.905) + =     460.801

Total of 2 main streams to confluence:
Flow rates before confluence point:
     396.526     118.905
Maximum flow rates at confluence using above data:
      504.534      460.801
Area of streams before confluence:
      282.752      108.700
Effective area values after confluence:
      369.876      391.452


Results of confluence:
Total flow rate =    504.534(CFS)
Time of concentration =    28.403 min.
Effective stream area after confluence  =    369.876(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total =     391.45(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      113.000
```

**** SUBAREA FLOW ADDITION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q = 492.056(CFS)
therefore the upstream flow rate of Q = 504.534(CFS) is being used
Time of concentration = 28.40 min.
Rainfall intensity = 1.488(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff = 0.000(CFS) for 23.400(Ac.)
Total runoff = 504.534(CFS)
Effective area this stream = 393.28(Ac.)
Total Study Area (Main Stream No. 1) = 537.00(Ac.)
Area averaged Fm value = 0.098(In/Hr)

++
Process from Point/Station 113.000 to Point/Station 113.000
**** SUBAREA FLOW ADDITION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q = 502.942(CFS)
therefore the upstream flow rate of Q = 504.534(CFS) is being used
Time of concentration = 28.40 min.
Rainfall intensity = 1.488(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff = 0.000(CFS) for 8.700(Ac.)
Total runoff = 504.534(CFS)
Effective area this stream = 401.98(Ac.)
Total Study Area (Main Stream No. 1) = 545.70(Ac.)
Area averaged Fm value = 0.098(In/Hr)
End of computations, Total Study Area = 545.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area

effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/23/21

Proposed Condition_200to501
10-Yr Event
WO:20210160
File Name:PROPOSED_ONE_10.OUT XA

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.950 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++

Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 693.500(Ft.)
Top (of initial area) elevation = 1150.000(Ft.)
Bottom (of initial area) elevation = 1140.000(Ft.)
Difference in elevation = 10.000(Ft.)
Slope = 0.01442 s(%)= 1.44
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.716 min.
Rainfall intensity = 2.832(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869
Subarea runoff = 10.090(CFS)

```
Total initial stream area =        4.100(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      201.000 to Point/Station      201.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =     9.72 min.
Rainfall intensity =      2.832(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.869
Subarea runoff =      4.184(CFS) for    1.700(Ac.)
Total runoff =     14.273(CFS)
Effective area this stream =        5.80(Ac.)
Total Study Area (Main Stream No. 1) =        5.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      201.000 to Point/Station      202.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1135.000(Ft.)
Downstream point/station elevation =  1134.000(Ft.)
Pipe length  =   443.90(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.273(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    14.273(CFS)
Normal flow depth in pipe =   21.47(In.)
Flow top width inside pipe =   21.79(In.)
Critical Depth =   15.76(In.)
Pipe flow velocity =      4.21(Ft/s)
Travel time through pipe =    1.76 min.
Time of concentration (TC) =    11.47 min.


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Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
COMMERCIAL subarea type
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Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    11.47 min.
Rainfall intensity =      2.563(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.866
Subarea runoff =      0.816(CFS) for    1.000(Ac.)
Total runoff =     15.090(CFS)
Effective area this stream =        6.80(Ac.)
Total Study Area (Main Stream No. 1) =        6.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      202.000 to Point/Station      203.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1134.000(Ft.)
Downstream point/station elevation =  1130.000(Ft.)
Pipe length  =  1205.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.090(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    15.090(CFS)
Normal flow depth in pipe =   19.05(In.)
Flow top width inside pipe =   24.61(In.)
Critical Depth =   16.22(In.)
Pipe flow velocity =      5.03(Ft/s)
Travel time through pipe =    3.99 min.
Time of concentration (TC) =    15.46 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.800(Ac.)
Runoff from this stream =     15.090(CFS)
Time of concentration =   15.46 min.
Rainfall intensity =     2.143(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      204.000 to Point/Station      205.000
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**** INITIAL AREA EVALUATION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   570.300(Ft.)
Top (of initial area) elevation =  1165.000(Ft.)
Bottom (of initial area) elevation =  1150.000(Ft.)
Difference in elevation =    15.000(Ft.)
Slope =    0.02630  s(%)=       2.63
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.967 min.
Rainfall intensity =      3.190(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.872
Subarea runoff =      9.185(CFS)
Total initial stream area =        3.300(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1150.000(Ft.)
Downstream point elevation =  1145.000(Ft.)
Channel length thru subarea  =   756.900(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     16.595(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     16.595(CFS)
Depth of flow =   0.277(Ft.), Average velocity =   2.157(Ft/s)
Channel flow top width =   55.472(Ft.)
Flow Velocity =    2.16(Ft/s)
Travel time  =    5.85 min.
Time of concentration =   13.82 min.
Critical depth =      0.279(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.293(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =     14.721(CFS) for    8.800(Ac.)
Total runoff =     23.906(CFS)
Effective area this stream =       12.10(Ac.)
Total Study Area (Main Stream No. 1) =       18.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.318(Ft.), Average velocity =   2.363(Ft/s)
Critical depth =      0.324(Ft.)


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Process from Point/Station      206.000 to Point/Station      203.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1145.000(Ft.)
Downstream point elevation =  1135.000(Ft.)
Channel length thru subarea  =  1373.500(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     32.939(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     32.939(CFS)
Depth of flow =   0.352(Ft.), Average velocity =   2.656(Ft/s)
Channel flow top width =   70.438(Ft.)
Flow Velocity =    2.66(Ft/s)
Travel time  =    8.62 min.
Time of concentration =   22.44 min.
Critical depth =      0.367(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.714(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =     17.991(CFS) for   16.700(Ac.)
Total runoff =     41.897(CFS)
Effective area this stream =       28.80(Ac.)
Total Study Area (Main Stream No. 1) =       35.60(Ac.)
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Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.385(Ft.), Average velocity =   2.820(Ft/s)
Critical depth =      0.406(Ft.)


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Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     28.800(Ac.)
Runoff from this stream =     41.897(CFS)
Time of concentration =   22.44 min.
Rainfall intensity =     1.714(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      207.000 to Point/Station      208.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   728.900(Ft.)
Top (of initial area) elevation =  1149.000(Ft.)
Bottom (of initial area) elevation =  1145.000(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00549  s(%)=       0.55
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.024 min.
Rainfall intensity =      2.492(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.865
Subarea runoff =     18.748(CFS)
Total initial stream area =        8.700(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      208.000 to Point/Station      209.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1145.000(Ft.)
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Downstream point elevation =  1139.000(Ft.)
Channel length thru subarea  =  1716.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     25.646(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     25.646(CFS)
Depth of flow =   0.368(Ft.), Average velocity =   1.895(Ft/s)
Channel flow top width =   73.582(Ft.)
Flow Velocity =    1.89(Ft/s)
Travel time  =   15.09 min.
Time of concentration =   27.12 min.
Critical depth =      0.332(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.530(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.842
Subarea runoff =     13.731(CFS) for   16.500(Ac.)
Total runoff =     32.479(CFS)
Effective area this stream =       25.20(Ac.)
Total Study Area (Main Stream No. 1) =       60.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.402(Ft.), Average velocity =   2.010(Ft/s)
Critical depth =      0.367(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      209.000 to Point/Station      203.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1134.000(Ft.)
Downstream point/station elevation =  1130.000(Ft.)
Pipe length  =   628.58(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    32.479(CFS)
Nearest computed pipe diameter  =     30.00(In.)
Calculated individual pipe flow  =    32.479(CFS)
Normal flow depth in pipe =   24.38(In.)
Flow top width inside pipe =   23.42(In.)
Critical Depth =   23.27(In.)
Pipe flow velocity =      7.60(Ft/s)
Travel time through pipe =    1.38 min.
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Time of concentration (TC) =    28.50 min.


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Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =     25.200(Ac.)
Runoff from this stream =     32.479(CFS)
Time of concentration =   28.50 min.
Rainfall intensity =     1.485(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     15.09     6.800     15.46    0.098      2.143
2     41.90    28.800     22.44    0.098      1.714
3     32.48    25.200     28.50    0.098      1.485
Qmax(1) =
           1.000 *    1.000 *    15.090) +
           1.265 *    0.689 *    41.897) +
           1.474 *    0.543 *    32.479) + =      77.612
Qmax(2) =
           0.790 *    1.000 *    15.090) +
           1.000 *    1.000 *    41.897) +
           1.165 *    0.787 *    32.479) + =      83.616
Qmax(3) =
           0.678 *    1.000 *    15.090) +
           0.858 *    1.000 *    41.897) +
           1.000 *    1.000 *    32.479) + =      78.671

Total of 3 streams to confluence:
Flow rates before confluence point:
      15.090      41.897      32.479
Maximum flow rates at confluence using above data:
       77.612       83.616       78.671
Area of streams before confluence:
        6.800       28.800       25.200
Effective area values after confluence:
       40.324       55.439       60.800
Results of confluence:
Total flow rate =     83.616(CFS)
Time of concentration =    22.436 min.
Effective stream area after confluence =     55.439(Ac.)
Study area average Pervious fraction(Ap) =  0.100
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Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      60.80(Ac.)


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Process from Point/Station      203.000 to Point/Station      210.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1130.000(Ft.)
Downstream point/station elevation =  1119.000(Ft.)
Pipe length  =   455.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    83.616(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    83.616(CFS)
Normal flow depth in pipe =   24.52(In.)
Flow top width inside pipe =   33.56(In.)
Critical Depth =   33.61(In.)
Pipe flow velocity =     16.32(Ft/s)
Travel time through pipe =    0.46 min.
Time of concentration (TC) =    22.90 min.


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Process from Point/Station      210.000 to Point/Station      210.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    22.90 min.
Rainfall intensity =      1.693(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.848
Subarea runoff =     16.808(CFS) for   14.500(Ac.)
Total runoff =    100.424(CFS)
Effective area this stream =       69.94(Ac.)
Total Study Area (Main Stream No. 1) =       75.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      210.100 to Point/Station      210.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
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Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    22.90 min.
Rainfall intensity =      1.693(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.848
Subarea runoff =      5.313(CFS) for    3.700(Ac.)
Total runoff =    105.737(CFS)
Effective area this stream =       73.64(Ac.)
Total Study Area (Main Stream No. 1) =       79.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      210.000 to Point/Station      211.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1119.000(Ft.)
Downstream point/station elevation =  1118.000(Ft.)
Pipe length  =   272.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   105.737(CFS)
Nearest computed pipe diameter  =     54.00(In.)
Calculated individual pipe flow  =   105.737(CFS)
Normal flow depth in pipe =   39.56(In.)
Flow top width inside pipe =   47.80(In.)
Critical Depth =   36.28(In.)
Pipe flow velocity =      8.46(Ft/s)
Travel time through pipe =    0.54 min.
Time of concentration (TC) =    23.44 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      211.000 to Point/Station      211.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.44 min.
Rainfall intensity =      1.670(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =     10.478(CFS) for    8.500(Ac.)
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Total runoff =    116.214(CFS)
Effective area this stream =       82.14(Ac.)
Total Study Area (Main Stream No. 1) =       87.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      211.000 to Point/Station      212.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1118.000(Ft.)
Downstream point/station elevation =  1111.000(Ft.)
Pipe length  =   512.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   116.214(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =   116.214(CFS)
Normal flow depth in pipe =   34.03(In.)
Flow top width inside pipe =   32.94(In.)
Critical Depth =   38.65(In.)
Pipe flow velocity =     13.93(Ft/s)
Travel time through pipe =    0.61 min.
Time of concentration (TC) =    24.05 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      212.000 to Point/Station      212.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    24.05 min.
Rainfall intensity =      1.644(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =     34.704(CFS) for   26.300(Ac.)
Total runoff =    150.918(CFS)
Effective area this stream =      108.44(Ac.)
Total Study Area (Main Stream No. 1) =      113.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      212.000 to Point/Station      213.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
```

```
Upstream point/station elevation =  1111.000(Ft.)
Downstream point/station elevation =  1105.000(Ft.)
Pipe length  =   533.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   150.918(CFS)
Nearest computed pipe diameter  =     48.00(In.)
Calculated individual pipe flow  =   150.918(CFS)
Normal flow depth in pipe =   38.95(In.)
Flow top width inside pipe =   37.54(In.)
Critical Depth =   43.24(In.)
Pipe flow velocity =     13.82(Ft/s)
Travel time through pipe =    0.64 min.
Time of concentration (TC) =    24.69 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      213.000 to Point/Station      213.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    24.69 min.
Rainfall intensity =      1.618(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =     35.383(CFS) for   27.700(Ac.)
Total runoff =    186.301(CFS)
Effective area this stream =      136.14(Ac.)
Total Study Area (Main Stream No. 1) =      141.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      213.000 to Point/Station      501.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1105.000(Ft.)
Downstream point/station elevation =  1098.000(Ft.)
Pipe length  =   409.10(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   186.301(CFS)
Nearest computed pipe diameter  =     48.00(In.)
Calculated individual pipe flow  =   186.301(CFS)
Normal flow depth in pipe =   39.00(In.)
Flow top width inside pipe =   37.47(In.)
Critical depth could not be calculated.
Pipe flow velocity =     17.05(Ft/s)
```

```
Travel time through pipe =    0.40 min.
Time of concentration (TC) =    25.09 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      501.000 to Point/Station      501.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    25.09 min.
Rainfall intensity =      1.603(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =      5.683(CFS) for    5.600(Ac.)
Total runoff =    191.984(CFS)
Effective area this stream =      141.74(Ac.)
Total Study Area (Main Stream No. 1) =      147.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      501.100 to Point/Station      501.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    25.09 min.
Rainfall intensity =      1.603(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =      2.980(CFS) for    2.200(Ac.)
Total runoff =    194.964(CFS)
Effective area this stream =      143.94(Ac.)
Total Study Area (Main Stream No. 1) =      149.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      501.100 to Point/Station      501.000
```

**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 143.939(Ac.)
Runoff from this stream = 194.964(CFS)
Time of concentration = 25.09 min.
Rainfall intensity = 1.603(In/Hr)
Area averaged loss rate (Fm) = 0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream No.	Flow rate (CFS)	Area (Ac.)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	194.96	143.939	25.09	0.098	1.603

Qmax(1) =
1.000 * 1.000 * 194.964) + = 194.964

Total of 1 streams to confluence:
Flow rates before confluence point:
194.964
Maximum flow rates at confluence using above data:
194.964
Area of streams before confluence:
143.939
Effective area values after confluence:
143.939
Results of confluence:
Total flow rate = 194.964(CFS)
Time of concentration = 25.094 min.
Effective stream area after confluence = 143.939(Ac.)
Study area average Pervious fraction(Ap) = 0.100
Study area average soil loss rate(Fm) = 0.098(In/Hr)
Study area total (this main stream) = 143.94(Ac.)
End of computations, Total Study Area = 149.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/23/21

ProposeD Condition_400to504
10-Yr Event
WO:20210160
File Name:PROPOSED_TWO_10.OUT XA

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.950 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++

Process from Point/Station 400.000 to Point/Station 401.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 997.100(Ft.)
Top (of initial area) elevation = 1138.000(Ft.)
Bottom (of initial area) elevation = 1131.000(Ft.)
Difference in elevation = 7.000(Ft.)
Slope = 0.00702 s(%)= 0.70
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.975 min.
Rainfall intensity = 2.381(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.863
Subarea runoff = 14.179(CFS)

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Total initial stream area =        6.900(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      401.000 to Point/Station      402.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1131.000(Ft.)
Downstream point elevation =  1127.000(Ft.)
Channel length thru subarea  =  1051.700(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     22.099(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     22.099(CFS)
Depth of flow =   0.342(Ft.), Average velocity =   1.884(Ft/s)
Channel flow top width =   68.498(Ft.)
Flow Velocity =    1.88(Ft/s)
Travel time  =    9.30 min.
Time of concentration =   22.28 min.
Critical depth =      0.313(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.721(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =     15.777(CFS) for   13.600(Ac.)
Total runoff =     29.956(CFS)
Effective area this stream =       20.50(Ac.)
Total Study Area (Main Stream No. 1) =       20.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.384(Ft.), Average velocity =   2.033(Ft/s)
Critical depth =      0.355(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      402.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
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Stream flow area =     20.500(Ac.)
Runoff from this stream =     29.956(CFS)
Time of concentration =   22.28 min.
Rainfall intensity =     1.721(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      400.000 to Point/Station      403.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   881.600(Ft.)
Top (of initial area) elevation =  1138.000(Ft.)
Bottom (of initial area) elevation =  1134.000(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00454  s(%)=       0.45
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.478 min.
Rainfall intensity =      2.327(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.862
Subarea runoff =     13.243(CFS)
Total initial stream area =        6.600(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      403.000 to Point/Station      404.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1134.000(Ft.)
Downstream point elevation =  1131.000(Ft.)
Channel length thru subarea  =  1330.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     18.606(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     18.606(CFS)
Depth of flow =   0.354(Ft.), Average velocity =   1.484(Ft/s)
```

```
Channel flow top width =   70.827(Ft.)
Flow Velocity =    1.48(Ft/s)
Travel time  =   14.94 min.
Time of concentration =   28.42 min.
Critical depth =      0.293(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.487(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff =     10.646(CFS) for   12.500(Ac.)
Total runoff =     23.889(CFS)
Effective area this stream =       19.10(Ac.)
Total Study Area (Main Stream No. 1) =       39.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.389(Ft.), Average velocity =   1.579(Ft/s)
Critical depth =      0.324(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      404.000 to Point/Station      402.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1126.000(Ft.)
Downstream point/station elevation =  1122.000(Ft.)
Pipe length  =   605.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    23.889(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    23.889(CFS)
Normal flow depth in pipe =   21.00(In.)
Flow top width inside pipe =   22.45(In.)
Critical Depth =   20.52(In.)
Pipe flow velocity =      7.21(Ft/s)
Travel time through pipe =    1.40 min.
Time of concentration (TC) =    29.82 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      402.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     19.100(Ac.)
Runoff from this stream =     23.889(CFS)
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```
Time of concentration =   29.82 min.
Rainfall intensity =     1.445(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     29.96    20.500     22.28    0.098      1.721
2     23.89    19.100     29.82    0.098      1.445
Qmax(1) =
           1.000 *    1.000 *    29.956) +
           1.205 *    0.747 *    23.889) + =      51.462
Qmax(2) =
           0.830 *    1.000 *    29.956) +
           1.000 *    1.000 *    23.889) + =      48.748

Total of 2 streams to confluence:
Flow rates before confluence point:
      29.956      23.889
Maximum flow rates at confluence using above data:
       51.462       48.748
Area of streams before confluence:
       20.500       19.100
Effective area values after confluence:
       34.770       39.600
Results of confluence:
Total flow rate =     51.462(CFS)
Time of concentration =    22.279 min.
Effective stream area after confluence =     34.770(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      39.60(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      405.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1122.000(Ft.)
Downstream point/station elevation =  1120.000(Ft.)
Pipe length  =   600.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    51.462(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    51.462(CFS)
Normal flow depth in pipe =   30.75(In.)
Flow top width inside pipe =   37.20(In.)
Critical Depth =   26.94(In.)
```

```
Pipe flow velocity =      6.82(Ft/s)
Travel time through pipe =    1.47 min.
Time of concentration (TC) =    23.75 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      405.000 to Point/Station      405.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.75 min.
Rainfall intensity =      1.657(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =      3.918(CFS) for    4.700(Ac.)
Total runoff =     55.381(CFS)
Effective area this stream =       39.47(Ac.)
Total Study Area (Main Stream No. 1) =       44.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      405.000 to Point/Station      406.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1120.000(Ft.)
Downstream point/station elevation =  1103.000(Ft.)
Pipe length  =  1008.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    55.381(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    55.381(CFS)
Normal flow depth in pipe =   22.45(In.)
Flow top width inside pipe =   30.78(In.)
Critical Depth =   29.06(In.)
Pipe flow velocity =     12.86(Ft/s)
Travel time through pipe =    1.31 min.
Time of concentration (TC) =    25.05 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      406.000 to Point/Station      406.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
```

```
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    25.05 min.
Rainfall intensity =      1.604(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =      0.986(CFS) for    2.100(Ac.)
Total runoff =     56.367(CFS)
Effective area this stream =       41.57(Ac.)
Total Study Area (Main Stream No. 1) =       46.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      406.100 to Point/Station      406.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    25.05 min.
Rainfall intensity =      1.604(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =     36.068(CFS) for   26.600(Ac.)
Total runoff =     92.435(CFS)
Effective area this stream =       68.17(Ac.)
Total Study Area (Main Stream No. 1) =       73.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      406.000 to Point/Station      504.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1103.000(Ft.)
Downstream point/station elevation =  1087.000(Ft.)
Pipe length  =  1565.80(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    92.435(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    92.435(CFS)
Normal flow depth in pipe =   31.41(In.)
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```
Flow top width inside pipe =   36.48(In.)
Critical Depth =   35.73(In.)
Pipe flow velocity =     11.98(Ft/s)
Travel time through pipe =    2.18 min.
Time of concentration (TC) =    27.23 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      504.100 to Point/Station      504.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     91.873(CFS)
therefore the upstream flow rate of Q =     92.435(CFS) is being used
Time of concentration =    27.23 min.
Rainfall intensity =      1.526(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.842
Subarea runoff =      0.000(CFS) for    3.300(Ac.)
Total runoff =     92.435(CFS)
Effective area this stream =       71.47(Ac.)
Total Study Area (Main Stream No. 1) =       76.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      504.000 to Point/Station      504.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     71.470(Ac.)
Runoff from this stream =     92.435(CFS)
Time of concentration =   27.23 min.
Rainfall intensity =     1.526(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
End of computations, Total Study Area =           76.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
```

Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 04/12/22

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.950 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 802.600(Ft.)
Top (of initial area) elevation = 1165.000(Ft.)
Bottom (of initial area) elevation = 1146.000(Ft.)
Difference in elevation = 19.000(Ft.)
Slope = 0.02367 s(%)= 2.37
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.329 min.
Rainfall intensity = 2.902(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.870
Subarea runoff = 13.124(CFS)
Total initial stream area = 5.200(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.098(In/Hr)

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Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
______________________________________________________________________________
Upstream point elevation =  1146.000(Ft.)
Downstream point elevation =  1140.000(Ft.)
Channel length thru subarea  =  1588.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   0.001
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     16.196(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     16.196(CFS)
Depth of flow =   0.397(Ft.), Average velocity =   2.058(Ft/s)
Channel flow top width =   39.677(Ft.)
Flow Velocity =    2.06(Ft/s)
Travel time  =   12.86 min.
Time of concentration =   22.19 min.
Critical depth =      0.365(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.725(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      6.066(CFS) for    7.900(Ac.)
Total runoff =     19.190(CFS)
Effective area this stream =       13.10(Ac.)
Total Study Area (Main Stream No. 1) =       13.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.423(Ft.), Average velocity =   2.147(Ft/s)
Critical depth =      0.391(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
______________________________________________________________________________
Upstream point elevation =  1140.000(Ft.)
Downstream point elevation =  1129.000(Ft.)
Channel length thru subarea  =  1621.900(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   0.001
Slope or 'Z' of right channel bank = 100.000
```

```
Estimated mean flow rate at midpoint of channel =     20.126(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     20.126(CFS)
Depth of flow =   0.386(Ft.), Average velocity =   2.705(Ft/s)
Channel flow top width =   38.573(Ft.)
Flow Velocity =    2.71(Ft/s)
Travel time  =    9.99 min.
Time of concentration =   32.18 min.
Critical depth =      0.398(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.380(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.836
Subarea runoff =      1.821(CFS) for    5.100(Ac.)
Total runoff =     21.011(CFS)
Effective area this stream =       18.20(Ac.)
Total Study Area (Main Stream No. 1) =       18.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.392(Ft.), Average velocity =   2.735(Ft/s)
Critical depth =      0.406(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1124.000(Ft.)
Downstream point/station elevation =  1117.000(Ft.)
Pipe length  =  1817.60(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.011(CFS)
Nearest computed pipe diameter  =     30.00(In.)
Calculated individual pipe flow  =    21.011(CFS)
Normal flow depth in pipe =   20.77(In.)
Flow top width inside pipe =   27.70(In.)
Critical Depth =   18.68(In.)
Pipe flow velocity =      5.79(Ft/s)
Travel time through pipe =    5.23 min.
Time of concentration (TC) =    37.41 min.


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Process from Point/Station      104.000 to Point/Station      104.000
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**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    37.41 min.
Rainfall intensity =      1.261(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.830
Subarea runoff =     19.617(CFS) for   20.600(Ac.)
Total runoff =     40.628(CFS)
Effective area this stream =       38.80(Ac.)
Total Study Area (Main Stream No. 1) =       38.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________________
Upstream point/station elevation =  1117.000(Ft.)
Downstream point/station elevation =  1114.000(Ft.)
Pipe length  =   696.80(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    40.628(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    40.628(CFS)
Normal flow depth in pipe =   27.42(In.)
Flow top width inside pipe =   30.67(In.)
Critical Depth =   24.89(In.)
Pipe flow velocity =      7.03(Ft/s)
Travel time through pipe =    1.65 min.
Time of concentration (TC) =    39.07 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    39.07 min.
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```
Rainfall intensity =      1.229(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.828
Subarea runoff =     21.067(CFS) for   21.800(Ac.)
Total runoff =     61.695(CFS)
Effective area this stream =       60.60(Ac.)
Total Study Area (Main Stream No. 1) =       60.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      105.000 to Point/Station      106.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1114.000(Ft.)
Downstream point/station elevation =  1107.000(Ft.)
Pipe length  =   678.50(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    61.695(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    61.695(CFS)
Normal flow depth in pipe =   26.95(In.)
Flow top width inside pipe =   31.23(In.)
Critical Depth =   30.37(In.)
Pipe flow velocity =     10.86(Ft/s)
Travel time through pipe =    1.04 min.
Time of concentration (TC) =    40.11 min.


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Process from Point/Station      106.000 to Point/Station      106.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    40.11 min.
Rainfall intensity =      1.210(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.827
Subarea runoff =      7.657(CFS) for    8.700(Ac.)
Total runoff =     69.352(CFS)
Effective area this stream =       69.30(Ac.)
Total Study Area (Main Stream No. 1) =       69.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
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Process from Point/Station      106.100 to Point/Station      106.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    40.11 min.
Rainfall intensity =      1.210(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.827
Subarea runoff =      2.602(CFS) for    2.600(Ac.)
Total runoff =     71.954(CFS)
Effective area this stream =       71.90(Ac.)
Total Study Area (Main Stream No. 1) =       71.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      106.000 to Point/Station      107.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________________
Upstream point/station elevation =  1107.000(Ft.)
Downstream point/station elevation =  1096.000(Ft.)
Pipe length  =  1024.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    71.954(CFS)
Nearest computed pipe diameter  =     39.00(In.)
Calculated individual pipe flow  =    71.954(CFS)
Normal flow depth in pipe =   27.38(In.)
Flow top width inside pipe =   35.68(In.)
Critical Depth =   32.27(In.)
Pipe flow velocity =     11.56(Ft/s)
Travel time through pipe =    1.48 min.
Time of concentration (TC) =    41.58 min.


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Process from Point/Station      107.000 to Point/Station      107.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
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```
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    41.58 min.
Rainfall intensity =      1.184(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.826
Subarea runoff =      1.838(CFS) for    3.600(Ac.)
Total runoff =     73.791(CFS)
Effective area this stream =       75.50(Ac.)
Total Study Area (Main Stream No. 1) =       75.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1096.000(Ft.)
Downstream point/station elevation =  1091.000(Ft.)
Pipe length  =   958.90(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    73.791(CFS)
Nearest computed pipe diameter  =     45.00(In.)
Calculated individual pipe flow  =    73.791(CFS)
Normal flow depth in pipe =   31.73(In.)
Flow top width inside pipe =   41.04(In.)
Critical Depth =   31.75(In.)
Pipe flow velocity =      8.87(Ft/s)
Travel time through pipe =    1.80 min.
Time of concentration (TC) =    43.39 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    43.39 min.
Rainfall intensity =      1.154(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.824
Subarea runoff =      9.290(CFS) for   11.900(Ac.)
Total runoff =     83.082(CFS)
Effective area this stream =       87.40(Ac.)
Total Study Area (Main Stream No. 1) =       87.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)
```

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Process from Point/Station      108.000 to Point/Station      508.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1091.000(Ft.)
Downstream point/station elevation =  1077.000(Ft.)
Pipe length  =   419.20(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    83.082(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    83.082(CFS)
Normal flow depth in pipe =   23.58(In.)
Flow top width inside pipe =   29.81(In.)
Critical depth could not be calculated.
Pipe flow velocity =     18.30(Ft/s)
Travel time through pipe =    0.38 min.
Time of concentration (TC) =    43.77 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      508.000 to Point/Station      508.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     87.400(Ac.)
Runoff from this stream =     83.082(CFS)
Time of concentration =   43.77 min.
Rainfall intensity =     1.148(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       50.000 to Point/Station       51.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   255.900(Ft.)
Top (of initial area) elevation =  1117.000(Ft.)
Bottom (of initial area) elevation =  1115.000(Ft.)
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Difference in elevation =     2.000(Ft.)
Slope =    0.00782  s(%)=       0.78
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.371 min.
Rainfall intensity =      3.343(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.874
Subarea runoff =     13.726(CFS)
Total initial stream area =        4.700(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       51.000 to Point/Station      500.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1115.000(Ft.)
Downstream point elevation =  1104.000(Ft.)
Channel length thru subarea  =  1426.500(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     17.137(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     17.137(CFS)
Depth of flow =   0.273(Ft.), Average velocity =   2.304(Ft/s)
Channel flow top width =   54.539(Ft.)
Flow Velocity =    2.30(Ft/s)
Travel time  =   10.32 min.
Time of concentration =   17.69 min.
Critical depth =      0.283(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.977(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      6.739(CFS) for    7.400(Ac.)
Total runoff =     20.465(CFS)
Effective area this stream =       12.10(Ac.)
Total Study Area (Main Stream No. 2) =       99.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.291(Ft.), Average velocity =   2.409(Ft/s)
Critical depth =      0.305(Ft.)
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Process from Point/Station      500.000 to Point/Station      500.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     12.100(Ac.)
Runoff from this stream =     20.465(CFS)
Time of concentration =   17.69 min.
Rainfall intensity =     1.977(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      300.000 to Point/Station      301.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   550.000(Ft.)
Top (of initial area) elevation =  1140.000(Ft.)
Bottom (of initial area) elevation =  1131.000(Ft.)
Difference in elevation =     9.000(Ft.)
Slope =    0.01636  s(%)=       1.64
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.635 min.
Rainfall intensity =      3.040(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.871
Subarea runoff =     16.947(CFS)
Total initial stream area =        6.400(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.000 to Point/Station      301.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =     8.63 min.
Rainfall intensity =      3.040(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.871
Subarea runoff =      7.944(CFS) for    3.000(Ac.)
Total runoff =     24.891(CFS)
Effective area this stream =        9.40(Ac.)
Total Study Area (Main Stream No. 2) =      108.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.000 to Point/Station      302.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1131.000(Ft.)
Downstream point elevation =  1130.000(Ft.)
Channel length thru subarea  =   265.700(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     24.920(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     24.920(CFS)
Depth of flow =   0.359(Ft.), Average velocity =   1.934(Ft/s)
Channel flow top width =   71.796(Ft.)
Flow Velocity =    1.93(Ft/s)
Travel time  =    2.29 min.
Time of concentration =   10.92 min.
Critical depth =      0.328(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     24.708(CFS)
therefore the upstream flow rate of Q =     24.891(CFS) is being used
Rainfall intensity =      2.640(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =      0.000(CFS) for    1.400(Ac.)
Total runoff =     24.891(CFS)
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Effective area this stream =       10.80(Ac.)
Total Study Area (Main Stream No. 2) =      110.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.359(Ft.), Average velocity =   1.933(Ft/s)
Critical depth =      0.328(Ft.)


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Process from Point/Station      302.000 to Point/Station      500.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1125.000(Ft.)
Downstream point/station elevation =  1104.000(Ft.)
Pipe length  =  2380.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    24.891(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    24.891(CFS)
Normal flow depth in pipe =   19.22(In.)
Flow top width inside pipe =   24.46(In.)
Critical Depth =   20.93(In.)
Pipe flow velocity =      8.22(Ft/s)
Travel time through pipe =    4.83 min.
Time of concentration (TC) =    15.75 min.


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Process from Point/Station      500.000 to Point/Station      500.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =     10.800(Ac.)
Runoff from this stream =     24.891(CFS)
Time of concentration =   15.75 min.
Rainfall intensity =     2.120(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     20.47    12.100     17.69    0.098      1.977
2     24.89    10.800     15.75    0.098      2.120
Qmax(1) =
           1.000 *    1.000 *    20.465) +
           0.930 *    1.000 *    24.891) + =      43.602
Qmax(2) =
           1.076 *    0.890 *    20.465) +
           1.000 *    1.000 *    24.891) + =      44.497
```

```
Total of 2 streams to confluence:
Flow rates before confluence point:
      20.465      24.891
Maximum flow rates at confluence using above data:
       43.602       44.497
Area of streams before confluence:
       12.100       10.800
Effective area values after confluence:
       22.900       21.575
Results of confluence:
Total flow rate =     44.497(CFS)
Time of concentration =    15.751 min.
Effective stream area after confluence =     21.575(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      22.90(Ac.)


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Process from Point/Station      500.000 to Point/Station      501.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1104.000(Ft.)
Downstream point elevation =  1098.000(Ft.)
Channel length thru subarea  =   965.000(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =     44.522(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =     44.522(CFS)
Depth of flow =   0.636(Ft.), Average velocity =   5.408(Ft/s)
Channel flow top width =   13.907(Ft.)
Flow Velocity =    5.41(Ft/s)
Travel time  =    2.97 min.
Time of concentration =   18.72 min.
Critical depth =      0.734(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     36.505(CFS)
therefore the upstream flow rate of Q =     44.497(CFS) is being used
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```
Rainfall intensity =      1.911(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.854
Subarea runoff =      0.000(CFS) for    0.800(Ac.)
Total runoff =     44.497(CFS)
Effective area this stream =       22.37(Ac.)
Total Study Area (Main Stream No. 2) =      111.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.635(Ft.), Average velocity =   5.407(Ft/s)
Critical depth =      0.734(Ft.)


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Process from Point/Station      501.000 to Point/Station      501.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     22.375(Ac.)
Runoff from this stream =     44.497(CFS)
Time of concentration =   18.72 min.
Rainfall intensity =     1.911(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      501.000 to Point/Station      501.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.603(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =  25.09 min.  Rain intensity =       1.60(In/Hr)
Total area this stream =       149.30(Ac.)
Total Study Area (Main Stream No. 2) =      260.40(Ac.)
Total runoff =    143.94(CFS)


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Process from Point/Station      501.000 to Point/Station      501.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =    149.300(Ac.)
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Runoff from this stream =    143.939(CFS)
Time of concentration =   25.09 min.
Rainfall intensity =     1.603(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     44.50    22.375     18.72    0.098      1.911
2    143.94   149.300     25.09    0.098      1.603
Qmax(1) =
           1.000 *    1.000 *    44.497) +
           1.205 *    0.746 *   143.939) + =     173.868
Qmax(2) =
           0.830 *    1.000 *    44.497) +
           1.000 *    1.000 *   143.939) + =     180.880

Total of 2 streams to confluence:
Flow rates before confluence point:
      44.497     143.939
Maximum flow rates at confluence using above data:
      173.868      180.880
Area of streams before confluence:
       22.375      149.300
Effective area values after confluence:
      133.780      171.675
Results of confluence:
Total flow rate =    180.880(CFS)
Time of concentration =    25.094 min.
Effective stream area after confluence =    171.675(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     171.67(Ac.)


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Process from Point/Station      501.000 to Point/Station      502.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1098.000(Ft.)
Downstream point elevation =  1096.000(Ft.)
Channel length thru subarea  =   575.400(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    203.484(CFS)
Manning's 'N'    = 0.015
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Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    203.484(CFS)
Depth of flow =   1.838(Ft.), Average velocity =   7.503(Ft/s)
Channel flow top width =   17.513(Ft.)
Flow Velocity =    7.50(Ft/s)
Travel time  =    1.28 min.
Time of concentration =   26.37 min.
Critical depth =      1.906(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.556(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =     45.298(CFS) for    0.700(Ac.)
Total runoff =    226.179(CFS)
Effective area this stream =      172.37(Ac.)
Total Study Area (Main Stream No. 2) =      261.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   1.953(Ft.), Average velocity =   7.759(Ft/s)
Critical depth =      2.031(Ft.)


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Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    26.37 min.
Rainfall intensity =      1.556(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =      7.610(CFS) for    5.800(Ac.)
Total runoff =    233.789(CFS)
Effective area this stream =      178.17(Ac.)
Total Study Area (Main Stream No. 2) =      266.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
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Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    26.37 min.
Rainfall intensity =      1.556(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =      8.791(CFS) for    6.700(Ac.)
Total runoff =    242.580(CFS)
Effective area this stream =      184.87(Ac.)
Total Study Area (Main Stream No. 2) =      273.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      502.000 to Point/Station      503.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1096.000(Ft.)
Downstream point elevation =  1091.000(Ft.)
Channel length thru subarea  =  1178.900(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    242.613(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    242.613(CFS)
Depth of flow =   1.920(Ft.), Average velocity =   8.491(Ft/s)
Channel flow top width =   17.760(Ft.)
Flow Velocity =    8.49(Ft/s)
Travel time  =    2.31 min.
Time of concentration =   28.69 min.
Critical depth =      2.125(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
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The area added to the existing stream causes a
a lower flow rate of Q =    231.831(CFS)
therefore the upstream flow rate of Q =    242.580(CFS) is being used
Rainfall intensity =      1.479(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff =      0.000(CFS) for    1.600(Ac.)
Total runoff =    242.580(CFS)
Effective area this stream =      186.47(Ac.)
Total Study Area (Main Stream No. 2) =      275.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   1.920(Ft.), Average velocity =   8.491(Ft/s)
Critical depth =      2.125(Ft.)


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Process from Point/Station      503.200 to Point/Station      503.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    233.945(CFS)
therefore the upstream flow rate of Q =    242.580(CFS) is being used
Time of concentration =    28.69 min.
Rainfall intensity =      1.479(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff =      0.000(CFS) for    1.700(Ac.)
Total runoff =    242.580(CFS)
Effective area this stream =      188.17(Ac.)
Total Study Area (Main Stream No. 2) =      276.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      503.100 to Point/Station      503.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
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```
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    28.69 min.
Rainfall intensity =      1.479(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff =    102.509(CFS) for   89.400(Ac.)
Total runoff =    345.090(CFS)
Effective area this stream =      277.57(Ac.)
Total Study Area (Main Stream No. 2) =      366.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      503.000 to Point/Station      504.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1091.000(Ft.)
Downstream point elevation =  1087.000(Ft.)
Channel length thru subarea  =   991.700(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    345.121(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    345.121(CFS)
Depth of flow =   2.380(Ft.), Average velocity =   9.312(Ft/s)
Channel flow top width =   19.141(Ft.)
Flow Velocity =    9.31(Ft/s)
Travel time  =    1.77 min.
Time of concentration =   30.46 min.
Critical depth =      2.625(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    333.930(CFS)
therefore the upstream flow rate of Q =    345.090(CFS) is being used
Rainfall intensity =      1.427(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.838
Subarea runoff =      0.000(CFS) for    1.600(Ac.)
Total runoff =    345.090(CFS)
Effective area this stream =      279.17(Ac.)
Total Study Area (Main Stream No. 2) =      367.90(Ac.)
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Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.380(Ft.), Average velocity =   9.312(Ft/s)
Critical depth =      2.625(Ft.)


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Process from Point/Station      504.000 to Point/Station      504.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =    279.175(Ac.)
Runoff from this stream =    345.090(CFS)
Time of concentration =   30.46 min.
Rainfall intensity =     1.427(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      504.000 to Point/Station      504.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.526(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =  27.23 min.  Rain intensity =       1.53(In/Hr)
Total area this stream =        76.30(Ac.)
Total Study Area (Main Stream No. 2) =      444.20(Ac.)
Total runoff =     92.44(CFS)


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Process from Point/Station      504.000 to Point/Station      504.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =     76.300(Ac.)
Runoff from this stream =     92.435(CFS)
Time of concentration =   27.23 min.
Rainfall intensity =     1.526(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:
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```
Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    345.09   279.175     30.46    0.098      1.427
2     92.44    76.300     27.23    0.098      1.526
Qmax(1) =
           1.000 *    1.000 *   345.090) +
           0.930 *    1.000 *    92.435) + =     431.099
Qmax(2) =
           1.075 *    0.894 *   345.090) +
           1.000 *    1.000 *    92.435) + =     423.968

Total of 2 streams to confluence:
Flow rates before confluence point:
     345.090      92.435
Maximum flow rates at confluence using above data:
      431.099      423.968
Area of streams before confluence:
      279.175       76.300
Effective area values after confluence:
      355.475      325.863
Results of confluence:
Total flow rate =    431.099(CFS)
Time of concentration =    30.461 min.
Effective stream area after confluence =    355.475(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     355.47(Ac.)


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Process from Point/Station      504.000 to Point/Station      505.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1087.000(Ft.)
Downstream point elevation =  1086.000(Ft.)
Channel length thru subarea  =   299.500(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    431.137(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    431.137(CFS)
Depth of flow =   2.843(Ft.), Average velocity =   9.323(Ft/s)
Channel flow top width =   20.530(Ft.)
Flow Velocity =    9.32(Ft/s)
Travel time  =    0.54 min.
Time of concentration =   31.00 min.
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Critical depth =      3.000(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    421.038(CFS)
therefore the upstream flow rate of Q =    431.099(CFS) is being used
Rainfall intensity =      1.412(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.838
Subarea runoff =      0.000(CFS) for    0.500(Ac.)
Total runoff =    431.099(CFS)
Effective area this stream =      355.97(Ac.)
Total Study Area (Main Stream No. 2) =      444.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.843(Ft.), Average velocity =   9.322(Ft/s)
Critical depth =      3.000(Ft.)


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Process from Point/Station      505.000 to Point/Station      505.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    31.00 min.
Rainfall intensity =      1.412(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.838
Subarea runoff =     14.068(CFS) for   20.400(Ac.)
Total runoff =    445.167(CFS)
Effective area this stream =      376.37(Ac.)
Total Study Area (Main Stream No. 2) =      465.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      505.000 to Point/Station      505.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
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COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    31.00 min.
Rainfall intensity =      1.412(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.838
Subarea runoff =      4.849(CFS) for    4.100(Ac.)
Total runoff =    450.016(CFS)
Effective area this stream =      380.47(Ac.)
Total Study Area (Main Stream No. 2) =      469.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      505.000 to Point/Station      506.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1086.000(Ft.)
Downstream point elevation =  1085.000(Ft.)
Channel length thru subarea  =   396.300(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    450.050(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    450.050(CFS)
Depth of flow =   3.147(Ft.), Average velocity =   8.554(Ft/s)
Channel flow top width =   21.440(Ft.)
Flow Velocity =    8.55(Ft/s)
Travel time  =    0.77 min.
Time of concentration =   31.77 min.
Critical depth =      3.063(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    443.979(CFS)
therefore the upstream flow rate of Q =    450.016(CFS) is being used
Rainfall intensity =      1.391(In/Hr) for a    10.0 year storm
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Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.837
Subarea runoff =      0.000(CFS) for    0.900(Ac.)
Total runoff =    450.016(CFS)
Effective area this stream =      381.37(Ac.)
Total Study Area (Main Stream No. 2) =      470.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   3.147(Ft.), Average velocity =   8.554(Ft/s)
Critical depth =      3.063(Ft.)


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Process from Point/Station      506.000 to Point/Station      507.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1085.000(Ft.)
Downstream point elevation =  1082.000(Ft.)
Channel length thru subarea  =   301.600(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    450.053(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    450.053(CFS)
Depth of flow =   2.142(Ft.), Average velocity =  13.809(Ft/s)
Channel flow top width =   18.427(Ft.)
Flow Velocity =   13.81(Ft/s)
Travel time  =    0.36 min.
Time of concentration =   32.13 min.
Critical depth =      3.063(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    443.037(CFS)
therefore the upstream flow rate of Q =    450.016(CFS) is being used
Rainfall intensity =      1.382(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.836
Subarea runoff =      0.000(CFS) for    2.000(Ac.)
Total runoff =    450.016(CFS)
Effective area this stream =      383.37(Ac.)
Total Study Area (Main Stream No. 2) =      472.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
```

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Depth of flow =   2.142(Ft.), Average velocity =  13.809(Ft/s)
Critical depth =      3.063(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      507.000 to Point/Station      507.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    32.13 min.
Rainfall intensity =      1.382(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.836
Subarea runoff =     18.328(CFS) for   21.900(Ac.)
Total runoff =    468.345(CFS)
Effective area this stream =      405.27(Ac.)
Total Study Area (Main Stream No. 2) =      494.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      507.000 to Point/Station      508.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Covered channel
Upstream point elevation =  1082.000(Ft.)
Downstream point elevation =  1077.000(Ft.)
Channel length thru subarea  =  1576.500(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   0.001
Slope or 'Z' of right channel bank =   0.001
Estimated mean flow rate at midpoint of channel =    468.376(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    468.376(CFS)
Depth of flow =   3.929(Ft.), Average velocity =   9.931(Ft/s)
Channel flow top width =   12.008(Ft.)
Flow Velocity =    9.93(Ft/s)
Travel time  =    2.65 min.
Time of concentration =   34.78 min.
Critical depth =      3.625(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    448.820(CFS)
therefore the upstream flow rate of Q =    468.345(CFS) is being used
Rainfall intensity =      1.318(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.833
Subarea runoff =      0.000(CFS) for    3.500(Ac.)
Total runoff =    468.345(CFS)
Effective area this stream =      408.77(Ac.)
Total Study Area (Main Stream No. 2) =      497.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   3.929(Ft.), Average velocity =   9.931(Ft/s)
Critical depth =      3.625(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      508.000 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    465.399(CFS)
therefore the upstream flow rate of Q =    468.345(CFS) is being used
Time of concentration =    34.78 min.
Rainfall intensity =      1.318(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.833
Subarea runoff =      0.000(CFS) for   15.100(Ac.)
Total runoff =    468.345(CFS)
Effective area this stream =      423.87(Ac.)
Total Study Area (Main Stream No. 2) =      512.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      508.000 to Point/Station      508.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
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```
In Main Stream number: 2
Stream flow area =    423.875(Ac.)
Runoff from this stream =    468.345(CFS)
Time of concentration =   34.78 min.
Rainfall intensity =     1.318(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     83.08    87.400     43.77    0.098      1.148
2    468.34   423.875     34.78    0.098      1.318
Qmax(1) =
           1.000 *    1.000 *    83.082) +
           0.861 *    1.000 *   468.345) + =     486.240
Qmax(2) =
           1.162 *    0.795 *    83.082) +
           1.000 *    1.000 *   468.345) + =     545.036

Total of 2 main streams to confluence:
Flow rates before confluence point:
      84.082     469.345
Maximum flow rates at confluence using above data:
      486.240      545.036
Area of streams before confluence:
       87.400      423.875
Effective area values after confluence:
      511.275      493.323


Results of confluence:
Total flow rate =    545.036(CFS)
Time of concentration =    34.778 min.
Effective stream area after confluence  =    493.323(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total =     511.27(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      508.400 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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```
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    34.78 min.
Rainfall intensity =      1.318(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.833
Subarea runoff =     22.307(CFS) for   23.400(Ac.)
Total runoff =    567.343(CFS)
Effective area this stream =      516.72(Ac.)
Total Study Area (Main Stream No. 1) =      536.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      508.300 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    34.78 min.
Rainfall intensity =      1.318(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.833
Subarea runoff =      4.062(CFS) for    3.700(Ac.)
Total runoff =    571.405(CFS)
Effective area this stream =      520.42(Ac.)
Total Study Area (Main Stream No. 1) =      539.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      508.100 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    34.78 min.
Rainfall intensity =      1.318(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
```

rational method)(Q=KCIA) is C = 0.833
Subarea runoff = 1.867(CFS) for 1.700(Ac.)
Total runoff = 573.272(CFS)
Effective area this stream = 522.12(Ac.)
Total Study Area (Main Stream No. 1) = 541.40(Ac.)
Area averaged Fm value = 0.098(In/Hr)

++
Process from Point/Station 508.200 to Point/Station 508.000
**** SUBAREA FLOW ADDITION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Time of concentration = 34.78 min.
Rainfall intensity = 1.318(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.833
Subarea runoff = 4.611(CFS) for 4.200(Ac.)
Total runoff = 577.883(CFS)
Effective area this stream = 526.32(Ac.)
Total Study Area (Main Stream No. 1) = 545.60(Ac.)
Area averaged Fm value = 0.098(In/Hr)

Area averaged pervious area fraction(Ap) = 0.101
Area averaged SCS curve number = 31.8

100-YEAR ONSITE HYDROLOGY (RATIONAL METHOD)

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 04/12/22

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.950(In.)
100 Year storm 1 hour rainfall = 1.350(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.350 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 585.500(Ft.)
Top (of initial area) elevation = 1165.000(Ft.)
Bottom (of initial area) elevation = 1150.000(Ft.)
Difference in elevation = 15.000(Ft.)
Slope = 0.02562 s(%)= 2.56
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.094 min.
Rainfall intensity = 4.491(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880
Subarea runoff = 24.118(CFS)
Total initial stream area = 6.100(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.098(In/Hr)

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Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1150.000(Ft.)
Downstream point elevation =  1145.000(Ft.)
Channel length thru subarea  =   555.100(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     44.684(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     44.684(CFS)
Depth of flow =   0.338(Ft.), Average velocity =   3.917(Ft/s)
Channel flow top width =   67.550(Ft.)
Flow Velocity =    3.92(Ft/s)
Travel time  =    2.36 min.
Time of concentration =   10.46 min.
Critical depth =      0.414(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.851(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.877
Subarea runoff =     41.080(CFS) for   13.200(Ac.)
Total runoff =     65.198(CFS)
Effective area this stream =       19.30(Ac.)
Total Study Area (Main Stream No. 1) =       19.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.389(Ft.), Average velocity =   4.305(Ft/s)
Critical depth =      0.484(Ft.)


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Process from Point/Station      102.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1145.000(Ft.)
Downstream point elevation =  1129.000(Ft.)
Channel length thru subarea  =  1407.500(Ft.)
Channel base width      =    0.000(Ft.)
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```
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     78.432(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     78.432(CFS)
Depth of flow =   0.399(Ft.), Average velocity =   4.920(Ft/s)
Channel flow top width =   79.856(Ft.)
Flow Velocity =    4.92(Ft/s)
Travel time  =    4.77 min.
Time of concentration =   15.22 min.
Critical depth =      0.520(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.074(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.871
Subarea runoff =     26.410(CFS) for   14.900(Ac.)
Total runoff =     91.608(CFS)
Effective area this stream =       34.20(Ac.)
Total Study Area (Main Stream No. 1) =       34.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.423(Ft.), Average velocity =   5.114(Ft/s)
Critical depth =      0.555(Ft.)


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Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     34.200(Ac.)
Runoff from this stream =     91.608(CFS)
Time of concentration =   15.22 min.
Rainfall intensity =     3.074(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
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Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   608.600(Ft.)
Top (of initial area) elevation =  1165.000(Ft.)
Bottom (of initial area) elevation =  1141.000(Ft.)
Difference in elevation =    24.000(Ft.)
Slope =    0.03943  s(%)=       3.94
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.541 min.
Rainfall intensity =      4.686(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.881
Subarea runoff =     21.471(CFS)
Total initial stream area =        5.200(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      105.000 to Point/Station      106.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1141.000(Ft.)
Downstream point elevation =  1132.000(Ft.)
Channel length thru subarea  =   742.700(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     44.729(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     44.729(CFS)
Depth of flow =   0.320(Ft.), Average velocity =   4.379(Ft/s)
Channel flow top width =   63.920(Ft.)
Flow Velocity =    4.38(Ft/s)
Travel time  =    2.83 min.
Time of concentration =   10.37 min.
Critical depth =      0.416(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
```

```
Rainfall intensity =      3.871(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.877
Subarea runoff =     46.445(CFS) for   14.800(Ac.)
Total runoff =     67.916(CFS)
Effective area this stream =       20.00(Ac.)
Total Study Area (Main Stream No. 1) =       54.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.374(Ft.), Average velocity =   4.861(Ft/s)
Critical depth =      0.492(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1127.000(Ft.)
Downstream point/station elevation =  1124.000(Ft.)
Pipe length  =   340.76(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    67.916(CFS)
Nearest computed pipe diameter  =     39.00(In.)
Calculated individual pipe flow  =    67.916(CFS)
Normal flow depth in pipe =   28.31(In.)
Flow top width inside pipe =   34.79(In.)
Critical Depth =   31.44(In.)
Pipe flow velocity =     10.53(Ft/s)
Travel time through pipe =    0.54 min.
Time of concentration (TC) =    10.91 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     20.000(Ac.)
Runoff from this stream =     67.916(CFS)
Time of concentration =   10.91 min.
Rainfall intensity =     3.755(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     91.61    34.200     15.22    0.098      3.074
2     67.92    20.000     10.91    0.098      3.755
Qmax(1) =
```

```
           1.000 *    1.000 *    91.608) +
           0.814 *    1.000 *    67.916) + =     146.878
Qmax(2) =
           1.229 *    0.716 *    91.608) +
           1.000 *    1.000 *    67.916) + =     148.562

Total of 2 streams to confluence:
Flow rates before confluence point:
      91.608      67.916
Maximum flow rates at confluence using above data:
      146.878      148.562
Area of streams before confluence:
       34.200       20.000
Effective area values after confluence:
       54.200       44.502
Results of confluence:
Total flow rate =    148.562(CFS)
Time of concentration =    10.907 min.
Effective stream area after confluence =     44.502(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      54.20(Ac.)


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Process from Point/Station      103.000 to Point/Station      107.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1124.000(Ft.)
Downstream point/station elevation =  1115.000(Ft.)
Pipe length  =   780.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   148.562(CFS)
Nearest computed pipe diameter  =     48.00(In.)
Calculated individual pipe flow  =   148.562(CFS)
Normal flow depth in pipe =   37.83(In.)
Flow top width inside pipe =   39.23(In.)
Critical Depth =   43.01(In.)
Pipe flow velocity =     13.98(Ft/s)
Travel time through pipe =    0.93 min.
Time of concentration (TC) =    11.84 min.


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Process from Point/Station      107.000 to Point/Station      107.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    11.84 min.
Rainfall intensity =      3.575(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.875
Subarea runoff =     69.255(CFS) for   25.100(Ac.)
Total runoff =    217.816(CFS)
Effective area this stream =       69.60(Ac.)
Total Study Area (Main Stream No. 1) =       79.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1115.000(Ft.)
Downstream point/station elevation =  1110.000(Ft.)
Pipe length  =   618.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   217.816(CFS)
Nearest computed pipe diameter  =     60.00(In.)
Calculated individual pipe flow  =   217.816(CFS)
Normal flow depth in pipe =   45.75(In.)
Flow top width inside pipe =   51.07(In.)
Critical Depth =   50.30(In.)
Pipe flow velocity =     13.55(Ft/s)
Travel time through pipe =    0.76 min.
Time of concentration (TC) =    12.60 min.


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Process from Point/Station      108.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    12.60 min.
Rainfall intensity =      3.444(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.874
Subarea runoff =     25.512(CFS) for   11.200(Ac.)
Total runoff =    243.329(CFS)
Effective area this stream =       80.80(Ac.)
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```
Total Study Area (Main Stream No. 1) =       90.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      108.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1110.000(Ft.)
Downstream point/station elevation =  1104.000(Ft.)
Pipe length  =   630.80(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   243.329(CFS)
Nearest computed pipe diameter  =     60.00(In.)
Calculated individual pipe flow  =   243.329(CFS)
Normal flow depth in pipe =   47.06(In.)
Flow top width inside pipe =   49.35(In.)
Critical Depth =   52.55(In.)
Pipe flow velocity =     14.73(Ft/s)
Travel time through pipe =    0.71 min.
Time of concentration (TC) =    13.31 min.


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Process from Point/Station      109.000 to Point/Station      109.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    13.31 min.
Rainfall intensity =      3.332(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.874
Subarea runoff =    103.914(CFS) for   38.500(Ac.)
Total runoff =    347.243(CFS)
Effective area this stream =      119.30(Ac.)
Total Study Area (Main Stream No. 1) =      129.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      109.000 to Point/Station      110.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1104.000(Ft.)
Downstream point elevation =  1097.000(Ft.)
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Channel length thru subarea  =  1122.600(Ft.)
Channel base width      =   11.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    365.010(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    7.200(Ft.)
Flow(q) thru subarea =    365.010(CFS)
Depth of flow =   2.270(Ft.), Average velocity =  11.162(Ft/s)
Channel flow top width =   17.810(Ft.)
Flow Velocity =   11.16(Ft/s)
Travel time  =    1.68 min.
Time of concentration =   14.99 min.
Critical depth =      2.844(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.103(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =     35.472(CFS) for   22.200(Ac.)
Total runoff =    382.715(CFS)
Effective area this stream =      141.50(Ac.)
Total Study Area (Main Stream No. 1) =      151.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.331(Ft.), Average velocity =  11.324(Ft/s)
Critical depth =      2.906(Ft.)


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Process from Point/Station      110.000 to Point/Station      111.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1097.000(Ft.)
Downstream point elevation =  1091.000(Ft.)
Channel length thru subarea  =  1304.600(Ft.)
Channel base width      =   11.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    393.097(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    7.200(Ft.)
Flow(q) thru subarea =    393.097(CFS)
Depth of flow =   2.577(Ft.), Average velocity =  10.262(Ft/s)
Channel flow top width =   18.731(Ft.)
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Flow Velocity =   10.26(Ft/s)
Travel time  =    2.12 min.
Time of concentration =   17.11 min.
Critical depth =      2.969(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.866(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.869
Subarea runoff =     20.691(CFS) for   20.400(Ac.)
Total runoff =    403.406(CFS)
Effective area this stream =      161.90(Ac.)
Total Study Area (Main Stream No. 1) =      171.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.614(Ft.), Average velocity =  10.341(Ft/s)
Critical depth =      3.000(Ft.)


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Process from Point/Station      111.000 to Point/Station      112.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1091.000(Ft.)
Downstream point elevation =  1082.000(Ft.)
Channel length thru subarea  =  2229.000(Ft.)
Channel base width      =   11.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    416.298(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    7.200(Ft.)
Flow(q) thru subarea =    416.298(CFS)
Depth of flow =   2.758(Ft.), Average velocity =   9.971(Ft/s)
Channel flow top width =   19.275(Ft.)
Flow Velocity =    9.97(Ft/s)
Travel time  =    3.73 min.
Time of concentration =   20.83 min.
Critical depth =      3.063(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
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SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.547(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =     25.721(CFS) for   32.800(Ac.)
Total runoff =    429.126(CFS)
Effective area this stream =      194.70(Ac.)
Total Study Area (Main Stream No. 1) =      204.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.805(Ft.), Average velocity =  10.060(Ft/s)
Critical depth =      3.125(Ft.)


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Process from Point/Station      112.000 to Point/Station      112.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    194.702(Ac.)
Runoff from this stream =    429.126(CFS)
Time of concentration =   20.83 min.
Rainfall intensity =     2.547(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      300.000 to Point/Station      301.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   989.820(Ft.)
Top (of initial area) elevation =  1158.000(Ft.)
Bottom (of initial area) elevation =  1125.000(Ft.)
Difference in elevation =    33.000(Ft.)
Slope =    0.03334  s(%)=       3.33
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.473 min.
Rainfall intensity =      4.086(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.878
Subarea runoff =     29.076(CFS)
Total initial stream area =        8.100(Ac.)
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Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.000 to Point/Station      302.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1125.000(Ft.)
Downstream point elevation =  1122.000(Ft.)
Channel length thru subarea  =   686.100(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     48.627(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     48.627(CFS)
Depth of flow =   0.399(Ft.), Average velocity =   3.051(Ft/s)
Channel flow top width =   79.846(Ft.)
Flow Velocity =    3.05(Ft/s)
Travel time  =    3.75 min.
Time of concentration =   13.22 min.
Critical depth =      0.430(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.345(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.874
Subarea runoff =     39.029(CFS) for   15.200(Ac.)
Total runoff =     68.104(CFS)
Effective area this stream =       23.30(Ac.)
Total Study Area (Main Stream No. 1) =      227.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.453(Ft.), Average velocity =   3.319(Ft/s)
Critical depth =      0.492(Ft.)


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Process from Point/Station      302.000 to Point/Station      303.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1122.000(Ft.)
Downstream point elevation =  1119.000(Ft.)
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Channel length thru subarea  =  1118.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     92.254(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     92.254(CFS)
Depth of flow =   0.556(Ft.), Average velocity =   2.982(Ft/s)
Channel flow top width =  111.250(Ft.)
Flow Velocity =    2.98(Ft/s)
Travel time  =    6.25 min.
Time of concentration =   19.47 min.
Critical depth =      0.555(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.652(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =     48.220(CFS) for   27.300(Ac.)
Total runoff =    116.325(CFS)
Effective area this stream =       50.60(Ac.)
Total Study Area (Main Stream No. 1) =      255.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.607(Ft.), Average velocity =   3.159(Ft/s)
Critical depth =      0.609(Ft.)


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Process from Point/Station      303.000 to Point/Station      304.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1119.000(Ft.)
Downstream point elevation =  1118.000(Ft.)
Channel length thru subarea  =   607.400(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =    136.785(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    136.785(CFS)
Depth of flow =   0.707(Ft.), Average velocity =   2.739(Ft/s)
Channel flow top width =  141.327(Ft.)
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Flow Velocity =    2.74(Ft/s)
Travel time  =    3.70 min.
Time of concentration =   23.17 min.
Critical depth =      0.648(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.390(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.863
Subarea runoff =     40.842(CFS) for   25.600(Ac.)
Total runoff =    157.167(CFS)
Effective area this stream =       76.20(Ac.)
Total Study Area (Main Stream No. 1) =      280.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.744(Ft.), Average velocity =   2.836(Ft/s)
Critical depth =      0.688(Ft.)


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Process from Point/Station      304.000 to Point/Station      305.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1113.000(Ft.)
Downstream point/station elevation =  1104.000(Ft.)
Pipe length  =  1188.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   157.167(CFS)
Nearest computed pipe diameter  =     54.00(In.)
Calculated individual pipe flow  =   157.167(CFS)
Normal flow depth in pipe =   40.73(In.)
Flow top width inside pipe =   46.49(In.)
Critical Depth =   44.04(In.)
Pipe flow velocity =     12.21(Ft/s)
Travel time through pipe =    1.62 min.
Time of concentration (TC) =    24.79 min.


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Process from Point/Station      305.000 to Point/Station      305.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    24.79 min.
Rainfall intensity =      2.294(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =     37.764(CFS) for   22.400(Ac.)
Total runoff =    194.931(CFS)
Effective area this stream =       98.60(Ac.)
Total Study Area (Main Stream No. 1) =      303.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      305.000 to Point/Station      305.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     98.600(Ac.)
Runoff from this stream =    194.931(CFS)
Time of concentration =   24.79 min.
Rainfall intensity =     2.294(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      306.000 to Point/Station      307.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   866.600(Ft.)
Top (of initial area) elevation =  1159.000(Ft.)
Bottom (of initial area) elevation =  1124.000(Ft.)
Difference in elevation =    35.000(Ft.)
Slope =    0.04039  s(%)=       4.04
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.645 min.
Rainfall intensity =      4.317(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880
Subarea runoff =     37.213(CFS)
Total initial stream area =        9.800(Ac.)
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Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      307.000 to Point/Station      308.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1124.000(Ft.)
Downstream point elevation =  1122.000(Ft.)
Channel length thru subarea  =   677.600(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     63.373(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     63.373(CFS)
Depth of flow =   0.475(Ft.), Average velocity =   2.813(Ft/s)
Channel flow top width =   94.926(Ft.)
Flow Velocity =    2.81(Ft/s)
Travel time  =    4.01 min.
Time of concentration =   12.66 min.
Critical depth =      0.477(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.434(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.874
Subarea runoff =     52.260(CFS) for   20.000(Ac.)
Total runoff =     89.473(CFS)
Effective area this stream =       29.80(Ac.)
Total Study Area (Main Stream No. 1) =      332.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.540(Ft.), Average velocity =   3.066(Ft/s)
Critical depth =      0.547(Ft.)


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Process from Point/Station      308.000 to Point/Station      309.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1122.000(Ft.)
Downstream point elevation =  1118.000(Ft.)
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Channel length thru subarea  =  1272.900(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =    124.922(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    124.922(CFS)
Depth of flow =   0.605(Ft.), Average velocity =   3.413(Ft/s)
Channel flow top width =  121.007(Ft.)
Flow Velocity =    3.41(Ft/s)
Travel time  =    6.22 min.
Time of concentration =   18.88 min.
Critical depth =      0.625(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.702(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =     70.840(CFS) for   38.600(Ac.)
Total runoff =    160.313(CFS)
Effective area this stream =       68.40(Ac.)
Total Study Area (Main Stream No. 1) =      371.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.664(Ft.), Average velocity =   3.632(Ft/s)
Critical depth =      0.695(Ft.)


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Process from Point/Station      309.000 to Point/Station      305.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1118.000(Ft.)
Downstream point elevation =  1109.000(Ft.)
Channel length thru subarea  =  1010.600(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =    189.088(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    189.088(CFS)
Depth of flow =   0.581(Ft.), Average velocity =   5.594(Ft/s)
Channel flow top width =  116.278(Ft.)
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Flow Velocity =    5.59(Ft/s)
Travel time  =    3.01 min.
Time of concentration =   21.89 min.
Critical depth =      0.742(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.472(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.864
Subarea runoff =     57.461(CFS) for   33.500(Ac.)
Total runoff =    217.774(CFS)
Effective area this stream =      101.90(Ac.)
Total Study Area (Main Stream No. 1) =      404.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.613(Ft.), Average velocity =   5.795(Ft/s)
Critical depth =      0.781(Ft.)


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Process from Point/Station      305.000 to Point/Station      305.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =    101.900(Ac.)
Runoff from this stream =    217.774(CFS)
Time of concentration =   21.89 min.
Rainfall intensity =     2.472(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    194.93    98.600     24.79    0.098      2.294
2    217.77   101.900     21.89    0.098      2.472
Qmax(1) =
           1.000 *    1.000 *   194.931) +
           0.925 *    1.000 *   217.774) + =     396.386
Qmax(2) =
           1.081 *    0.883 *   194.931) +
           1.000 *    1.000 *   217.774) + =     403.830
```

```
Total of 2 streams to confluence:
Flow rates before confluence point:
     194.931     217.774
Maximum flow rates at confluence using above data:
      396.386      403.830
Area of streams before confluence:
       98.600      101.900
Effective area values after confluence:
      200.500      188.959
Results of confluence:
Total flow rate =    403.830(CFS)
Time of concentration =    21.887 min.
Effective stream area after confluence =    188.959(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     200.50(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      305.000 to Point/Station      112.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1104.000(Ft.)
Downstream point/station elevation =  1082.000(Ft.)
Pipe length  =  1880.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   403.830(CFS)
Nearest computed pipe diameter  =     69.00(In.)
Calculated individual pipe flow  =   403.830(CFS)
Normal flow depth in pipe =   55.78(In.)
Flow top width inside pipe =   54.31(In.)
Critical Depth =   63.56(In.)
Pipe flow velocity =     17.95(Ft/s)
Travel time through pipe =    1.75 min.
Time of concentration (TC) =    23.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      112.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =    188.959(Ac.)
Runoff from this stream =    403.830(CFS)
Time of concentration =   23.63 min.
Rainfall intensity =     2.361(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
```

```
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    194.93    98.600     24.79    0.098      2.294
2    403.83   188.959     23.63    0.098      2.361
Qmax(1) =
           1.000 *    1.000 *   194.931) +
           0.971 *    1.000 *   403.830) + =     586.864
Qmax(2) =
           1.030 *    0.953 *   194.931) +
           1.000 *    1.000 *   403.830) + =     595.314

Total of 2 streams to confluence:
Flow rates before confluence point:
     194.931     403.830
Maximum flow rates at confluence using above data:
      586.864      595.314
Area of streams before confluence:
       98.600      188.959
Effective area values after confluence:
      287.559      282.962
Results of confluence:
Total flow rate =    595.314(CFS)
Time of concentration =    23.633 min.
Effective stream area after confluence =    282.962(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     287.56(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1082.000(Ft.)
Downstream point elevation =  1077.000(Ft.)
Channel length thru subarea  =  1314.500(Ft.)
Channel base width      =   19.000(Ft.)
Slope or 'Z' of left channel bank =  16.000
Slope or 'Z' of right channel bank =   2.000
Manning's 'N'    = 0.015
Maximum depth of channel  =   16.000(Ft.)
Flow(q) thru subarea =    595.314(CFS)
Depth of flow =   2.084(Ft.), Average velocity =   7.568(Ft/s)
Channel flow top width =   56.505(Ft.)
Flow Velocity =    7.57(Ft/s)
Travel time  =    2.89 min.
Time of concentration =   26.53 min.
Critical depth =      2.219(Ft.)
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MAIN STREAMS ****
_____________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =    282.962(Ac.)
Runoff from this stream =    595.314(CFS)
Time of concentration =   26.53 min.
Rainfall intensity =     2.203(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      200.000 to Point/Station      201.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   715.800(Ft.)
Top (of initial area) elevation =  1154.000(Ft.)
Bottom (of initial area) elevation =  1147.000(Ft.)
Difference in elevation =     7.000(Ft.)
Slope =    0.00978  s(%)=       0.98
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.635 min.
Rainfall intensity =      3.812(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.877
Subarea runoff =     15.044(CFS)
Total initial stream area =        4.500(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      201.000 to Point/Station      202.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1147.000(Ft.)
Downstream point elevation =  1138.000(Ft.)
Channel length thru subarea  =   847.900(Ft.)
```

```
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     29.754(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     29.754(CFS)
Depth of flow =   0.281(Ft.), Average velocity =   3.763(Ft/s)
Channel flow top width =   56.239(Ft.)
Flow Velocity =    3.76(Ft/s)
Travel time  =    3.76 min.
Time of concentration =   14.39 min.
Critical depth =      0.354(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.180(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =     29.336(CFS) for   11.500(Ac.)
Total runoff =     44.379(CFS)
Effective area this stream =       16.00(Ac.)
Total Study Area (Main Stream No. 2) =      420.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.327(Ft.), Average velocity =   4.159(Ft/s)
Critical depth =      0.414(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1138.000(Ft.)
Downstream point elevation =  1133.000(Ft.)
Channel length thru subarea  =  1046.300(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     54.450(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     54.450(CFS)
Depth of flow =   0.410(Ft.), Average velocity =   3.245(Ft/s)
Channel flow top width =   81.929(Ft.)
Flow Velocity =    3.24(Ft/s)
```

```
Travel time  =    5.37 min.
Time of concentration =   19.76 min.
Critical depth =      0.449(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.628(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =     20.076(CFS) for   12.300(Ac.)
Total runoff =     64.455(CFS)
Effective area this stream =       28.30(Ac.)
Total Study Area (Main Stream No. 2) =      433.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.436(Ft.), Average velocity =   3.385(Ft/s)
Critical depth =      0.480(Ft.)


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Process from Point/Station      203.000 to Point/Station      204.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1133.000(Ft.)
Downstream point elevation =  1112.000(Ft.)
Channel length thru subarea  =  2668.200(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     78.422(CFS)
Manning's 'N'    = 0.011
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     78.422(CFS)
Depth of flow =   0.428(Ft.), Average velocity =   4.286(Ft/s)
Channel flow top width =   85.550(Ft.)
Flow Velocity =    4.29(Ft/s)
Travel time  =   10.38 min.
Time of concentration =   30.14 min.
Critical depth =      0.520(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
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Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.041(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.857
Subarea runoff =     27.863(CFS) for   24.500(Ac.)
Total runoff =     92.318(CFS)
Effective area this stream =       52.80(Ac.)
Total Study Area (Main Stream No. 2) =      457.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.455(Ft.), Average velocity =   4.464(Ft/s)
Critical depth =      0.555(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      113.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1107.000(Ft.)
Downstream point elevation =  1077.000(Ft.)
Channel length thru subarea  =  2159.100(Ft.)
Channel base width      =    4.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    135.865(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    4.000(Ft.)
Flow(q) thru subarea =    135.865(CFS)
Depth of flow =   1.683(Ft.), Average velocity =  12.373(Ft/s)
Channel flow top width =    9.049(Ft.)
Flow Velocity =   12.37(Ft/s)
Travel time  =    2.91 min.
Time of concentration =   33.05 min.
Critical depth =      2.438(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      1.931(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.854
Subarea runoff =     87.004(CFS) for   55.900(Ac.)
Total runoff =    179.323(CFS)
Effective area this stream =      108.70(Ac.)
Total Study Area (Main Stream No. 2) =      513.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   1.944(Ft.), Average velocity =  13.341(Ft/s)
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Critical depth =      2.813(Ft.)


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Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =    108.700(Ac.)
Runoff from this stream =    179.323(CFS)
Time of concentration =   33.05 min.
Rainfall intensity =     1.931(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    595.31   282.962     26.53    0.098      2.203
2    179.32   108.700     33.05    0.098      1.931
Qmax(1) =
           1.000 *    1.000 *   595.314) +
           1.148 *    0.803 *   179.323) + =     760.627
Qmax(2) =
           0.871 *    1.000 *   595.314) +
           1.000 *    1.000 *   179.323) + =     697.669

Total of 2 main streams to confluence:
Flow rates before confluence point:
     596.314     180.323
Maximum flow rates at confluence using above data:
      760.627      697.669
Area of streams before confluence:
      282.962      108.700
Effective area values after confluence:
      370.213      391.662


Results of confluence:
Total flow rate =    760.627(CFS)
Time of concentration =    26.527 min.
Effective stream area after confluence  =    370.213(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total =     391.66(Ac.)
```

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Process from Point/Station      113.000 to Point/Station      113.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    745.765(CFS)
therefore the upstream flow rate of Q =    760.627(CFS) is being used
Time of concentration =    26.53 min.
Rainfall intensity =      2.203(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      0.000(CFS) for   23.400(Ac.)
Total runoff =    760.627(CFS)
Effective area this stream =      393.61(Ac.)
Total Study Area (Main Stream No. 1) =      537.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      113.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    26.53 min.
Rainfall intensity =      2.203(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      1.622(CFS) for    8.700(Ac.)
Total runoff =    762.248(CFS)
Effective area this stream =      402.31(Ac.)
Total Study Area (Main Stream No. 1) =      545.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
End of computations, Total Study Area =          545.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.
```

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/23/21

Proposed Condition_200to501
100-Yr Event
WO:20210160
File Name:PROPOSED_ONE_100.OUT XA

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.950(In.)
100 Year storm 1 hour rainfall = 1.350(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.350 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 693.500(Ft.)
Top (of initial area) elevation = 1150.000(Ft.)
Bottom (of initial area) elevation = 1140.000(Ft.)
Difference in elevation = 10.000(Ft.)
Slope = 0.01442 s(%)= 1.44
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.716 min.
Rainfall intensity = 4.025(In/Hr) for a 100.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.878
Subarea runoff =     14.490(CFS)
Total initial stream area =        4.100(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      201.000 to Point/Station      201.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =     9.72 min.
Rainfall intensity =      4.025(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.878
Subarea runoff =      6.008(CFS) for    1.700(Ac.)
Total runoff =     20.498(CFS)
Effective area this stream =        5.80(Ac.)
Total Study Area (Main Stream No. 1) =        5.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      201.000 to Point/Station      202.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1135.000(Ft.)
Downstream point/station elevation =  1134.000(Ft.)
Pipe length  =   443.90(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.498(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    20.498(CFS)
Normal flow depth in pipe =   22.66(In.)
Flow top width inside pipe =   30.61(In.)
Critical Depth =   17.92(In.)
Pipe flow velocity =      4.71(Ft/s)
Travel time through pipe =    1.57 min.
Time of concentration (TC) =    11.29 min.


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Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****
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```
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    11.29 min.
Rainfall intensity =      3.679(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.876
Subarea runoff =      1.417(CFS) for    1.000(Ac.)
Total runoff =     21.915(CFS)
Effective area this stream =        6.80(Ac.)
Total Study Area (Main Stream No. 1) =        6.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1134.000(Ft.)
Downstream point/station elevation =  1130.000(Ft.)
Pipe length  =  1205.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.915(CFS)
Nearest computed pipe diameter  =     30.00(In.)
Calculated individual pipe flow  =    21.915(CFS)
Normal flow depth in pipe =   22.83(In.)
Flow top width inside pipe =   25.59(In.)
Critical Depth =   19.10(In.)
Pipe flow velocity =      5.47(Ft/s)
Travel time through pipe =    3.68 min.
Time of concentration (TC) =    14.96 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.800(Ac.)
Runoff from this stream =     21.915(CFS)
Time of concentration =   14.96 min.
Rainfall intensity =     3.106(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   570.300(Ft.)
Top (of initial area) elevation =  1165.000(Ft.)
Bottom (of initial area) elevation =  1150.000(Ft.)
Difference in elevation =    15.000(Ft.)
Slope =    0.02630  s(%)=       2.63
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.967 min.
Rainfall intensity =      4.534(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.881
Subarea runoff =     13.174(CFS)
Total initial stream area =        3.300(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      205.000 to Point/Station      206.000
**** IMPROVED CHANNEL TRAVEL TIME ****
_____________________________________________________________________________
Upstream point elevation =  1150.000(Ft.)
Downstream point elevation =  1145.000(Ft.)
Channel length thru subarea  =   756.900(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     24.252(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     24.252(CFS)
Depth of flow =   0.320(Ft.), Average velocity =   2.372(Ft/s)
Channel flow top width =   63.953(Ft.)
Flow Velocity =    2.37(Ft/s)
Travel time  =    5.32 min.
Time of concentration =   13.29 min.
Critical depth =      0.324(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.336(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.874
Subarea runoff =     22.087(CFS) for    8.800(Ac.)
Total runoff =     35.261(CFS)
Effective area this stream =       12.10(Ac.)
Total Study Area (Main Stream No. 1) =       18.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.368(Ft.), Average velocity =   2.604(Ft/s)
Critical depth =      0.379(Ft.)


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Process from Point/Station      206.000 to Point/Station      203.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1145.000(Ft.)
Downstream point elevation =  1135.000(Ft.)
Channel length thru subarea  =  1373.500(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     49.158(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     49.158(CFS)
Depth of flow =   0.409(Ft.), Average velocity =   2.935(Ft/s)
Channel flow top width =   81.849(Ft.)
Flow Velocity =    2.94(Ft/s)
Travel time  =    7.80 min.
Time of concentration =   21.09 min.
Critical depth =      0.432(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.528(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =     27.739(CFS) for   16.700(Ac.)
Total runoff =     63.000(CFS)
```

```
Effective area this stream =       28.80(Ac.)
Total Study Area (Main Stream No. 1) =       35.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.449(Ft.), Average velocity =   3.123(Ft/s)
Critical depth =      0.477(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     28.800(Ac.)
Runoff from this stream =     63.000(CFS)
Time of concentration =   21.09 min.
Rainfall intensity =     2.528(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      207.000 to Point/Station      208.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   728.900(Ft.)
Top (of initial area) elevation =  1149.000(Ft.)
Bottom (of initial area) elevation =  1145.000(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00549  s(%)=       0.55
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.024 min.
Rainfall intensity =      3.541(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.875
Subarea runoff =     26.964(CFS)
Total initial stream area =        8.700(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      208.000 to Point/Station      209.000
**** IMPROVED CHANNEL TRAVEL TIME ****
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```
Upstream point elevation =  1145.000(Ft.)
Downstream point elevation =  1139.000(Ft.)
Channel length thru subarea  =  1716.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     37.866(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     37.866(CFS)
Depth of flow =   0.426(Ft.), Average velocity =   2.089(Ft/s)
Channel flow top width =   85.160(Ft.)
Flow Velocity =    2.09(Ft/s)
Travel time  =   13.69 min.
Time of concentration =   25.72 min.
Critical depth =      0.389(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.244(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.861
Subarea runoff =     21.719(CFS) for   16.500(Ac.)
Total runoff =     48.683(CFS)
Effective area this stream =       25.20(Ac.)
Total Study Area (Main Stream No. 1) =       60.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.468(Ft.), Average velocity =   2.224(Ft/s)
Critical depth =      0.430(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      209.000 to Point/Station      203.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1134.000(Ft.)
Downstream point/station elevation =  1130.000(Ft.)
Pipe length  =   628.58(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    48.683(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    48.683(CFS)
Normal flow depth in pipe =   27.09(In.)
Flow top width inside pipe =   31.07(In.)
Critical Depth =   27.25(In.)
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Pipe flow velocity =      8.54(Ft/s)
Travel time through pipe =    1.23 min.
Time of concentration (TC) =    26.95 min.


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Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =     25.200(Ac.)
Runoff from this stream =     48.683(CFS)
Time of concentration =   26.95 min.
Rainfall intensity =     2.182(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     21.92     6.800     14.96    0.098      3.106
2     63.00    28.800     21.09    0.098      2.528
3     48.68    25.200     26.95    0.098      2.182
Qmax(1) =
           1.000 *    1.000 *    21.915) +
           1.238 *    0.710 *    63.000) +
           1.443 *    0.555 *    48.683) + =     116.259
Qmax(2) =
           0.808 *    1.000 *    21.915) +
           1.000 *    1.000 *    63.000) +
           1.166 *    0.783 *    48.683) + =     125.123
Qmax(3) =
           0.693 *    1.000 *    21.915) +
           0.858 *    1.000 *    63.000) +
           1.000 *    1.000 *    48.683) + =     117.901

Total of 3 streams to confluence:
Flow rates before confluence point:
      21.915      63.000      48.683
Maximum flow rates at confluence using above data:
      116.259      125.123      117.901
Area of streams before confluence:
        6.800       28.800       25.200
Effective area values after confluence:
       41.228       55.319       60.800
Results of confluence:
Total flow rate =    125.123(CFS)
Time of concentration =    21.085 min.
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```
Effective stream area after confluence =     55.319(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      60.80(Ac.)


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Process from Point/Station      203.000 to Point/Station      210.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1130.000(Ft.)
Downstream point/station elevation =  1119.000(Ft.)
Pipe length  =   455.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   125.123(CFS)
Nearest computed pipe diameter  =     39.00(In.)
Calculated individual pipe flow  =   125.123(CFS)
Normal flow depth in pipe =   31.13(In.)
Flow top width inside pipe =   31.31(In.)
Critical depth could not be calculated.
Pipe flow velocity =     17.63(Ft/s)
Travel time through pipe =    0.43 min.
Time of concentration (TC) =    21.52 min.


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Process from Point/Station      210.000 to Point/Station      210.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    21.52 min.
Rainfall intensity =      2.498(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =     25.693(CFS) for   14.500(Ac.)
Total runoff =    150.816(CFS)
Effective area this stream =       69.82(Ac.)
Total Study Area (Main Stream No. 1) =       75.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      210.100 to Point/Station      210.000
**** SUBAREA FLOW ADDITION ****
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COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    21.52 min.
Rainfall intensity =      2.498(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =      7.992(CFS) for    3.700(Ac.)
Total runoff =    158.808(CFS)
Effective area this stream =       73.52(Ac.)
Total Study Area (Main Stream No. 1) =       79.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      210.000 to Point/Station      211.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1119.000(Ft.)
Downstream point/station elevation =  1118.000(Ft.)
Pipe length  =   272.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   158.808(CFS)
Nearest computed pipe diameter  =     63.00(In.)
Calculated individual pipe flow  =   158.808(CFS)
Normal flow depth in pipe =   46.03(In.)
Flow top width inside pipe =   55.90(In.)
Critical Depth =   42.77(In.)
Pipe flow velocity =      9.37(Ft/s)
Travel time through pipe =    0.48 min.
Time of concentration (TC) =    22.00 min.


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Process from Point/Station      211.000 to Point/Station      211.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    22.00 min.
Rainfall intensity =      2.465(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
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rational method)(Q=KCIA) is C = 0.864
Subarea runoff =     15.914(CFS) for    8.500(Ac.)
Total runoff =    174.723(CFS)
Effective area this stream =       82.02(Ac.)
Total Study Area (Main Stream No. 1) =       87.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      211.000 to Point/Station      212.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1118.000(Ft.)
Downstream point/station elevation =  1111.000(Ft.)
Pipe length  =   512.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   174.723(CFS)
Nearest computed pipe diameter  =     51.00(In.)
Calculated individual pipe flow  =   174.723(CFS)
Normal flow depth in pipe =   37.31(In.)
Flow top width inside pipe =   45.20(In.)
Critical Depth =   45.86(In.)
Pipe flow velocity =     15.71(Ft/s)
Travel time through pipe =    0.54 min.
Time of concentration (TC) =    22.54 min.


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Process from Point/Station      212.000 to Point/Station      212.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    22.54 min.
Rainfall intensity =      2.429(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.864
Subarea runoff =     52.529(CFS) for   26.300(Ac.)
Total runoff =    227.252(CFS)
Effective area this stream =      108.32(Ac.)
Total Study Area (Main Stream No. 1) =      113.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      212.000 to Point/Station      213.000
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**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________
Upstream point/station elevation =  1111.000(Ft.)
Downstream point/station elevation =  1105.000(Ft.)
Pipe length  =   533.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   227.252(CFS)
Nearest computed pipe diameter  =     57.00(In.)
Calculated individual pipe flow  =   227.252(CFS)
Normal flow depth in pipe =   44.06(In.)
Flow top width inside pipe =   47.75(In.)
Critical Depth =   50.99(In.)
Pipe flow velocity =     15.46(Ft/s)
Travel time through pipe =    0.58 min.
Time of concentration (TC) =    23.12 min.


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Process from Point/Station      213.000 to Point/Station      213.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.12 min.
Rainfall intensity =      2.392(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.863
Subarea runoff =     53.651(CFS) for   27.700(Ac.)
Total runoff =    280.903(CFS)
Effective area this stream =      136.02(Ac.)
Total Study Area (Main Stream No. 1) =      141.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      213.000 to Point/Station      501.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________
Upstream point/station elevation =  1105.000(Ft.)
Downstream point/station elevation =  1098.000(Ft.)
Pipe length  =   409.10(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   280.903(CFS)
Nearest computed pipe diameter  =     57.00(In.)
Calculated individual pipe flow  =   280.903(CFS)
Normal flow depth in pipe =   44.16(In.)
Flow top width inside pipe =   47.63(In.)
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Critical Depth =   53.93(In.)
Pipe flow velocity =     19.07(Ft/s)
Travel time through pipe =    0.36 min.
Time of concentration (TC) =    23.48 min.


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Process from Point/Station      501.000 to Point/Station      501.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.48 min.
Rainfall intensity =      2.370(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.863
Subarea runoff =      8.771(CFS) for    5.600(Ac.)
Total runoff =    289.674(CFS)
Effective area this stream =      141.62(Ac.)
Total Study Area (Main Stream No. 1) =      147.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      501.100 to Point/Station      501.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.48 min.
Rainfall intensity =      2.370(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.863
Subarea runoff =      4.500(CFS) for    2.200(Ac.)
Total runoff =    294.174(CFS)
Effective area this stream =      143.82(Ac.)
Total Study Area (Main Stream No. 1) =      149.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
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Process from Point/Station      501.100 to Point/Station      501.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    143.819(Ac.)
Runoff from this stream =    294.174(CFS)
Time of concentration =   23.48 min.
Rainfall intensity =     2.370(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    294.17   143.819     23.48    0.098      2.370
Qmax(1) =
           1.000 *    1.000 *   294.174) + =     294.174

Total of 1 streams to confluence:
Flow rates before confluence point:
     294.174
Maximum flow rates at confluence using above data:
      294.174
Area of streams before confluence:
      143.819
Effective area values after confluence:
      143.819
Results of confluence:
Total flow rate =    294.174(CFS)
Time of concentration =    23.477 min.
Effective stream area after confluence =    143.819(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     143.82(Ac.)
End of computations, Total Study Area =          149.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/23/21

Proposed Condition_400to504
100-Yr Event
WO:20210160
File Name:PROPOSED_TWO_100.OUT XA

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.950(In.)
100 Year storm 1 hour rainfall = 1.350(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.350 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 400.000 to Point/Station 401.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 997.100(Ft.)
Top (of initial area) elevation = 1138.000(Ft.)
Bottom (of initial area) elevation = 1131.000(Ft.)
Difference in elevation = 7.000(Ft.)
Slope = 0.00702 s(%)= 0.70
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.975 min.
Rainfall intensity = 3.384(In/Hr) for a 100.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.874
Subarea runoff =     20.404(CFS)
Total initial stream area =        6.900(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station      401.000 to Point/Station      402.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1131.000(Ft.)
Downstream point elevation =  1127.000(Ft.)
Channel length thru subarea  =  1051.700(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     32.442(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     32.442(CFS)
Depth of flow =   0.396(Ft.), Average velocity =   2.074(Ft/s)
Channel flow top width =   79.105(Ft.)
Flow Velocity =    2.07(Ft/s)
Travel time  =    8.45 min.
Time of concentration =   21.43 min.
Critical depth =      0.365(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.504(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =     23.992(CFS) for   13.600(Ac.)
Total runoff =     44.396(CFS)
Effective area this stream =       20.50(Ac.)
Total Study Area (Main Stream No. 1) =       20.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.445(Ft.), Average velocity =   2.243(Ft/s)
Critical depth =      0.414(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      402.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     20.500(Ac.)
Runoff from this stream =     44.396(CFS)
Time of concentration =   21.43 min.
Rainfall intensity =     2.504(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      400.000 to Point/Station      403.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   881.600(Ft.)
Top (of initial area) elevation =  1138.000(Ft.)
Bottom (of initial area) elevation =  1134.000(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00454  s(%)=       0.45
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.478 min.
Rainfall intensity =      3.307(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.873
Subarea runoff =     19.063(CFS)
Total initial stream area =        6.600(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      403.000 to Point/Station      404.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =  1134.000(Ft.)
Downstream point elevation =  1131.000(Ft.)
Channel length thru subarea  =  1330.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     27.439(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
```

```
Flow(q) thru subarea =     27.439(CFS)
Depth of flow =   0.410(Ft.), Average velocity =   1.635(Ft/s)
Channel flow top width =   81.935(Ft.)
Flow Velocity =    1.63(Ft/s)
Travel time  =   13.56 min.
Time of concentration =   27.04 min.
Critical depth =      0.342(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.178(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =     16.695(CFS) for   12.500(Ac.)
Total runoff =     35.759(CFS)
Effective area this stream =       19.10(Ac.)
Total Study Area (Main Stream No. 1) =       39.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.452(Ft.), Average velocity =   1.747(Ft/s)
Critical depth =      0.379(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      404.000 to Point/Station      402.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1126.000(Ft.)
Downstream point/station elevation =  1122.000(Ft.)
Pipe length  =   605.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    35.759(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    35.759(CFS)
Normal flow depth in pipe =   22.97(In.)
Flow top width inside pipe =   30.36(In.)
Critical Depth =   23.90(In.)
Pipe flow velocity =      8.10(Ft/s)
Travel time through pipe =    1.25 min.
Time of concentration (TC) =    28.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      402.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
```

```
Stream flow area =     19.100(Ac.)
Runoff from this stream =     35.759(CFS)
Time of concentration =   28.28 min.
Rainfall intensity =     2.120(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     44.40    20.500     21.43    0.098      2.504
2     35.76    19.100     28.28    0.098      2.120
Qmax(1) =
           1.000 *    1.000 *    44.396) +
           1.190 *    0.758 *    35.759) + =      76.634
Qmax(2) =
           0.840 *    1.000 *    44.396) +
           1.000 *    1.000 *    35.759) + =      73.066

Total of 2 streams to confluence:
Flow rates before confluence point:
      44.396      35.759
Maximum flow rates at confluence using above data:
       76.634       73.066
Area of streams before confluence:
       20.500       19.100
Effective area values after confluence:
       34.970       39.600
Results of confluence:
Total flow rate =     76.634(CFS)
Time of concentration =    21.427 min.
Effective stream area after confluence =     34.970(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      39.60(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      405.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1122.000(Ft.)
Downstream point/station elevation =  1120.000(Ft.)
Pipe length  =   600.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    76.634(CFS)
Nearest computed pipe diameter  =     48.00(In.)
Calculated individual pipe flow  =    76.634(CFS)
Normal flow depth in pipe =   36.42(In.)
```

```
Flow top width inside pipe =   41.07(In.)
Critical Depth =   31.80(In.)
Pipe flow velocity =      7.49(Ft/s)
Travel time through pipe =    1.33 min.
Time of concentration (TC) =    22.76 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      405.000 to Point/Station      405.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    22.76 min.
Rainfall intensity =      2.415(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.864
Subarea runoff =      6.094(CFS) for    4.700(Ac.)
Total runoff =     82.728(CFS)
Effective area this stream =       39.67(Ac.)
Total Study Area (Main Stream No. 1) =       44.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      405.000 to Point/Station      406.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1120.000(Ft.)
Downstream point/station elevation =  1103.000(Ft.)
Pipe length  =  1008.30(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    82.728(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    82.728(CFS)
Normal flow depth in pipe =   28.17(In.)
Flow top width inside pipe =   29.70(In.)
Critical Depth =   33.52(In.)
Pipe flow velocity =     13.95(Ft/s)
Travel time through pipe =    1.20 min.
Time of concentration (TC) =    23.97 min.


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Process from Point/Station      406.000 to Point/Station      406.000
**** SUBAREA FLOW ADDITION ****
```

```
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.97 min.
Rainfall intensity =      2.341(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =      1.613(CFS) for    2.100(Ac.)
Total runoff =     84.341(CFS)
Effective area this stream =       41.77(Ac.)
Total Study Area (Main Stream No. 1) =       46.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      406.100 to Point/Station      406.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    23.97 min.
Rainfall intensity =      2.341(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =     53.710(CFS) for   26.600(Ac.)
Total runoff =    138.051(CFS)
Effective area this stream =       68.37(Ac.)
Total Study Area (Main Stream No. 1) =       73.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      406.000 to Point/Station      504.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1103.000(Ft.)
Downstream point/station elevation =  1087.000(Ft.)
Pipe length  =  1565.80(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   138.051(CFS)
Nearest computed pipe diameter  =     48.00(In.)
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```
Calculated individual pipe flow  =   138.051(CFS)
Normal flow depth in pipe =   37.41(In.)
Flow top width inside pipe =   39.81(In.)
Critical Depth =   41.89(In.)
Pipe flow velocity =     13.15(Ft/s)
Travel time through pipe =    1.98 min.
Time of concentration (TC) =    25.95 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      504.100 to Point/Station      504.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    137.676(CFS)
therefore the upstream flow rate of Q =    138.051(CFS) is being used
Time of concentration =    25.95 min.
Rainfall intensity =      2.232(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.861
Subarea runoff =      0.000(CFS) for    3.300(Ac.)
Total runoff =    138.051(CFS)
Effective area this stream =       71.67(Ac.)
Total Study Area (Main Stream No. 1) =       76.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      504.000 to Point/Station      504.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     71.670(Ac.)
Runoff from this stream =    138.051(CFS)
Time of concentration =   25.95 min.
Rainfall intensity =     2.232(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
End of computations, Total Study Area =           76.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.
```

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 04/12/22

Program License Serial Number 4010

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.950(In.)
100 Year storm 1 hour rainfall = 1.350(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.350 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Initial subarea data:
Initial area flow distance = 802.600(Ft.)
Top (of initial area) elevation = 1165.000(Ft.)
Bottom (of initial area) elevation = 1146.000(Ft.)
Difference in elevation = 19.000(Ft.)
Slope = 0.02367 s(%)= 2.37
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.329 min.
Rainfall intensity = 4.124(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.879
Subarea runoff = 18.843(CFS)
Total initial stream area = 5.200(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.098(In/Hr)

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1146.000(Ft.)
Downstream point elevation =  1140.000(Ft.)
Channel length thru subarea  =  1588.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   0.001
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     23.809(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     23.809(CFS)
Depth of flow =   0.458(Ft.), Average velocity =   2.266(Ft/s)
Channel flow top width =   45.845(Ft.)
Flow Velocity =    2.27(Ft/s)
Travel time  =   11.68 min.
Time of concentration =   21.01 min.
Critical depth =      0.426(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.534(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =      9.877(CFS) for    7.900(Ac.)
Total runoff =     28.720(CFS)
Effective area this stream =       13.10(Ac.)
Total Study Area (Main Stream No. 1) =       13.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.492(Ft.), Average velocity =   2.374(Ft/s)
Critical depth =      0.461(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1140.000(Ft.)
Downstream point elevation =  1129.000(Ft.)
Channel length thru subarea  =  1621.900(Ft.)
Channel base width      =    0.000(Ft.)
```

```
Slope or 'Z' of left channel bank =   0.001
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     30.344(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     30.344(CFS)
Depth of flow =   0.450(Ft.), Average velocity =   2.998(Ft/s)
Channel flow top width =   44.994(Ft.)
Flow Velocity =    3.00(Ft/s)
Travel time  =    9.02 min.
Time of concentration =   30.03 min.
Critical depth =      0.469(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.045(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.857
Subarea runoff =      3.177(CFS) for    5.100(Ac.)
Total runoff =     31.897(CFS)
Effective area this stream =       18.20(Ac.)
Total Study Area (Main Stream No. 1) =       18.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.458(Ft.), Average velocity =   3.035(Ft/s)
Critical depth =      0.480(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1124.000(Ft.)
Downstream point/station elevation =  1117.000(Ft.)
Pipe length  =  1817.60(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    31.897(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    31.897(CFS)
Normal flow depth in pipe =   26.25(In.)
Flow top width inside pipe =   26.62(In.)
Critical Depth =   22.56(In.)
Pipe flow velocity =      6.30(Ft/s)
Travel time through pipe =    4.81 min.
Time of concentration (TC) =    34.84 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    34.84 min.
Rainfall intensity =      1.871(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.853
Subarea runoff =     30.011(CFS) for   20.600(Ac.)
Total runoff =     61.908(CFS)
Effective area this stream =       38.80(Ac.)
Total Study Area (Main Stream No. 1) =       38.80(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =  1117.000(Ft.)
Downstream point/station elevation =  1114.000(Ft.)
Pipe length  =   696.80(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    61.908(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    61.908(CFS)
Normal flow depth in pipe =   32.30(In.)
Flow top width inside pipe =   35.41(In.)
Critical Depth =   29.56(In.)
Pipe flow velocity =      7.80(Ft/s)
Travel time through pipe =    1.49 min.
Time of concentration (TC) =    36.33 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
```

```
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    36.33 min.
Rainfall intensity =      1.824(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =     32.253(CFS) for   21.800(Ac.)
Total runoff =     94.161(CFS)
Effective area this stream =       60.60(Ac.)
Total Study Area (Main Stream No. 1) =       60.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1114.000(Ft.)
Downstream point/station elevation =  1107.000(Ft.)
Pipe length  =   678.50(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    94.161(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    94.161(CFS)
Normal flow depth in pipe =   31.78(In.)
Flow top width inside pipe =   36.04(In.)
Critical Depth =   36.00(In.)
Pipe flow velocity =     12.05(Ft/s)
Travel time through pipe =    0.94 min.
Time of concentration (TC) =    37.27 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      106.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    37.27 min.
Rainfall intensity =      1.797(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =     11.791(CFS) for    8.700(Ac.)
Total runoff =    105.952(CFS)
Effective area this stream =       69.30(Ac.)
Total Study Area (Main Stream No. 1) =       69.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.100 to Point/Station      106.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    37.27 min.
Rainfall intensity =      1.797(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =      3.975(CFS) for    2.600(Ac.)
Total runoff =    109.927(CFS)
Effective area this stream =       71.90(Ac.)
Total Study Area (Main Stream No. 1) =       71.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      106.000 to Point/Station      107.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1107.000(Ft.)
Downstream point/station elevation =  1096.000(Ft.)
Pipe length  =  1024.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   109.927(CFS)
Nearest computed pipe diameter  =     45.00(In.)
Calculated individual pipe flow  =   109.927(CFS)
Normal flow depth in pipe =   32.67(In.)
Flow top width inside pipe =   40.14(In.)
Critical Depth =   38.29(In.)
Pipe flow velocity =     12.80(Ft/s)
Travel time through pipe =    1.33 min.
Time of concentration (TC) =    38.60 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      107.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
```

```
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    38.60 min.
Rainfall intensity =      1.759(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.850
Subarea runoff =      2.954(CFS) for    3.600(Ac.)
Total runoff =    112.881(CFS)
Effective area this stream =       75.50(Ac.)
Total Study Area (Main Stream No. 1) =       75.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1096.000(Ft.)
Downstream point/station elevation =  1091.000(Ft.)
Pipe length  =   958.90(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   112.881(CFS)
Nearest computed pipe diameter  =     51.00(In.)
Calculated individual pipe flow  =   112.881(CFS)
Normal flow depth in pipe =   38.77(In.)
Flow top width inside pipe =   43.56(In.)
Critical Depth =   38.05(In.)
Pipe flow velocity =      9.76(Ft/s)
Travel time through pipe =    1.64 min.
Time of concentration (TC) =    40.24 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    40.24 min.
Rainfall intensity =      1.716(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =     14.385(CFS) for   11.900(Ac.)
Total runoff =    127.266(CFS)
Effective area this stream =       87.40(Ac.)
```

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Total Study Area (Main Stream No. 1) =       87.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      108.000 to Point/Station      508.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1091.000(Ft.)
Downstream point/station elevation =  1077.000(Ft.)
Pipe length  =   419.20(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   127.266(CFS)
Nearest computed pipe diameter  =     39.00(In.)
Calculated individual pipe flow  =   127.266(CFS)
Normal flow depth in pipe =   27.47(In.)
Flow top width inside pipe =   35.59(In.)
Critical depth could not be calculated.
Pipe flow velocity =     20.39(Ft/s)
Travel time through pipe =    0.34 min.
Time of concentration (TC) =    40.58 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      508.000 to Point/Station      508.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     87.400(Ac.)
Runoff from this stream =    127.266(CFS)
Time of concentration =   40.58 min.
Rainfall intensity =     1.707(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       50.000 to Point/Station       51.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   255.900(Ft.)
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```
Top (of initial area) elevation =  1117.000(Ft.)
Bottom (of initial area) elevation =  1115.000(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.00782  s(%)=       0.78
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.371 min.
Rainfall intensity =      4.750(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.881
Subarea runoff =     19.680(CFS)
Total initial stream area =        4.700(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


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Process from Point/Station       51.000 to Point/Station      500.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1115.000(Ft.)
Downstream point elevation =  1104.000(Ft.)
Channel length thru subarea  =  1426.500(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     25.145(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     25.145(CFS)
Depth of flow =   0.315(Ft.), Average velocity =   2.536(Ft/s)
Channel flow top width =   62.973(Ft.)
Flow Velocity =    2.54(Ft/s)
Travel time  =    9.37 min.
Time of concentration =   16.74 min.
Critical depth =      0.330(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.903(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.870
Subarea runoff =     10.873(CFS) for    7.400(Ac.)
Total runoff =     30.553(CFS)
Effective area this stream =       12.10(Ac.)
Total Study Area (Main Stream No. 2) =       99.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
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Depth of flow =   0.339(Ft.), Average velocity =   2.663(Ft/s)
Critical depth =      0.357(Ft.)


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Process from Point/Station      500.000 to Point/Station      500.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     12.100(Ac.)
Runoff from this stream =     30.553(CFS)
Time of concentration =   16.74 min.
Rainfall intensity =     2.903(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      300.000 to Point/Station      301.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Initial subarea data:
Initial area flow distance =   550.000(Ft.)
Top (of initial area) elevation =  1140.000(Ft.)
Bottom (of initial area) elevation =  1131.000(Ft.)
Difference in elevation =     9.000(Ft.)
Slope =    0.01636  s(%)=       1.64
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.635 min.
Rainfall intensity =      4.320(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880
Subarea runoff =     24.320(CFS)
Total initial stream area =        6.400(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.000 to Point/Station      301.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
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```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =     8.63 min.
Rainfall intensity =      4.320(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.880
Subarea runoff =     11.400(CFS) for    3.000(Ac.)
Total runoff =     35.720(CFS)
Effective area this stream =        9.40(Ac.)
Total Study Area (Main Stream No. 2) =      108.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      301.000 to Point/Station      302.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1131.000(Ft.)
Downstream point elevation =  1130.000(Ft.)
Channel length thru subarea  =   265.700(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =     35.861(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     35.861(CFS)
Depth of flow =   0.411(Ft.), Average velocity =   2.118(Ft/s)
Channel flow top width =   82.296(Ft.)
Flow Velocity =    2.12(Ft/s)
Travel time  =    2.09 min.
Time of concentration =   10.73 min.
Critical depth =      0.381(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      3.793(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.877
Subarea runoff =      0.197(CFS) for    1.400(Ac.)
Total runoff =     35.917(CFS)
Effective area this stream =       10.80(Ac.)
```

```
Total Study Area (Main Stream No. 2) =      110.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.412(Ft.), Average velocity =   2.119(Ft/s)
Critical depth =      0.381(Ft.)


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Process from Point/Station      302.000 to Point/Station      500.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1125.000(Ft.)
Downstream point/station elevation =  1104.000(Ft.)
Pipe length  =  2380.40(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    35.917(CFS)
Nearest computed pipe diameter  =     30.00(In.)
Calculated individual pipe flow  =    35.917(CFS)
Normal flow depth in pipe =   22.92(In.)
Flow top width inside pipe =   25.47(In.)
Critical Depth =   24.40(In.)
Pipe flow velocity =      8.92(Ft/s)
Travel time through pipe =    4.45 min.
Time of concentration (TC) =    15.18 min.


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Process from Point/Station      500.000 to Point/Station      500.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =     10.800(Ac.)
Runoff from this stream =     35.917(CFS)
Time of concentration =   15.18 min.
Rainfall intensity =     3.080(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     30.55    12.100     16.74    0.098      2.903
2     35.92    10.800     15.18    0.098      3.080
Qmax(1) =
           1.000 *    1.000 *    30.553) +
           0.941 *    1.000 *    35.917) + =      64.343
Qmax(2) =
           1.063 *    0.906 *    30.553) +
           1.000 *    1.000 *    35.917) + =      65.349
```

```
Total of 2 streams to confluence:
Flow rates before confluence point:
      30.553      35.917
Maximum flow rates at confluence using above data:
       64.343       65.349
Area of streams before confluence:
       12.100       10.800
Effective area values after confluence:
       22.900       21.766
Results of confluence:
Total flow rate =     65.349(CFS)
Time of concentration =    15.175 min.
Effective stream area after confluence =     21.766(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      22.90(Ac.)


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Process from Point/Station      500.000 to Point/Station      501.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1104.000(Ft.)
Downstream point elevation =  1098.000(Ft.)
Channel length thru subarea  =   965.000(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =     65.387(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =     65.387(CFS)
Depth of flow =   0.798(Ft.), Average velocity =   6.206(Ft/s)
Channel flow top width =   14.395(Ft.)
Flow Velocity =    6.21(Ft/s)
Travel time  =    2.59 min.
Time of concentration =   17.77 min.
Critical depth =      0.938(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     54.920(CFS)
therefore the upstream flow rate of Q =     65.349(CFS) is being used
Rainfall intensity =      2.802(In/Hr) for a   100.0 year storm
```

```
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.869
Subarea runoff =      0.000(CFS) for    0.800(Ac.)
Total runoff =     65.349(CFS)
Effective area this stream =       22.57(Ac.)
Total Study Area (Main Stream No. 2) =      111.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   0.798(Ft.), Average velocity =   6.205(Ft/s)
Critical depth =      0.938(Ft.)


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Process from Point/Station      501.000 to Point/Station      501.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     22.566(Ac.)
Runoff from this stream =     65.349(CFS)
Time of concentration =   17.77 min.
Rainfall intensity =     2.802(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      501.000 to Point/Station      501.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.370(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  23.48 min.  Rain intensity =       2.37(In/Hr)
Total area this stream =       149.30(Ac.)
Total Study Area (Main Stream No. 2) =      260.40(Ac.)
Total runoff =    294.17(CFS)


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Process from Point/Station      501.000 to Point/Station      501.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =    149.300(Ac.)
Runoff from this stream =    294.174(CFS)
```

```
Time of concentration =   23.48 min.
Rainfall intensity =     2.370(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1     65.35    22.566     17.77    0.098      2.802
2    294.17   149.300     23.48    0.098      2.370
Qmax(1) =
           1.000 *    1.000 *    65.349) +
           1.190 *    0.757 *   294.174) + =     330.234
Qmax(2) =
           0.840 *    1.000 *    65.349) +
           1.000 *    1.000 *   294.174) + =     349.096

Total of 2 streams to confluence:
Flow rates before confluence point:
      65.349     294.174
Maximum flow rates at confluence using above data:
      330.234      349.096
Area of streams before confluence:
       22.566      149.300
Effective area values after confluence:
      135.551      171.866
Results of confluence:
Total flow rate =    349.096(CFS)
Time of concentration =    23.477 min.
Effective stream area after confluence =    171.866(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     171.87(Ac.)


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Process from Point/Station      501.000 to Point/Station      502.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1098.000(Ft.)
Downstream point elevation =  1096.000(Ft.)
Channel length thru subarea  =   575.400(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    349.141(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
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Flow(q) thru subarea =    349.141(CFS)
Depth of flow =   2.498(Ft.), Average velocity =   8.874(Ft/s)
Channel flow top width =   19.495(Ft.)
Flow Velocity =    8.87(Ft/s)
Travel time  =    1.08 min.
Time of concentration =   24.56 min.
Critical depth =      2.656(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    343.166(CFS)
therefore the upstream flow rate of Q =    349.096(CFS) is being used
Rainfall intensity =      2.307(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =      0.000(CFS) for    0.700(Ac.)
Total runoff =    349.096(CFS)
Effective area this stream =      172.57(Ac.)
Total Study Area (Main Stream No. 2) =      261.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.498(Ft.), Average velocity =   8.874(Ft/s)
Critical depth =      2.656(Ft.)


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Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    24.56 min.
Rainfall intensity =      2.307(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =      5.603(CFS) for    5.800(Ac.)
Total runoff =    354.699(CFS)
Effective area this stream =      178.37(Ac.)
Total Study Area (Main Stream No. 2) =      266.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    24.56 min.
Rainfall intensity =      2.307(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =     13.324(CFS) for    6.700(Ac.)
Total runoff =    368.023(CFS)
Effective area this stream =      185.07(Ac.)
Total Study Area (Main Stream No. 2) =      273.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      502.000 to Point/Station      503.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1096.000(Ft.)
Downstream point elevation =  1091.000(Ft.)
Channel length thru subarea  =  1178.900(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    368.073(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    368.073(CFS)
Depth of flow =   2.434(Ft.), Average velocity =   9.664(Ft/s)
Channel flow top width =   19.301(Ft.)
Flow Velocity =    9.66(Ft/s)
Travel time  =    2.03 min.
Time of concentration =   26.59 min.
Critical depth =      2.719(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
```

```
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    353.140(CFS)
therefore the upstream flow rate of Q =    368.023(CFS) is being used
Rainfall intensity =      2.200(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      0.000(CFS) for    1.600(Ac.)
Total runoff =    368.023(CFS)
Effective area this stream =      186.67(Ac.)
Total Study Area (Main Stream No. 2) =      275.20(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.433(Ft.), Average velocity =   9.664(Ft/s)
Critical depth =      2.719(Ft.)


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Process from Point/Station      503.200 to Point/Station      503.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    356.356(CFS)
therefore the upstream flow rate of Q =    368.023(CFS) is being used
Time of concentration =    26.59 min.
Rainfall intensity =      2.200(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      0.000(CFS) for    1.700(Ac.)
Total runoff =    368.023(CFS)
Effective area this stream =      188.37(Ac.)
Total Study Area (Main Stream No. 2) =      276.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      503.100 to Point/Station      503.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    26.59 min.
Rainfall intensity =      2.200(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =    157.463(CFS) for   89.400(Ac.)
Total runoff =    525.486(CFS)
Effective area this stream =      277.77(Ac.)
Total Study Area (Main Stream No. 2) =      366.30(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      503.000 to Point/Station      504.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1091.000(Ft.)
Downstream point elevation =  1087.000(Ft.)
Channel length thru subarea  =   991.700(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    525.533(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    525.533(CFS)
Depth of flow =   3.011(Ft.), Average velocity =  10.565(Ft/s)
Channel flow top width =   21.034(Ft.)
Flow Velocity =   10.57(Ft/s)
Travel time  =    1.56 min.
Time of concentration =   28.16 min.
Critical depth =      3.375(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    509.863(CFS)
therefore the upstream flow rate of Q =    525.486(CFS) is being used
Rainfall intensity =      2.126(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.859
Subarea runoff =      0.000(CFS) for    1.600(Ac.)
Total runoff =    525.486(CFS)
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Effective area this stream =      279.37(Ac.)
Total Study Area (Main Stream No. 2) =      367.90(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   3.011(Ft.), Average velocity =  10.565(Ft/s)
Critical depth =      3.375(Ft.)


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Process from Point/Station      504.000 to Point/Station      504.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =    279.366(Ac.)
Runoff from this stream =    525.486(CFS)
Time of concentration =   28.16 min.
Rainfall intensity =     2.126(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000


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Process from Point/Station      504.000 to Point/Station      504.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Rainfall intensity =      2.232(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  25.95 min.  Rain intensity =       2.23(In/Hr)
Total area this stream =        76.30(Ac.)
Total Study Area (Main Stream No. 2) =      444.20(Ac.)
Total runoff =    138.05(CFS)


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Process from Point/Station      504.000 to Point/Station      504.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =     76.300(Ac.)
Runoff from this stream =    138.051(CFS)
Time of concentration =   25.95 min.
Rainfall intensity =     2.232(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
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Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    525.49   279.366     28.16    0.098      2.126
2    138.05    76.300     25.95    0.098      2.232
Qmax(1) =
           1.000 *    1.000 *   525.486) +
           0.950 *    1.000 *   138.051) + =     656.642
Qmax(2) =
           1.053 *    0.922 *   525.486) +
           1.000 *    1.000 *   138.051) + =     647.841

Total of 2 streams to confluence:
Flow rates before confluence point:
     525.486     138.051
Maximum flow rates at confluence using above data:
      656.642      647.841
Area of streams before confluence:
      279.366       76.300
Effective area values after confluence:
      355.666      333.785
Results of confluence:
Total flow rate =    656.642(CFS)
Time of concentration =    28.155 min.
Effective stream area after confluence =    355.666(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =     355.67(Ac.)


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Process from Point/Station      504.000 to Point/Station      505.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1087.000(Ft.)
Downstream point elevation =  1086.000(Ft.)
Channel length thru subarea  =   299.500(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    656.671(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    656.671(CFS)
Depth of flow =   3.585(Ft.), Average velocity =  10.542(Ft/s)
Channel flow top width =   22.754(Ft.)
Flow Velocity =   10.54(Ft/s)
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Travel time  =    0.47 min.
Time of concentration =   28.63 min.
Critical depth =      3.813(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    643.244(CFS)
therefore the upstream flow rate of Q =    656.642(CFS) is being used
Rainfall intensity =      2.104(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      0.000(CFS) for    0.500(Ac.)
Total runoff =    656.642(CFS)
Effective area this stream =      356.17(Ac.)
Total Study Area (Main Stream No. 2) =      444.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   3.585(Ft.), Average velocity =  10.542(Ft/s)
Critical depth =      3.813(Ft.)


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Process from Point/Station      505.000 to Point/Station      505.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    28.63 min.
Rainfall intensity =      2.104(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =     23.446(CFS) for   20.400(Ac.)
Total runoff =    680.087(CFS)
Effective area this stream =      376.57(Ac.)
Total Study Area (Main Stream No. 2) =      465.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      505.000 to Point/Station      505.000
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**** SUBAREA FLOW ADDITION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
Time of concentration = 28.63 min.
Rainfall intensity = 2.104(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.858
Subarea runoff = 7.405(CFS) for 4.100(Ac.)
Total runoff = 687.492(CFS)
Effective area this stream = 380.67(Ac.)
Total Study Area (Main Stream No. 2) = 469.20(Ac.)
Area averaged Fm value = 0.098(In/Hr)

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Process from Point/Station 505.000 to Point/Station 506.000
**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1086.000(Ft.)
Downstream point elevation = 1085.000(Ft.)
Channel length thru subarea = 396.300(Ft.)
Channel base width = 12.000(Ft.)
Slope or 'Z' of left channel bank = 1.500
Slope or 'Z' of right channel bank = 1.500
Estimated mean flow rate at midpoint of channel = 687.517(CFS)
Manning's 'N' = 0.015
Maximum depth of channel = 6.000(Ft.)
Flow(q) thru subarea = 687.517(CFS)
Depth of flow = 3.964(Ft.), Average velocity = 9.663(Ft/s)
Channel flow top width = 23.893(Ft.)
Flow Velocity = 9.66(Ft/s)
Travel time = 0.68 min.
Time of concentration = 29.31 min.
Critical depth = 3.938(Ft.)
Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q = 678.958(CFS)

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therefore the upstream flow rate of Q =    687.492(CFS) is being used
Rainfall intensity =      2.075(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      0.000(CFS) for    0.900(Ac.)
Total runoff =    687.492(CFS)
Effective area this stream =      381.57(Ac.)
Total Study Area (Main Stream No. 2) =      470.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   3.964(Ft.), Average velocity =   9.663(Ft/s)
Critical depth =      3.938(Ft.)


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Process from Point/Station      506.000 to Point/Station      507.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =  1085.000(Ft.)
Downstream point elevation =  1082.000(Ft.)
Channel length thru subarea  =   301.600(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.500
Slope or 'Z' of right channel bank =   1.500
Estimated mean flow rate at midpoint of channel =    687.520(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    687.520(CFS)
Depth of flow =   2.721(Ft.), Average velocity =  15.715(Ft/s)
Channel flow top width =   20.162(Ft.)
Flow Velocity =   15.72(Ft/s)
Travel time  =    0.32 min.
Time of concentration =   29.63 min.
Critical depth =      3.938(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    677.868(CFS)
therefore the upstream flow rate of Q =    687.492(CFS) is being used
Rainfall intensity =      2.061(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.857
Subarea runoff =      0.000(CFS) for    2.000(Ac.)
Total runoff =    687.492(CFS)
Effective area this stream =      383.57(Ac.)
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Total Study Area (Main Stream No. 2) =      472.10(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   2.720(Ft.), Average velocity =  15.715(Ft/s)
Critical depth =      3.938(Ft.)


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Process from Point/Station      507.000 to Point/Station      507.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    29.63 min.
Rainfall intensity =      2.061(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.857
Subarea runoff =     29.080(CFS) for   21.900(Ac.)
Total runoff =    716.572(CFS)
Effective area this stream =      405.47(Ac.)
Total Study Area (Main Stream No. 2) =      494.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      507.000 to Point/Station      508.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Covered channel
Upstream point elevation =  1082.000(Ft.)
Downstream point elevation =  1077.000(Ft.)
Channel length thru subarea  =  1576.500(Ft.)
Channel base width      =   12.000(Ft.)
Slope or 'Z' of left channel bank =   0.001
Slope or 'Z' of right channel bank =   0.001
Estimated mean flow rate at midpoint of channel =    716.620(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    716.620(CFS)
Depth of flow =   5.349(Ft.), Average velocity =  11.160(Ft/s)
Channel flow top width =   12.011(Ft.)
Flow Velocity =   11.16(Ft/s)
Travel time  =    2.35 min.
Time of concentration =   31.99 min.
Critical depth =      4.813(Ft.)
 Adding area flow to channel
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COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    688.737(CFS)
therefore the upstream flow rate of Q =    716.572(CFS) is being used
Rainfall intensity =      1.969(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      0.000(CFS) for    3.500(Ac.)
Total runoff =    716.572(CFS)
Effective area this stream =      408.97(Ac.)
Total Study Area (Main Stream No. 2) =      497.50(Ac.)
Area averaged Fm value =    0.098(In/Hr)
Depth of flow =   5.348(Ft.), Average velocity =  11.160(Ft/s)
Critical depth =      4.813(Ft.)


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Process from Point/Station      508.000 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =    714.167(CFS)
therefore the upstream flow rate of Q =    716.572(CFS) is being used
Time of concentration =    31.99 min.
Rainfall intensity =      1.969(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      0.000(CFS) for   15.100(Ac.)
Total runoff =    716.572(CFS)
Effective area this stream =      424.07(Ac.)
Total Study Area (Main Stream No. 2) =      512.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      508.000 to Point/Station      508.000
**** CONFLUENCE OF MAIN STREAMS ****
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_____________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =    424.066(Ac.)
Runoff from this stream =    716.572(CFS)
Time of concentration =   31.99 min.
Rainfall intensity =     1.969(In/Hr)
Area averaged loss rate (Fm) =    0.0978(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)   (Ac.)       (min) (In/Hr)     (In/Hr)


1    127.27    87.400     40.58    0.098      1.707
2    716.57   424.066     31.99    0.098      1.969
Qmax(1) =
           1.000 *    1.000 *   127.266) +
           0.860 *    1.000 *   716.572) + =     743.508
Qmax(2) =
           1.163 *    0.788 *   127.266) +
           1.000 *    1.000 *   716.572) + =     833.217

Total of 2 main streams to confluence:
Flow rates before confluence point:
     128.266     717.572
Maximum flow rates at confluence using above data:
      743.508      833.217
Area of streams before confluence:
       87.400      424.066
Effective area values after confluence:
      511.466      492.956


Results of confluence:
Total flow rate =    833.217(CFS)
Time of concentration =    31.986 min.
Effective stream area after confluence  =    492.956(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total =     511.47(Ac.)


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Process from Point/Station      508.400 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
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Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    31.99 min.
Rainfall intensity =      1.969(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =     36.375(CFS) for   23.400(Ac.)
Total runoff =    869.593(CFS)
Effective area this stream =      516.36(Ac.)
Total Study Area (Main Stream No. 1) =      536.00(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      508.300 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    31.99 min.
Rainfall intensity =      1.969(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      6.231(CFS) for    3.700(Ac.)
Total runoff =    875.824(CFS)
Effective area this stream =      520.06(Ac.)
Total Study Area (Main Stream No. 1) =      539.70(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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Process from Point/Station      508.100 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    31.99 min.
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Rainfall intensity =      1.969(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      2.863(CFS) for    1.700(Ac.)
Total runoff =    878.687(CFS)
Effective area this stream =      521.76(Ac.)
Total Study Area (Main Stream No. 1) =      541.40(Ac.)
Area averaged Fm value =    0.098(In/Hr)


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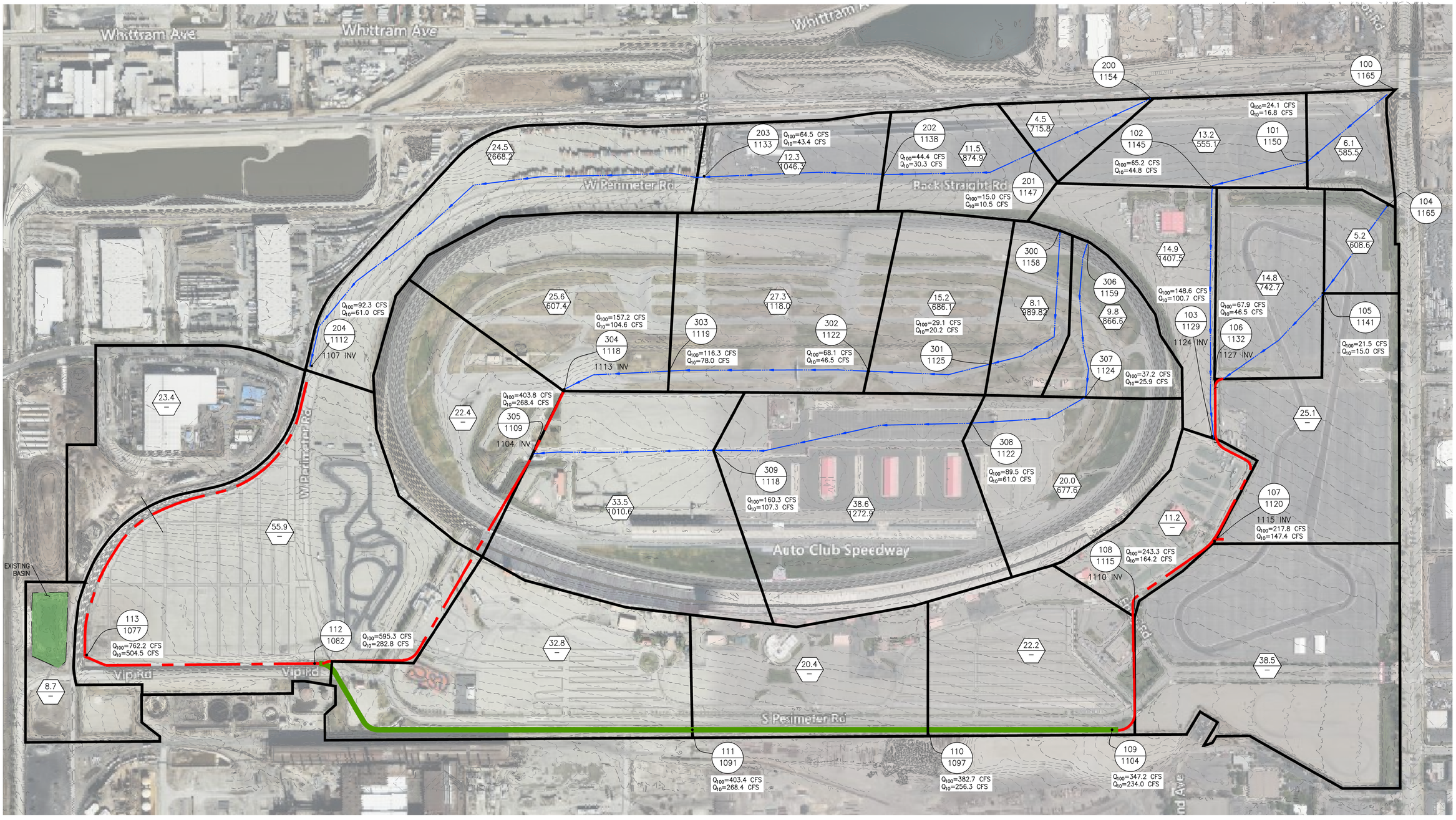
Process from Point/Station      508.200 to Point/Station      508.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.098(In/Hr)
Time of concentration =    31.99 min.
Rainfall intensity =      1.969(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      7.073(CFS) for    4.200(Ac.)
Total runoff =    885.760(CFS)
Effective area this stream =      525.96(Ac.)
Total Study Area (Main Stream No. 1) =      545.60(Ac.)
Area averaged Fm value =    0.098(In/Hr)


Area averaged pervious area fraction(Ap) = 0.101
Area averaged SCS curve number =  31.8
```

RATIONAL METHOD HYDROLOGY MAPS



LEGEND

- ACREAGE - ACRES
- FLOW LENGTH - FEET
- NODE
- ELEVATION
- XXXX INV — INVERT(PIPE)
- WATERSHED BOUNDARY
- EXISTING STORM DRAIN
- EXISTING CHANNEL
- FLOW DIRECTION
- EXISTING BASIN

N W E S

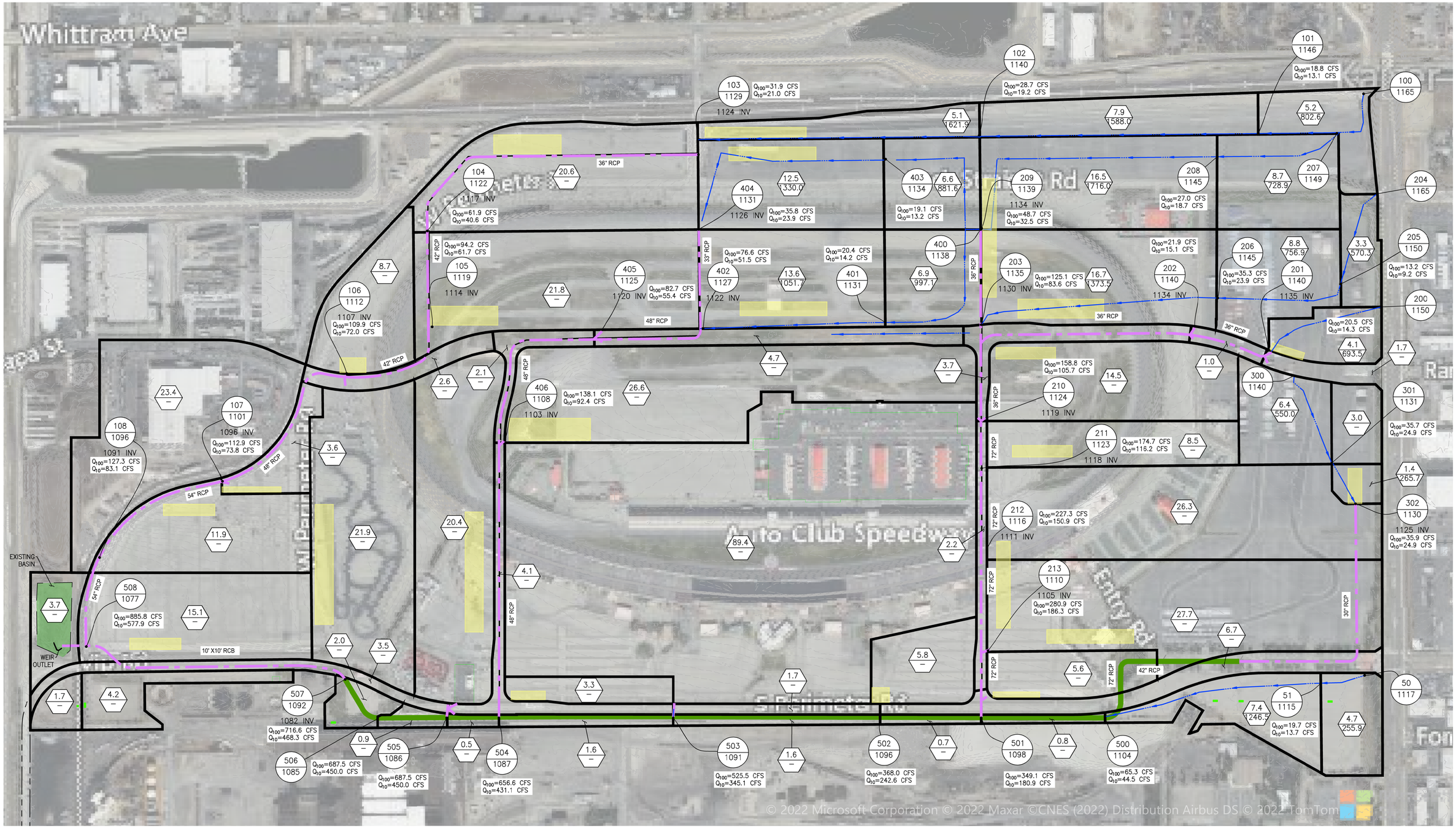
1"=250'

250 0 250

PRELIMINARY

SCALE: 250'	ALBERT A. WEBB ASSOCIATES — ENGINEERING CONSULTANTS, 3788 McCRAY STREET, RIVERSIDE CA. 92506, PH. (951) 686-1070, FAX (951) 788-1256	HYDROLOGY MAP EXISTING CONDITIONS	W.O. 20210160
DATE:			SHEET 1
DESIGNED:			OF 1 SHEETS
CHECKED:			
PLN CK REF:			DWG. NO.
F.B.	PLOT DATE: 15-Apr-22		

H:\2021\21-0160\DRAINAGE\HYD\DWG FOLDER\21-0160-RA1-HYD-EX.DWG 4/15/2022 9:52:41 AM



LEGEND

- ACREAGE - ACRES
- FLOW LENGTH - FEET
- NODE
- ELEVATION
- XXXX INV — INVERT(PIPE)
- PARCEL BOUNDARY
- WATERSHED BOUNDARY
- PROPOSED STORM DRAIN
- EXISTING FACILITIES
- FLOW DIRECTION
- MODULAR WETLAND
- UNDERGROUND CHAMBER
- EXISTING BASIN

1"=250'

250 0 250

N W WEBB E S

SCALE:	250'
DATE:	
DESIGNED:	
CHECKED:	
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

PLOT DATE: 12-Apr-22

HYDROLOGY MAP
PROPOSED CONDITIONS

W.O.	20210160
SHEET	1
OF	1 SHEETS
DWG. NO.	

PRELIMINARY

\\ELSINORE\WOA\2021\21-0160\DRAINAGE\HYDL\DWG FOLDER\21-0160-RAT-HYDL.DWG 4/12/2022 11:29:05 AM

APPENDIX B – REFRENCES

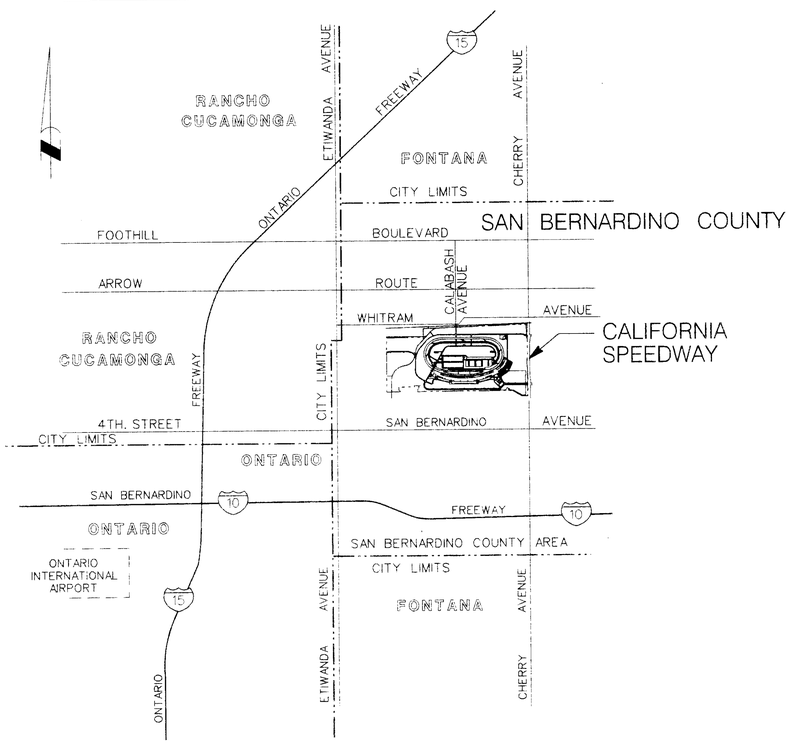
CAPACITY OF EXISTING FACILITIES

THE CALIFORNIA Speedway

STORM DRAIN IMPROVEMENT PLANS

GENERAL NOTES:

1. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.C. MEAN SEA LEVEL DATUM OF 1929.
2. NO CONCRETE SHALL BE PLACED UNTIL THE FORMS AND REINFORCING STEEL HAVE BEEN SET, INSPECTED AND APPROVED.
3. ALL CONCRETE SHALL BE PORTLAND CEMENT CONCRETE WITH AN ULTIMATE 28-DAY COMPRESSIVE STRENGTH OF 3250 P.S.I. UNLESS DIFFERENTLY SPECIFIED.
4. ALL EXPOSED EDGES SHALL BE FINISHED WITH 3/4" CHAMFER.
5. ALL STEEL ADJACENT TO FACE OF CONCRETE SHALL HAVE A 2-1/2" CLEARANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE STEEL AS PER A.S.T.M. A-615 GRADE 60.
7. ALL BAR ENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "MANUAL OF STANDARD PRACTICE".
8. DIMENSION FROM FACE OF CONCRETE TO STEEL ARE TO CENTER LINE OF STEEL UNLESS OTHERWISE NOTED.
9. ALL BACKFILLS AND FILLS TO BE USED AS SUBGRADES SHALL BE COMPACTED TO A RELATIVE DENSITY OF 90% UNLESS OTHERWISE SPECIFIED. TOP 12" OF SUBGRADE TO BE 95%. ANY A.B. THICKNESS SHALL BE CONSIDERED AS INCLUDED IN THE 12" DIMENSION.
10. ALL STEEL THAT IS TO BE CONTINUOUS SHALL HAVE A MINIMUM LAP OF 30 BAR DIAMETERS OR 18" WHICHEVER IS GREATER.
11. PIPE SHALL BE EMBEDDED 5" INTO ALL STRUCTURES INCLUDING INLET AND HEADWALLS, UNLESS OTHERWISE SPECIFIED.
12. ALL BACKFILL AND FILL AROUND CLOSED CONDUIT IN STREET ROADWAY SHALL BE BROUGHT UP TO SUBGRADE OF THE ROAD OR TO 2' ABOVE THE TOP OF THE CONDUIT, WHICHEVER IS LESS. THE SAN BERNARDINO COUNTY INSPECTOR AND THE SOILS ENGINEER SHALL INSPECT ALL BACKFILL AND FILL ABOVE AFOREMENTIONED LIMITS. APPLICATIONS FOR AN ENGINEER OR INSPECTOR IN CONNECTION WITH THE WORK SHALL BE MADE BY THE CONTRACTOR AT LEAST 1 WORKING DAY BEFORE HIS SERVICE IS REQUIRED.
13. ALL REINFORCED CONCRETE PIPE SHALL BE BEDDED IN ACCORDANCE WITH LACFCD STD 2-D177.
14. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE STD. SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS.
15. ALL PIPE SHALL BE PLACED IN A TRENCH IN NATURAL GROUND AND/OR COMPACTED FILL.
16. THE CONTRACTOR SHALL PROVIDE FOR CONTRIBUTARY DRAINAGE AT ALL TIMES UNTIL THIS STORM DRAIN SYSTEM IS OPERABLE.
17. ALL STATE AND LOCAL TRENCH SAFETY RULES WILL BE RIGIDLY ENFORCED.
18. CONTRACTOR SHALL FURNISH A LETTER OF CERTIFICATION FROM PIPE MANUFACTURER AS TO TEST RESULTS OF PIPE INSTALLED (D-LOAD PER PLAN).
19. R.C.P. SHALL BE MANUFACTURED AND INSPECTED IN ACCORDANCE WITH SECTION 207-2.7, 2.8 AND 2.9 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS.
20. ALL PIPES SHALL BE CERTIFIED BY MANUFACTURER AND MARKED WITH D-LOAD, DATE AND TEE'S LOCATIONS, MARKED FOR PUBLIC WORKS INSPECTOR ACCEPTANCE.
21. ALL PIPE WITH VELOCITIES EXCEEDING 20 F.P.S. WILL HAVE 1/2" THICKENED INVERTS (SPECIAL COVER PIPE).
22. THE CONSTRUCTION OF ALL PUBLIC IMPROVEMENTS SHALL CONFORM TO THESE PLANS AND TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
23. CONSTRUCTION PERMITS SHALL BE OBTAINED FROM THE COUNTY OF SAN BERNARDINO PRIOR TO START OF ANY WORK WITHIN THEIR JURISDICTIONAL LIMITS.
24. STATIONING REFERS TO THE CENTERLINES OF STORM DRAINS AND INLETS EXCEPT WHERE OTHERWISE NOTED ON PLANS.
25. ALL EXPOSED CONCRETE SURFACES SHALL CONFORM IN GRADE, COLOR AND FINISH TO ALL ADJOINING CURBS AND SIDEWALKS.
26. "UNDERGROUND SERVICE ALERT" SHALL BE NOTIFIED 2 WORKING DAYS PRIOR TO START OF WORK (1-800-422-4133).
27. ALL UNDERGROUND WORK SHALL BE COMPLETED PRIOR TO PAVING OF STREETS.
28. EXISTING BURIED FOUNDATION WALL(S) MAY BE ENCOUNTERED. REMOVE ANY WALL(S) NECESSARY TO FACILITATE CONSTRUCTION OF STORM DRAIN SYSTEM. WALL(S) SHALL BE REMOVED TO CLEAR STORM DRAIN 12" MINIMUM.



VICINITY MAP
N.T.S.

CONSTRUCTION NOTES

1. CONSTRUCT 114" RCP-1350D UNLESS OTHERWISE SHOWN
2. CONSTURCT 12'W X 6'H RCB PER CALTRANS STD D80
3. CONSTRUCT 72" RCP-1350D UNLESS OTHERWISE SHOWN
4. CONSTRUCT 60" RCP-1350D UNLESS OTHERWISE SHOWN
5. CONSTRUCT 48" HDPE PIPE UNLESS OTHERWISE SHOWN
6. CONSTRUCT 42" HDPE PIPE UNLESS OTHERWISE SHOWN
7. CONSTRUCT 36" HDPE PIPE UNLESS OTHERWISE SHOWN
8. CONSTRUCT 30" HDPE PIPE UNLESS OTHERWISE SHOWN
9. CONSTRUCT 24" HDPE PIPE UNLESS OTHERWISE SHOWN
10. CONSTRUCT 18" HDPE PIPE UNLESS OTHERWISE SHOWN
11. CONSTRUCT SLOPE PROTECTION, SHOTCRETE WITH W.W.F. PER TYPICAL SECTIONS.
12. CONSTRUCT LINED TRAPEZOIDAL CHANNEL PER SBCFCD SP 192E "AS MODIFIED" PER SHEET NO. ST103
13. CONSTRUCT MANHOLE PER APWA 320-0
14. CONSTRUCT MANHOLE PER APWA 321-0
15. CONSTRUCT MANHOLE PER APWA 322-0
16. CONSTRUCT MANHOLE SAFETY LEDGE PER APWA 330-0
17. CONSTRUCT JUNCTION STRUCTURE PER APWA 331-1
18. CONSTRUCT JUNCTION STRUCTURE PER APWA 332-0 CASE 1(UNLESS OTHERWISE NOTED
19. CONSTRUCT TRANSITION STRUCTURE PER APWA 340-0
20. CONSTRUCT JUNCTION STRUCTURE PER APWA 333-0
21. CONSTRUCT PIPE CONNECTION TO LINED CHANNEL PER SBCFCD SP200A
22. CONSTRUCT HEADWALL AND WINGWALL PER CALTRANS STD D90
23. CONSTRUCT HEADWALL AND WARPED WINGWALL PER CALTRANS STD D86A (BOX)
24. CONSTRUCT HEADWALL AND WARPED WINGWALL PER CALTRANS STD D86B (PIPE)
25. CONSTRUCT WING-TYPE HEADWALL PER SBC STD 209
26. CONSTRUCT GRAVITY HEADWALL PER SBC STD 201
27. CONSTRUCT CATCH BASIN TYPE A PER SBC STD 206 AND 206b
28. CONSTRUCT GRATING CATCH BASIN PER APWA 304-1 AND DETAILS A AND B SHEET ST103
29. CONSTRUCT GRATING CATCH BASIN PER APWA 305-1
30. CONSTRUCT STAND-PIPE INLET PER DETAIL SHEET NO ST103
31. CONSTRUCT LOCAL DEPRESSION PER SBC STD 203B (8" CURB) SEE PLAN FOR TYPE
32. CONSTRUCT LOCAL DEPRESSION PER SBC STD 203B (6" CURB) SEE PLAN FOR TYPE
33. CONSTRUCT PIPE CLOSURE TYPE A PER SBCFCD SP 176
34. CONSTRUCT INLET STRUCTURE (WEIR) PER DETAIL SHEET NO. ST103
35. CONSTRUCT PROTECTION BARRIER PER SBCFCD SP 101-2
36. CONSTRUCT TRASH RACK PER APWA 361-0 CASE A
37. CONSTRUCT COMMERCIAL DRIVEWAY PER SBCO STD 129 (W=16')
38. CONSTRUCT TRANSITION STRUCTURE PER APWA 342-0
39. CONSTRUCT CONCRETE COLLAR PER APWA 380-1
40. CONSTRUCT 10"PVC-C900 PER DETAIL SHEET ST116

REFERENCE NOTES

FOR TRACK AND INTERIOR ACCESS ROAD GEOMETRICS SEE SHEET C501
FOR TRACK TYPICAL SECTIONS SEE SHEET C502
FOR INTERIOR ROADS TYPICAL SECTIONS SEE SHEET C503
FOR TRACK PROFILE SEE SHEET C504
FOR INTERIOR ROAD PROFILES SEE SHEET C505 AND C506
FOR SITE LAYOUT INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C200 THRU C211
FOR SITE GRADING INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C300 THRU C309
FOR SITE FENCING AND GATES LAYOUT SEE SHEETS C400 THRU C420
FOR HORIZONTAL CONTROL PLANS OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS G101 THRU G125
FOR SITE LAYOUT AND GRADING OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS L101 THRU L106
FOR STREET PROFILES OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS P101 THRU P109
FOR WATER IMPROVEMENT PLANS SEE SHEETS W101 THRU W120
FOR SEWER IMPROVEMENT PLANS SEE SHEETS SS101 THRU SS118
FOR STORM DRAIN IMPROVEMENT PLANS SEE SHEETS ST101 THRU ST119
FOR FUEL OIL SEPARATOR SYSTEM PLANS SEE SHEETS F101 THRU F104

NGS DESIGNATION-700 23
PID - EV3010

BRASS DISK IN TOP OF PCC CURB ON WEST SIDE OF ETIWANDA AVE., 109 FT. NORTH OF NORTH RAIL A.T.& S.F. MAIN TRACKS, 6.5 FT. SOUTH OF PP#772720E

(NGVD-29) 1124.86

NGS DESIGNATION-700 20
PID - EV1229

BRASS DISK IN TOP OF CENTER NORTH CONCRETE BRIDGE BEAM, BRIDGE DATED 1916, 1.49 MILE EAST ALONG A.T.& S.F. RR FROM ETIWANDA AVE., 10 FT. NORTH OF NORTH RAIL, 2.8 FT. NORTH OF WOOD HAND RAIL, 10 FT. EAST OF WEST BRIDGE ABUTMENT.

(NGVD-29) 1145.53

FOR CONSTRUCTION

CERTIFIED BY PROFESSIONAL ENGINEER * REGISTERED * DONALD BERMAN No. 25491 Exp. 03-31-96 * STATE OF CIVIL

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THE CALIFORNIA Speedway

	REVISION DATE	REVISION DESCRIPTION

SURVEY DATE	DRAWN DATE 8-11-95
SURVEY PROJECT NO.	DESIGN PROJECT NO. 94-40A
SURVEY DRAWN BY	DESIGN DRAWN BY KFS/LH/AP
SURVEYED BY	CHECKED BY DB
SURVEY BOOK NO.	

SHEET TITLE
STORM DRAIN IMPROVEMENT PLANS
TITLE SHEET

SHEET NO.
ST101

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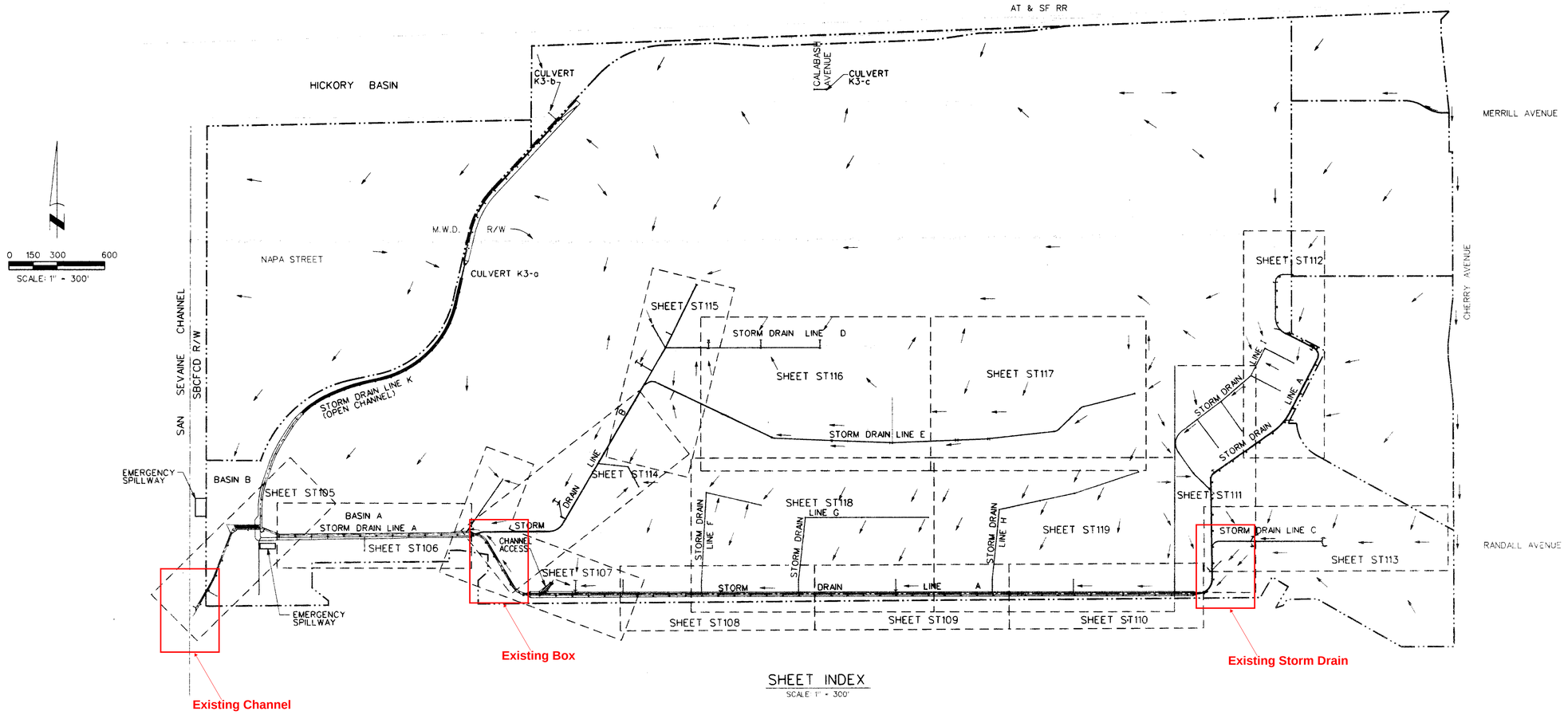

SHEET INDEX

SCALE: 1" = 300'

LEGEND

ABBREVIATIONS		ABBREVIATIONS	
A	ANGLE	SBCO	SAN BERNARDINO COUNTY
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	SBCFCD	SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT
b	BOTTOM WIDTH		
BC	BEGINNING OF CURVE	SD	STORM DRAIN
BTM	BOTTOM OF PIPE	STA	STATION
CB	CATCH BASIN	ST	STREET
CF	CURB FACE	TC	TOP-OF-CURB
cfs	CUBIC FEET PER SECOND	TG	TOP-OF-GRATE
℄	CENTERLINE	TS	TOP-OF-SLOPE
CMP	CORRUGATED METAL PIPE	V	DEPTH OF CATCH BASIN
CSP	CORRUGATED STEEL PIPE	Vmax	MAXIMUM VELOCITY
d	DEPTH	W	WATER
D/W	DRIVEWAY	(W)	WEST
(E)	EAST	WWF	WELDED WIRE FABRIC
EC	END OF CURVE	WSE	WATER SURFACE ELEVATION
ELEV	ELEVATION	X	WIDTH OF CATCH BASIN
EX	EXISTING		
FG	FINISH GRADE		
FL	FLOWLINE		
FS	FINISH SURFACE		
f/s	FEET PER SECOND		
ga	GAUGE		
GB	GRADE BREAK		
HDPE	HIGH DENSITY POLYETHYLENE		
HGL	HYDROLIC GRADE LINE		
INT	INTERSECTION		
JS	JUNCTION STRUCTURE		
LACFCD	LOS ANGELES COUNTY FLOOD CONTROL DISTRICT		
LF	LINEAR FEET		
LT	LEFT		
MH	MANHOLE		
MIN	MINIMUM		
(N)	NORTH		
OC	ON CENTER		
P/L	PROPERTY LINE		
RCP	REINFORCED CONCRETE PIPE		
RCB	REINFORCED CONCRETE BOX		
RT	RIGHT		
R/W	RIGHT-OF-WAY		
S	SEWER		
(S)	SOUTH		
STD	STANDARD		

SYMBOLS	
	PROPERTY LINE
	CENTERLINE
	CLOSED CONDUIT
	TRAPEZOIDAL OPEN CHANNEL
(2)	CONSTRUCTION NOTE
(6)	℄ CURVE/LINE DATA
∅	DIAMETER
	WATER SURFACE
1034	PRECISE GRADING CONTOUR
	DIRECTION OF FLOW

INDEX OF SHEETS

SHEET NO	DESCRIPTION	
ST101	TITLE SHEET/GENERAL NOTES	
ST102	INDEX SHEET	
ST103	DETAIL SHEET	
ST104A	APWA STANDARD DETAILS	
ST104B	APWA STANDARD DETAILS	
ST104C	APWA STANDARD DETAILS	
ST104D	APWA STANDARD DETAILS	
ST105	STORM DRAIN LINE A - SAN SEVAINE CHANNEL TO 20+00	PLAN & PROFILE
ST106	STORM DRAIN LINE A - 20+00 TO 30+00	PLAN & PROFILE
ST107	STORM DRAIN LINE A - 30+00 TO 42+00	PLAN & PROFILE
ST108	STORM DRAIN LINE A - 42+00 TO 54+00	PLAN & PROFILE
ST109	STORM DRAIN LINE A - 54+00 TO 66+00	PLAN & PROFILE
ST110	STORM DRAIN LINE A - 66+00 TO 78+00	PLAN & PROFILE
ST111	STORM DRAIN LINE A - 78+00 TO 89+00 AND LINE I	PLAN & PROFILE
ST112	STORM DRAIN LINE A - 89+00 TO 102+87.44 AND LINE	PLAN & PROFILE
ST113	STORM DRAIN LINE C - 10+00 TO 16+88.69	PLAN & PROFILE
ST114	STORM DRAIN LINE B - 10+00 TO 22+00	PLAN & PROFILE
ST115	STORM DRAIN LINE B - 22+00 TO 32+42.45	PLAN & PROFILE
ST116	STORM DRAIN LINE D AND E	PLAN
ST117	STORM DRAIN LINE E	PLAN
ST118	STORM DRAIN LINE F AND G	PLAN
ST119	STORM DRAIN LINE H	PLAN

REFERENCE NOTES

FOR TRACK AND INTERIOR ACCESS ROAD GEOMETRICS SEE SHEET C501
FOR TRACK TYPICAL SECTIONS SEE SHEET C502
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FOR SITE FENCING AND GATES LAYOUT SEE SHEETS C400 THRU C409
FOR HORIZONTAL CONTROL PLANS OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS L101 THRU L106
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FOR WATER IMPROVEMENT PLANS SEE SHEETS W101 THRU W108
FOR SEWER IMPROVEMENT PLANS SEE SHEETS SS101 THRU SS118
FOR STORM DRAIN IMPROVEMENT PLANS SEE SHEETS ST101 THRU ST119
FOR FUEL OIL SEPARATOR SYSTEM PLANS SEE SHEETS F101 THRU F104

FOR CONSTRUCTION

CERTIFIED BY: DONALD BERMAN, No. 26191, Exp. 03.31.06, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA

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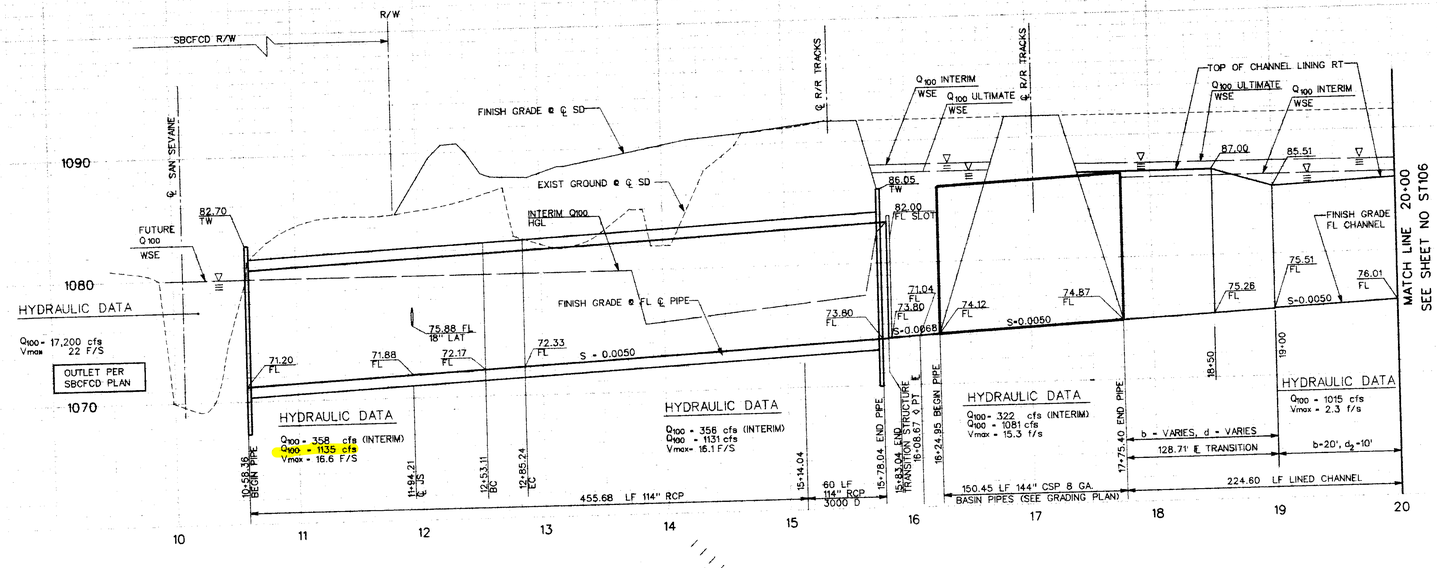
THE CALIFORNIA Speedway

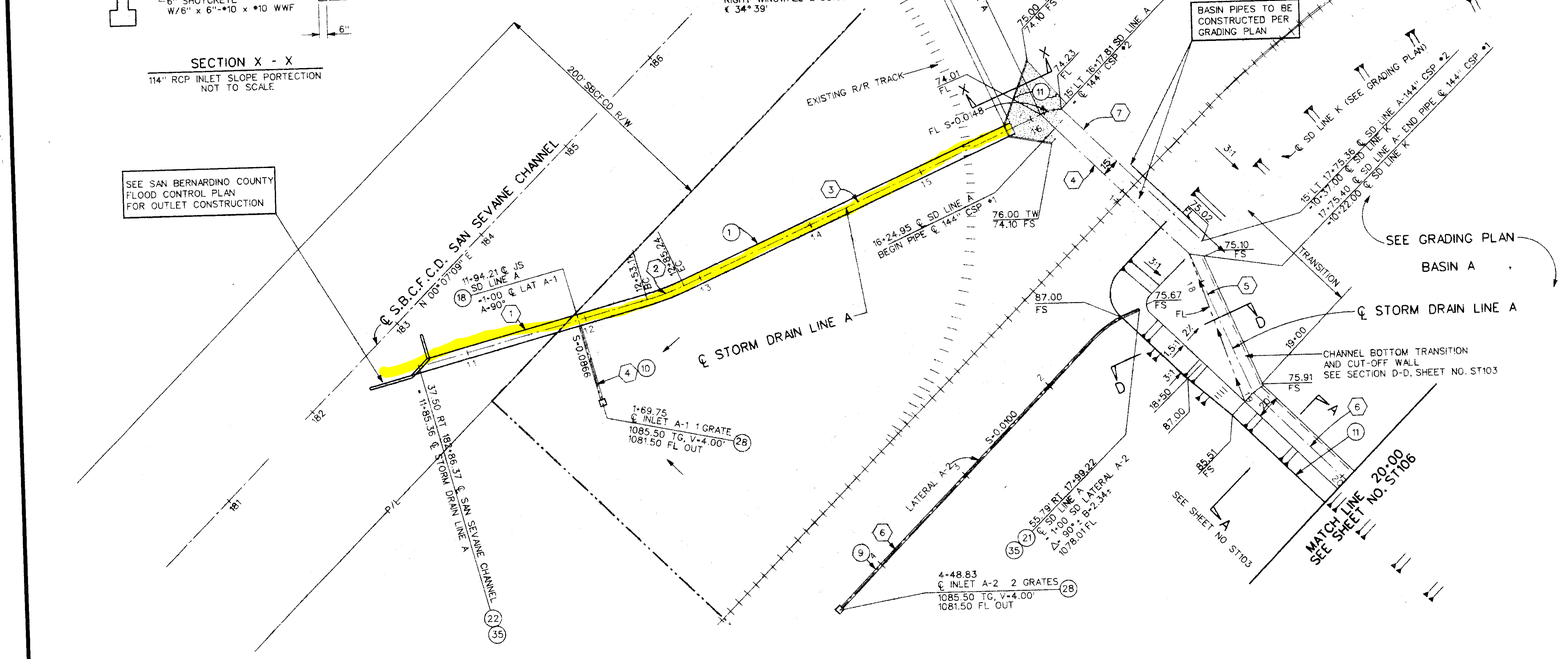
SURVEY DATE	
SURVEY PROJECT NO	
SURVEY DRAWN BY	
SURVEYED BY	
SURVEY BOOK NO	
SPECIFICATION DATE	8.11.05
DESIGN PROJECT NO	94.40A
DESIGN DRAWN BY	KFS/AP/LH
CHECKED BY	DB

REVISION DESCRIPTION

SHEET TITLE: STORM DRAIN IMPROVEMENT PLANS INDEX SHEET

SHEET NO: ST102





STORM DRAIN LINE A

REFERENCE NOTES

FOR TRACK AND INTERIOR ACCESS ROAD GEOMETRICS SEE SHEET C501
FOR TRACK TYPICAL SECTIONS SEE SHEET C502
FOR INTERIOR ROADS TYPICAL SECTIONS SEE SHEET C503
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FOR SITE FENCING AND GATES LAYOUT SEE SHEETS C400 THRU C420
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FOR SEWER IMPROVEMENT PLANS SEE SHEETS SS101 THRU SS119
FOR STORM DRAIN IMPROVEMENT PLANS SEE SHEETS ST101 THRU ST119
FOR FUEL OIL SEPARATOR SYSTEM PLANS SEE SHEETS F101 THRU F104

PROFILE SCALE
HORIZ. 1"=50
VERT. 1"=5

CONSTRUCTION NOTES

1. CONSTRUCT 114" RCP-1350D UNLESS OTHERWISE SHOWN
9. CONSTRUCT 24" HDPE PIPE UNLESS OTHERWISE SHOWN
10. CONSTRUCT 18" HDPE PIPE UNLESS OTHERWISE SHOWN
11. CONSTRUCT SLOPE PROTECTION, SHOTCRETE WITH W.W.F. PER TYPICAL SECTIONS
13. CONSTRUCT MANHOLE PER APWA 320-0
18. CONSTRUCT JUNCTION STRUCTURE PER APWA 332-0 CASE 1
21. CONSTRUCT PIPE CONNECTION TO LINED CHANNEL PER SBCFCD SP 200A
22. CONSTRUCT HEADWALL AND WINGWALL PER CALTRANS STD D90
28. CONSTRUCT GRATING CATCH BASIN PER APWA 304-1 AND DETAIL A SHEET NO. ST104
34. CONSTRUCT INLET STRUCTURE (WEIR) PER DETAIL SHEET NO. ST103
35. CONSTRUCT PROTECTION BARRIER PER SBCFCD SP 101-2

CURVE/LINE TABLE

	BEARING/DELTA	RADIUS	LENGTH/DISTANCE	TANGENT
1	N 30°07'09" E		194.75'	
2	09°12'16"	200'	32.13	16.10'
3	N 20°54'53" E		323.43	
4	N 89°36'00" E		166.74'	
5	N 68°14'21" W		124.60'	
6	N 89°35'56" E		1197.56'	
7	N 89°35'59" E		157.71'	

FOR CONSTRUCTION

CERTIFIED BY DONALD BERNERT REGISTERED PROFESSIONAL ENGINEER No. 29591 STATE OF INDIANA

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3612 Seventh Street
Riverside, CA 92501

THE CALIFORNIA Speedway

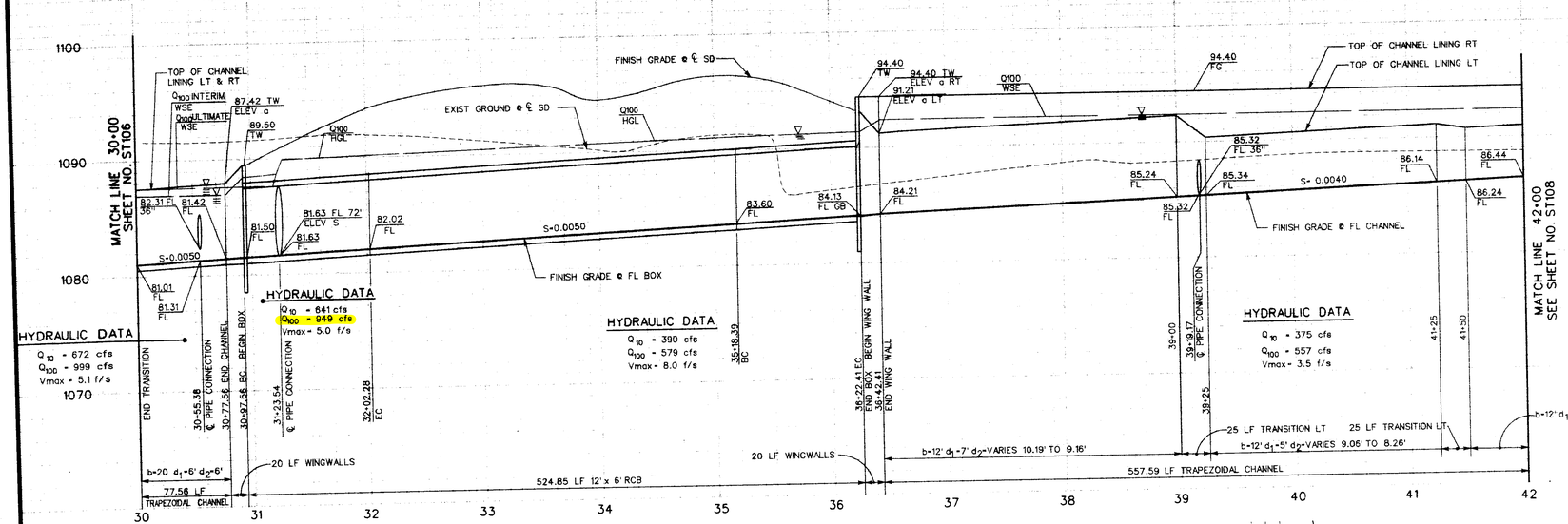
REVISION DATE: 10.5.95 REVISION OF DISTRIBUTION; MISC. REVISIONS

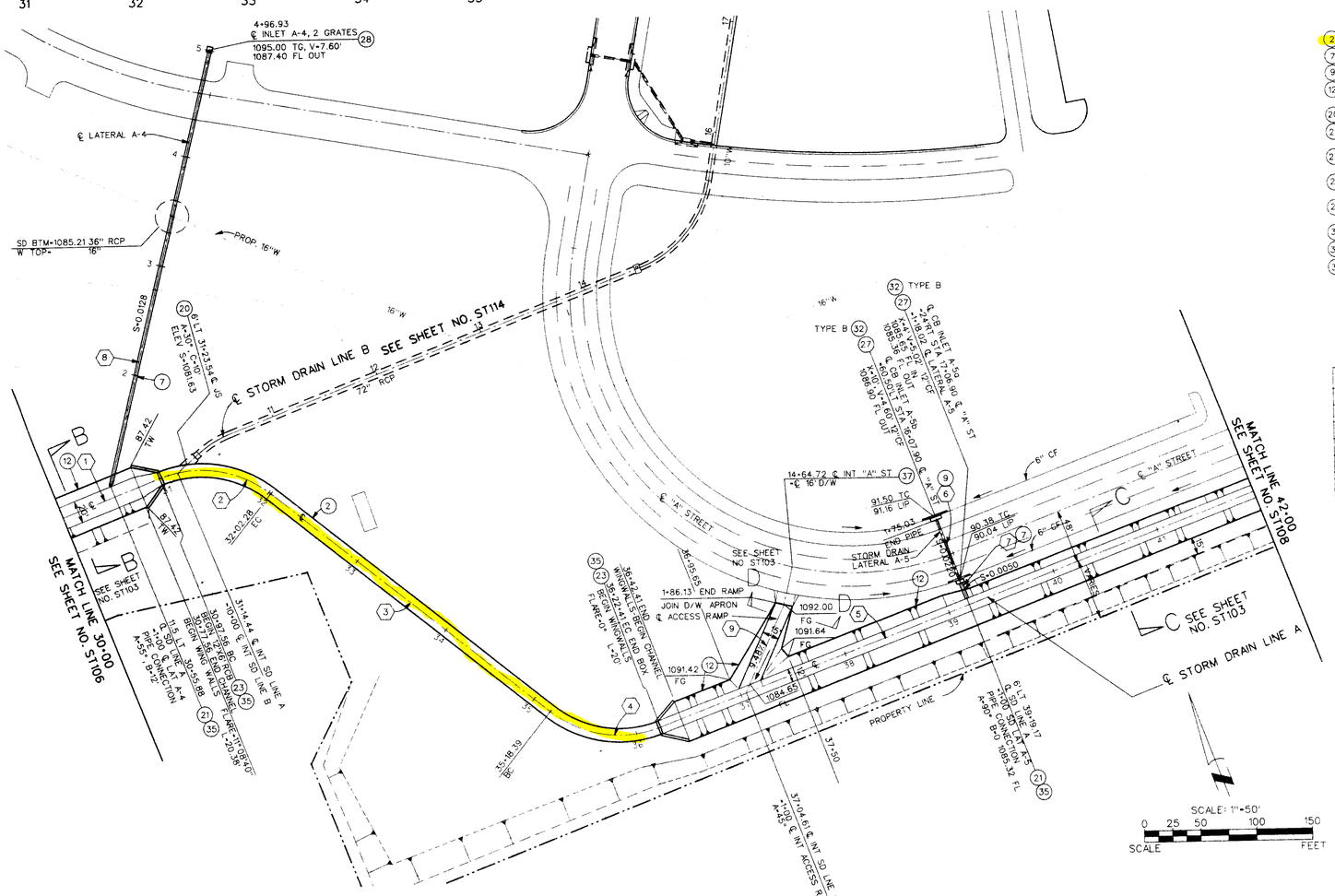
SURVEY DATE	DESIGN DATE	DRAWN BY	CHECKED BY
SURVEY PROJECT NO.	DESIGN PROJECT NO. 94-410A	DESIGN DRAWN BY KK/SS/JH/JJ/LL	
SURVEY DRAWN BY			
SURVEYED BY		CHECKED BY DB	
SURVEY BOOK NO.			

SHEET TITLE
STORM DRAIN IMPROVEMENT PLANS
STORM DRAIN LINE A
SAN SEVAINE CHANNEL TO 20+00

SHEET NO.
ST105

FILE: N:\94040\dgn\strmdrn\sd_05.sht
DATE: 26-Jan-96 16:00





CONSTRUCTION NOTES

(2) CONSTRUCT 12'W X 6'H RCB PER CALTRANS STD D80
(7) CONSTRUCT 36" HDPE PIPE UNLESS OTHERWISE SHOWN
(9) CONSTRUCT 24" HDPE PIPE UNLESS OTHERWISE SHOWN
(12) CONSTRUCT LINED TRAPEZOIDAL CHANNEL PER SBCFCD SP 192E "AS MODIFIED" PER SHEET NO. ST103
(20) CONSTRUCT JUNCTION STRUCTURE PER APWA 333-0
(21) CONSTRUCT PIPE CONNECTION TO LINED CHANNEL PER SBCFCD SP 200A
(23) CONSTRUCT HEADWALL AND WARPED WINGWALL PER CALTRANS STD D86A (BOX)
(27) CONSTRUCT CATCH BASIN TYPE A PER SBC STD 206 AND 206b
(28) CONSTRUCT GRATING CATCH BASIN PER APWA 304-1 AND DETAIL A SHEET NO. ST103
(32) CONSTRUCT LOCAL DEPRESSION PER SBC STD 203B (6" CURB) TYPE PER PLAN
(35) CONSTRUCT PROTECTION BARRIER PER SBCFCD SP 101-2
(37) CONSTRUCT COMMERCIAL DRIVEWAY PER SBCO STD (W=16')

PROFILE SCALE
HORIZ.: 1"=50
VERT.: 1"=5'

CURVE/LINE TABLE

	BEARING/DELTA	RADIUS	LENGTH/DISTANCE	TANGENT
1	N 89°35'59" E		1197.56'	
2	60°00'00"	100'	104.72'	57.74'
3	N 30°24'00" W		316.11'	
4	59°35'59"	100'	104.72'	57.74'
5	N 90°00'00" E		4140.03'	
6	N 00°44'25" E		57.50'	
7	N 00°00'00" E		14.52'	
8	N 34°35'59" E		396.93'	
9	N 45°00'00" E		86.13'	

REFERENCE NOTES

FOR TRACK AND INTERIOR ACCESS ROAD GEOMETRICS SEE SHEET C501
FOR TRACK TYPICAL SECTIONS SEE SHEET C502
FOR INTERIOR ROADS TYPICAL SECTIONS SEE SHEET C503
FOR TRACK PROFILE SEE SHEET C504
FOR INTERIOR ROAD PROFILES SEE SHEET C505 AND C506
FOR SITE LAYOUT INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C200 THRU C211
FOR SITE GRADING INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C300 THRU C309
FOR SITE FENCING AND GATES LAYOUT SEE SHEETS C400 THRU C420
FOR HORIZONTAL CONTROL PLANS OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS L101 THRU L106
FOR SITE LAYOUT AND GRADING OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS G101 THRU G125
FOR STREET PROFILES OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS P101 THRU P109
FOR WATER IMPROVEMENT PLANS SEE SHEETS W101 THRU W120
FOR SEWER IMPROVEMENT PLANS SEE SHEETS SS01 THRU SS18
FOR STORM DRAIN IMPROVEMENT PLANS SEE SHEETS ST101 THRU ST119
FOR FUEL OIL SEPARATOR SYSTEM PLANS SEE SHEETS F101 THRU F104

STORM DRAIN LINE A

FOR CONSTRUCTION

CERTIFIED BY PROFESSIONAL ENGINEER — REGISTERED — DONALD BERNAS 25461 — No. 04-30-96 — STATE OF CALIFORNIA — CIVIL

FINK ROBERTS & PETRIE, INC.
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Landscape Architect
3612 Seventh Street
Riverside, CA 92501

THE CALIFORNIA Speedway

REVISION DATE	REVISION DESCRIPTION
10-3-95	MISC REVISIONS

SURVEY DATE	8-11-95	DESIGN BY	
SURVEY PROJECT NO.	94-401	DRAWN BY	
SURVEY DRAWN BY	KFS/AP.LH	CHECKED BY	DB
SURVEYED BY			
SURVEY BOOK NO.			

SHEET TITLE
STORM DRAIN IMPROVEMENT PLANS
STORM DRAIN LINE A
STA. 30+00 TO STA. 42+00

SHEET NO.
ST107

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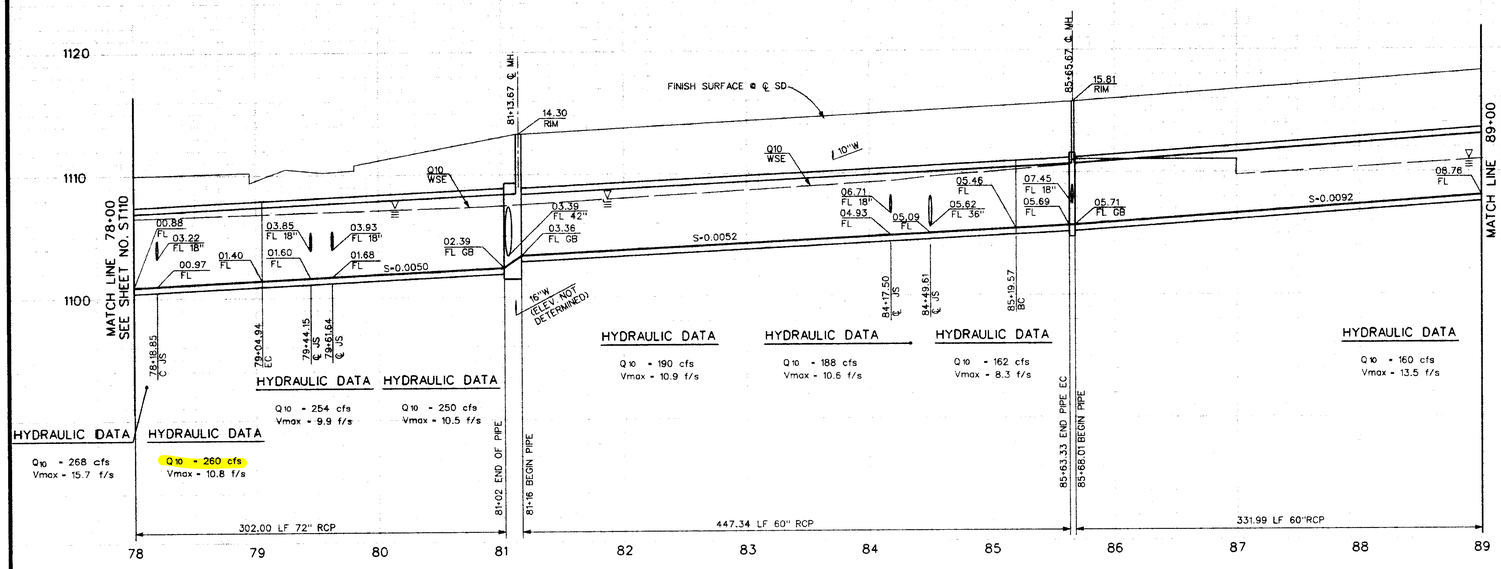
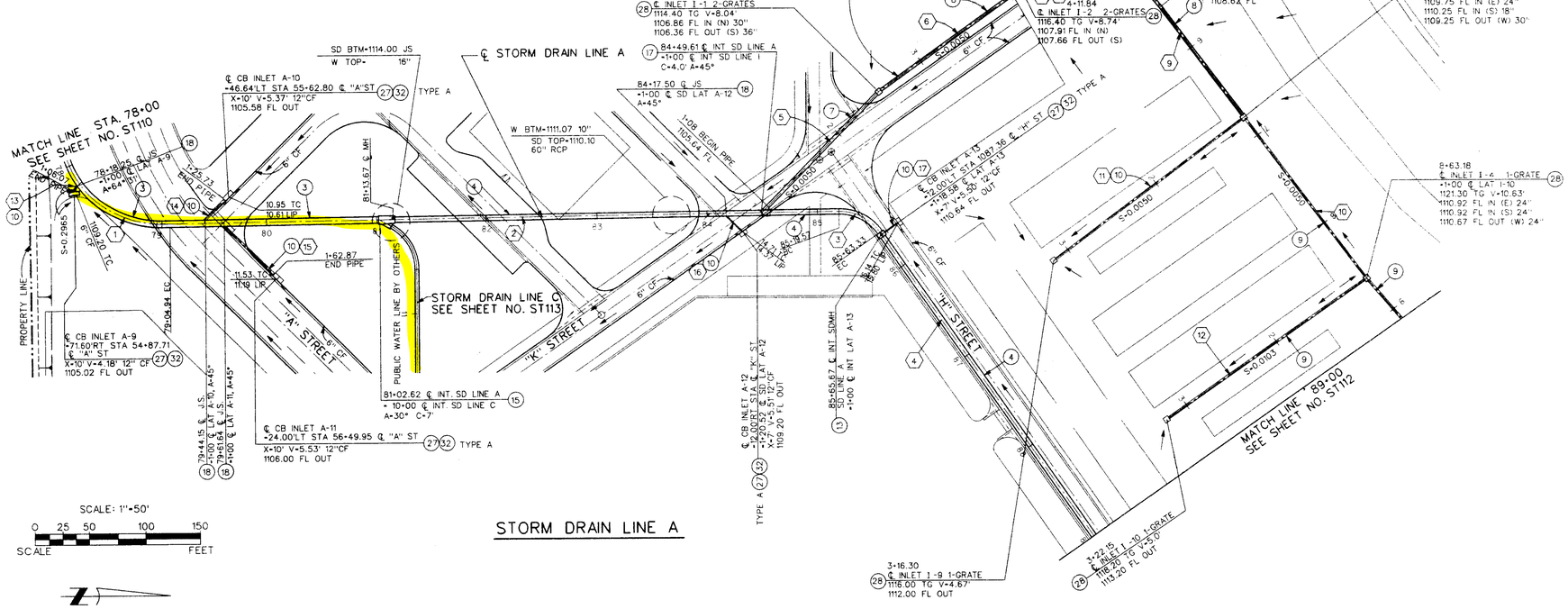


PROFILE SCALE
HORIZ.: 1"=50'
VERT.: 1"=5'



CONSTRUCTION NOTES

(3) CONSTRUCT 72" RCP-1350D UNLESS OTHERWISE SHOWN
(4) CONSTRUCT 60" RCP-1350D UNLESS OTHERWISE SHOWN
(7) CONSTRUCT 36" HDPE PIPE UNLESS OTHERWISE SHOWN
(8) CONSTRUCT 30" HDPE PIPE UNLESS OTHERWISE SHOWN
(9) CONSTRUCT 24" HDPE PIPE UNLESS OTHERWISE SHOWN
(10) CONSTRUCT 18" HDPE PIPE UNLESS OTHERWISE SHOWN
(13) CONSTRUCT MANHOLE PER APWA 320-0
(15) CONSTRUCT MANHOLE PER APWA 322-0
(17) CONSTRUCT JUNCTION STRUCTURE PER APWA 331-1
(18) CONSTRUCT JUNCTION STRUCTURE PER APWA 332-0 CASE 1
(27) CONSTRUCT CATCH BASIN TYPE A PER SBC STD 206 AND 206b
(28) CONSTRUCT GRATING CATCH BASIN PER APWA 304-1 AND DETAIL A SHEET NO. ST103
(32) CONSTRUCT LOCAL DEPRESSION PER SBC STD 203B (6" CURB) SEE PLAN FOR TYPE

CURVE/LINE TABLE

	BEARING/DELTA	RADIUS	LENGTH/DISTANCE	TANGENT
1	90° 43'17"	90'	142.50'	91.14'
2	N 00° 43'17" W		614.63'	
3	55° 43'17"	45'	43.76'	23.79'
4	N 55° 00'00" E		444.59'	
5	N 45° 43'17" W		152.50'	
6	N 35° 42'11" W		159.35'	
7	N 35° 42'11" W		2.85'	
8	88° 37'28"	90'	139.21'	87.86'
9	N 52° 55'17" E		125.72'	
10	N 52° 55'17" E		183.57'	
11	N 36° 42'45" W		216.30	
12	N 34° 57'47" W		222.15'	
13	N 61° 23'09" W		6.07	
14	N 45° 43'17" W		25.73'	
15	N 44° 16'43" W		62.87'	
16	N 44° 16'43" E		20.52'	
17	N 35° 00'01" W		18.58'	

REFERENCE NOTES

FOR TRACK AND INTERIOR ACCESS ROAD GEOMETRICS SEE SHEET C501
FOR TRACK TYPICAL SECTIONS SEE SHEET C502
FOR INTERIOR ROADS TYPICAL SECTIONS SEE SHEET C503
FOR TRACK PROFILE SEE SHEET C524
FOR INTERIOR ROAD PROFILES SEE SHEET C505 AND C506
FOR SITE LAYOUT INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C200 THRU C211
FOR SITE GRADING INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C300 THRU C309
FOR SITE FENCING AND GATES LAYOUT SEE SHEETS C400 THRU C420
FOR HORIZONTAL CONTROL PLANS OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS L101 THRU L106
FOR SITE LAYOUT AND GRADING OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS G101 THRU G125
FOR STREET PROFILES OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS P101 THRU P109
FOR WATER IMPROVEMENT PLANS SEE SHEETS W101 THRU W120
FOR SEWER IMPROVEMENT PLANS SEE SHEETS SS101 THRU SS118
FOR STORM DRAIN IMPROVEMENT PLANS SEE SHEETS ST101 THRU ST119
FOR FUEL OIL SEPARATOR SYSTEM PLANS SEE SHEETS F101 THRU F104

FOR CONSTRUCTION

CERTIFIED BY PROFESSIONAL ENGINEER DONALD BROMAN NO. 23136 STATE OF CALIFORNIA

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Designers • Environmental Managers
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Landscape Architect
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Riverside, CA 92501

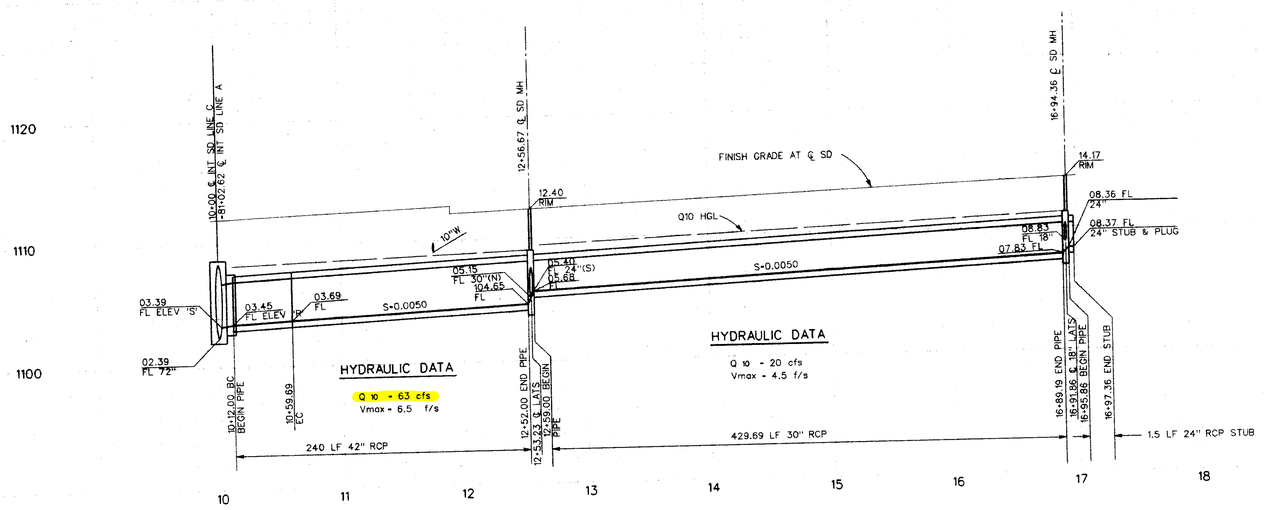
THE CALIFORNIA Speedway

REVISION DATE | REVISION DESCRIPTION
△ 10-3-95 | MISC REVISIONS

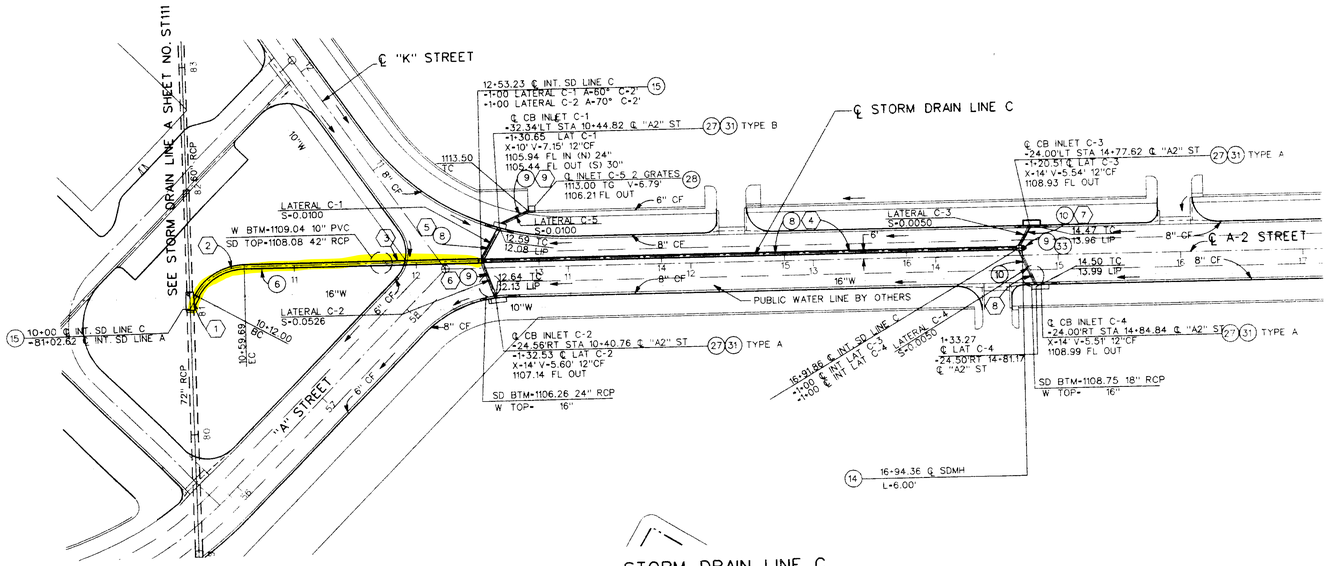
SURVEY DATE | DESIGN DATE: 8-11-95
SURVEY PROJECT NO. | DESIGN PROJECT NO.: 94-40A
SURVEYED BY | DESIGNED BY: KFS, AP/LH
SURVEY DRAWING# | DRAWN BY: LJB
SURVEY BOOK NO. | CHECKED BY:

SHEET TITLE
STORM DRAIN IMPROVEMENT PLANS
STORM DRAIN LINE A
STA. 78+00 TO STA. 89+00

SHEET NO.
ST111



PROFILE SCALE
HORIZ.: 1"=50'
VERT.: 1"=5'



STORM DRAIN LINE C

CONSTRUCTION NOTES

(6) CONSTRUCT 42" HDPE PIPE UNLESS OTHERWISE SHOWN
(8) CONSTRUCT 30" HDPE PIPE UNLESS OTHERWISE SHOWN
(9) CONSTRUCT 24" HDPE PIPE UNLESS OTHERWISE SHOWN
(10) CONSTRUCT 18" HDPE PIPE UNLESS OTHERWISE SHOWN
(14) CONSTRUCT MANHOLE PER APWA 321-0
(15) CONSTRUCT MANHOLE PER APWA 322-0
(27) CONSTRUCT CATCH BASIN TYPE A PER SBC STD 206 AND 206b
(28) CONSTRUCT GRATING CATCH BASIN PER APWA 304-1 AND DETAIL B SHEET NO. ST103
(31) CONSTRUCT LOCAL DEPRESSION PER SBC STD 203B (8" CURB) SEE PLAN FOR TYPE
(33) CONSTRUCT PIPE CLOSURE TYPE A PER SBCFCD SP 176

CURVE/LINE TABLE

	BEARING/DELTA	RADIUS	LENGTH/DISTANCE	TANGENT
1	N 29°16'43" E		12.00'	
2	60°43'17"	45	47.69'	26.36'
3	N 90°00'00" E		193.54'	
4	N 90°00'00" E		444.13'	
5	N 30°00'00" E		30.93'	
6	N 20°02'14" W		33.05'	
7	N 30°00'00" E		19.34'	
8	N 24°12'48" W		31.52'	
9	N 66°13'40" E		26.03'	

REFERENCE NOTES

FOR TRACK AND INTERIOR ACCESS ROAD GEOMETRICS SEE SHEET C501
FOR TRACK TYPICAL SECTIONS SEE SHEET C502
FOR INTERIOR ROADS TYPICAL SECTIONS SEE SHEET C503
FOR TRACK PROFILE SEE SHEET C504
FOR INTERIOR ROAD PROFILES SEE SHEET C505 AND C506
FOR SITE LAYOUT INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C200 THRU C211
FOR SITE GRADING INSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS C300 THRU C309
FOR SITE FENCING AND GATES LAYOUT SEE SHEETS C400 THRU C420
FOR HORIZONTAL CONTROL PLANS OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS L101 THRU L106
FOR SITE LAYOUT AND GRADING OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS G101 THRU G125
FOR STREET PROFILES OUTSIDE OF CONSTRUCTION MATCH LINE SEE SHEETS P101 THRU P109
FOR WATER IMPROVEMENT PLANS SEE SHEETS W101 THRU W120
FOR SEWER IMPROVEMENT PLANS SEE SHEETS SS101 THRU SS118
FOR STORM DRAIN IMPROVEMENT PLANS SEE SHEETS ST101 THRU ST119
FOR FUEL OIL SEPARATOR SYSTEM PLANS SEE SHEETS F101 THRU F104

FOR CONSTRUCTION

CERTIFIED BY PROFESSIONAL ENGINEER * DONALD BERMAN * No. 26491 * Exp. 03-31-96 * CIVIL * STATE OF CALIFORNIA

FINK ROBERTS & PETRIE, INC.
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Ontario, CA 91764

RHA LANDSCAPE ARCHITECTS
Landscape Architect
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Riverside, CA 92501

THE CALIFORNIA Speedway

NO.	REVISION DESCRIPTION	REVISION DATE

SURVEY DATE		DESIGN DATE	8-11-95
SURVEY PROJECT NO.		DESIGN PROJECT NO.	94-40A
SURVEY DRAWN BY		DESIGNED BY	KFS/AP/LH
SURVEYED BY		DRAWN BY	DB
SURVEY BOOK NO.			

SHEET TITLE
STORM DRAIN IMPROVEMENT
PLANS
STORM DRAIN LINE C
STA.10+00 TO STA.16+88.69

SHEET NO.
ST113

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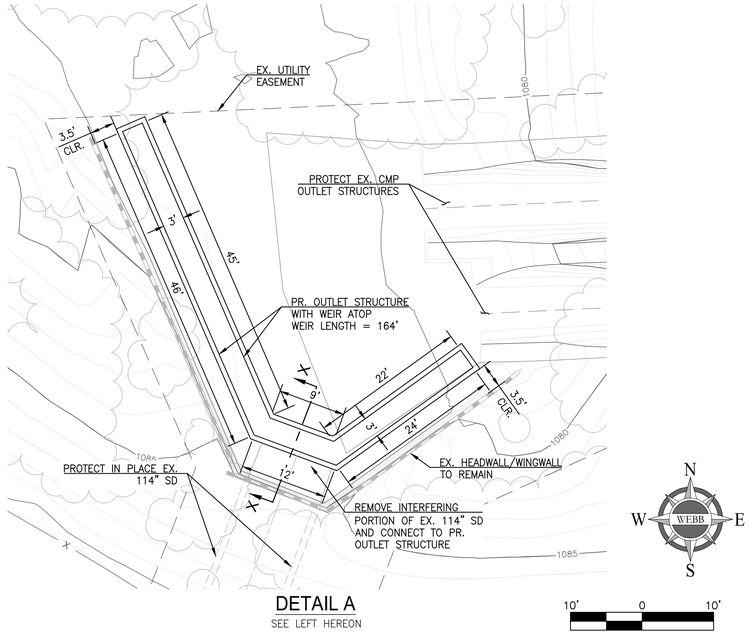
DATE: 26-Jan-96 14:38

Appendix C – Weir Analysis

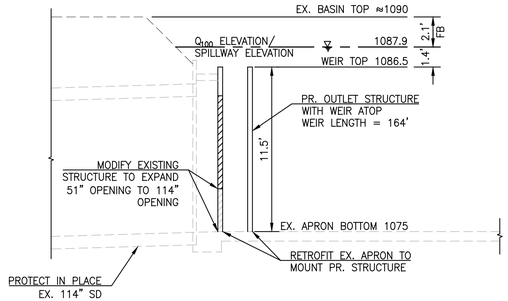




DETAIL A

SEE LEFT HEREON

1"=10'



SECTION X-X

H:1"=10'

V:1"=5'

PRELIM. CONCEPT FOR OUTLET STRUCTURE

PRELIMINARY

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O. 2021-0160

SHEET 1 OF 1 SHEETS

\\ELSINORE\WO4\2021\21-0160\DRAINAGE\HYD\100 YR WEIR ANALYSIS\21-0160-C-EX-BASIN.DWG 2/17/2022 9:19:53 AM

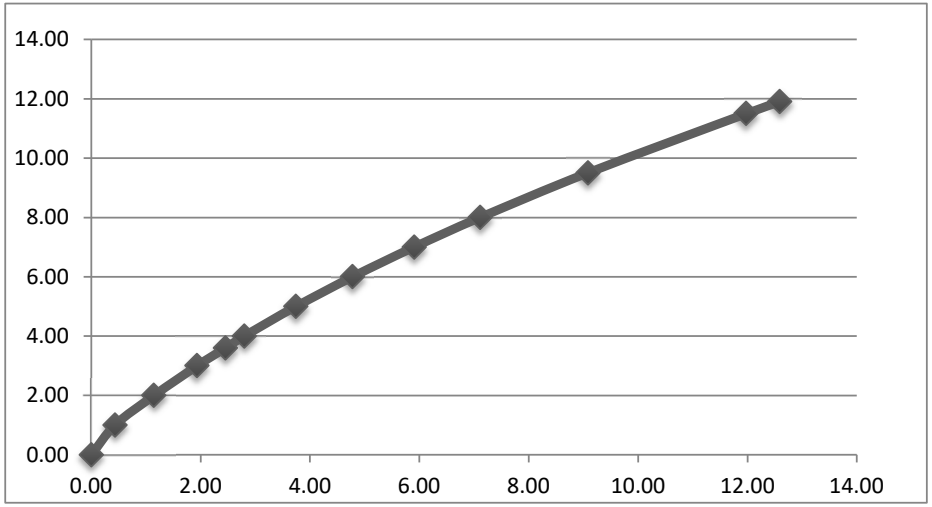
Basin Bottom 1,075

Input

Offsite Basin Stage Storage

Contour Elevation	Contour Area	Incremental Vol	Cum. Vol
1075	10,429.20	-	-
1076	28,943.26	18,915.48	18,915.48
1077	32,939.65	30,919.93	49,835.41
1078	36,017.01	34,466.88	84,302.29
1079	39,108.85	37,552.32	121,854.61
1080	43,137.55	41,106.75	162,961.36
1081	47,219.40	45,163.10	208,124.46
1082	50,958.36	49,077.01	257,201.47
1083	54,425.33	52,682.34	309,883.81
1084	57,771.71	56,090.20	365,974.01
1085	61,295.97	59,525.15	425,499.16
1086	64,747.31	63,013.77	488,512.93
1087	68,352.00	66,549.00	555,061.93
1087.9	71,654.40	63,002.88	618,064.81

	Stage (ft.)	Storage (ft^3)	Storage (ac-ft.)
1,075.00	0.00	-	0.00
1,076.00	1.00	18,915.48	0.43
1,077.00	2.00	49,835.41	1.14
1,078.00	3.00	84,302.29	1.94
1,078.60	3.60	106,833.68	2.45
1,079.00	4.00	121,854.61	2.80
1,080.00	5.00	162,961.36	3.74
1,081.00	6.00	208,124.46	4.78
1,082.00	7.00	257,201.47	5.90
1,083.00	8.00	309,883.81	7.11
1,084.50	9.50	395,736.59	9.08
1,086.50	11.50	521,787.43	11.98
1,086.90	11.90	548,407.03	12.59
1,087.90	12.90	618,064.81	14.19



Above Ground Storage=	521,787.43
Infiltrated Volume=	42,823.63
Total=	564,611.06
Design Capture Volume=	549,228.00

WQMP WSE=	1,086.50
1.4' to spillway=	1087.9
Basin Top Elevation=	1,090.30
*Depth for Q100=	1.40

*Refer to *Weir Calculation Sheet*

WEIR CALCULATIONS

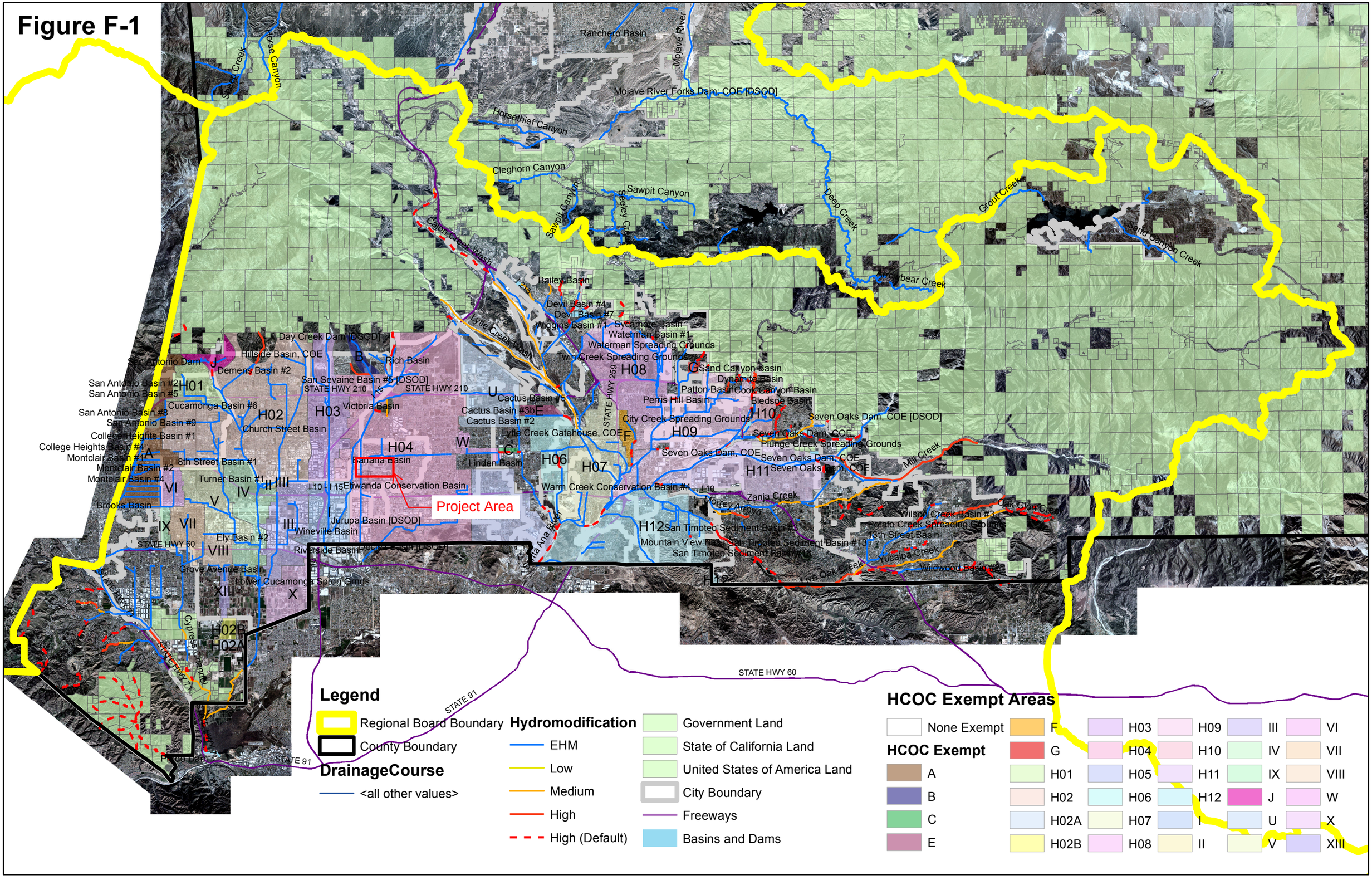
EQUATIONS

Q=CL(h)^(3/2)
where
L= 164.00 ft
C= 3.27

BASIN DEPTH	WEIR	Q (WEIR)
	HIGH	
Ft	Ft	CFS
	1.00	536.3
	1.10	618.7
	1.40	**888.3**
	1.50	985.2
	1.60	1085.4

Appendix D – HCOC Exempt Map

Figure F-1



Legend

- Regional Board Boundary
- County Boundary

DrainageCourse

- <all other values>

Hydromodification

- EHM
- Low
- Medium
- High
- High (Default)

- Government Land
- State of California Land
- United States of America Land
- City Boundary
- Freeways
- Basins and Dams

HCOC Exempt Areas

- None Exempt

HCOC Exempt

- A
- B
- C
- E
- F
- G
- H01
- H02
- H02A
- H02B
- H03
- H04
- H05
- H06
- H07
- H08
- H09
- H10
- H11
- H12
- I
- II
- III
- IV
- V
- VI
- VII
- VIII
- IX
- J
- U
- W
- X
- XIII

Hydromodification

A.1 Hydrologic Conditions of Concern (HCOC) Analysis

HCOC Exemption:

1. **Sump Condition:** All downstream conveyance channel to an adequate sump (for example, Prado Dam, Santa Ana River, or other Lake, Reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

2. **Pre = Post**: The runoff flow rate, volume and velocity for the post-development condition of the Priority Development Project do not exceed the pre-development (i.e, naturally occurring condition for the 2-year, 24-hour rainfall event utilizing latest San Bernardino County Hydrology Manual.

    a. Submit a substantiated hydrologic analysis to justify your request.

3. **Diversion to Storage Area**: The drainage areas that divert to water storage areas which are considered as control/release point and utilized for water conservation.

    a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (http://sbcounty.permitrack.com/wap) for reference.

4. **Less than One Acre**: The Priority Development Project disturbs less than one acre. The Co-permittee has the discretion to require a Project Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The project disturbs less than one acre and is not part of a common plan of development.

5. **Built Out Area**: The contributing watershed area to which the project discharges has a developed area percentage greater than 90 percent.

    a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (http://sbcounty.permitrack.com/wap) for reference.

Summary of HCOC Exempted Area

	HCOC Exemption reasoning				
	1	2	3	4	5
Area					
A			X		X
B			X		
C					X
E			X		
F					X
G			X		X
H01	X		X		
H02	X		X		
H02A	X		X		
H02B			X		
H03			X		
H04	X		X		
H05	X				
H06			X		
H07	X				
H08	X		X		
H09	X				
H10	X		X		
H11	X		X		
H12	X				
J			X		
U			X		
W			X		
I			X		
II			X		
III					X
IV			X		X
V			X*		
VI					X
VII					X
VIII			X		
IX					X
X			X		
XIII			X		

*Detention/Conservation Basin

Preliminary Water Quality Management Plan

For:

Speedway Commerce Center II

APNS: 0231-011-09, 0231-011-11, 0231-011-12, 0231-111-17, 0231-111-18, 0231-111-20, 0231-111-19, 0231-111-06, 0231-111-10

Prepared for:

Hillwood Development Company

901 Via Piemonte, Suite 175

Ontario, CA 91764

Prepared by:

Albert A. Webb Associates

3788 McCray St

Riverside CA 92506

(951) 686-1070

Submittal Date: December 6, 2021

Revision Date: April 13, 2022

Approval Date:_____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for California Speedway, LLC. by Albert A. Webb Associates. The WQMP is intended to comply with the requirements of the County of San Bernardino and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

.

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):		Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APNs: 0231-011-09, 0231-011-11, 0231-011-12, 0231-111-17, 0231-111-18, 0231-111-20, 0231-111-19, 0231-111-06, 0231-111-10

Owner's Signature			
Owner Name:			
Title			
Company	California Speedway, LLC		
Address	9300 Cherry Avenue, Fontana, CA 92335		
Email			
Telephone #			
Signature		Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):		Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APNs: 0231-011-09, 0231-011-11, 0231-011-12, 0231-111-17, 0231-111-18, 0231-111-20, 0231-111-19, 0231-111-06, 0231-111-10

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: Eric Hays		PE Stamp Below
Title	Senior Engineer	
Company	Albert A. WEBB Associates	
Address	3788 McCray Street, Riverside, CA 92506	
Email	eric.hays@webbassociates.com	
Telephone #	951-320-6075	
Signature		
Date		

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Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name	Speedway Commerce Center II				
Project Owner Contact Name:	California Speedway, LLC				
Mailing Address:	9300 Cherry Avenue, Fontana, CA 92335	E-mail Address:		Telephone:	(909) 429-5304
Permit/Application Number(s):		Tract/Parcel Map Number(s):			
Additional Information/ Comments:					
Description of Project:	The Speedway Commerce Center II Specific Plan area is comprised of approximately 432.7 acres of a 522-acre site, located in unincorporated San Bernardino County. The Specific Plan area is within the City of Fontana Sphere of Influence (SOI). Under existing conditions, the project site naturally drains from the northeast to the southwest. An open stormwater channel exists on the south side of the site. This channel intercepts all runoff within the project area, and outlets into an existing drainage basin located at the southwest corner of the site. All offsite flows are intercepted by Cherry Ave to the east and existing San Sevaine Channel to the north of the site. The existing onsite drainage pattern is maintained in the proposed conditions. All flows drain in a northeast to south westerly manner consistent with the existing pattern. Flows originate at northeast corner of the site and traverse through the site via a proposed storm drain network, picking up flows from remaining onsite areas and street flows, and are ultimately conveyed to the existing San Sevaine channel located southwesterly of the site. Sixteen underground infiltration facilities and five biotreatment facilities (modular wetland) are placed to treat design capture volume (DCV) for respective tributary areas. DMA 8 consists of all onsite streets tributary areas and central tributary area of site. The design capture volume (DCV) of DMA8 will be treated by existing infiltration basin located at the southwest corner of the site. Infiltration testing has been conducted and a Factor of safety of 4.5 has been applied in accordance with Worksheet in Appendix D of the Technical Guidance Document. The facilities will intercept and infiltrate entire design capture volume (DCV) within 48 hrs. Events in excess of the DCV volume will overflow to the existing San Sevaine channel through adequately sized outlet structures.				

Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	N/A

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

1 Development Category (Select all that apply):

☒ Significant re-development involving the addition or replacement of 5,000 ft² or more of impervious surface on an already developed site	☐ New development involving the creation of 10,000 ft² or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft² or more
☐ Hillside developments of 5,000 ft² or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft² of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☐ Parking lots of 5,000 ft² or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft² or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

2 Project Area (ft2):	22,738,320	**3** Number of Dwelling Units:	0	**4** SIC Code:	

5 Is Project going to be phased? Yes ☒ No ☐ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

6 Does Project include roads? Yes ☒ No ☐ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

The existing basin located in the southwest corner of the site will be transferred to San Bernardino County – Special Districts for Ownership, Operations, & Maintenance. The onsite BMPs (infiltration & biotreatment facilities) will be maintained by the property owner.

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	
Nutrients - Phosphorous	E ☒	N ☐	
Nutrients - Nitrogen	E ☒	N ☐	
Noxious Aquatic Plants	E ☒	N ☐	
Sediment	E ☒	N ☐	
Metals	E ☒	N ☐	
Oil and Grease	E ☒	N ☐	
Trash/Debris	E ☒	N ☐	
Pesticides / Herbicides	E ☒	N ☐	
Organic Compounds	E ☒	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits

1 Project Types that Qualify for Water Quality Credits: *Select all that apply*			
☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
2 Total Credit % *(Total all credit percentages up to a maximum allowable credit of 50 percent)*			
Description of Water Quality Credit Eligibility (if applicable)	N/A		

Section 3 Site and Watershed Description

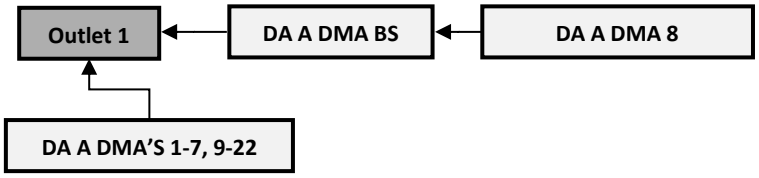
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.***

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 34° 5' 20.09554"N	Longitude - 117° 30' 14.78398"W	Thomas Bros Map page 604

1 San Bernardino County climatic region: ☒ Valley ☐ Mountain

2 Does the site have more than one drainage area (DA): Yes☐ No☒ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Conveyance	Briefly describe on-site drainage features to convey runoff that is not retained within a DMA
DA A DMA 8 to DMA BS Outlet 1	Runoff form streets and central areas (DMA 8) are conveyed by proposed storm drain and the existing channel to the existing infiltration basin (DMA BS) on SE corner of site.

Form 3-2 Existing Hydrologic Characteristics for Drainage Area A

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 1	DMA 2	DMA 3	DMA 4
1 DMA drainage area (ft^2)	2,352,240.0	1,001,880.0	2,352,240.0	1,724,976.0
2 Existing site impervious area (ft^2)	2,117,016.0	901,692.0	2,117,016.0	1,552,478.4
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	II	II	II	II
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	A	A	A	A
5 Longest flowpath length (ft)*				
6 Longest flowpath slope (ft/ft)*				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	Commercial
8** Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	Poor	Poor

*Will be provided in final WQMP
**See Appendix A1

Form 3-2 Existing Hydrologic Characteristics for Drainage Area A

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 5	DMA 6	DMA 7	DMA 8
1 DMA drainage area (ft^2)	1,846,944.0	1,838,232.0	1,176,120.0	5375304.0
2 Existing site impervious area (ft^2)	1,662,249.6	1,654,408.8	1,058,508.0	4,837,773.6
3 Antecedent moisture condition *For desert areas, use* *http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	II	II	II	II
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	A	A	A	A
5 Longest flowpath length (ft)*				
6 Longest flowpath slope (ft/ft)*				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	Commercial
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	Poor	Poor

*Will be provided in final WQMP
**See Appendix A1

Form 3-2 Existing Hydrologic Characteristics for Drainage Area A

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 9	DMA 10	DMA 11	DMA 12
1 DMA drainage area (ft^2)	322,344.0	204,732.0	243,936.0	470,448.0
2 Existing site impervious area (ft^2)	290,109.6	184,258.8	219,542.4	423,403.2
3 Antecedent moisture condition *For desert areas, use* *http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	II	II	II	II
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	A	A	A	A
5 Longest flowpath length (ft)*				
6 Longest flowpath slope (ft/ft)*				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	Commercial
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	Poor	Poor

*Will be provided in final WQMP
**See Appendix A1

Form 3-2 Existing Hydrologic Characteristics for Drainage Area A

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 13	DMA 14	DMA 15	DMA 16
1 DMA drainage area (ft^2)	178,596.0	797,148.0	74052.0	378,972.0
2 Existing site impervious area (ft^2)	160,736.4	717,433.2	66,646.8	341,074.8
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	II	II	II	II
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	A	A	A	A
5 Longest flowpath length (ft)*				
6 Longest flowpath slope (ft/ft)*				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	Commercial
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	Poor	Poor

*Will be provided in final WQMP
**See Appendix A1

Form 3-2 Existing Hydrologic Characteristics for Drainage Area A

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 17	DMA 18	DMA 19	DMA 20
1 DMA drainage area (ft^2)	156,816.0	182,952.0	87,120.0	143,748.0
2 Existing site impervious area (ft^2)	141,134.4	164,656.8	78,408.0	129,373.2
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	II	II	II	II
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	A	A	A	A
5 Longest flowpath length (ft)*				
6 Longest flowpath slope (ft/ft)*				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	Commercial
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	Poor	Poor

*Will be provided in final WQMP
**See Appendix A1

Form 3-2 Existing Hydrologic Characteristics for Drainage Area A

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 21	DMA 22	DMA BS	
1 DMA drainage area (ft^2)	252,648.0	1,158,696.0	161,172	
2 Existing site impervious area (ft^2)	227,383.2	1,042,826.4	0	
3 Antecedent moisture condition *For desert areas, use* *http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	II	II	II	
4 Hydrologic soil group *Refer to Watershed Mapping Tool –* *http://permitrack.sbcounty.gov/wap/*	A	A	A	
5 Longest flowpath length (ft)*				
6 Longest flowpath slope (ft/ft)*				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	Poor	

*Will be provided in final WQMP

**See Appendix A1

Form 3-3 Watershed Description for Drainage Area A

Receiving waters *Refer to Watershed Mapping Tool - http://permitrack.sbcounty.gov/wap/ See 'Drainage Facilities" link at this website*	San Sevaine Channel – Reach 3
Applicable TMDLs *Refer to Local Implementation Plan*	No
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	No
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	No
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	No
Hydrologic Conditions of Concern	☐ Yes *Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal* ☒ No
Watershed–based BMP included in a RWQCB approved WAP	☐ Yes *Attach verification of regional BMP evaluation criteria in WAP* • *More Effective than On-site LID* • *Remaining Capacity for Project DCV* • *Upstream of any Water of the US* • *Operational at Project Completion* • *Long-Term Maintenance Plan* ☒ No

*See Appendix E for summary from Watershed Mapping Tool
** See Appendix F for HCOC Map

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	Owner shall provide, to all employees and persons/entities that will be contracted to perform services for the development, BMP training and educational materials. Materials provided through the San Bernardino County Area-Wide Storm Water Program Public Education Program should be made available (http://www.co.san-bernardino.ca.us/flood/npdes).Training will be required within 6 months of hire dates for new employees, and then annually thereafter
N2	Activity Restrictions	☒	☐	Restrictions will include requiring dumpster lids to be closed at all times and prohibiting the blowing, sweeping, or hosing of debris into streets, storm drain inlets, and other conveyances. In particular, pesticide application in areas must be performed by an applicator certified by the California Department of Pesticide Regulation. No activity shall be allowed for which a specific BMP has not been included
N3	Landscape Management BMPs	☒	☐	Landscape planning shall employ strategies to maximize water storage and conservation and minimize runoff, promote infiltration, and protect slopes from erosion. Such strategies include extensive mulching, low water use shrubs, and grouping of plants with similar water requirements. Maintenance personnel will regularly mow, remove all sediment, inspect and keep any equipment in good repair, i.e. broken sprinkler heads, etc. Any repairs will be done promtly. In addition, fertilizer and pesticide use will be consistent with instructions contained on product labels and with the regulations administered by the State Department of Pesticide Regulation
N4	BMP Maintenance	☒	☐	Create regularly scheduled times for inspection and maintenacne of Infiltration facilities. The frequency shall meet the current minimum City standard but shall be at a minimum once per three months. A time in the late summer or early fall, prior to the storm season (October 1 to May 1), shall also be part of this schedule to reduce the amount of sediment, garden waste, and trash entering the basins.
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	Hazardous waste materials and wastes shall be collected and stored in covered containers in designated areas. In addition, signs shall be placed to ensure all hazardous waste is collected, removed and disposed of only at authorized disposal areas. Inspections shall be conducted regularly to check all containers and other equipment,

Form 4.1-1 Non-Structural Source Control BMPs				
				used in handling hazardous waste, to minimize potential leaks and spills. Regular maintenance of all equipment will be conducted and repairs will be carried out promtly after identification. Owner shall ensure all operations are in conformance with Title 22 Division 4.5 - Environmental Health Standards for the Management of Hazardous Materials.
N6	Local Water Quality Ordinances	☒	☐	This PWQMP meets or exceeds local water quality ordinances.
N7	Spill Contingency Plan	☒	☐	Spill Contingency Plan to be determined by building owner prior to occucpancy. See SC-11"Spill Prevention, Control, and Cleanup", sample Spill Contingency Template, and SC10"Non-Storm water Discharges" in "BMP Fact Sheets") for guidance and recommended procedures.
N8	Underground Storage Tank Compliance	☐	☐	Will be determined at final study
N9	Hazardous Materials Disclosure Compliance	☒	☐	Compliance through the Phase 1 Site Assessments

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☒	☐	Hazardous waste materials and wastes shall be collected and stored in covered containers in designated areas. In addition, signs shall be placed to ensure all hazardous waste is collected, removed and disposed of only at authorized disposal areas. Inspections shall be conducted regularly to check all containers and other equipment, used in handling hazardous waste, to minimize potential leaks and spills. Regular maintenance of all equipment will be conducted and repairs will be carried out promtly after identification. Owner shall ensure all operations are in conformance with the Uniform Fire Code Article 80.
N11	Litter/Debris Control Program	☒	☐	Litter control and trash management will be provided by a contracted maintenance company under the direction of the building owner
N12	Employee Training	☒	☐	Training will be required within 6 months of hire dates for new employees, and then annually thereafter
N13	Housekeeping of Loading Docks	☐	☐	Will be determined at final study
N14	Catch Basin Inspection Program	☒	☐	Drainage outlet proposed at the Infiltration basins shall be inspected semy-annually, in the late summer or early fall, and at the end of the rainy season, and cleaned as needed, or if accumulated sediment/debris. All portions of the drainage facilities will be evaluated annually to determine the adequacy of the inspection and maintenance frequency.
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	Create regularly scheduled times for the sweeping of drive isles and parking lot areas. The frequency should meet the current minimum City standard but shall be at a minimum once a month. A time in the late summer or early fall, prior to the storm season (October 1 to May 1), shall also be part of this schedule to reduce the amount of sediment, garden waste, and trash entering the storm drain system
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	N/A
N17	Comply with all other applicable NPDES permits	☒	☐	Construction general permit compliance will be accomplished via filing an NOI with SMARTS and preparing a project specific SWPPP document.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	The runoff will flow on the surface via concrete gutters, grass swale or curb cuts into the proposed Infiltration basins.
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	There are no outdoor storage areas proposed
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☐	☐	Will be determined at final study
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	Landscape planning shall employ strategies to maximize water storage and conservation and minimize runoff, promote infiltration, and protect slopes from erosion. Such strategies include extensive mulching, low water use shrubs, and grouping of plants with similar water requirements. Maintenance personnel will regularly inspect and keep in good repair, i.e. broken sprinkler heads, etc. will be repaired promptly. In addition, fertilizer and pesticide use will be consistent with instructions contained on product labels and with the regulations administered by the State Department of Pesticide Regulation.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	Where possible, landscape areas will be depressed
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☒	☐	All sloped areas will be protected from erosion with landscaping in accordance with the recommendations CASQA SD-10
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☐	Will be determined at final study
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☐	Will be determined at final study
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	Vehicle washing prohibited onsite
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	There are no outdoor processing areas proposed

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment washeareas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	Equipment washing is prohibited onsite
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	No fueling areas proposed
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☐	☒	No hillside areas onsite
S14	Wash water control for food preparation areas	☐	☒	Project is not a food establishment
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	Vehicle and equipment washing is prohibited onsite

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist

Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation: : This project has maximized the open landscaped areas to the maximum extent allowed by the proposed land use.
Maximize natural infiltration capacity: Yes ☒ No ☐ Explanation: Natural infiltration capacity is preserved wherever possible, given the landuse. Natural infiltration will take place over these areas.
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation: Existing site drains south-west. This is preserved in the proposed conditions.
Disconnect impervious areas: Yes ☒ No ☐ Explanation: To the maximum extent practical and as dictated by the landuse.
Protect existing vegetation and sensitive areas: Yes ☐ No ☒ Explanation: The site has been used as commercial land. No environmentally sensitive nor natural, undisturbed areas exist.
Re-vegetate disturbed areas: Yes ☒ No ☐ Explanation: The site will be completely developed either with buildings, asphalt, or landscaping. There will be no undeveloped disturbed areas.
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation: Provisions will be in place that will prevent unnecessary heavy equipment from driving over the proposed infiltration facilities.
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☒ No ☐ Explanation: To the maximum extent practicable and as allowed by county flood control regulations to contain 10-year events in curb and 100-year events in right of way
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation: : All landscaped areas shall be roped off to keep unwanted equipment from driving over these areas.

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi^2), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA A)

1 Project area DA 1 (ft^2): 22,738,320	**2** Imperviousness after applying preventative site design practices (Imp%): 90%	**3** Runoff Coefficient (Rc): _0.73 *$R_c = 0.858(Imp\%)^{\wedge 3} - 0.78(Imp\%)^{\wedge 2} + 0.774(Imp\%) + 0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.528 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.782 *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 2,123,376 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☐ No ☒

Go to: *http://permitrack.sbcounty.gov/wap/*

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below

(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	**1** *Form 4.2-3 Item 12*	**2** *Form 4.2-4 Item 13*	**3** *Form 4.2-5 Item 10*
Post-developed	**4** *Form 4.2-3 Item 13*	**5** *Form 4.2-4 Item 14*	**6** *Form 4.2-5 Item 14*
Difference	**7** *Item 4 – Item 1*	**8** *Item 2 – Item 5*	**9** *Item 6 – Item 3*
Difference (as % of pre-developed)	**10** % *Item 7 / Item 1*	**11** % *Item 8 / Item 2*	**12** % *Item 9 / Item 3*

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)

Weighted Curve Number Determination for: Pre-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1a Land Cover type								
2a Hydrologic Soil Group (HSG)								
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								
Weighted Curve Number Determination for: Post-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1b Land Cover type								
2b Hydrologic Soil Group (HSG)								
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								

5 Pre-Developed area-weighted CN:	**7** Pre-developed soil storage capacity, S (in): *S = (1000 / Item 5) - 10*	**9** Initial abstraction, I_a (in): *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN:	**8** Post-developed soil storage capacity, S (in): *S = (1000 / Item 6) - 10*	**10** Initial abstraction, I_a (in): *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in):
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3):
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*								
2 Change in elevation (ft)								
3 Slope (ft/ft), *S_o = Item 2 / Item 1*								
4 Land cover								
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*								
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*								
7 Cross-sectional area of channel (ft^2)								
8 Wetted perimeter of channel (ft)								
9 Manning's roughness of channel (n)								
10 Channel flow velocity (ft/sec) *V_{fps} = (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*								
11 Travel time to outlet (min) *T_t = Item 6 / (Item 10 * 60)*								
12 Total time of concentration (min) *T_c = Item 5 + Item 11*								
13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*								
14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*								
15 Additional time of concentration needed to meet HCOC requirement (min): *$T_{C\text{-}HCOC}$ = (Item 13 * 0.95) – Item 14*								

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	*n/a*			*n/a*		
	DMA B		*n/a*			*n/a*	
	DMA C			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA A: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA B: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA C: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAC/2}$]*
10 Peak runoff from pre-developed condition confluence analysis (cfs):		*Maximum of Item 8, 9, and 10 (including additional forms as needed)*
11 Post-developed Q_p at T_c for DMA A: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA B: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA C: *Same as Item 10 for post-developed values*
14 Peak runoff from post-developed condition confluence analysis (cfs):		*Maximum of Item 11, 12, and 13 (including additional forms as needed)*
15 Peak runoff reduction needed to meet HCOC Requirement (cfs):		$Q_{p\text{-}HCOC}$ *= (Item 14 * 0.95) – Item 10*

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). **Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment**.

Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒
See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☐ No ☒
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP.
If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP.
Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3):		$V_{retention}$ *=Sum of Item 4 for all BMPs*	
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3):		$V_{retention}$ *=Sum of Item 12 for all BMPs*	

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes ☐ No ☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)			
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*			
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*			
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*			
19 Retention Volume (ft^3) $V_{retention}$ *= Item 17 * (Item 18 / 24)*			
20 Runoff volume retention from evapotranspiration BMPs (ft^3): $V_{retention}$ *=Sum of Item 19 for all BMPs*			
21 Implementation of Street Trees: Yes ☐ No ☒ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft^2)			
24 Runoff volume retention from street trees (ft^3) $V_{retention}$ *= Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*			
25 Runoff volume retention from street tree BMPs (ft^3): $V_{retention}$ *= Sum of Item 24 for all BMPs*			
26 Implementation of residential rain barrel/cisterns: Yes ☐ No ☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft^3) $V_{retention}$ *= Item 27 * 3*			
29 Runoff volume retention from residential rain barrels/Cisterns (ft3): $V_{retention}$ *=Sum of Item 28 for all BMPs*			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 *Sum of Items 5, 13, 20, 25 and 29*			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

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Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA A)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 2,123,376 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA A DMA 1 BMP Type Infiltration	DA A DMA 2 BMP Type Infiltration	DA A DMA 3 BMP Type Infiltration
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	22.2	9.6	11.0
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	4.5	4.5	4.5
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	4.9	2.1	2.4
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	48
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6	6	6
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6	6	6
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	77,220	44,880	105,456
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	0
10 Amended soil porosity	30%	30%	30%
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	0
12 Gravel porosity	40%	40%	40%
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	3
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	0	0	0
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	220,560	93,946	220,816

16 Total Retention Volume from LID Infiltration BMPs: 2,300,538 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 108.3% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA A)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 2,123,376 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA A DMA 4 BMP Type Infiltration	DA A DMA 5 BMP Type Infiltration	DA A DMA6 BMP Type Infiltration
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	16.8	4.7	2
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	4.5	4.5	4.5
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	3.7	1.0	0.4
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	48
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6	6	6
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6	6	6
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	77,292	82,728	140,904
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	0
10 Amended soil porosity	30%	30%	30%
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	0
12 Gravel porosity	40%	40%	40%
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	3
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	0	0	0
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	161,830	173,214	200,264

16 Total Retention Volume from LID Infiltration BMPs: 2,300,538 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 108.3% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA A)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 2,123,376 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA A DMA 7 BMP Type Infiltration	DA A DMA8+DMA BS BMP Type Infiltration	DA A DMA 11 BMP Type Infiltration
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	16.8	30.0	22.2
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	4.5	4.5	4.5
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	3.7	6.7	4.9
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	48
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6	16	6
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6	16	6
8 Infiltrating surface area, *SA_{BMP}* (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	38,448	26,353	8,040
9 Amended soil depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	0
10 Amended soil porosity	30%	30%	30%
11 Gravel depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	0
12 Gravel porosity	40%	40%	40%
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	3
14 Above Ground Retention Volume (ft^3) Vret = Pdesign / 12 * SAinf * (Tdrawdown + Tfill) *Described in Table 5-4 of the TGD for WQMP*	0	750,402	0
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	110,418	0	22,952

16 Total Retention Volume from LID Infiltration BMPs: 2,300,538 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 108.3% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

*Runoff form streets and central areas (DMA 8) are conveyed by proposed storm drain and the existing channel to the existing infiltration basin (DMA BS) on SE corner of site

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA A)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 2,123,376 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA A DMA 12 BMP Type Infiltration	DA A DMA 13 BMP Type Infiltration	DA A DMA 14 BMP Type Infiltration
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	16.1	11	6.2
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	4.5	4.5	4.5
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	3.9	2.4	1.4
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	48
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6	6	6
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6	6	6
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	15,522	8,022	25,830
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	0
10 Amended soil porosity	30%	30%	30%
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	0
12 Gravel porosity	40%	40%	40%
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	3
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	0	0	0
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	44,326	16,776	54,073

16 Total Retention Volume from LID Infiltration BMPs: 2,300,538 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 108.3% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA A)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 2,123,376 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA A DMA 15 BMP Type Infiltration	DA A DMA 16 BMP Type Infiltration	DA A DMA17 BMP Type Infiltration
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	16.8	7.2	1.8
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	4.5	4.5	4.5
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	3.7	1.6	1.4
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	48
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6	6	6
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6	6	6
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	7,308	12,516	10,080
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	0
10 Amended soil porosity	30%	30%	30%
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	0
12 Gravel porosity	40%	40%	40%
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	3
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	0	0	0
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	20,861	35,739	28,780

16 Total Retention Volume from LID Infiltration BMPs: 2,300,538 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 108.3% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA A)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 2,123,376 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA A DMA 20 BMP Type Infiltration	DA A DMA 21 BMP Type Infiltration	DA A DMA 22 BMP Type Infiltration
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	2	11.2	14.1
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	4.5	4.5	4.5
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	0.4	2.5	3.1
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	48
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6	6	6
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6	6	6
8 Infiltrating surface area, *SA_{BMP}* (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	9,555	8,316	51,948
9 Amended soil depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	0
10 Amended soil porosity	30%	30%	30%
11 Gravel depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	0
12 Gravel porosity	40%	40%	40%
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	3
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	0	0	0
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	13,493	23,741	108,775

16 Total Retention Volume from LID Infiltration BMPs: 2,300,538 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 108.3% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3): *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16*			
BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility			
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*			
4 Landscaped area planned for use of harvested stormwater (ft^2)			
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day			
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*			
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*			
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*			
9 Total Retention Volume (ft^3) from Harvest and Use BMP *Sum of Item 8 for all harvest and use BMP included in plan*			
10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest & use BMPs? Yes ☐ No ☐ *If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.*			

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)

<table>
<tr><td colspan="2">1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft³): 0 Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9</td><td colspan="2">List pollutants of concern Copy from Form 2.3-1.
Pathogens (Bacterial / Virus), Nutrients – Phosphorous, Nutrients – Nitrogen, Noxious Aquatic Plants, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides / Herbicides, Organic Compounds</td></tr>
<tr><td rowspan="2">2 Biotreatment BMP Selected
(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)</td><td>Volume-based biotreatment
Use Forms 4.3-6 and 4.3-7 to compute treated volume</td><td colspan="2">Flow-based biotreatment
Use Form 4.3-8 to compute treated volume</td></tr>
<tr><td>☐ Bioretention with underdrain
☐ Planter box with underdrain
☐ Constructed wetlands
☐ Wet extended detention
☐ Dry extended detention</td><td colspan="2">☐ Vegetated swale
☐ Vegetated filter strip
☒ Proprietary biotreatment</td></tr>
<tr><td>3 Volume biotreated in volume based biotreatment BMP (ft³): 0 Form 4.3-6 Item 15 + Form 4.3-7 Item 13</td><td>4 Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft³): 0 Item 1 – Item 3</td><td colspan="2">5 Remaining fraction of LID DCV for sizing flow based biotreatment BMP: 100% Item 4 / Item 1</td></tr>
<tr><td colspan="4">6* Flow-based biotreatment BMP capacity provided (cfs): 3.7 Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)</td></tr>
<tr><td colspan="4">7 Metrics for MEP determination:
• Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.</td></tr>
</table>

* Design captured flow rate was determined by Riverside County LID BMP Manual Factsheet. See Appendix B2 for details and the summary table of Modular wetland size and capacity.

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*			
2 Amended soil infiltration rate *Typical ~ 5.0*			
3 Amended soil infiltration safety factor *Typical ~ 2.0*			
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*			
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*			
8 Amended soil surface area (ft^2)			
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity, *n*			
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
12 Gravel porosity, *n*			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item 9 * Item 10) +(Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*			
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-7 Volume Based Biotreatment (DA 1) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*				
2 Bottom width (ft)				
3 Bottom length (ft)				
4 Bottom area (ft^2) A_{bottom} = *Item 2 * Item 3*				
5 Side slope (ft/ft)				
6 Depth of storage (ft)				
7 Water surface area (ft^2) $A_{surface}$ =*(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*				
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V =*Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*				
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*				
10 Outflow rate (cfs) Q_{BMP} = *(Item* $8_{forebay}$ *+ Item* 8_{basin}*) / (Item 9 * 3600)*				
11 Duration of design storm event (hrs)				
12 Biotreated Volume (ft^3) $V_{biotreated}$ = *(Item* $8_{forebay}$ *+ Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*				
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA A)

Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA A DMA 9 BMP Type Modular Wetland	DA A DMA 10 BMP Type Modular Wetland	DA A DMA 15 BMP Type Modular Wetland
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*	Pathogens (Bacterial / Virus), Nutrients – Phosphorous, Nutrients – Nitrogen, Noxious Aquatic Plants, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides / Herbicides, Organic Compounds	Pathogens (Bacterial / Virus), Nutrients – Phosphorous, Nutrients – Nitrogen, Noxious Aquatic Plants, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides / Herbicides, Organic Compounds	Pathogens (Bacterial / Virus), Nutrients – Phosphorous, Nutrients – Nitrogen, Noxious Aquatic Plants, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides / Herbicides, Organic Compounds
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) *b_w = (Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) *SA_{top} = (Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

See Appendix B2

Form 4.3-8 Flow Based Biotreatment (DA A)			
Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA A DMA 18 BMP Type Modular Wetland	DA A DMA 19 BMP Type Modular Wetland	
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*	Pathogens (Bacterial / Virus), Nutrients – Phosphorous, Nutrients – Nitrogen, Noxious Aquatic Plants, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides / Herbicides, Organic Compounds	Pathogens (Bacterial / Virus), Nutrients – Phosphorous, Nutrients – Nitrogen, Noxious Aquatic Plants, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides / Herbicides, Organic Compounds	
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) b_w *= (Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) SA_{top} *= (Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

See Appendix B2

* DMA 15, 18 and 19 area might be merged with DMA 8 into a new DMA0 in final design as Current infiltration basin in DMA BS have enough capacity.

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): 2,123,376 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): 0 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 2,300,538 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 3.67 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☒ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☒ No ☐
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1)

1 Volume reduction needed for HCOC performance criteria (ft^3): *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	**2** On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): *Item 1 – Item 2*	**4** Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*

5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*

6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐
  BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)
- Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐
  BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Education For Property Owners and Employees	Property Owner	Distribute educational materials and conductannual awareness training	Upon firstoccupancy and yearly thereafter
Activity Restrictions	Property Owner/HOA	The owner will restrict activities which may have a negative impact on storm water quality. Restrictions shall include prohibiting the storage of outdoor material, vehicle and equipment washing, outdoor processing,fueling up and wash water control for food preparation.	Continuous
Street Sweeping of Private Street	Property Owner/HOA	Inspect parking lots for trash and accumulation of dust and debris. Street sweeping shall be conducted monthly.	Inspections Monthly.Maintenanc-Monthly
Drainage Facility Inspection and Maintenance	Property Owner/HOA	Inspect twice annually in the early fall before the rainy season and in the late Spring after the rainy season. Remove debris/sediment build-up	Inspect twice annually, once before and after the rainy season and after extreme storm events. Maintenance as needed
Landscape Planning & maintenance.	Property Owner/HOA	Mow, weed, & trim vegetation. Inspect inlet & outlet structures. Re-vegetate bare areas. See below for further details.	Inspect weekly. Maintenance as needed.
Efficient Irrigation	Property Owner/HOA	Repair and maintain leaky/broken sprinkler heads. See below for further details.	Inspect weekly. Maintenance as needed.

Litter Control	Property Owner/HOA	Inspect areas for accumulation of trash and debris and haul trash off-site to City refuse	Check Daily and empty as needed
Infiltration Basins	Property Owner/HOA	Monthly inspections should occur for debris and litter removal and signs of ponding issues such as odors, insects, and overgrowth. Prior to October 1, conduct annual inspections and maintenance for erosion, clogging of outlets, standing water issues, and adequacy of infiltration. Visually inspect inlets and outlets on a monthly basis because of their importance for water quality management and post-construction storm water pollution prevention. One of these inspections should be before October 1 and one should be after May 1. Remove litter, debris, and dead egetation. Re-vegetate as needed.Check for signs of ponding issues such as odors,clogging of outlets, standing water, erosion, andadequacy of infiltration	Inspect twice annually, once before and after the rainy season and after extreme storm events. Maintenance as needed.

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

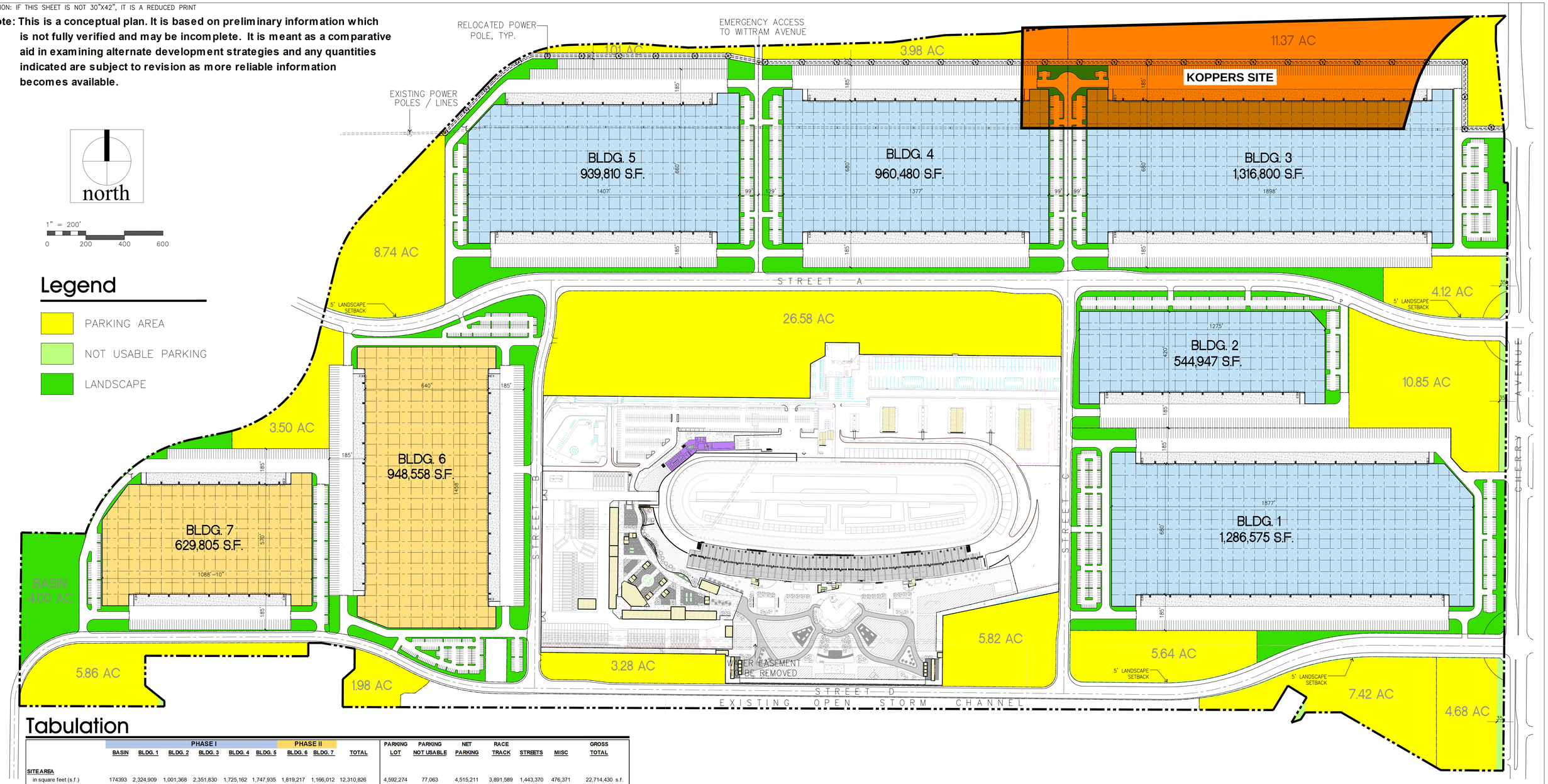
- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

After checking the capacity of existing basin (DMA BS) located in SE corner of site, we found that basin has excess capacity to handle design capture volume (DCV) of DMA15, 18 and 19 in addition to DMA8. So, in final design, DMA15, 18 and 19 that were originally using modular wetland may be merged back with DMA8 into new DMA0, which will be treated by existing basin. See Appendix C - Alternative Plan for details.

Appendix A - Appendix A – Maps and Site Plan

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT

Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.



Tabulation

	PHASE I					PHASE II			PARKING	PARKING	NET	RACE			GROSS
	BASIN	BLDG. 1	BLDG. 2	BLDG. 3	BLDG. 4	BLDG. 5	BLDG. 6	BLDG. 7	TOTAL	LOT	NOT USABLE	PARKING	TRACK	STREETS	MISC	TOTAL
SITE AREA																
in square feet (s.f.)	174393	2,324,909	1,001,368	2,351,830	1,725,162	1,747,935	1,819,217	1,166,012	12,310,826	4,592,274	77,063	4,515,211	3,891,589	1,443,370	476,371	22,714,430 s.f.
in acres (AC)	4.00	53.37	22.99	53.99	39.60	40.13	41.76	26.77	251.85	105.42	1.77	103.65	89.34	33.14	10.94	521.45 AC
BUILDING AREA																
Office		20,000	10,000	20,000	20,000	20,000	20,000	10,000	120,000							
Warehouse		1,266,575	534,947	1,296,800	940,480	919,810	928,558	619,805	6,506,975							
TOTAL		1,286,575	544,947	1,316,800	960,480	939,810	948,558	629,805	6,626,975							6,626,975 s.f.
PARKING REQUIRED																
Office @ 1/250 s.f.		80	40	80	80	80	80	40	480							480 stalls
Whse: 1st 40K @ 1/1,000 s.f.		40	40	40	40	40	40	40	280							280 stalls
Above 40K @ 1/4,000 s.f.		307	124	314	225	220	222	145	1557							1557 stalls
TOTAL		427	204	434	345	340	342	225	2317							2317 stalls
AUTO PARKING PROVIDED																
Standard (9' x 19')		414	324	353	294	235	323	202	2,145							2,145 stalls
TRAILER PARKING PROVIDED																
Trailer (12' x 53')		271	107	292	203	255	199	139	1,466							1,466 stalls
LANDSCAPE REQUIREMENT		15%														
LANDSCAPE PROVIDED																
Landscape Area	213372	186,270	91,945	170,620	140,758	163,204	199,622	84,489	1,250,280							
Landscape Percentage	122.4%	8.0%	9.2%	7.3%	8.2%	9.3%	11.0%	7.2%	10.2%							
ZONING ORDINANCE FOR CITY																
Zoning Designation - Special Development (SD-COM)																

HPA architecture

18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

Conceptual Site Plan

Speedway Commerce Center

County of San Bernardino, CA

HILLWOOD A PEROT COMPANY

October 12, 2021 / Job #19318

Scheme 23

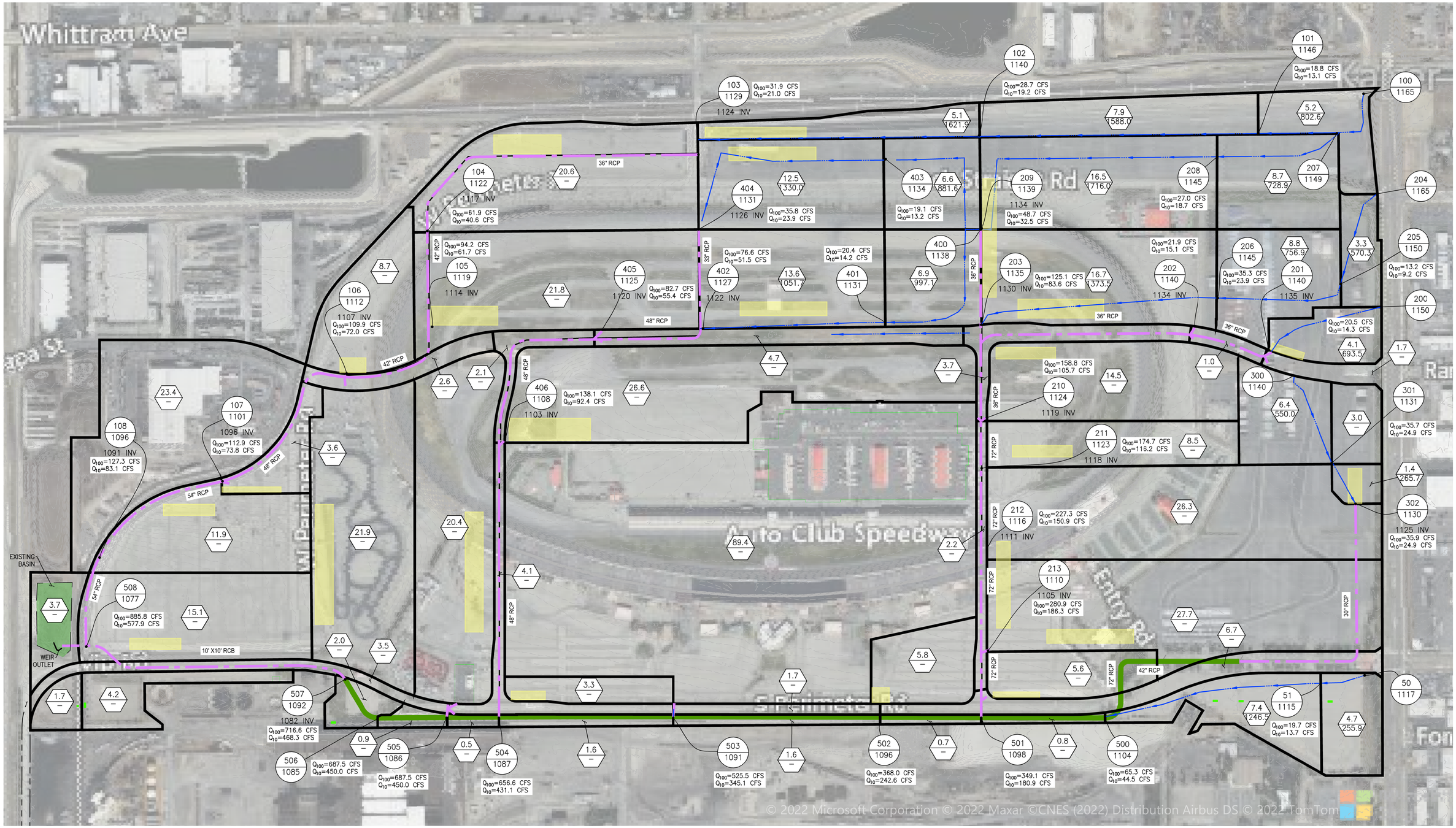
Appendix A 1 – Aerial Photo

Google Maps Pre-developed pervious area condition photo view



Imagery ©2021 County of San Bernardino, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 500 ft

Appendix A 2 – Conceptual WQMP Exhibit



LEGEND

- ACREAGE - ACRES
- FLOW LENGTH - FEET
- NODE
- ELEVATION
- XXXX INV — INVERT(PIPE)
- PARCEL BOUNDARY
- WATERSHED BOUNDARY
- PROPOSED STORM DRAIN
- EXISTING FACILITIES
- FLOW DIRECTION
- MODULAR WETLAND
- UNDERGROUND CHAMBER
- EXISTING BASIN

1"=250'

250 0 250

N W WEBB E S

SCALE:	250'
DATE:	
DESIGNED:	
CHECKED:	
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

PLOT DATE: 12-Apr-22

HYDROLOGY MAP
PROPOSED CONDITIONS

W.O.	20210160
SHEET	1
OF	1 SHEETS
DWG. NO.	

PRELIMINARY

\\ELSINORE\WOA\2021\21-0160\DRAINAGE\HYDL\DWG FOLDER\21-0160-RAT-HYDL.DWG 4/12/2022 11:29:05 AM

Appendix B – BMP Sizing

	DMA 1	
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	54	2,352,240
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	219,691
Volume Provided, cu. Ft.		220,560

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
495	78	38,610	110,280	77,220	220,560
495	78	38,610	110,280		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	24

	DMA 2	
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	23	1,001,880
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	93,572
Volume Provided, cu. Ft.		93,946

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
340	66	22,440	46,973	44,880	93,946
340	66	22,440	46,973		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	24

	DMA 3	
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	54	2,352,240
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	219,691
Volume Provided, cu. Ft.		220,816

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
676	78	52,728	110,408	105,456	220,816
676	78	52,728	110,408		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	24

	DMA 4	
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	39.6	1,724,976
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	161,107
Volume Provided, cu. Ft.		161,830

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
339	114	38,646	80,915	77,292	161,830
339	114	38,646	80,915		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	24

DMA 5		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	42.4	1,846,944
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	172,498
Volume Provided, cu. Ft.		173,214

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
383	108	41,364	86,607	82,728	173,214
383	108	41,364	86,607		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	24

DMA 6		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	42.2	1,838,232
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	171,684
Volume Provided, cu. Ft.		200,264

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
684	103	70,452	100,132	140,904	200,264
684	103	70,452	100,132		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	12

DMA 7		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	27	1,176,120
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	109,846
Volume Provided, cu. Ft.		110,418

Footprint Length	Footprint Width	Footprint Area	Storage	Total Footprint Area	Total Storage
356	54	19,224	55,209	38,448	110,418
356	54	19,224	55,209		

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Rigid	24	48	24

DMA 8		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	123.4	5,375,304
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	502,035
Volume Provided, cu. Ft.	To Natural Infiltration Basin DMA BS	

DMA BS		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	3.7	161,172
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	15,053
Volume Provided, cu. Ft.	Natural Infiltration Basin	750,402

26,353

DMA 9		
Modular Wetland	MWS-L-8-24	2

DMA 10		
Modular Wetland	MWS-L-8-24	1

DMA 11		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	5.6	243,936
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	22,783
Volume Provided, cu. Ft.		22,952

Footprint Length	Footprint Width	Footprint Area	Storage
268	30	8,040	22,952

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

DMA 12		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	10.8	470,448
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	43,938
Volume Provided, cu. Ft.		44,326

Footprint Length	Footprint Width	Footprint Area	Storage
199	78	15,522	44,326

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

DMA 13		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963

Footprint Length	Footprint Width	Footprint Area	Storage
191	42	8,022	16,776

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

Project Area (SF)	4.1	178,596
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	16,680
Volume Provided, cu. Ft.		16,776

DMA 14		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	18.3	797,148
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	74,451
Volume Provided, cu. Ft.		74,506

Footprint Length	Footprint Width	Footprint Area	Storage
659	52	34,268	74,506

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

DMA 15		
Modular Wetland	MWS-L-8-8	1

*Might be merged with DMA 8 into a new DMA0 in final design as DMA BS have enough capacity.

DMA 16		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	8.7	378,972
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	35,395
Volume Provided, cu. Ft.		35,739

Footprint Length	Footprint Width	Footprint Area	Storage
149	84	12,516	35,739

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

DMA 17		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	3.6	156,816
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	14,646
Volume Provided, cu. Ft.		14,664

Footprint Length	Footprint Width	Footprint Area	Storage
373	28	10,444	14,664

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

DMA 18		
Modular Wetland	MWS-L-8-24	1

*Might be merged with DMA 8 into a new DMA0 in final design as DMA BS have enough capacity.

DMA 19		
Modular Wetland	MWS-L-8-24	1

*Might be merged with DMA 8 into a new DMA0 in final design as DMA BS have enough capacity.

DMA 20		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	3.3	143,748
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	13,426
Volume Provided, cu. Ft.		13,493

Footprint Length	Footprint Width	Footprint Area	Storage
195	49	9,555	13,493

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
5	Flexible	24	12	12

DMA 21		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	5.8	252,648
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	23,596
Volume Provided, cu. Ft.		23,741

Footprint Length	Footprint Width	Footprint Area	Storage
99	84	8,316	23,741

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

DMA 22		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	26.6	1,158,696
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	108,218
Volume Provided, cu. Ft.		108,775

Footprint Length	Footprint Width	Footprint Area	Storage
481	108	51,948	108,775

Invert Depth (ft.)	Pavement Type	Pavement Depth	Diameter	Spacing (in.)
8	Flexible	24	48	24

Total		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	522	22,738,320
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	2,123,376
Volume Provided, cu. Ft.		2,286,422

1.0768

Appendix B 1 – Underground Chamber

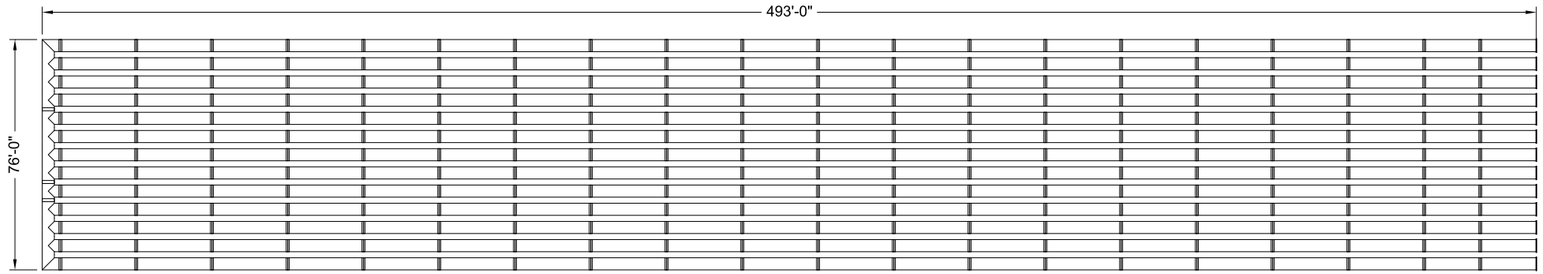
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 6,433 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 110,262 cf.
- PIPE STORAGE VOLUME = 80,839 cf.
- BACKFILL STORAGE VOLUME = 29,440 cf.
- TOTAL STORAGE PROVIDED = 110,280 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

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- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE $2\frac{2}{3}$" x $\frac{1}{2}$" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
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ASSEMBLY
SCALE: 1" = 50'

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CONTECH® CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYO11551 NASCAR
DMA 1
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11551	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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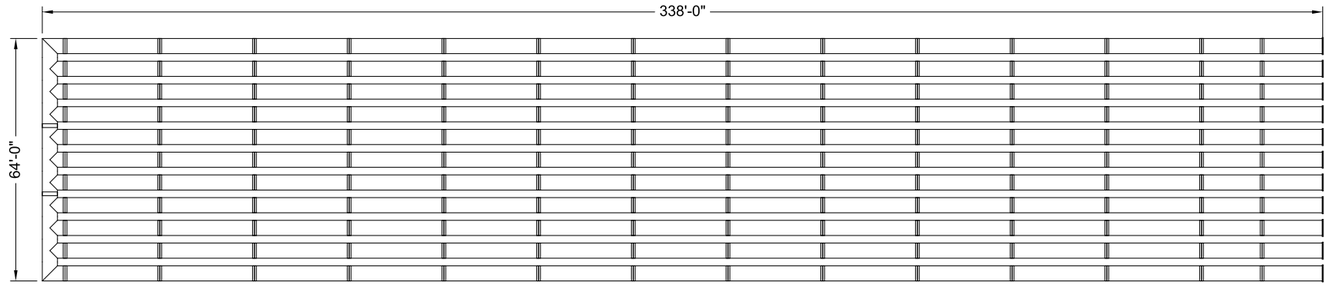
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 3,738 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 46,963 cf.
- PIPE STORAGE VOLUME = 46,973 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 46,973 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

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- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE $2\frac{2}{3}$" x $\frac{1}{2}$" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
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ASSEMBLY
SCALE: 1" = 40'

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DYO11553 NASCAR
DMA 2
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11553	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

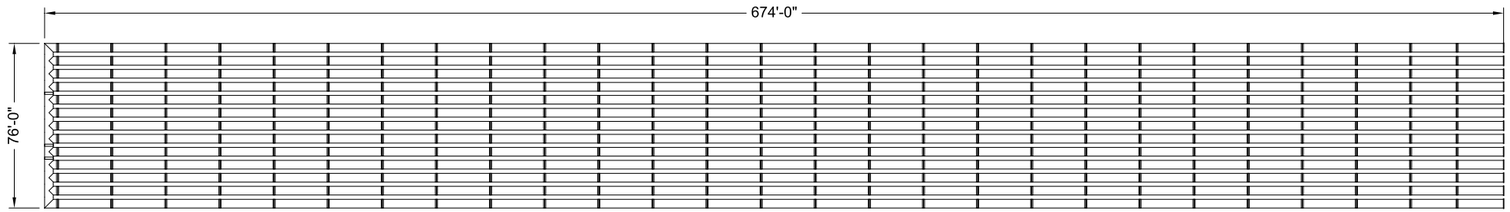
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 8,786 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 110,262 cf.
- PIPE STORAGE VOLUME = 110,408 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 110,408 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
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ASSEMBLY

SCALE: 1" = 70'

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DYO11623 NASCAR
DMA 3
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11623	12/3/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

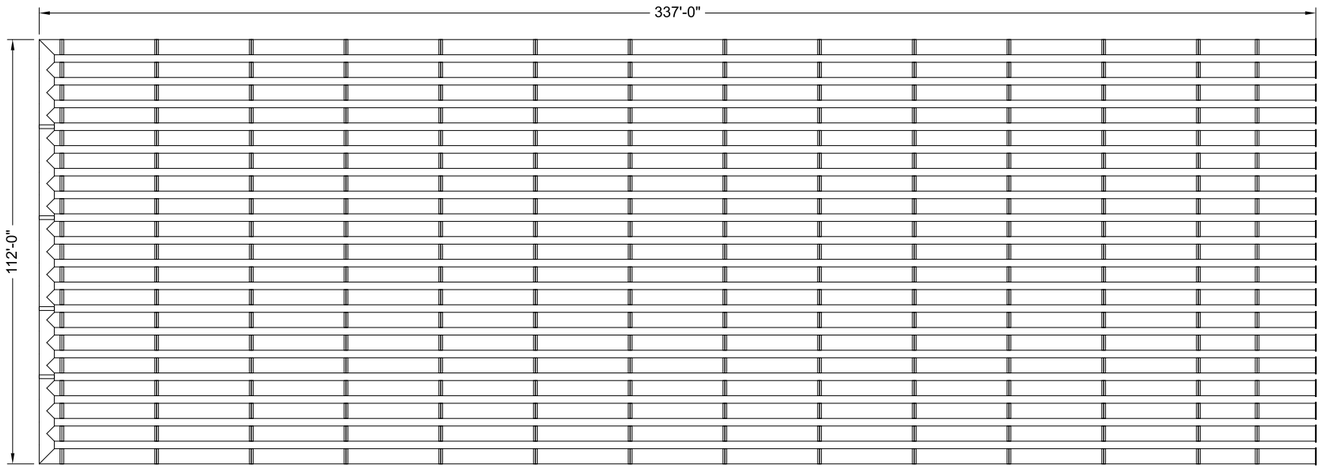
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 6,439 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 80,858 cf.
- PIPE STORAGE VOLUME = 80,915 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 80,915 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE $2\frac{2}{3}$" x $\frac{1}{2}$" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
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ASSEMBLY
SCALE: 1" = 40'

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DYO11624 NASCAR
DMA 4
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11624	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

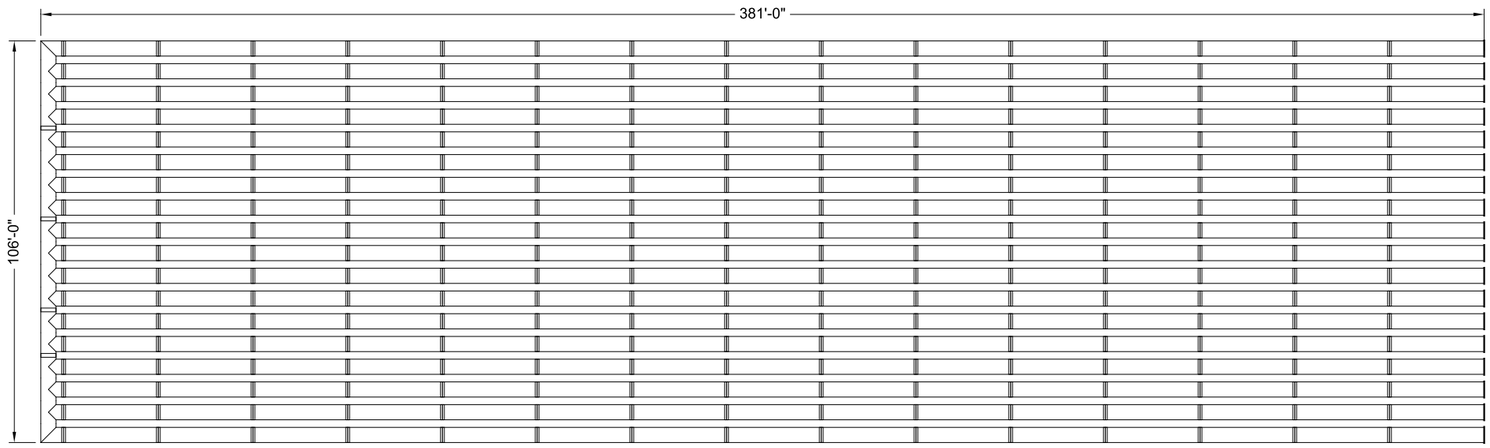
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 6,892 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 86,575 cf.
- PIPE STORAGE VOLUME = 86,607 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 86,607 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

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- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
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- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
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ASSEMBLY

SCALE: 1" = 40'

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CONTECH® CMP DETENTION SYSTEMS
CONTECH **DYODS** DRAWING

DYO11628 NASCAR
DMA 5
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11628	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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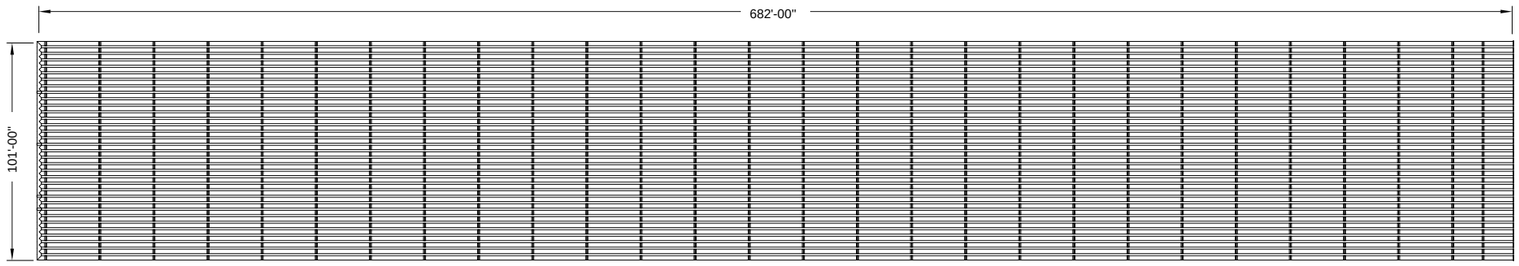
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 23,221 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 100,000 cf.
- PIPE STORAGE VOLUME = 72,951 cf.
- BACKFILL STORAGE VOLUME = 27,181 cf.
- TOTAL STORAGE PROVIDED = 100,132 cf.

PIPE DETAILS
- DIAMETER = 24 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 12 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

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- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
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ASSEMBLY

SCALE: 1" = 70'

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CONTECH® CMP DETENTION SYSTEMS
CONTECH **DYODS** DRAWING

DYO11821 NASCAR
DMA 6
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11821	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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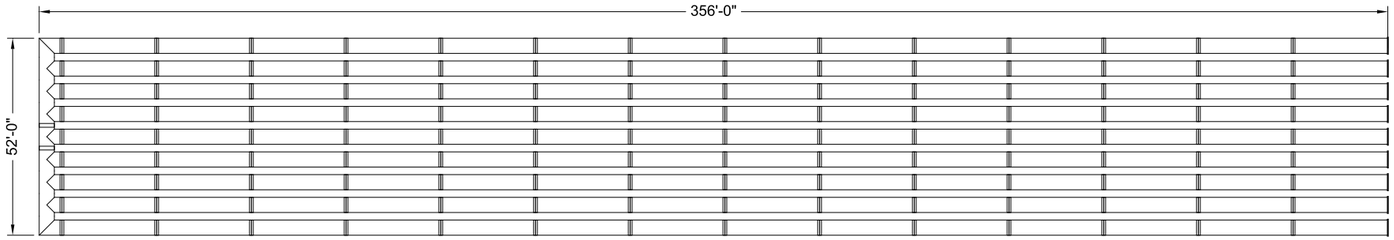
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 3,220 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 55,130 cf.
- PIPE STORAGE VOLUME = 40,464 cf.
- BACKFILL STORAGE VOLUME = 14,746 cf.
- TOTAL STORAGE PROVIDED = 55,209 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY

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CONTECH CMP DETENTION SYSTEMS

CONTECH **DYODS** DRAWING

DYO11630 NASCAR
DMA 7
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11630	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

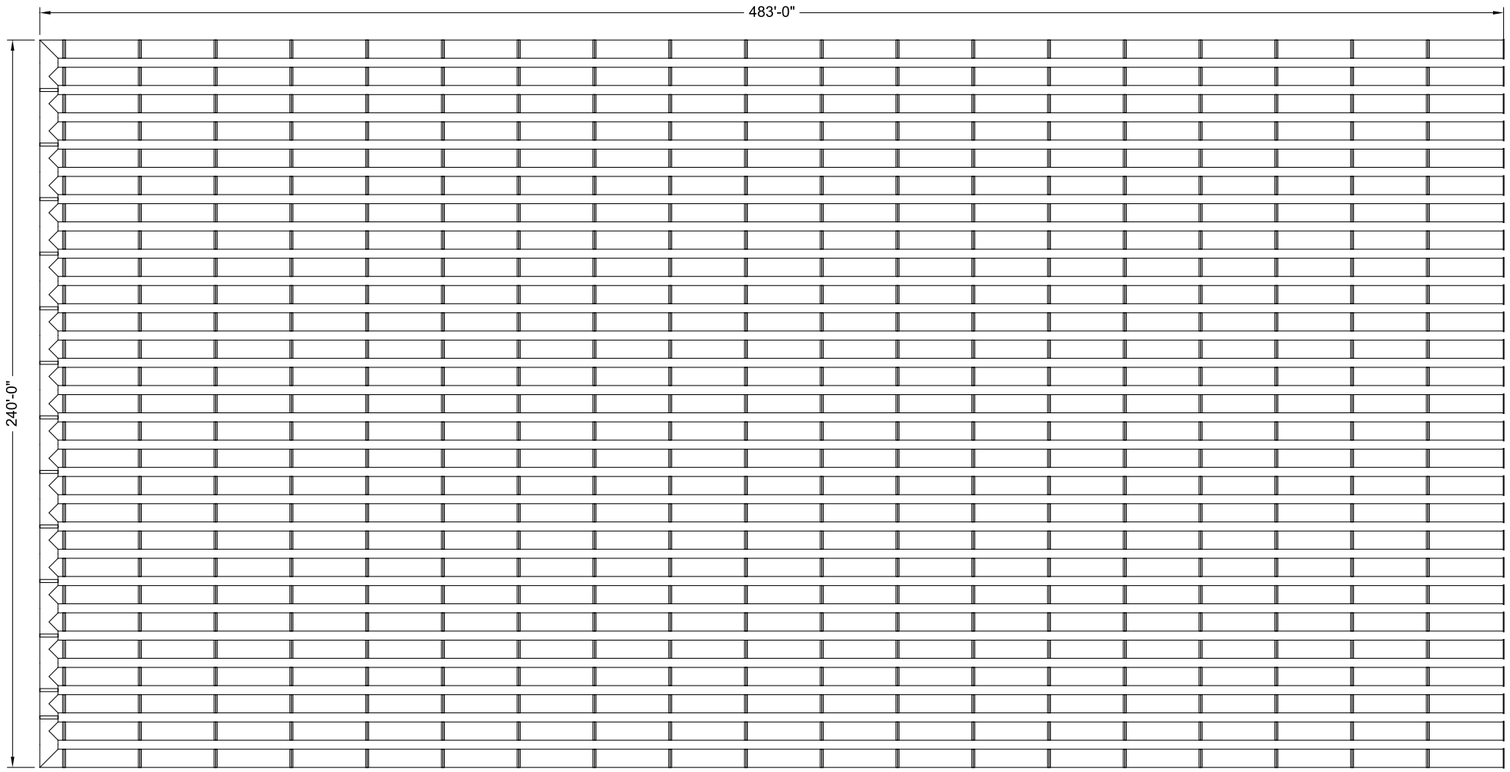
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 13,119 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 503,936.281 cf.
- PIPE STORAGE VOLUME = 370,931 cf.
- BACKFILL STORAGE VOLUME = 133,315 cf.
- TOTAL STORAGE PROVIDED = 504,246 cf.

PIPE DETAILS
- DIAMETER = 72 IN.
- CORRUGATION = 5x1
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 36 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

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ASSEMBLY
SCALE: 1" = 50'

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CONTECH DYODS DRAWING

DYO11801 NASCAR
DMA 8
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11801	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

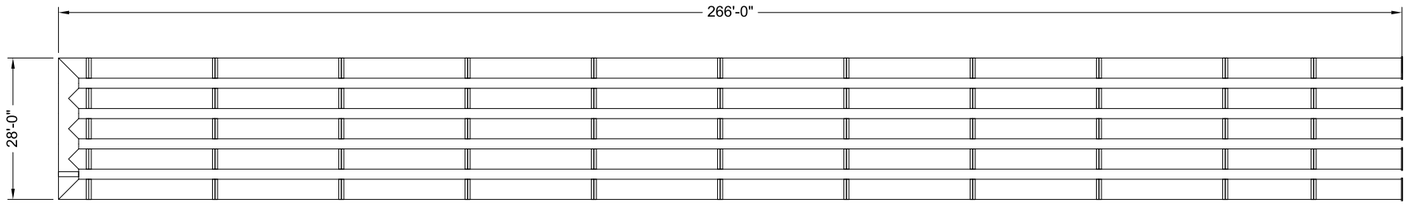
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 1,338 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 22,869.069 cf.
- PIPE STORAGE VOLUME = 16,814 cf.
- BACKFILL STORAGE VOLUME = 6,138 cf.
- TOTAL STORAGE PROVIDED = 22,952 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

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ASSEMBLY
SCALE: 1" = 30'

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CONTECH DYODS DRAWING

DYO11631 NASCAR
DMA 11
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11631	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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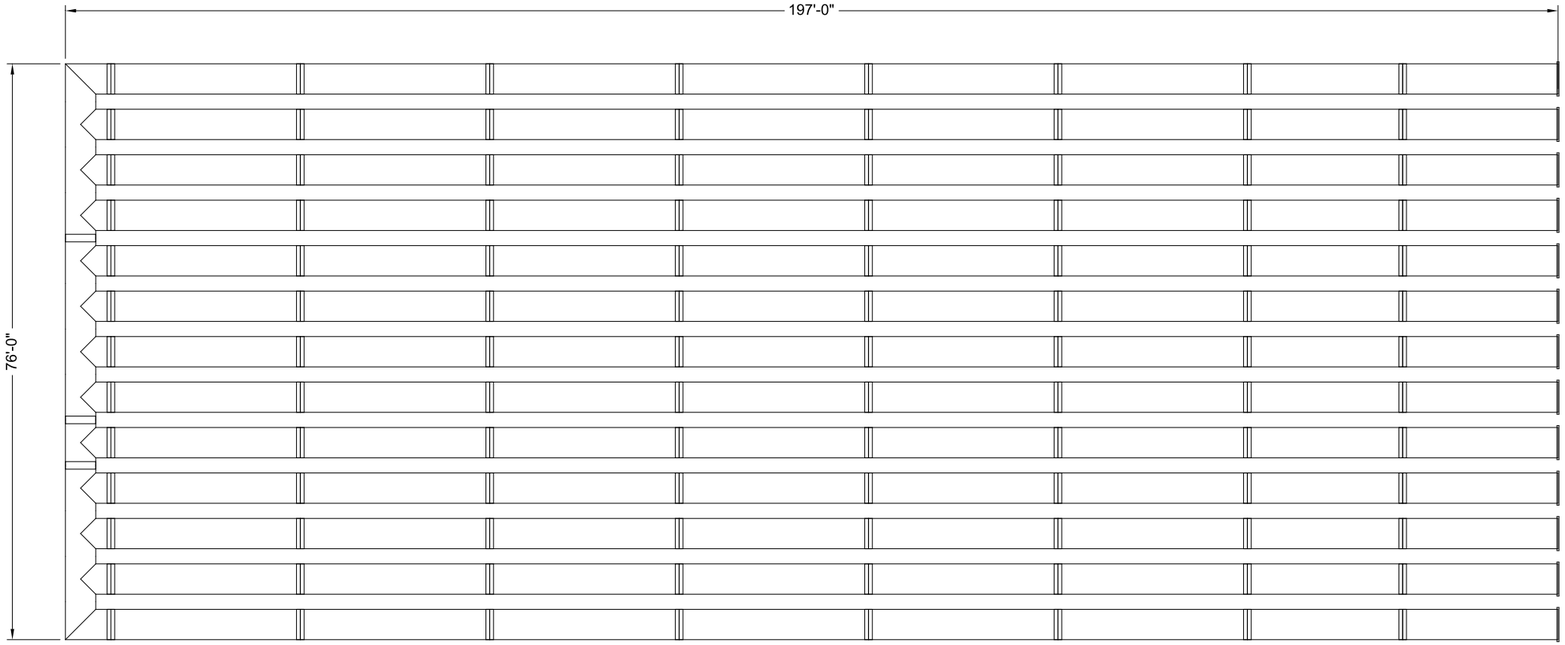
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 2,585 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 44,104.634 cf.
- PIPE STORAGE VOLUME = 32,484 cf.
- BACKFILL STORAGE VOLUME = 11,842 cf.
- TOTAL STORAGE PROVIDED = 44,326 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY
SCALE: 1" = 20'

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CONTECH **DYODS** DRAWING

DYO11632 NASCAR
DMA 12
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11632	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

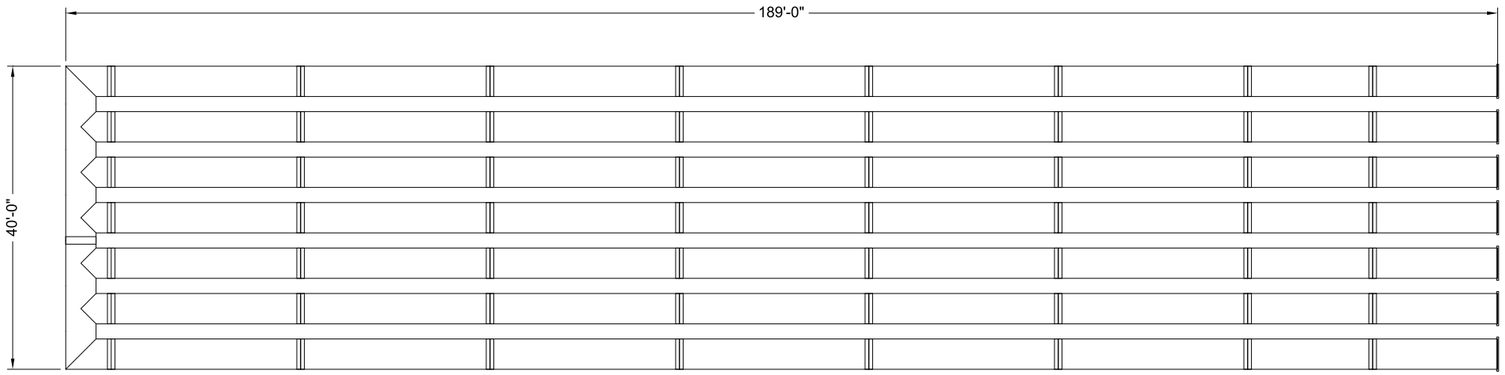
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 1,335 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 16,743.426 cf.
- PIPE STORAGE VOLUME = 16,776 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 16,776 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY
SCALE: 1" = 20'

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DYO11633 NASCAR
DMA 13
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11633	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

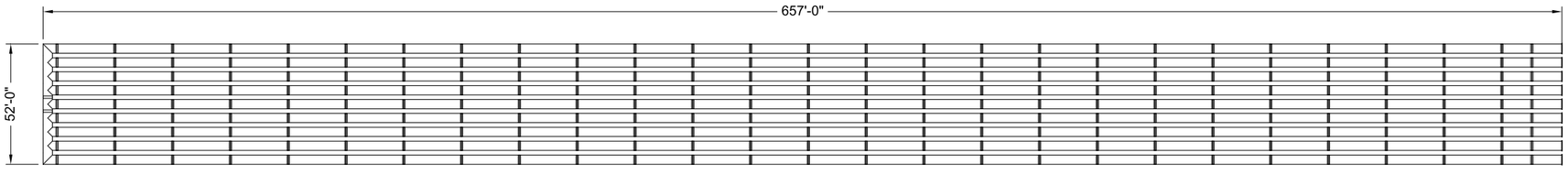
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 5,929 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 74,451 cf.
- PIPE STORAGE VOLUME = 74,506 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 74,506 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 2/3" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 60'

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DATE	REVISION DESCRIPTION	BY

CONTECH® ENGINEERED SOLUTIONS LLC
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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH® CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYO11634 NASCAR
DMA 14
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11634	12/3/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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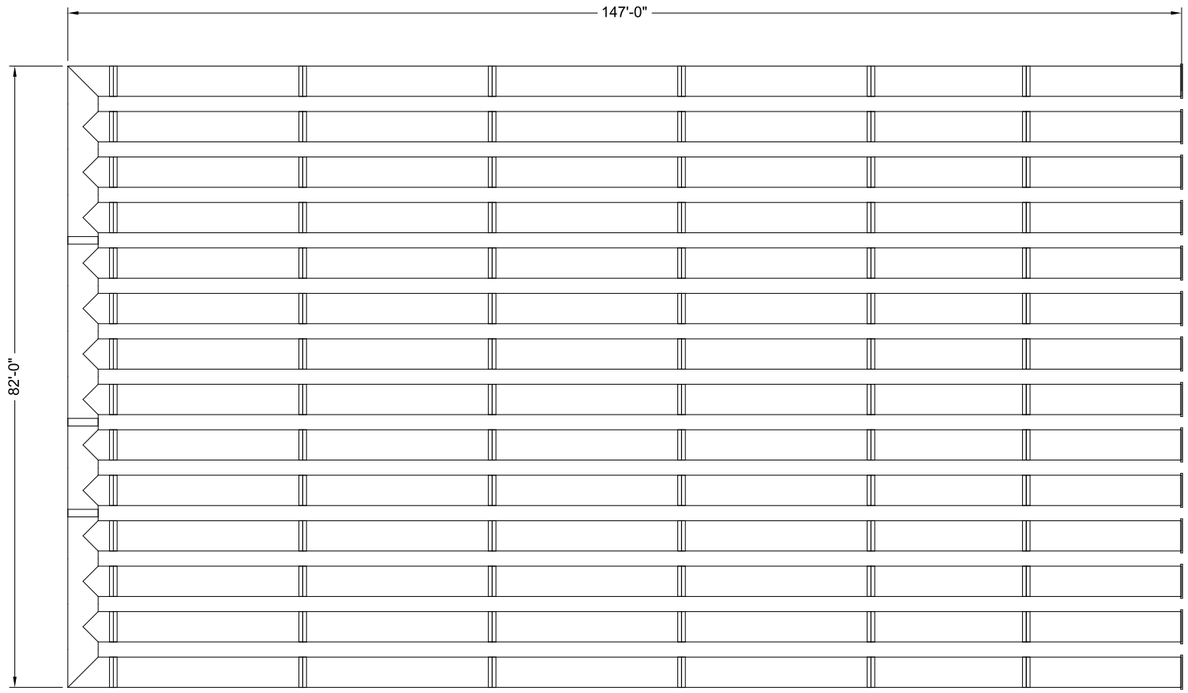
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 2,084 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 35,528.733 cf.
- PIPE STORAGE VOLUME = 26,188 cf.
- BACKFILL STORAGE VOLUME = 9,550 cf.
- TOTAL STORAGE PROVIDED = 35,739 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY
SCALE: 1" = 20'

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CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYO11636 NASCAR
DMA 16
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11636	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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PROJECT SUMMARY

CALCULATION DETAILS

- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 3,347 lf.

STORAGE SUMMARY

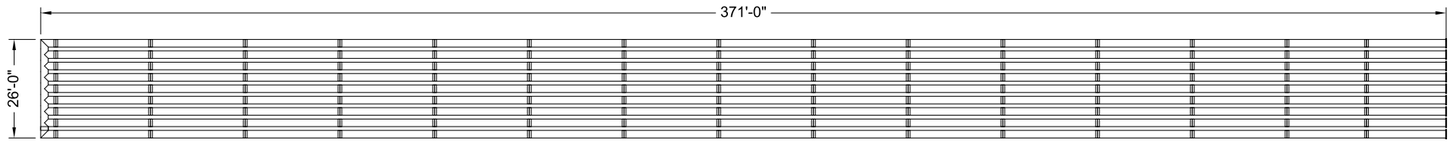
- STORAGE VOLUME REQUIRED = 14,646 cf.
- PIPE STORAGE VOLUME = 10,515 cf.
- BACKFILL STORAGE VOLUME = 4,149 cf.
- TOTAL STORAGE PROVIDED = 14,664 cf.

PIPE DETAILS

- DIAMETER = 24 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 12 IN.

BACKFILL DETAILS

- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY
SCALE: 1" = 40'

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CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYO12020 NASCAR
DMA17
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	12020	12/7/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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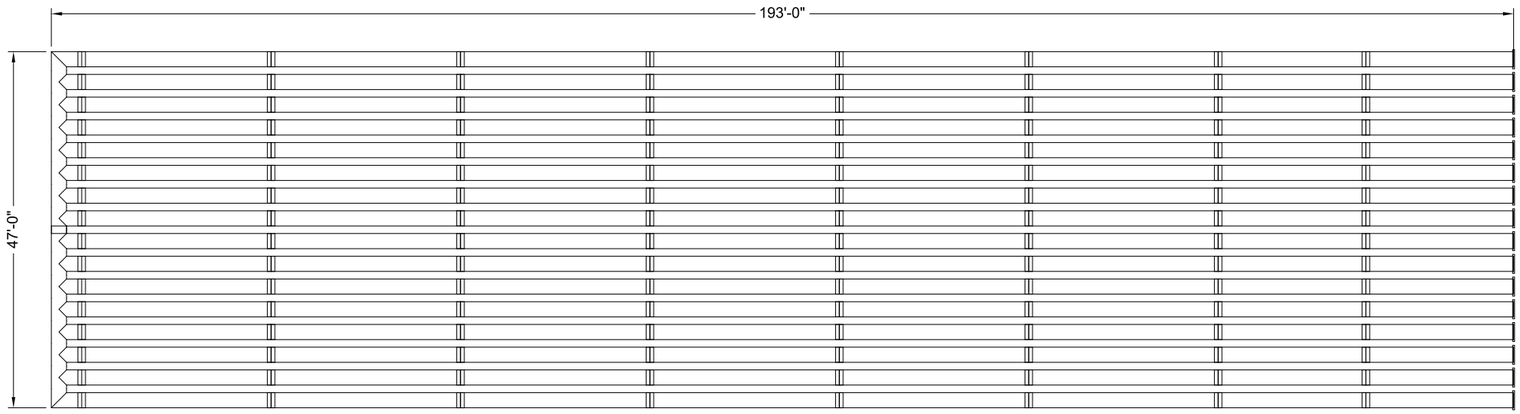
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 3,103 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 13,476.4,159 cf.
- PIPE STORAGE VOLUME = 9,748 cf.
- BACKFILL STORAGE VOLUME = 3,745 cf.
- TOTAL STORAGE PROVIDED = 13,493 cf.

PIPE DETAILS
- DIAMETER = 24 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 12 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY
SCALE: 1" = 20'

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CONTECH® CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYO11638 NASCAR
DMA 20
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11638	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

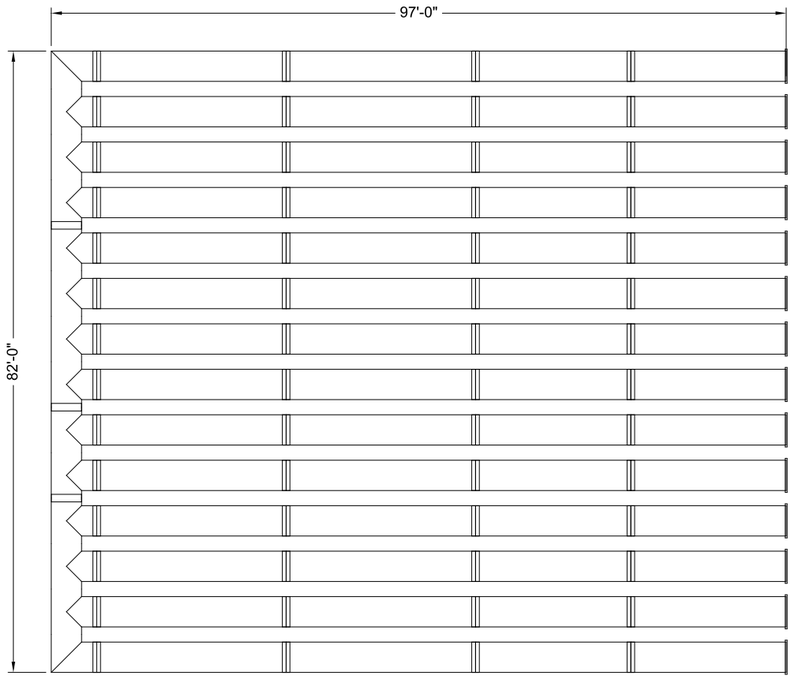
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 1,384 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 23,685.822 cf.
- PIPE STORAGE VOLUME = 17,392 cf.
- BACKFILL STORAGE VOLUME = 6,349 cf.
- TOTAL STORAGE PROVIDED = 23,741 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
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CONTECH® CMP DETENTION SYSTEMS
CONTECH **DYODS** DRAWING

DYO11639 NASCAR
DMA 21
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11639	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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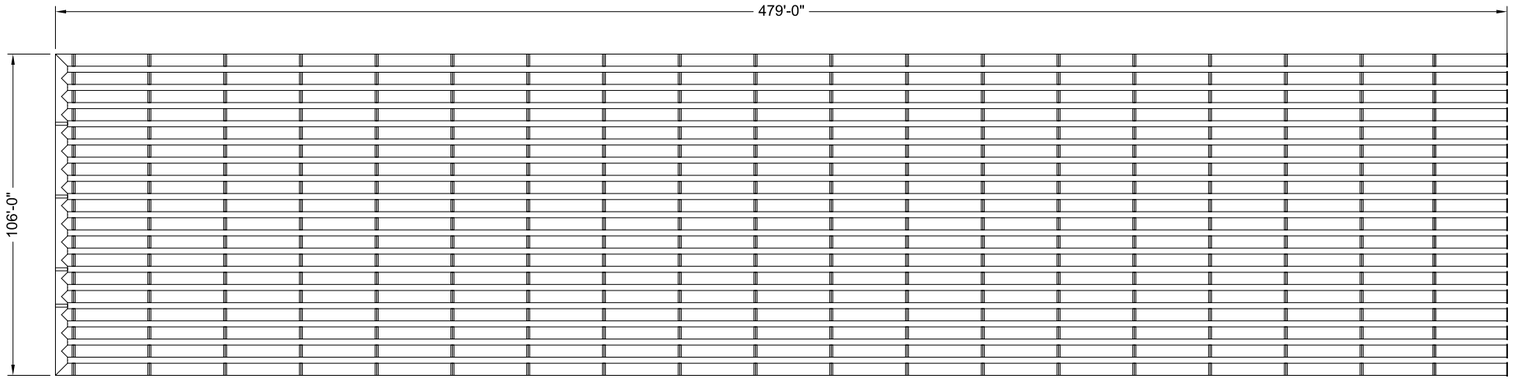
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 8,656 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 108,628.08 cf.
- PIPE STORAGE VOLUME = 108,775 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 108,775 cf.

PIPE DETAILS
- DIAMETER = 48 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 24 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



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ASSEMBLY

SCALE: 1" = 50'

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CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

TPY

Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11640	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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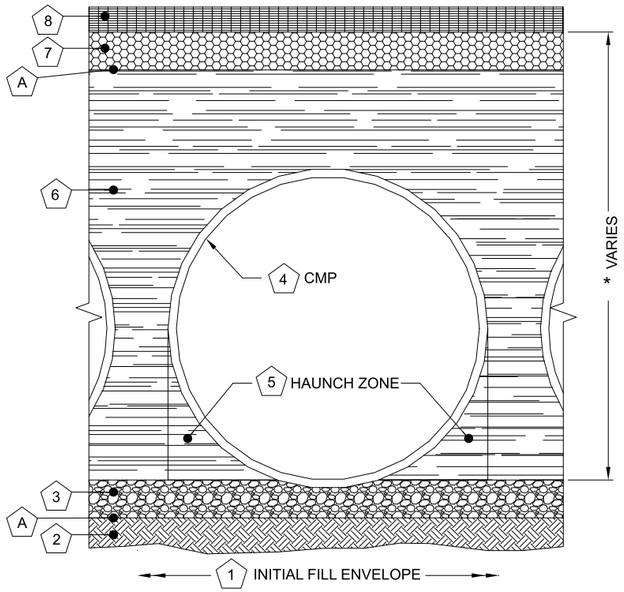


	DETENTION SYSTEMS - CMP DETENTION / CMP DRAINAGE			
	Material Location	Description	Material Designation	Designation
8	Rigid or Flexible Pavement (if applicable)			
7	Road Base (if applicable)			
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45	Engineer Decision for consideration to prevent soil migration into varying soil types
6	Backfill	Well graded granular material which may contain small amounts of silt or clay.	AASHTO M 145- A-1, A-2, A-3	Placed in 8" +/- loose lifts and compacted to 90% Standard Proctor Per AASHTO T 99
3	Bedding Stone	Well graded granular bedding material w/maximum particle size of 3"	AASHTO M43 - 3,357,4,467, 5, 56, 57	Engineer to determine if bedding is required. Pipe may be placed on the trench bottom of a relatively loose, native suitable well graded & granular material. For Arch pipes it is recommended to be shaped to a relatively flat bottom or fine-grade the foundation to a slight v-shape. Unsuitable material should be over-excavated and re-placed with a 4"-6" layer of well graded & granular stone per the material designation. See AASHTO 26.3.8.1 / 26.5.3 Bedding info.
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45	Engineer Decision for consideration to prevent soil migration into varying soil types
*	*Note: Backfill using controlled low-strength material (CLSM, "flash fill" or "flowable fill") when the spacing between the pipes will not allow for placement and adequate compaction of the backfill.*			

1 MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

FOUNDATION/BEDDING PREPARATION

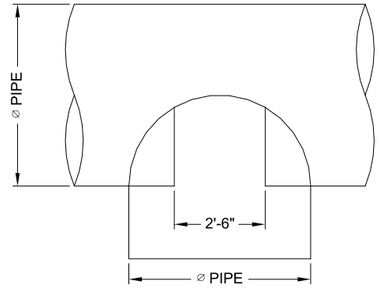
2 PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.

5 HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMALLY COMPACTED WITHOUT SOFT SPOTS.

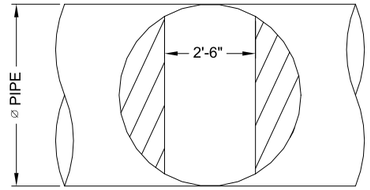
BACKFILL

WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.



PLAN

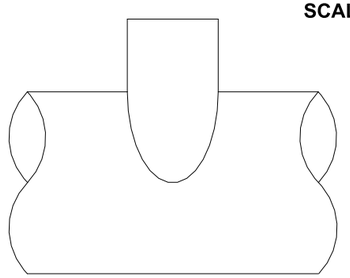


FRONT

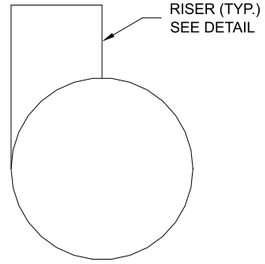
NOTE:
MANWAY DETAIL APPLICABLE FOR CMP SYSTEMS WITH DIAMETERS 48" AND LARGER. MANWAYS MAY BE REQUIRED ON SMALLER SYSTEMS DEPENDING ON ACTUAL SITE SPECIFIC CONDITIONS.

TYPICAL MANWAY DETAIL

SCALE: N.T.S.



ELEVATION

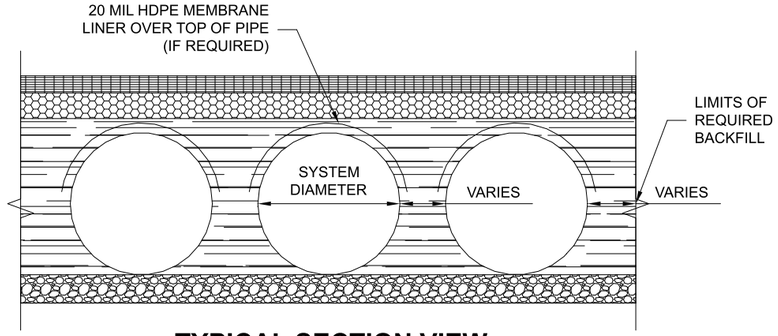


END

NOTE:
LADDERS ARE OPTIONAL AND ARE NOT REQUIRED FOR ALL SYSTEMS.

TYPICAL RISER DETAIL

SCALE: N.T.S.



TYPICAL SECTION VIEW

LINER OVER ROWS
SCALE: N.T.S.

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, AN HDPE MEMBRANE LINER IS RECOMMENDED WITH THE SYSTEM. THE IMPERMEABLE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

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CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

TPY

Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11640	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D2		

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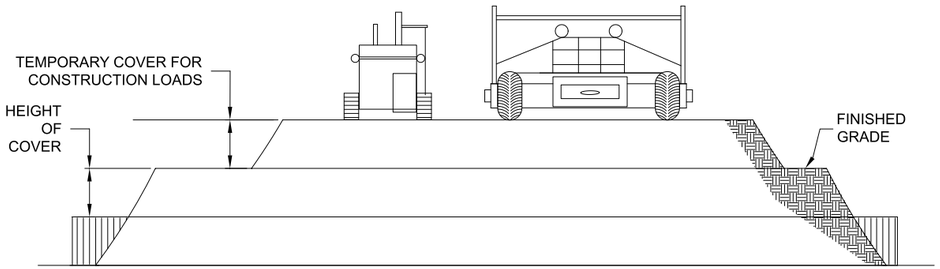


CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL
THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

PIPE
THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

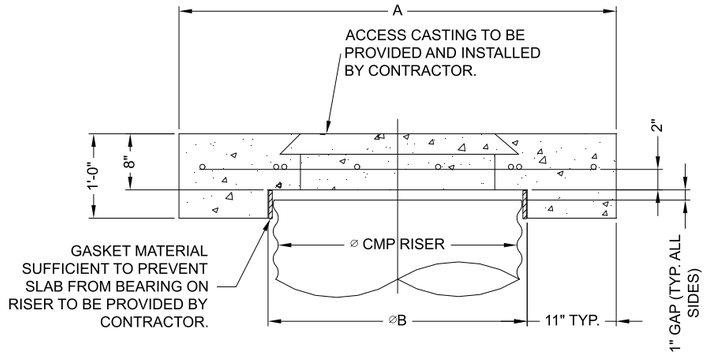
ALUMINUM: AASHTO M-196 OR ASTM B-745

HANDLING AND ASSEMBLY
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

INSTALLATION
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

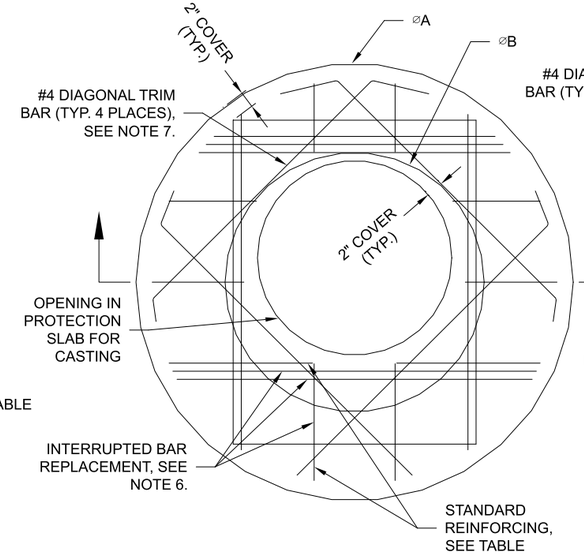
NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.



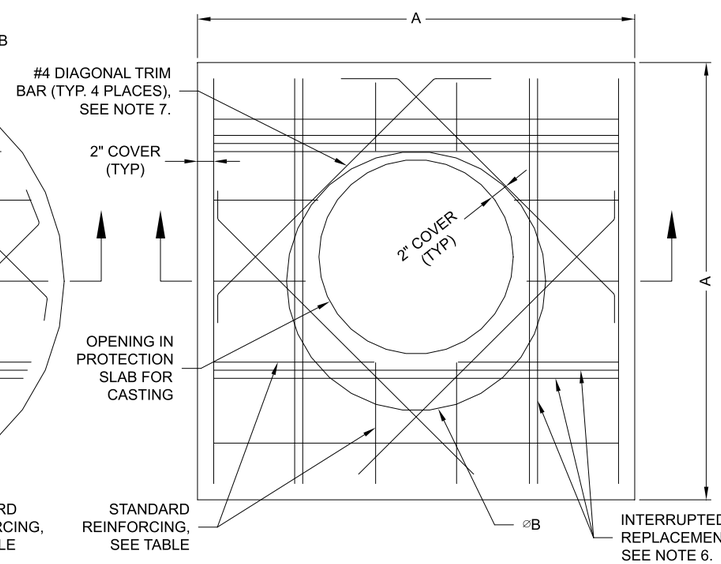
SECTION VIEW

REINFORCING TABLE				
⌀ CMP RISER	A	⌀ B	REINFORCING	**BEARING PRESSURE (PSF)
24"	⌀ 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	⌀ 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	⌀ 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	⌀ 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	⌀ 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 3,500 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.

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SHEET NO.: D3		

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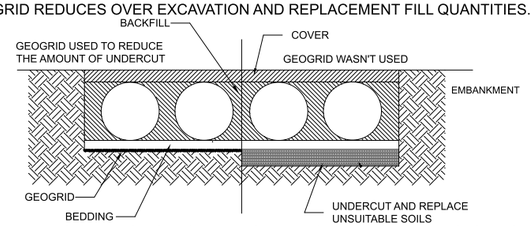
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

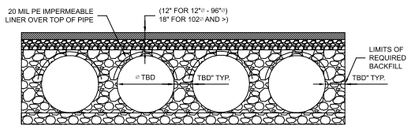


GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE.

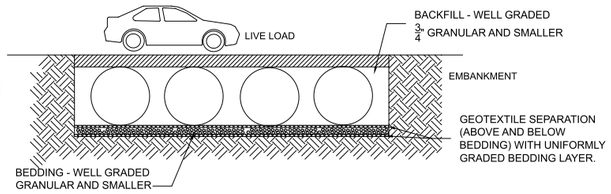
THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

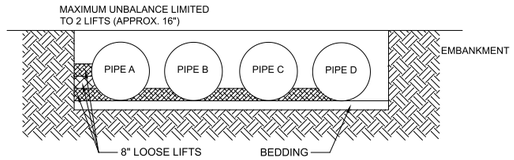
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



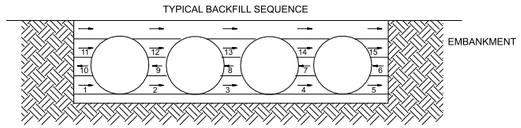
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

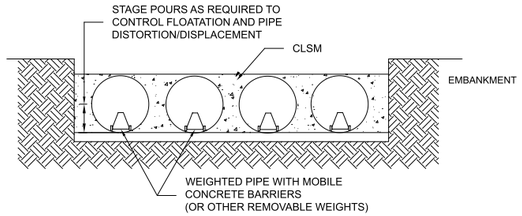


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10-FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

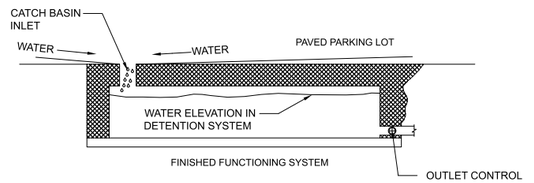


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

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CONTECH CMP DETENTION SYSTEMS
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DYO11640 NASCAR
DMA 22
Fontana, CA
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
7204	11640	11/24/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D4		

C:\EXPORTS\TEMPLATES\CMP_V5.DWG 10/18/2019 10:02 AM

Appendix B 2 – Modular Wetland

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: WEBB
Date: 12/8/2021
Designed by: XA
Case No:
Company Project Number/Name: 20210160

BMP Identification

BMP NAME / ID: Modular Wetland DMA 9

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity: I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMAs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Rainfall Intensity (in/hr)*	*Design Flow Rate (cfs)*	*Proposed Flow Rate (cfs)*
9	322344.000	*Mixed Surface Types*	*0.9*	*0.73*	*235402*			
	322344		***Total***		**235402**	**0.20**	***1.1***	***1.4***

Notes:

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: WEBB
Date: 12/8/2021
Designed by: XA
Case No:
Company Project Number/Name: 20210160

BMP Identification

BMP NAME / ID: Modular Wetland DMA 10

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMAs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
10	204732.000	*Mixed Surface Types*	*0.9*	*0.73*	*149512.1*			

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: WEBB
Designed by: XA
Company Project Number/Name: 20210160
Date: 12/8/2021
Case No:

BMP Identification

BMP NAME / ID: Modular Wetland DMA 15

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

	DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
DMAs	15	74052.0000	Mixed Surface Types	0.9	0.73	54078.8			

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: WEBB
Date: 12/8/2021
Designed by: XA
Case No:
Company Project Number/Name: 20210160

BMP Identification

BMP NAME / ID: Modular Wetland DMA 18

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMAs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Rainfall Intensity (in/hr)*	*Design Flow Rate (cfs)*	*Proposed Flow Rate (cfs)*
18	182952.000	*Mixed Surface Types*	*0.9*	*0.73*	*133606.6*			

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: WEBB
Date: 12/8/2021
Designed by: XA
Case No:
Company Project Number/Name: 20210160

BMP Identification

BMP NAME / ID: Modular Wetland DMA 19

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity: I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMAs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Rainfall Intensity (in/hr)*	*Design Flow Rate (cfs)*	*Proposed Flow Rate (cfs)*
19	87120.000	*Mixed Surface Types*	*0.9*	*0.73*	*63622.2*			

Modular Wetland Summary Table

	DMA 9	DMA 10	DMA 15	DMA 18	DMA 19	**Total**
QVBMP (cfs)	1.1	0.7	0.2	0.6	0.3	**2.9**
Number of Modular Wetland	2	1	1	1	1	
Model	MWS-L-8-24	MWS-L-8-24	MWS-L-8-8	MWS-L-8-24	MWS-L-8-24	
Dimensions	8'X24'	8'X24'	8'X8'	8'X24'	8'X24'	
Surface Area (sq.ft.)	302	302	100	302	302	
Treatment Flow Rate (cfs)	0.7	0.7	0.2	0.7	0.7	
Total Treatment Flow Rate (cfs)	1.4	0.7	0.2	0.7	0.7	**3.7**

Bio Clean

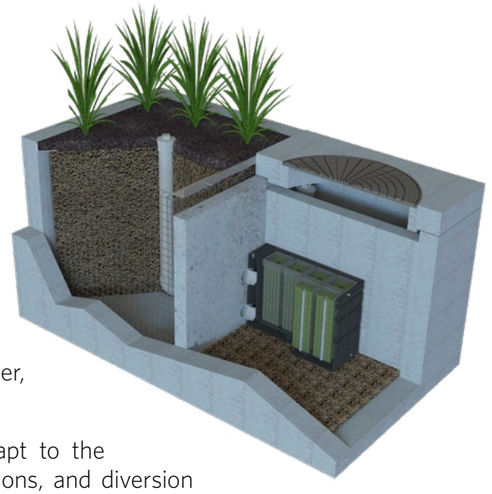
A Forterra Company

Modular Wetlands® Linear

A Stormwater Biofiltration Solution



OVERVIEW



The Modular Wetlands® Linear is the only biofiltration system to utilize patented horizontal flow, allowing for a smaller footprint, higher treatment capacity, and a wide range of adaptability. The Modular Wetlands® is also the only pre-packaged subsurface flow wetland for stormwater treatment. While most biofilters use little or no pretreatment, the Modular Wetlands Linear incorporates an advanced pretreatment chamber that includes separation and pre-filter boxes. In this chamber, sediment and hydrocarbons are removed from runoff before entering the biofiltration chamber, reducing maintenance costs and improving performance.

Horizontal flow also gives the system the unique ability to adapt to the environment through a variety of configurations, bypass orientations, and diversion applications.

The Urban Impact

For hundreds of years, natural wetlands surrounding our shores have played an integral role as nature's stormwater treatment system. But as cities grow and develop, our environment's natural filtration systems are blanketed with impervious roads, rooftops, and parking lots.

Bio Clean understands this loss and has spent years re-establishing nature's presence in urban areas, and rejuvenating waterways with the Modular Wetlands Linear.

*Also known as: Modular Wetlands®, Modular Wetlands® System Linear, Modwet™, or MWS Linear™.

PERFORMANCE

The Modular Wetlands Linear continues to outperform other treatment methods with superior pollutant removal for TSS, heavy metals, nutrients, hydrocarbons, and bacteria. The Modular Wetlands Linear is field-tested on numerous sites across the country and is proven to effectively remove pollutants through a combination of physical, chemical, and biological filtration processes.

66% REMOVAL OF DISSOLVED ZINC	**69%** REMOVAL OF TOTAL ZINC	**38%** REMOVAL OF DISSOLVED COPPER	**85%** REMOVAL OF TSS	**100%** REMOVAL OF TRASH
45% REMOVAL OF NITROGEN	**50%** REMOVAL OF TOTAL COPPER	**95%** REMOVAL OF MOTOR OIL	**67%** REMOVAL OF ORTHO PHOSPHORUS	**64%** REMOVAL OF TOTAL PHOSPHORUS

APPROVALS

The Modular Wetlands® Linear has successfully met years of challenging technical reviews and testing from some of the most prestigious and demanding agencies in the nation and perhaps the world.
Here is a list of some of the most high-profile approvals, certifications, and verifications from around the country.

Washington State Department of Ecology TAPE Approved

The Modular Wetlands Linear (MWS-Linear) is approved for General Use Level Designation (GULD) for Basic, Enhanced, and Phosphorus treatment at 1 gpm/ft^2 loading rate. The highest performing BMP on the market for all main pollutant categories.

California Water Resources Control Board, Full Capture Certification

The Modular Wetlands® Linear is the first biofiltration system to receive certification as a full capture trash treatment control device.

Virginia Department of Environmental Quality, Assignment

The Virginia Department of Environmental Quality assigned the Modular Wetlands Linear the highest phosphorus removal rating for manufactured treatment devices to meet the new Virginia Stormwater Management Program (VSMP) regulation technical criteria.

Maryland Department of the Environment, Approved ESD

Granted Environmental Site Design (ESD) status for new construction, redevelopment, and retrofitting when designed in accordance with the design manual.

MASTEP Evaluation

The University of Massachusetts at Amherst – Water Resources Research Center issued a technical evaluation report noting removal rates up to 84% TSS, 70% total phosphorus, 68.5% total zinc, and more.

Rhode Island Department of Environmental Management BMP Approval

Texas Commission on Environmental Quality (TCEQ) Approval

Atlanta Regional Commission Certification

ADVANTAGES

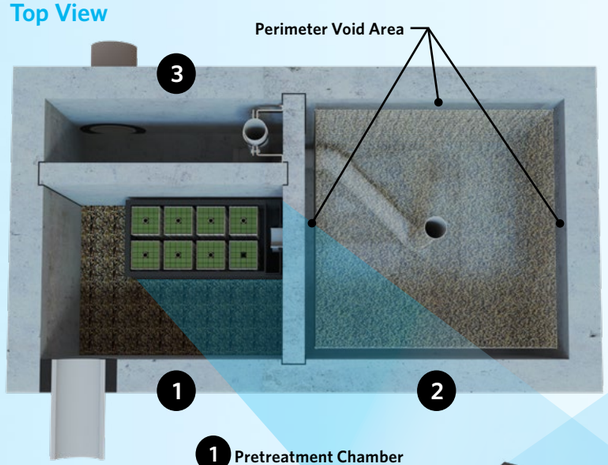
- HORIZONTAL FLOW BIOFILTRATION
- GREATER FILTER SURFACE AREA
- PRETREATMENT CHAMBER
- PATENTED PERIMETER VOID AREA
- FLOW CONTROL
- NO DEPRESSED PLANTER AREA
- AUTO DRAINDOWN MEANS NO MOSQUITO VECTOR

DIAGRAMS

The Modular Wetlands® Linear biofilter supports superior root penetration and plant uptake of metals and nutrients with treatment that includes both aerobic and anaerobic zones.

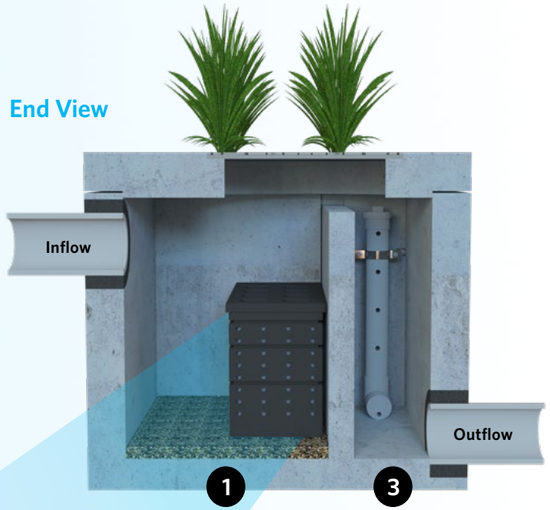
Modular Wetlands Linear
Display Unit - 4x8 Vault Type Unit

Top View

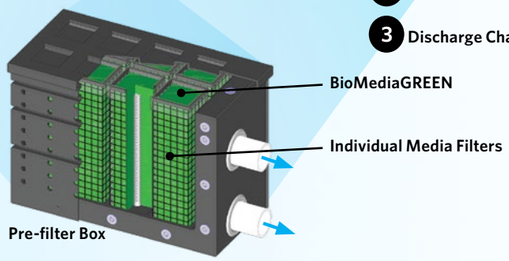


1 Pretreatment Chamber
2 Biofiltration Chamber
3 Discharge Chamber

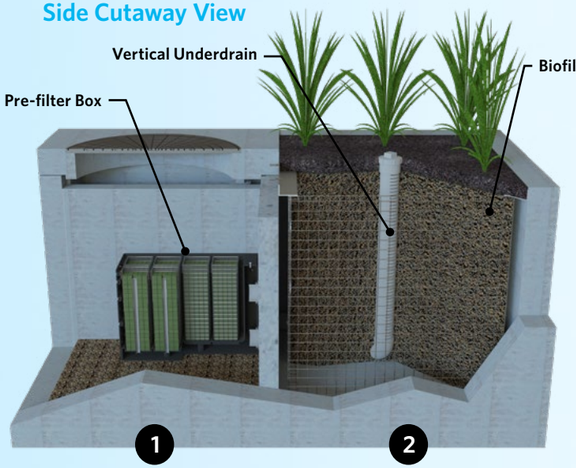
End View



1 Pretreatment Chamber
3 Discharge Chamber

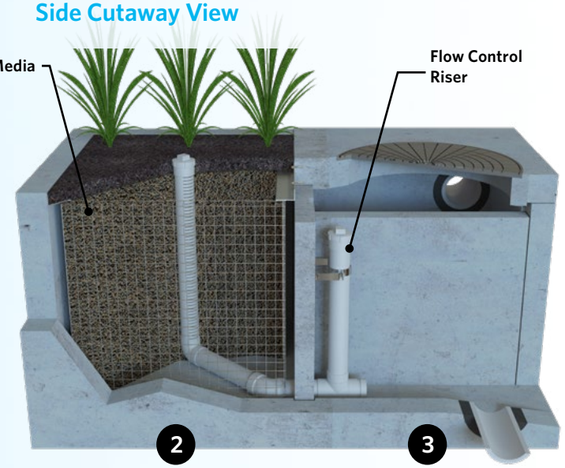


Side Cutaway View



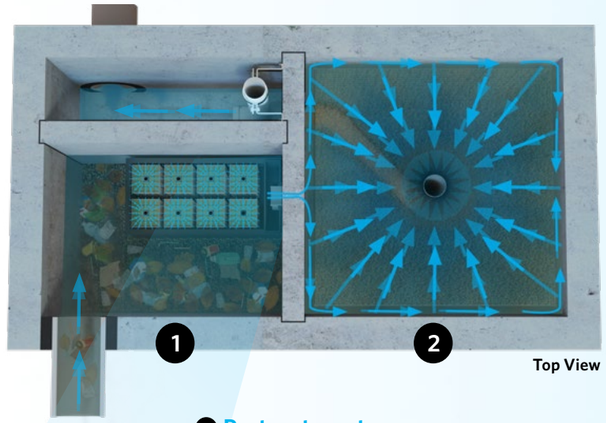
1 Pretreatment Chamber
2 Biofiltration Chamber

Side Cutaway View



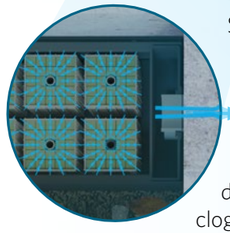
2 Biofiltration Chamber
3 Discharge Chamber

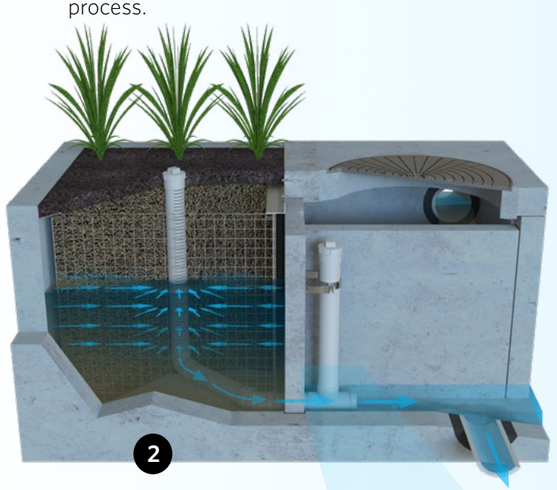
OPERATION



1 Pretreatment

Stormwater and other pollutants all enter the pretreatment chamber first. The larger material remains contained within the pretreatment stage as stormwater travels through the pre-filter boxes and on to the biofiltration chamber. This design enhances treatment, prevents clogging, and expedites the maintenance process.

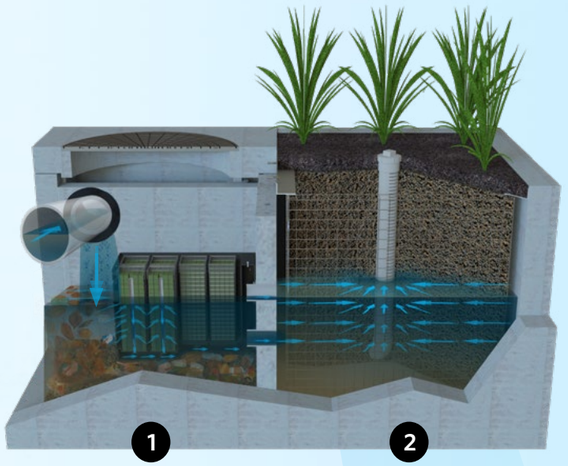




3 Discharge

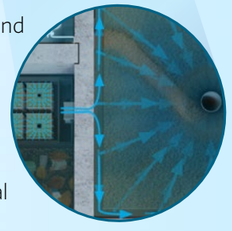
In the final stage or discharge chamber, the flow control riser (shown in the close-up) and the orifice plate, control the flow of water through the media to a level lower than the media's capacity. This extends the life of the media and improves performance.

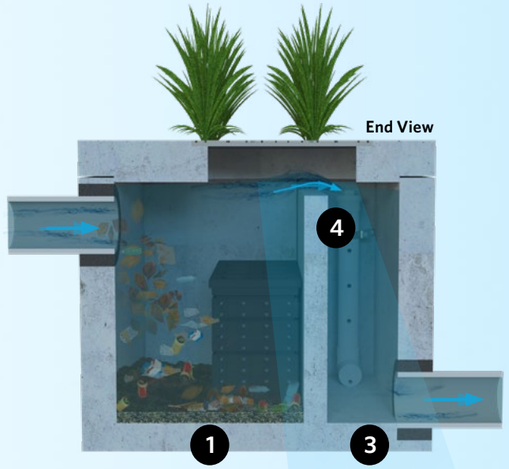




2 Biofiltration

As water leaves the pre-filter box and enters the biofiltration chamber, it initially fills the void space at the perimeter of the biofiltration chamber. The water's horizontal force grows, pushing it inward toward the centrally located vertical drain pipe, and out to discharge.





4 Bypass

In a side-by-side Modular Wetlands unit, the pretreatment and discharge chambers are adjacent to each other. Another unique advantage of horizontal flow. This allows unusually large flows to bypass the system to avoid flooding.



SIZING CHART

FLOW-BASED DESIGNS

The Modular Wetlands® Linear can be used in stand-alone applications to meet treatment flow requirements, and since it is the only biofiltration system that can accept inflow pipes several feet below the surface, it can be used in decentralized design applications as well as large central end-of-the-line applications.

Model #	Dimensions	WetlandMEDIA Surface Area (sq.ft.)	Treatment Flow Rate (cfs)
TIER 1: EXPRESS MODELS Express model options give our customers an opportunity to benefit from optimal lead times, pricing, and the industry's leading MTD.			
MWS-L-4-8	**4'x8'**	**50**	**0.115**
MWS-L-8-8	**8'x8'**	**100**	**0.230**
TIER 2: PREFERRED MODELS Preferred model sizes give our customers a dependable selection with favorable lead times and dependable pricing.			
MWS-L-4-4	4'x4'	23	0.052
MWS-L-4-6	4'x6'	32	0.073
MWS-L-4-8	**4'x8'**	**50**	**0.115**
MWS-L-8-8	**8'x8'**	**100**	**0.230**
MWS-L-8-12	8'x12'	151	0.346
MWS-L-8-16	8'x16'	201	0.462
MWS-L-8-20	8'x20'	252	0.577
MWS-L-8-24	8'x24'	302	0.693
TIER 3: CUSTOM Custom sizes and applications are always available upon project review, but they may include supplemental lead times and pricing.			

APPLICATIONS



The Modular Wetlands® Linear has been successfully used on numerous new construction and retrofit projects. The system's superior versatility makes it beneficial for a wide range of stormwater and waste water applications.

INDUSTRIAL

The Modular Wetlands has helped various sites meet difficult EPA-mandated effluent limits for dissolved metals and other pollutants.

RESIDENTIAL

Low to high density developments can benefit from the versatile design of the Modular Wetlands. The system can be used in both decentralized LID design and cost-effective end-of-the-line configurations.

STREETS

The Modular Wetlands is extremely space efficient, and adept to meeting special constraints of existing utilities on retrofit projects.

PARKING LOTS

Parking lots are designed to maximize space and the Modular Wetlands' 4 ft. standard planter width allows for easy integration into parking lot islands and other landscape medians.

COMMERCIAL

Compared to bioretention systems, the Modular Wetlands can treat far more area in less space, meeting treatment and volume control requirements.

More applications include:

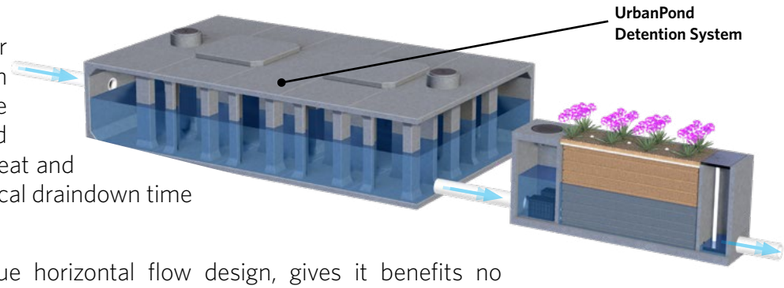
• Agriculture • Reuse • Low Impact Development • Waste Water • Mixed Use

HORIZONTAL FLOW ADVANTAGES

VOLUME-BASED DESIGNS



URBANPOND™ PRESTORAGE



In the example above, the Modular Wetlands Linear is installed downstream of the UrbanPond storage system. The Modular Wetlands Linear is designed for the water quality volume and will treat and discharge the required volume within local draindown time requirements.

The Modular Wetlands Linear's unique horizontal flow design, gives it benefits no other biofilter has - the ability to be placed downstream of detention ponds, extended dry detention basins, underground storage systems and permeable paver reservoirs. The system's horizontal flow configuration and built-in orifice control allows it to be installed with just 6" of fall between inlet and outlet pipe for a simple connection to projects with shallow downstream tie-in points.

DESIGN SUPPORT

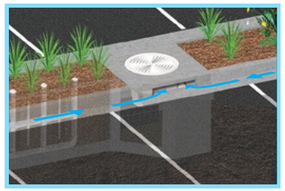
Volume control and hydromodification regulations are expanding the need to decrease the cost and size of your biofiltration system. Bio Clean will help you realize these cost savings with the Modular Wetlands Linear. Bio Clean engineers are aware of state and local regulations, and they are trained to provide you with superior support, so they can optimize a system to maximize feasibility.

ADVANTAGES

- LOWER COST THAN FLOW-BASED DESIGN
- MEETS LID REQUIREMENTS
- BUILT-IN ORIFICE CONTROL STRUCTURE
- WORKS WITH DEEP INSTALLATIONS

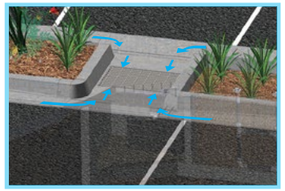
CONFIGURATIONS

The Modular Wetlands® Linear is the preferred biofiltration system of civil engineers across the country due to its versatile design. This highly versatile system has available "pipe-in" options on most models, along with built-in curb or grated inlets for simple integration into your storm drain design.



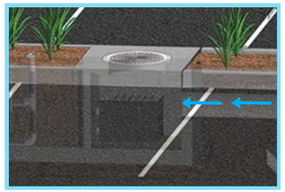
CURB TYPE

The Curb Type configuration accepts sheet flow through a curb opening and is commonly used along roadways and parking lots. It can be used in sump or flow-by conditions. Length of curb opening varies based on model and size.



GRATE TYPE

The Grate Type configuration offers the same features and benefits as the Curb Type but with a grated/drop inlet above the system's pretreatment chamber. It has the added benefit of allowing pedestrian access over the inlet. The Grate Type can also be used in scenarios where runoff needs to be intercepted on both sides of landscape islands.



VAULT TYPE

Modular Wetlands® can be used in end-of-the-line installations. This greatly improves feasibility over typical decentralized designs that are required with other biofiltration/bioretention systems. Another benefit of the "pipe-in" design is the ability to install the system downstream of underground detention systems to meet water quality volume requirements, or for traffic-rated designs (no plants).



DOWNSPOUT TYPE

The Downspout Type is a variation of the Vault Type and is designed to accept a vertical downspout pipe from rooftop and podium areas. Some models have the option of utilizing an internal bypass, simplifying the overall design. The system can be installed as a raised planter, and the exterior can be stuccoed or covered with other finishes to match the look of adjacent buildings.

ORIENTATIONS

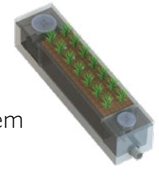
Side-by-Side (Internal Bypass)

The Side-by-Side orientation places the pretreatment and discharge chamber adjacent to one another with the biofiltration chamber running parallel on either side.



End-to-End

The End-To-End orientation places the pretreatment and discharge chambers on opposite ends of the biofiltration chamber, therefore minimizing the width of the system to 5 ft. (outside dimension).

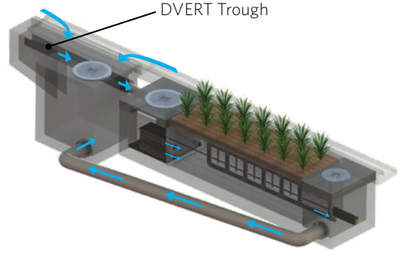


Dvert Low-Flow Diversion

A simple diversion trough can be installed in existing or new curb and grate inlets to divert the first flush to the Modular Wetlands Linear, and then back to the catch basin outlet.

External Diversion Weir Structure

This traditional offline diversion method can be used with the Modular Wetlands® Linear in scenarios where runoff is being piped to the system.



PLANT SELECTION



Abundant plants, trees, and grasses bring value and an aesthetic benefit to any urban setting, but those in the Modular Wetlands® System Linear do even more - they increase pollutant removal. What's not seen, but very important, is that below grade, the stormwater runoff/flow is being subjected to nature's secret weapon: a dynamic physical, chemical, and biological process working to break down and remove non-point source pollutants. The flow rate is controlled in the Modular Wetlands®, giving the plants more contact time so that pollutants are more successfully decomposed, volatilized, and incorporated into the biomass of the Modular Wetlands'® micro/macro flora and fauna.

A wide range of plants are suitable for use in the Modular Wetlands®, but selections vary by location and climate. View suitable plants by visiting biocleanenvironmental.com/plants.

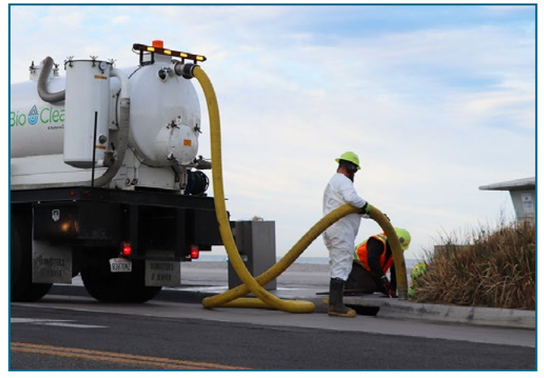
INSTALLATION



The Modular Wetlands® is simple, easy to install, and has a space-efficient design that offers lower excavation and installation costs compared to traditional tree-box type systems. The structure of the system resembles precast catch basin or utility vaults and is installed in a similar fashion.

The system is delivered fully assembled for quick installation. Generally, the structure can be unloaded and set in place in 15 minutes. Our experienced team of field technicians is available to supervise installations and provide technical support.

MAINTENANCE



Reduce your maintenance costs, man hours, and materials with the Modular Wetlands®. Unlike other biofiltration systems that provide no pretreatment, the Modular Wetlands® is a self-contained treatment train which incorporates simple and effective pretreatment.

Maintenance requirements for the biofilter itself are almost completely eliminated, as the pretreatment chamber removes and isolates trash, sediments, and hydrocarbons. What's left is the simple maintenance of an easily accessible pretreatment chamber that can be cleaned by hand or with a standard vac truck. Only periodic replacement of low-cost media in the pre-filter cartridges is required for long-term operation, and there is absolutely no need to replace expensive biofiltration media.





Bio Clean
A Forterra Company

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stormwater@forterrabp.com
biocleanenvironmental.com

0830_2021

Appendix B 3 – Drawdown time

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-1

(1)	VBMP =	220560	ft^3
(2)	Basin Bottom Area=	77220	ft^2
(3)	Infiltration Rate =	22.2	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	4.9	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 6.9 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chambers Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-2

(1)	VBMP =	93946	ft^3
(2)	Basin Bottom Area=	44880	ft^2
(3)	Infiltration Rate =	9.6	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	2.1	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 11.8 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chambers Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-3

(1)	VBMP =	220816	ft^3
(2)	Basin Bottom Area=	105456	ft^2
(3)	Infiltration Rate =	11	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	2.4	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 10.3 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chambers
Drawdown Calculation

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-4

(1)	VBMP =	161830	ft^3
(2)	Basin Bottom Area=	77292	ft^2
(3)	Infiltration Rate =	16.8	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	3.7	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 6.7 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chambers Drawdown Calculation

ALBERT A WEBB ASSOCIATES
ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-5

(1)	VBMP =	173214	ft^3
(2)	Basin Bottom Area=	82728	ft^2
(3)	Infiltration Rate =	4.7	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	1.0	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 24.1 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-6

(1)	VBMP =	200264	ft^3
(2)	Basin Bottom Area=	140904	ft^2
(3)	Infiltration Rate =	2	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	0.4	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 38.4 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES
ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-7

(1)	VBMP =	110418	ft^3
(2)	Basin Bottom Area=	38448	ft^2
(3)	Infiltration Rate =	16.8	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	3.7	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 9.2 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-8+DMA-BS

(1)	VBMP =	750402	ft^3
(2)	Basin Bottom Area=	26353	ft^2
(3)	Infiltration Rate =	30	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	6.7	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 51.3 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-11

(1)	VBMP =	22952	ft^3
(2)	Basin Bottom Area=	8040	ft^2
(3)	Infiltration Rate =	22.2	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	4.9	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 6.9 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES
ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-12

(1)	VBMP =	44326	ft^3
(2)	Basin Bottom Area=	15522	ft^2
(3)	Infiltration Rate =	4.7	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	1.0	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 32.8 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-13

(1)	VBMP =	16776	ft^3
(2)	Basin Bottom Area=	8022	ft^2
(3)	Infiltration Rate =	11	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	2.4	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 10.3 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES
ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-15

(1)	VBMP =	74506	ft^3
(2)	Basin Bottom Area=	34268	ft^2
(3)	Infiltration Rate =	16.8	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	3.7	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 7.0 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-16

(1)	VBMP =	35739	ft^3
(2)	Basin Bottom Area=	12516	ft^2
(3)	Infiltration Rate =	7.2	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	1.6	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 21.4 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/7/2021
Project: 20210610
Location:
Area: DMA-17

(1)	VBMP =	14664	ft^3
(2)	Basin Bottom Area=	10444	ft^2
(3)	Infiltration Rate =	1.8	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	0.4	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 42.1 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-20

(1)	VBMP =	13493	ft^3
(2)	Basin Bottom Area=	9555	ft^2
(3)	Infiltration Rate =	1.8	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	0.4	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 42.4 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

ALBERT A WEBB ASSOCIATES ENGINEERING CONSULTANTS

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-21

(1)	VBMP =	23741	ft^3
(2)	Basin Bottom Area=	8316	ft^2
(3)	Infiltration Rate =	11.2	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	2.5	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 13.8 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Underground Chamber Drawdown Calculation

Designer: XA
Date: 12/6/2021
Project: 20210610
Location:
Area: DMA-22

(1)	VBMP =	108775	ft^3
(2)	Basin Bottom Area=	51948	ft^2
(3)	Infiltration Rate =	14.1	in/hr
(4)	Factor of Safety=	4.5	
(5)	Design Infiltration Rate =	3.1	in/hr

$$Drawdown = \frac{V_{BMP}\ (ft^3)}{Design\ Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Water Quality Drawdown Time= 8.0 hr

*The Geotechnical Infiltration Test recommends a design infiltration rates of 10.4 inches per hour at the expected depth for the southeastern chambers. A factor of safety of 3.5 was determined by the FWQMP Report.

Appendix C – Alternative Plan

DMA 0		
Impervious Ratio =	(i)	0.90
CBMP = Runoff Coefficient	0.858i3 -0.78i2 +0.774i+0.04	0.730
P2yr,1hr	NOAA - 2-yr 1-hr rainfall depth	0.528
a1 = San Bernardino Climate Region	Valley = 1.4807 Mountain = 1.909 Desert = 1.2371	1.4807
P6 - Mean Storm Rainfall Depth	P6= a1 * P2yr,1hr	0.782
a2 = Drawdown rate of Basin	1.582 for 24-hr 1.963 for 48-hr	1.963
Project Area (SF)	135	5,880,600
Design Capture Volume (cu.ft.)	DCV = DA * CBMP* a2 * P6/12	549,228
Volume Provided, cu. Ft.		**750,402**

	DMA Name	Area (SF)	Design Capture Volume (cu.ft.)
Current Plan	DMA 8	123.4	502,035
	DMA 15	1.7	6,916
	DMA 18	4.2	17,087
	DMA 19	2	8,137
	DMA BS	3.7	15,053
New	DMA 0	**135**	**549,228**

Infiltration Basin Capacity:		
Vret = Pdesign / 12 * SAinf * (Tdrawdown + Tfill) =	6.5/12*263535*(48+3)=	750,402

Table 5-4 - Estimation Methods for On-site Retention BMPs

BMP Type	Runoff Volume Calculation	Variables	Fact Sheet Reference for Design Details
Impervious area dispersion	$V_{ret} = DA_{imp} * R_{perv:imperv} * 0.5/12$	DA_{imp} = impervious drainage area (ft^2) $R_{perv:imperv}$ = ratio of pervious to impervious area	Orange County Technical Guidance Document (TGD) for Project WQMPs Appendix XIV[1]
Localized on-lot infiltration	$V_{ret} = (SA_{pond} * d_{pond}) +$ $(SA_{matrix} * d_{matrix} * n_{matrix})$	SA_{pond} = surface area for ponding water (ft^2) d_{pond} = depth of ponding water (ft) SA_{matrix} = surface area of amended soil / gravel (ft^2) d_{matrix} = depth of amended soil / gravel (ft) n_{matrix} = porosity of amended soil / gravel	Orange County TGD for Project WQMPs Appendix XIV[1]
Green / Brown roofs	$V_{ret} = E_{daily, wet season} * A_{rooftop} * T_{drawdown}/24$ *or* *fully self-retaining if* $d_{matrix} = 3/R_{BMP, roof}$	dmatrix = depth of soil layer for roof BMP (ft) RBMP:roof = ratio of BMP area to total roof area Edaily,wetseason = wet season daily evaporation (in/day) Tdrawdown Arooftop – rooftop area for evapotranspiration BMPs	Orange County TGD for Project WQMPs Appendices IX and XIV[1]
Blue roof	$V_{ret} = E_{daily, wet season} * A_{rooftop} * T_{drawdown}/24$	$E_{daily,wetseason}$ = wet season daily evaporation (in/day) $T_{drawdown}$ = drawdown time for stored runoff (hrs), default is 96 hours Arooftop – rooftop area for evapotranspiration BMPs	Orange County TGD for Project WQMPs Appendix XIV[1]
Street trees	$V_{ret} = n_{trees} * IA_{canopy} * d_{int} / 12$	n_{trees} = number of street trees IA_{canopy} = average impervious area under tree canopy after 4 years growth (ft^2) d_{int} = rain depth retained by canopy interception (in)	Orange County TGD for Project WQMPs Appendix XIV[1]
Residential rain barrels / cisterns	$V_{ret} = n_{barrels} * S_{barrel} / 2$	$n_{barrels}$ = number of residential rain barrels / cisterns S_{barrel} = volume of residential rain barrels / cisterns (ft^3)	Orange County TGD for Project WQMPs Appendix XIV[1]
Infiltration basin	$V_{ret} = P_{design} / 12 * SA_{inf} * (T_{drawdown} + T_{fill})$	P_{design} = design percolation rate (in/hr), field measured infiltration divided by safety factor SA_{inf} = infiltrating surface area (ft^2) $T_{drawdown}$ = drawdown time for stored runoff (hrs), default is 48 hours[1] T_{fill} = duration of storm when infiltration is occurring as basin is filling (hrs), default is 3 hours	Riverside County LID BMP Manual[2] Orange County TGD for Project WQMPs Appendix XIV[1]

[1] A 48-hour drawdown time is utilized for infiltration basin sizing, which is consistent with the current DCV calculation methodology in Form 4.2-1 of the WQMP Template

Appendix D– Soils Report

November 30, 2021
Kleinfelder Project No. 20221328.002A

Mr. Joshua Cox, Vice President
HIP VI Enterprises, LLC
A Delaware Limited Liability Company
901 Via Piemonte, Suite 175
Ontario, CA 91764

SUBJECT: Report of Preliminary Infiltration Study
Proposed Speedway Commerce Center II
County of San Bernardino, California 92335

Dear Mr. Cox:

Kleinfelder is pleased to present this report summarizing our infiltration study performed for the proposed Speedway Commerce Center located at the surrounding areas of the Auto Club Speedway at 9300 Cherry Avenue in Fontana, California. Our scope of work was presented in our August 31, 2021 proposal. The purpose of this study is to provide preliminary conclusions and recommendations pertaining to infiltration characteristics of the existing subsurface soil at the subject site.

SITE AND PROJECT DESCRIPTION

The project site is located at the surrounding areas of the existing California Speedway site located at 9300 Cherry Avenue in Fontana, California. Hillwood wishes to construct approximately seven new logistics buildings within the project area. Other site improvements include new public streets, auto and truck trailer parking, and associated Best Management Practice (BMP) infiltration facilities.

We understand the new buildings will generally consist of large, warehouse-sized buildings equipped with loading docks and automotive and truck trailer parking areas and heavy-duty pavement. The approximate site area, building size, and number of truck trailer parking of the proposed buildings is shown in the table below.

Building	Site Area (acres)	Building Area (sf)	Truck Trailer Parking
1	53.99	1,286,600	271
2	22.99	540,500	107
3	53.99	1,316,800	292
4	39.60	960,500	210
5	40.36	939,800	274
6	41.76	926,000	187
7	26.92	629,800	136

We anticipate the proposed warehouse buildings will be single-story, concrete-tilt-up structures, supported on conventional shallow spread foundations with a dock high slab-on-grade floor.

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2280 Market Street, Suite 300, Riverside, CA 92501 p|951.801.3681 f|951.682.0192

We were informed by Webb Associates (Webb), the project Civil Engineer, that numerous areas of underground infiltration chambers are planned. Kleinfelder performed infiltration testing at each of the 20 locations shown on Figure 1, Infiltration Test Location Map. The depth of our testing is approximately 10 feet below the existing ground surface (bgs) at each location.

FIELDWORK

Kleinfelder's subcontractor, BC2 Environmental, used a CME-95 drill rig to drill 20 borings that were converted to infiltration tests between September 6 and September 28, 2021. The infiltration tests were drilled to approximately 10 feet bgs and the approximate locations are shown on Figure 1. The infiltration tests were setup and tested in general accordance with the San Bernardino County Technical Guidance Document for Water Quality Management Plans, 2011 (SBCTGD) Percolation Test procedure. Based on the SBCTGD, the bottom elevation of the tests corresponded to the proposed inverts for the proposed infiltration systems.

SUBSURFACE CONDITIONS

In general, the subsurface conditions at the proposed infiltration facilities onsite consist of artificial fill soil overlying native alluvial soil. Artificial fill was encountered to depths ranging from approximately 2 feet bgs to the maximum depth explored of approximately 10 feet bgs. Native alluvial soil was encountered to the maximum depth explored of approximately 10 feet bgs.

Artificial fill generally consisted of silty sand to sand with varying amounts of silt and gravel, slag from previous site use, and debris. Similar to the artificial fill, native alluvial soils generally consisted of silty sand to poorly graded sand with varying amounts of gravel and sandy silt.

Groundwater was not encountered in any of the infiltration test borings. Groundwater is anticipated to be at a depth significantly greater than 50 feet below ground surface.

A detailed summary of the subsurface conditions encountered at the infiltration test locations are shown in Appendix A, Infiltration Test Logs. The borings were logged by a Kleinfelder engineer using the Unified Soil Classification System (USCS).

LABORATORY TESTING

Laboratory testing was performed on representative samples of soil collected from the bottom of our infiltration test borings to substantiate field classifications. Laboratory testing included sieve analysis (ASTM D422). The results of the testing performed are presented in Appendix B, Laboratory Testing.

BOREHOLE PERCOLATION TEST

Falling head percolation tests were performed per the SBCTGD. Test setup included placing 2 inches of gravel at the bottom of the borings 8 inches in diameter. At each location, a 3-inch perforated PVC pipe was placed, and the infiltration tests were pre-soaked. During testing, test holes were carefully filled with water to a depth equal to at least 5 times the hole's radius above the gravel at the bottom of the holes. Testing began by performing two trial readings to show if 6 inches of water seeps away in less than 25 minutes in order to verify if testing would be performed using "sandy soils" or "non-sandy soils" criteria. Nineteen tests were performed using "sandy soils" criteria, where testing was generally performed for one hour with readings taken

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every 10 minutes. P-15 was tested using “non-sandy soils” criteria and was performed for six hours with readings taken every 30 minutes. The tested percolation rates were converted to tested infiltration rates using the “Porchet Method”. Test reading data and calculations are provided in Appendix C, Infiltration Test Results. Results of the tests performed are summarized below.

INFILTRATION TEST LOCATION	*TESTED INFILTRATION RATE (INCH/ HOUR)
P-1	2.0
P-2	7.2
P-3	5.6
P-4	1.8
P-5	30.0
P-6	16.8
P-7	2.5
P-8	14.1
P-9	6.9
P-10	16.8
P-11	0.9
P-12	4.7
P-13	6.2
P-14	11.0
P-15	0.6
P-16	9.6
P-17	16.1
P-18	22.2
P-19	12.0
P-20	11.2

*Rate before applying the factor of safety

DATA EVALUATION

The field results of this testing provide unfactored infiltration rates. To evaluate design infiltration rates, correction factors are applied. Correction factors used for this study are based on the 2011 SBCTGD, summarized below:

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Site Suitability Related Considerations for Infiltration Facility Safety Factors*

CONSIDERATION	HIGH CONCERN (3)	MEDIUM CONCERN (2)	LOW CONCERN (1)
Assessment methods (see explanation below)	Use of soil survey maps or simple texture analysis to estimate short-term infiltration rates	Direct measurement of ≥ 20 percent of infiltration area with localized infiltration measurement methods (e.g., infiltrometer)	Direct measurement of ≥ 50 percent of infiltration area with localized infiltration measurement methods or Use of extensive test pit infiltration measurement methods
Texture Class	Silty and clayey soils with significant fines	Loamy soils	Granular to slightly loamy soils
Site soil variability	Highly variable soils indicated from site assessment or limited soil borings collected during site assessment	Soil borings/test pits indicate moderately homogeneous soils	Multiple soil borings/test pits indicate relatively homogeneous soils
Depth to groundwater/ impervious layer	<5 ft below facility bottom	5-10 ft below facility bottom	>10 below facility bottom

*As presented in Table VII.3 on page VII-31 of SBC Guidance Document (2011)

Design Related Considerations for Infiltration Facility Safety Factors*

Consideration	High Concern (3)	Medium Concern (2)	Low Concern (1)
Tributary area size	Greater than 10 acres.	Greater than 2 acres but less than 10 acres.	2 acres or less.
Level of pretreatment/ expected influent sediment loads	Pretreatment from gross solids removal devices only, such as hydrodynamic separators, racks and screens AND tributary area includes landscaped areas, steep slopes, high traffic areas, or any other areas expected to produce high sediment, trash, or debris loads.	Good pretreatment with BMPs that mitigate coarse sediments such as vegetated swales AND influent sediment loads from the tributary area are expected to be relatively low (e.g., low traffic, mild slopes, disconnected impervious areas, etc.).	Excellent pretreatment with BMPs that mitigate fine sediments such as bioretention or media filtration OR sedimentation or facility only treats runoff from relatively clean surfaces, such as rooftops.
Redundancy of treatment	No redundancy in BMP treatment train.	Medium redundancy, other BMPs available in treatment train to maintain at least 50% of function of facility in event of failure.	High redundancy, multiple components capable of operating independently and in parallel, maintaining at least 90% of facility functionality in event of failure.
Compaction during construction	Construction of facility on a compacted site or elevated probability of unintended/ indirect compaction.	Medium probability of unintended/ indirect compaction.	Heavy equipment actively prohibited from infiltration areas during construction and low probability of unintended/ indirect compaction.

*As presented in Table VII.4 on page VII-33 of the SBC Guidance Document (2011)

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CONCLUSIONS AND RECOMMENDATIONS

Based on our evaluation of the borehole percolation test procedure test data, the soils encountered at a depth of approximately 10 feet bgs in the borings tested generally exhibit a short-term, non-factored infiltration rate of 0.6 to 30.0 inches per hour.

The site suitability factors presented above were selected by Kleinfelder based on the materials observed during drilling services. The design related considerations were selected by Webb Engineers based on the proposed type of infiltration system. For the design infiltration rate, Kleinfelder recommends using the Combined Safety Factor presented below.

Factor of Safety and Design Infiltration Rate and Worksheet*

FACTOR CATEGORY		FACTOR DESCRIPTION	ASSIGNED WEIGHT (w)	FACTOR VALUE (v)	PRODUCT (p) p = w * v
A	Suitability Assessment	Soil assessment methods	0.25	2	0.50
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	2	0.50
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \sum p$			1.5
B	Design	Tributary area size	0.25	3	0.75
		Level of pretreatment/ expected sediment loads	0.25	3	0.75
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	3	0.75
		Design Safety Factor, $S_B = \sum p$			3.0
Combined Safety Factor, $S_{TOT} = S_A \times S_B$					$1.5 \times 3.0 = 4.5$

*As presented in Worksheet H of the SBC Guidance Document (2011)

Based on the testing performed and the correction factors presented above from the SBCTGD, we recommend a Combined Safety Factor of 4.5. The resulting design infiltration rates are summarized in the table below.

Summary of Design Infiltration Rates

Infiltration Test Location	Tested Depth from Ground Surface (ft)	Tested Infiltration Rate (in/hr)	Long-Term Design Infiltration Rate (in/hr)	Soil Description
P-1	5 – 10	2.0	0.4	Silty Sand with Gravel (SM)
P-2	4.5 – 10	7.2	1.6	Well Graded Sand with Silt and Gravel (SW-SM)

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Summary of Design Infiltration Rates (Continued)

Infiltration Test Location	Tested Depth from Ground Surface (ft)	Tested Infiltration Rate (in/hr)	Long-Term Design Infiltration Rate (in/hr)	Soil Description
P-3	7 – 10	5.6	1.2	Well Graded Sand with Silt and Gravel (SW-SM)
P-4	6.5 – 10	1.8	0.4	Sandy Silt (ML)
P-5	6.5 – 10	30.0	6.7	Well Graded Sand with Silt and Gravel (SW-SM)
P-6	7 – 10	15.0	3.7	Poorly Graded Sand with Silt and Gravel (SP-SM)
P-7	4.5 – 10	2.5	0.6	Silty Sand with Gravel (SM)
P-8	7 – 10	14.1	3.1	Well Graded Sand with Silt and Gravel (SW-SM)
P-9	5 – 10	6.9	1.5	Well Graded Sand with Silt and Gravel (SW-SM)
P-10	7 – 10	16.8	3.7	Well Graded Sand with Silt and Gravel (SW-SM)
P-11	5 – 10	0.9	0.2	Silty Sand with Gravel (SM)
P-12	7 – 10	4.7	1.0	Well Graded Sand with Silt and Gravel (SW-SM)
P-13	7 – 10	6.2	1.4	Well Graded Sand with Silt and Gravel (SW-SM)
P-14	5.5 – 10	11.0	2.4	Well Graded Sand with Silt and Gravel (SW-SM)
P-15	6.5 – 10	0.6	0.1	Silty Sand with Gravel (SM)
P-16	6 – 10	9.6	2.1	Well Graded Sand with Gravel (SW)
P-17	7 – 10	16.1	3.6	Well Graded Sand with Silt and Gravel (SW-SM)
P-18	7.5 – 10	22.2	4.9	Well Graded Sand with Silt and Gravel (SW-SM)
P-19	6.5 – 10	12.0	2.7	Well Graded Sand with Silt and Gravel (SW-SM)
P-20	6.5 – 10	11.2	2.5	Well Graded Sand with Silt and Gravel (SW-SM)

Based on the results of the infiltration testing, it is our opinion that the site is generally suitable for infiltration BMPs, provided the following recommendations are incorporated into the design and construction. Due to the relatively large size of the site, we recommend that a design infiltration

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rate for any individual infiltration facility be selected and properly sized based on the long-term rates provided above and the location of the testing (see Figure 1).

Groundwater was not encountered in any of the boreholes performed for the project. Groundwater is anticipated to be at a depth significantly greater than 50 feet below ground surface. Based on this information, we do not anticipate that the depth to groundwater will affect the long-term performance of an infiltration system.

The degree of influent water pre-treatment and system maintenance are critical factors that will affect long-term performance. Pre-treatment may consist of combinations of debris screens, sediment settling chambers, filters and/or other mechanisms. Maintenance may include clearing debris, cleaning pre-treatment filters and sediment chambers, and reconditioning the bottom of the infiltration system after storm events and at regular intervals.

If infiltration BMPs are impractical due to existing site constraints, we recommend alternatives, such as bio-filtration/bio-retention systems (bio-swales and planter boxes), be implemented at the project site. If bio-filtration/bio-retention systems are employed, we recommend that the BMPs be built such that water exiting from them will not seep into the foundation areas or beneath slabs and pavement. If planters are located within 10 feet of any building or building foundations, or adjacent to slabs and pavements, then some means of diverting water away from the building, building foundation soils, or soils that support slabs and pavements would be required, such as lining the planters.

Additional Design/Maintenance Recommendations

Based on the results from our testing, our knowledge of the project, and our professional judgment, the following is a list of recommendations for development of the proposed project.

- The design should incorporate pre-treatment of influent water.
- The infiltration facilities should be located at least 10 feet away from the bottom of any proposed structure foundation. Structure foundations include buildings, retaining walls, or screen walls supported on a foundation.
- Maintenance of the facility should be performed annually or at more frequent intervals depending on frequency of storm events and the system maintenance schedule. The schedule should also be selected based on volume and turbidity of influent water, and final design of the facility.
- The facility should be designed with an outlet system to allow excess flow to either bypass the system or flow through the system and discharge into the offsite storm drain system.
- An operations and maintenance manual should be developed for the facility. The manual should include requirements for monitoring the infiltration rate and sediment build up. The operations and maintenance manual should also include procedures on how the system should be cleaned out and restored at each maintenance interval.

Additional Considerations

This study was performed and this report was prepared to support the design of an infiltration system at the subject site. Heavy equipment and soil compaction should be limited within the

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excavation bottoms and areas designed to infiltrate water. Altering the natural density of the proposed infiltration bottom by compaction will decrease the design infiltration rate.

The environmental constituents at the site were not evaluated as part of this infiltration study.

LIMITATIONS

This report summarizes our evaluation only of the capacity of soils to infiltrate water. The findings, conclusions and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of our profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. No warranty or guarantee, express or implied, is made.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party, other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of this report and the nature of the new project, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and the client agrees to defend, indemnify, and hold harmless Kleinfelder from any claims or liability associated with such unauthorized use or non-compliance.

Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions.

CLOSING

We appreciate the opportunity to be of professional service to you on this project. If you have any questions or require additional information, please do not hesitate to contact the undersigned at 951.801.3681.

Sincerely,

KLEINFELDER





Charles Chen, PE, GE
Project Geotechnical Engineer

Jeffery D. Waller, PE, GE
Senior Geotechnical Engineer

Attachments: References
Figure 1 – Infiltration Test Location Map
Appendix A – Field Explorations
Appendix B – Laboratory Testing
Appendix C – Infiltration Test Results

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REFERENCES

San Bernardino County (SBC), 2011. *Technical Guidance Document for Water Quality Management Plans (WQMP)*, San Bernardino County Stormwater Program, July 28, 2011.

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FIGURE

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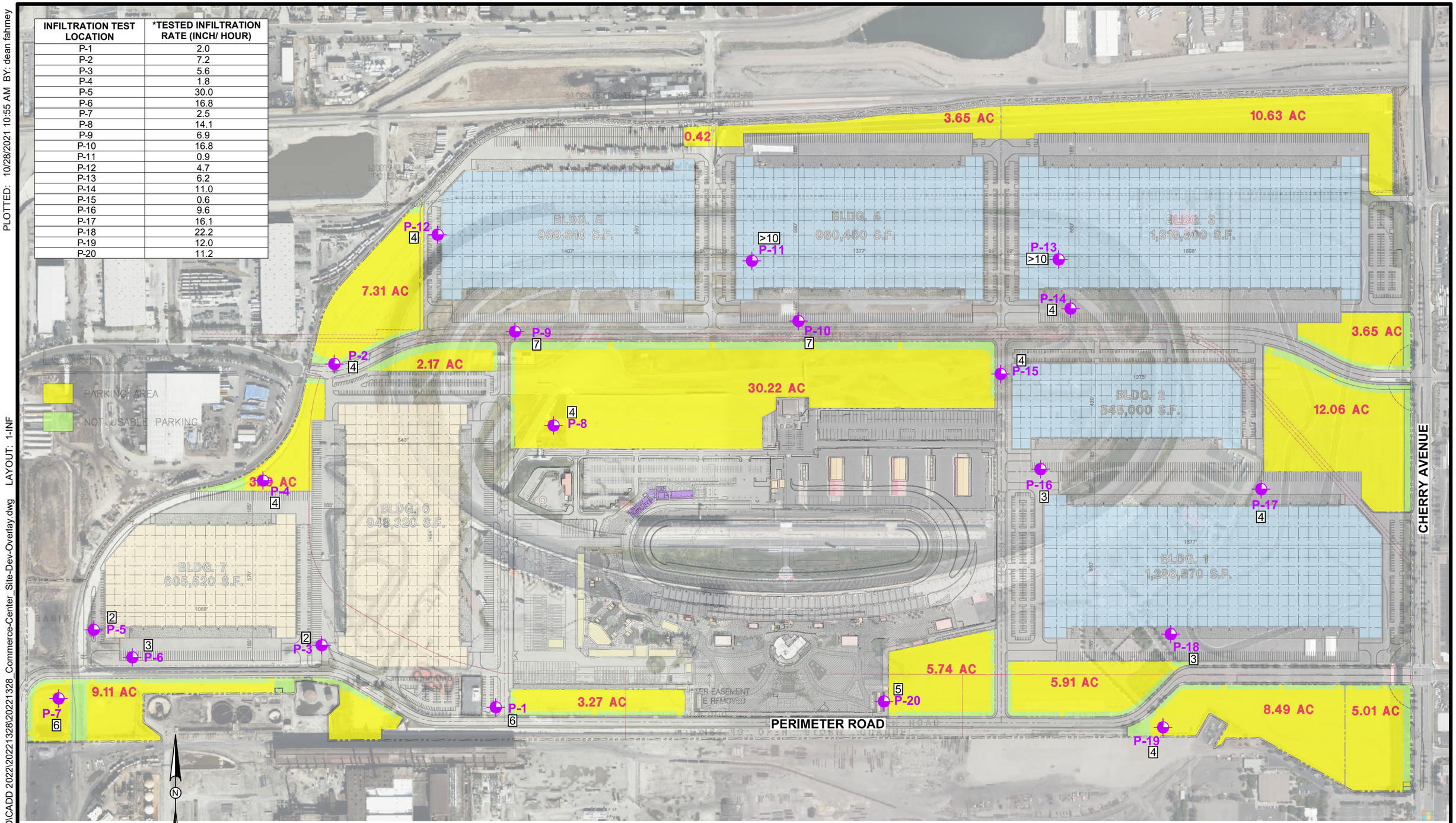
INFILTRATION TEST LOCATION	*TESTED INFILTRATION RATE (INCH/ HOUR)
P-1	2.0
P-2	7.2
P-3	5.6
P-4	1.8
P-5	30.0
P-6	16.8
P-7	2.5
P-8	14.1
P-9	6.9
P-10	16.8
P-11	0.9
P-12	4.7
P-13	6.2
P-14	11.0
P-15	0.6
P-16	9.6
P-17	16.1
P-18	22.2
P-19	12.0
P-20	11.2



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EXPLANATION

P-20 APPROXIMATE INFILTRATION TEST LOCATION

>10 APPROXIMATE DEPTH OF EXISTING FILL IN FEET

NOTE: KAISER STEEL MILL PLAN IS NOT A SCALED/SURVEYED DRAWING. ALL FORMER STRUCTURES ARE APPROXIMATE IN SCALE AND LOCATION.

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INFILTRATION TEST LOCATION MAP

PROPOSED SPEEDWAY COMMERCE CENTER
FONTANA, CALIFORNIA

FIGURE
1

PLOTTED: 10/28/2021 10:55 AM BY: dean fahmey
LAYOUT: 1-INF
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APPENDIX A
FIELD EXPLORATIONS

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SAMPLE/SAMPLER TYPE GRAPHICS

BULK SAMPLE

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

MODIFIED CALIFORNIA SAMPLER
(2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

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GRAPHICS KEY

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-1

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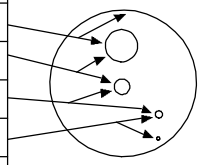
GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	Either the LL or the PI (or both) may be used to describe the soil plasticity. The ranges of numbers shown here do not imply that the LL ranges correlate with the PI ranges for all soils.	PI
Non-Plastic	NP		NP
Low	< 30		< 15
Medium	30 - 50		15 - 25
High	> 50		> 25

LL is from Casagrande, 1948. PI is from Holtz , 1959.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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SOIL DESCRIPTION KEY

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-2

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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_GEO-LEG 2 (SOIL DESC KEY)]

Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-1**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08420°
Longitude: -117.50590°
Approximate Ground Surface Elevation (ft.): 1,097
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 4 ft
1095			**Artificial Fill** **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter yellowish brown												
	5		brown, medium dense	1		BC=7 12 16	4"								Drill chatter
1090			**Native** **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, medium dense, subangular gravel up to 3 inch diameter trace debris (possible slag)	2		BC=10 12 7	6"				66	14			Trace debris observed in soil cuttings
	10														
1085															
	15														
1080															
	20														
1075															
	25														
1070															
	30														
1065															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-1

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-3

PAGE: 1 of 1

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Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-2**
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:** 140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.	

FIELD EXPLORATION

Latitude: 34.08950°
Longitude: -117.50890°
Approximate Ground Surface Elevation (ft.): 1,114
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 5 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter												
1110			increase in gravel												
	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to medium-grained, yellowish brown, moist, medium dense	1		BC=8 12 16	18"								
1105				2		BC=5 11 11	6"				50	8.2			
	10														
1100															
	15														
1095															
	20														
1090															
	25														
1085															
	30														
1080															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-2

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-4

PAGE: 1 of 1

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Date Begin - End:	9/13/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-3**
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:** 140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.	

FIELD EXPLORATION

Latitude: 34.08520°
Longitude: -117.50910°
Approximate Ground Surface Elevation (ft.): 1,089
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1089	0		**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter												
1085	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: dark brown, moist very dense, increase in sand and gravel	1		BC=15 50/5"	11"								
1080	10			2		BC=20 25 26	18"				52	6.2			
1075	15														
1070	20														
1065	25														
1060	30														
1055															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 13, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-3

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-5

PAGE: 1 of 1

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Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-4**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08780°
Longitude: -117.51020°
Approximate Ground Surface Elevation (ft.): 1,102
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 3 inches thick, no base observed												Hand auger to 4 ft
1100			**Artificial Fill** **Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, brown, moist, trace subangular gravel up to 3 inch diameter												
	5		**Native** **Poorly Graded SAND with Silt (SP-SM)**: fine to medium-grained, brown, moist, trace subangular gravel up to 3 inch diameter medium dense	1		BC=4 7 12	18"								
1095			**Sandy SILT (ML)**: fine to coarse-grained, dark brown, moist, medium stiff, trace debris (slag)	2		BC=2 3 4	18"				92	54			Trace debris observed in soil cuttings
	10														
1090															
	15														
1085															
	20														
1080															
	25														
1075															
	30														
1070															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-4

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-6

PAGE: 1 of 1

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BORING LOG P-5

Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275		
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08540°
Longitude: -117.51320°
Approximate Ground Surface Elevation (ft.): 1,077
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1075	0		**Artificial Fill** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter												Hand auger to 2 ft
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 3 inch diameter dense	1		BC=7 21 33	18"								
1070	5			2		BC=17 19 30	14"				71	7.9			
1065	10														
1060	15														
1055	20														
1050	25														
1045	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-5

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-7

Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-6**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08500°
Longitude: -117.51260°
Approximate Ground Surface Elevation (ft.): 1,078
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2.5 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 3 inch diameter												
1075	5		**Native** **Silty SAND with Gravel (SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 3 inch diameter grayish brown, dense	1		BC=8 27 31	18"								
1070			**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse-grained, brown, medium dense, little subangular gravel up to 0.75 inch diameter	2		BC=4 10 13	18"				88	8.2			
	10														
1065	15														
1060															
	20														
1055															
	25														
1050															
	30														
1045															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-6

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-8

PAGE: 1 of 1

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Date Begin - End:	9/14/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-7**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08440°
Longitude: -117.51390°
Approximate Ground Surface Elevation (ft.): 1,090
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, dry to moist, subangular gravel up to 3 inch diameter												Hand auger to 1 ft
1085	5		medium dense	1		BC=10 12 8	18"								
			Native **Silty SAND (SM)**: fine to coarse-grained, dark brown, moist, loose, little subangular gravel up to 1 inch diameter												
1080	10			2		BC=3 2 3	18"				86	17			
1075	15														
1070	20														
1065	25														
1060	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 14, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-7

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-9

PAGE: 1 of 1

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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-8**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08860°
Longitude: -117.50480°
Approximate Ground Surface Elevation (ft.): 1,114
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark yellowish brown, moist, subangular gravel up to 3 inch diameter												
1110	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark yellowish brown, moist, medium dense, subangular gravel up to 3 inch diameter	1		BC=8 13 11	18"								
1105	10		very dense	2		BC=18 20 34	18"				58	5.5			
1100	15														
1095	20														
1090	25														
1085	30														
1080															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-8

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-10

Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-9**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09000°
Longitude: -117.50550°
Approximate Ground Surface Elevation (ft.): 1,120
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to medium-grained, dark brown, moist, trace subangular gravel up to 3 inch diameter brown, decrease in gravel												Hand auger to 2 ft
1115	5		loose	1		BC=4 4 4	18"								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, grayish brown, moist, medium dense, subangular gravel up to 1 inch diameter	2		BC=7 14 14	18"				68	6.2			
1110	10														
1105	15														
1100	20														
1095	25														
1090	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-9

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-11

PAGE: 1 of 1

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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-10**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09030°
Longitude: -117.49990°
Approximate Ground Surface Elevation (ft.): 1,129
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1125	0		**Artificial Fill** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 1 inch diameter, trace subangular cobble up to 4 inch diameter, trace debris (possible slag)												Hand auger to 1 ft
	5		dense	1		BC=10 15 20	NR								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 1 inch diameter, trace subangular cobble up to 4 inch diameter												
1120	10			2		BC=13 19 25	18"				54	5.0			
1115	15														
1110	20														
1105	25														
1100	30														
1095															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-10

Proposed Speedway Commerce Center
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FIGURE
A-12

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Date Begin - End:	9/15/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-11**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09110°
Longitude: -117.50100°
Approximate Ground Surface Elevation (ft.): 1,135
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 1.5 inch diameter, trace cobble up to 6 inch diameter, trace debris (slag)												Hand auger to 1 ft
1130	5		brown, dense, decrease in sand and gravel	1		BC=13 25 28	18"								
1125	10		grayish brown, medium dense, increase in sand	2		BC=4 6 7	18"				76	16			
1120	15														
1115	20														
1110	25														
1105	30														

LABORATORY RESULTS

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 15, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG P-11

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-13

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PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-12**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.09150°
Longitude: -117.50670°
Approximate Ground Surface Elevation (ft.): 1,124
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 1 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, grayish brown, moist, subangular gravel up to 1 inch diameter, trace debris (possible slag up to 4 inches)												
1120	5			1		BC=23 50/6"	12"								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, grayish brown, moist, very dense, subangular gravel up to 1 inch diameter												
1115	10		increase in sand	2		BC=21 50/5"	10"				53	6.7			
1110	15														
1105	20														
1100	25														
1095	30														
1090															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-12

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-14

PAGE: 1 of 1

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-13**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09110°
Longitude: -117.49560°
Approximate Ground Surface Elevation (ft.): 1,140
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: approximately 4 inches thick												Hand auger to 1 ft
			Artifical Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 1.5 inch diameter												
1135	5		medium dense	1		BC=3 4 12	1"								
			brown to grayish brown, dense	2		BC=10 22 24	12"				51	7.5			
1130	10														
1125	15														
1120	20														
1115	25														
1110	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG P-13

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-15

PAGE: 1 of 1

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-14**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.09030°
Longitude: -117.49540°
Approximate Ground Surface Elevation (ft.): 1,135
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, subangular gravel up to 1.5 inch diameter dark brown to black												Hand auger to 2 ft
1130	5		brown, trace subangular cobble up to 4 inch diameter	1		BC=50/6"	4"								
			Native **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, brown, moist, very dense, subangular gravel up to 1.5 inch diameter dense, increase in sand	2		BC=14 16 19	18"				67	6.2			
1125	10														
1120	15														
1115	20														
1110	25														
1105	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.:	20221328.002A
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CHECKED BY:	CC
DATE:	10/7/2021

BORING LOG P-14

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-16

PAGE: 1 of 1

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-15**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08930°
Longitude: -117.49650°
Approximate Ground Surface Elevation (ft.): 1,124
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND with Gravel (SM)**: fine to medium-grained, brown, moist, subangular gravel up to 3 inch diameter, trace debris (trash)												Hand auger to 1 ft
1120	5		**Native** **SILT with Sand (ML)**: fine-grained, non-plastic, yellowish brown, moist, stiff	1		BC=7 10 14	18"								
1115	10		**Silty Clayey SAND with Gravel (SC-SM)**: fine to coarse-grained, grayish brown, moist, medium dense, subangular gravel up to 1.5 inch diameter	2		BC=4 7 18	18"				74	21			
1110	15														
1105	20														
1100	25														
1095	30														
1090															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221328.002A
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DATE:	10/7/2021

BORING LOG P-15

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-17

PAGE: 1 of 1

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Date Begin - End:	9/16/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-16**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Joaquin/Gabe		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08790°
Longitude: -117.49580°
Approximate Ground Surface Elevation (ft.): 1,123
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2.5 inches thick, no base observed												Hand auger to 3 ft
			Artificial Fill **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark brown, moist, trace subangular gravel up to 1 inch diameter												
1120			**Native** **Well-Graded SAND with Gravel (SW)**: fine to medium-grained, dark yellowish brown, moist, trace subangular gravel up to 1 inch diameter grayish brown, dense, increase in sand and gravel	1		BC=18 24 35	18"								
1115	5		medium dense	2		BC=7 12 17	18"				69	4.1			
1110	10														
1105	15														
1100	20														
1095	25														
1090	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 16, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG P-16

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-18

PAGE: 1 of 1

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Date Begin - End: 9/27/2021 **Drilling Company:** BC2 Environmental - #1051275 **BORING LOG P-17**

Logged By: H. Marquez **Drill Crew:** Jason/Freddy/Ishmael

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-95 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

Latitude: 34.08750°
Longitude: -117.49180°
Approximate Ground Surface Elevation (ft.): 1,125
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, subangular gravel up to 1 inch diameter												
1120	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, dense, subangular gravel up to 1 inch diameter	1		BC=14 21 25	18"								
			grayish brown, increase in sand	2		BC=12 16 25	18"				73	5.9			
1115	10														
1110	15														
1105	20														
1100	25														
1095	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

gINT FILE: Klf_gint_master_2022
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BORING LOG P-17

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-19

PLOTTED: 10/27/2021 11:40 PM BY: CChen

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-18**	
Logged By:	H. Marquez	**Drill Crew:**	Jason/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 34.08550°
Longitude: -117.49340°
Approximate Ground Surface Elevation (ft.): 1,117
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1115	0		**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 3 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, subangular gravel up to 1.5 inch diameter												
	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, very dense, subangular gravel up to 1.5 inch diameter	1		BC=15 42 40	18"								
1110			grayish brown, increase in sand	2		BC=15 26 29	18"				55	7.2			
	10														
1105															
	15														
1100															
	20														
1095															
	25														
1090															
	30														
1085															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG P-18

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-20

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-19**	
Logged By:	H. Marquez	**Drill Crew:**	Juan/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08390°
Longitude: -117.49360°
Approximate Ground Surface Elevation (ft.): 1,110
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt Concrete: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, subangular gravel up to 1 inch diameter, trace debris (slag up to 6 inches)												
1105	5		**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown, moist, dense, subangular gravel up to 1 inch diameter	1		BC=11 22 30	18"								
			dark yellowish brown, increase in sand	2		BC=6 15 22	18"				58	7.0			
1100	10														
1095	15														
1090	20														
1085	25														
1080	30														

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20221328.002A
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BORING LOG P-19

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-21

PAGE: 1 of 1

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PROJECT NUMBER: 20221328.002A
OFFICE FILTER: RIVERSIDE

PLOTTED: 10/27/2021 11:40 PM BY: CChen

Date Begin - End:	9/27/2021	**Drilling Company:**	BC2 Environmental - #1051275	**BORING LOG P-20**	
Logged By:	H. Marquez	**Drill Crew:**	Juan/Freddy/Ishmael		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-95	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 34.08430°
Longitude: -117.49870°
Approximate Ground Surface Elevation (ft.): 1,106
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1105	0		**Asphalt Concrete**: approximately 2 inches thick, no base observed												Hand auger to 2 ft
			Artificial Fill **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark brown to yellowish brown, moist, subangular gravel up to 1 inch diameter, trace debris (pieces of wire)												
	5			1		BC=10 16 21	18"								
1100			**Native** **Well-Graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained, dark yellowish brown, moist, dense, subangular gravel up to 1 inch diameter												
			very dense	2		BC=11 31 30	18"				54	7.5			
	10														
1095															
	15														
1090															
	20														
1085															
	25														
1080															
	30														
1075															

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface with quickset concrete dyed black on September 27, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

gINT FILE: Klf_gint_master_2022
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DATE:	10/7/2021

BORING LOG P-20

Proposed Speedway Commerce Center
Fontana, California

FIGURE
A-22

APPENDIX B
LABORATORY TESTING

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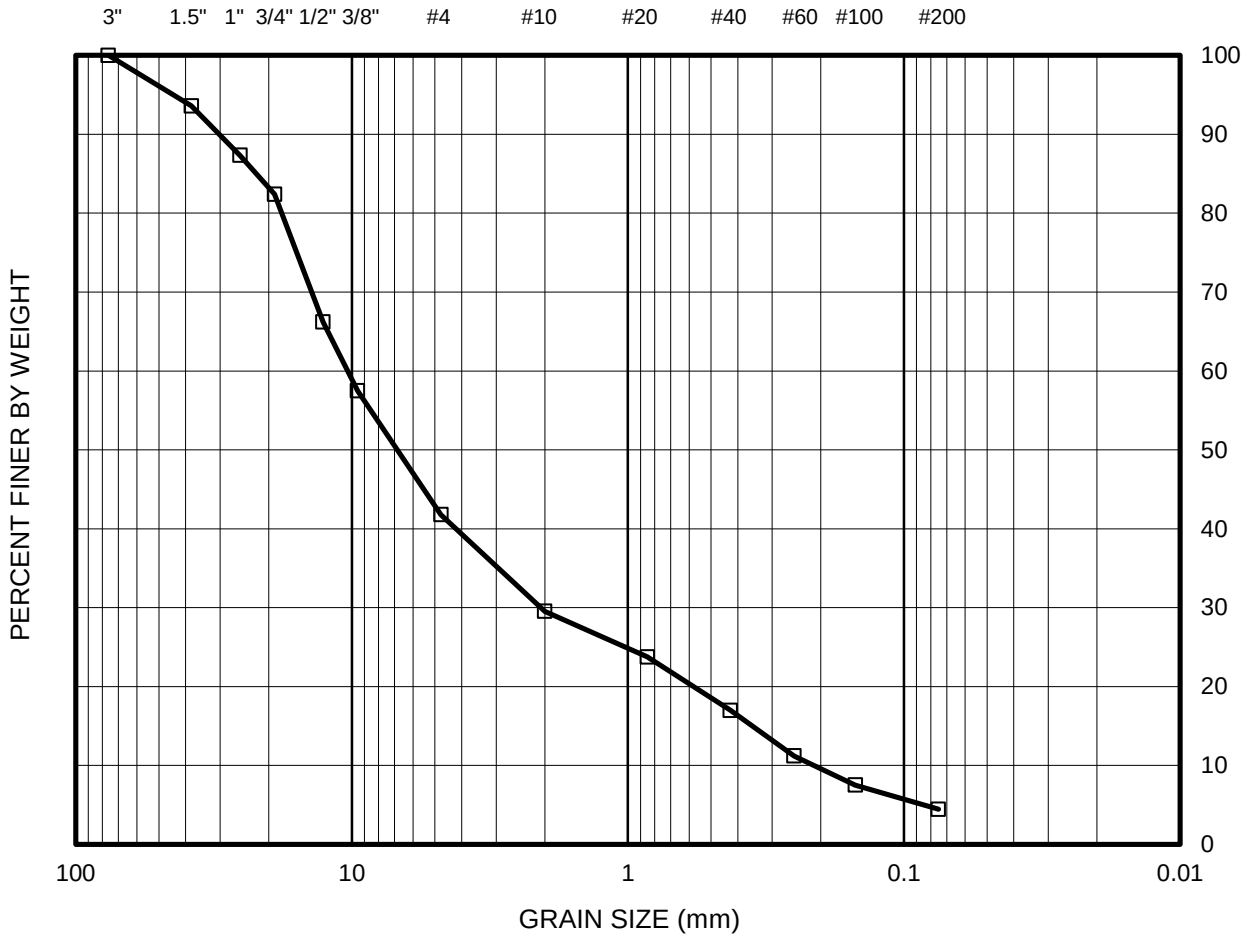
GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-1	1	1.0-5.0	Bulk	GW	N/A	N/A

Gravel:	58.2%
Sand:	37.3%
Fine:	4.5%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-2	4	20.0	SPT Bag	SW-SM	N/A	N/A

Gravel:	28.8%
Sand:	64.2%
Fine:	7.0%

EGLAB, INC.

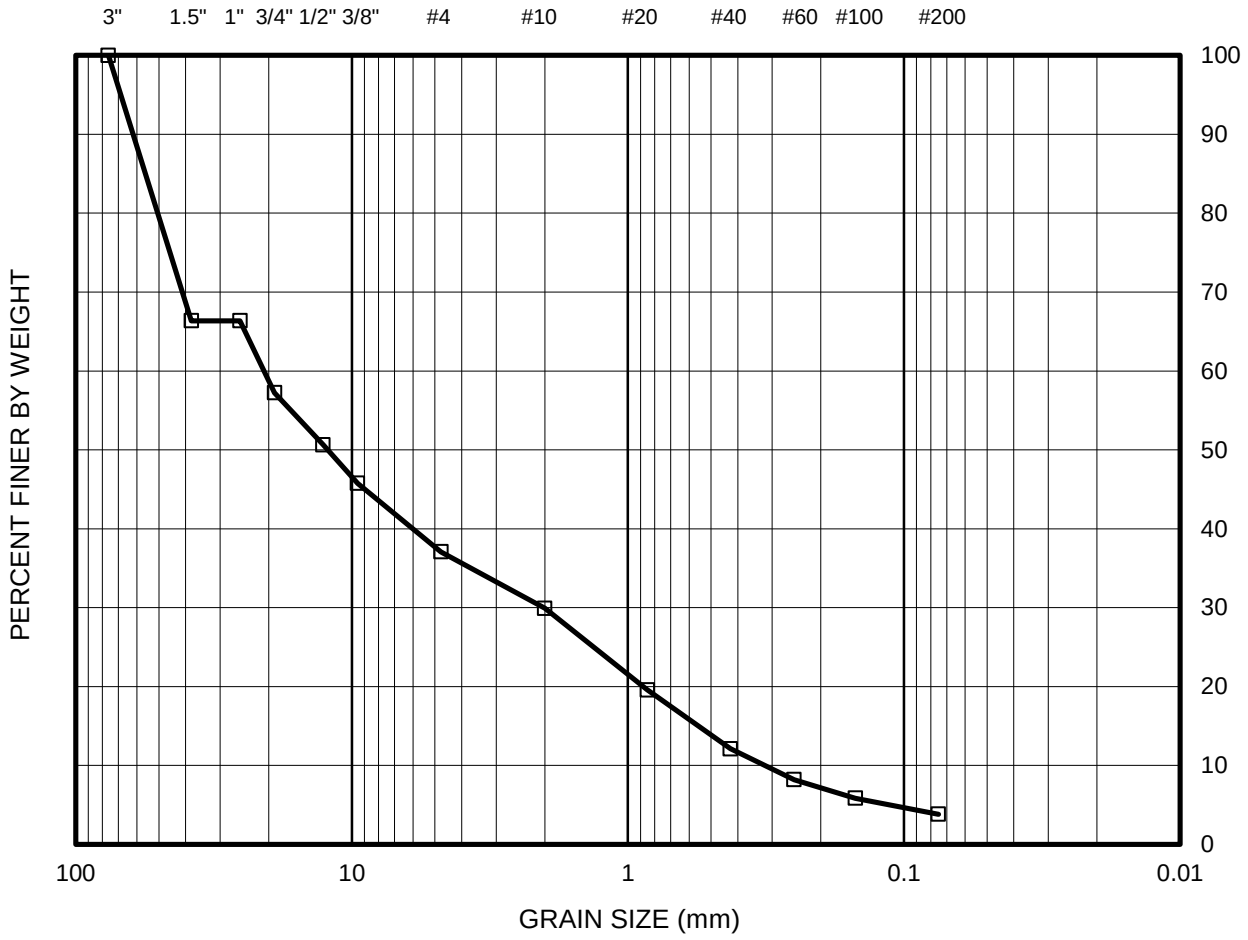
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-3	2	5.0	CAL	GW	N/A	N/A

Gravel:	62.9%
Sand:	33.3%
Fine:	3.8%

EGLAB, INC.

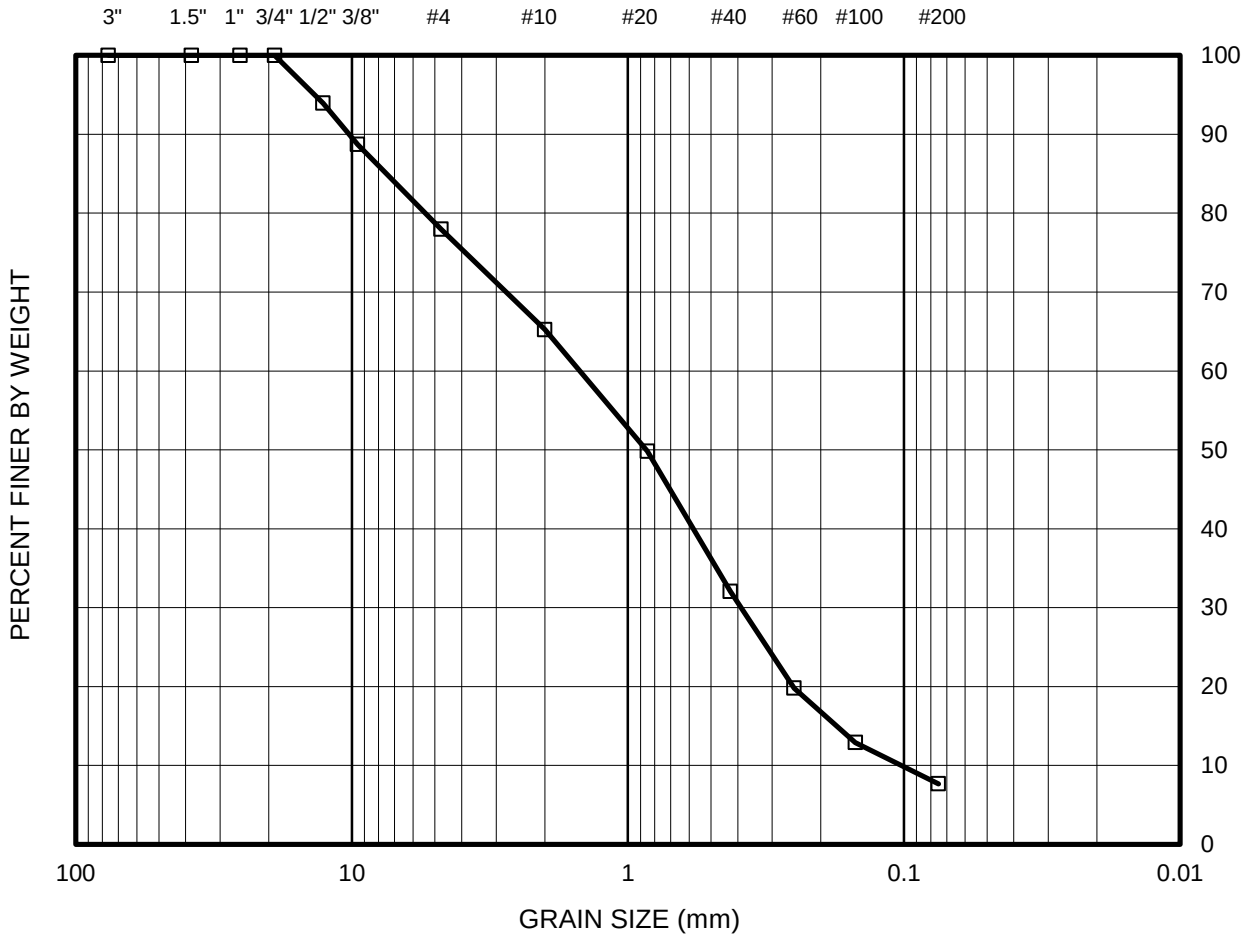
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-4	2	10.0	CAL	SW-SM	N/A	N/A

Gravel:	22.0%
Sand:	70.3%
Fine:	7.7%

EGLAB, INC.

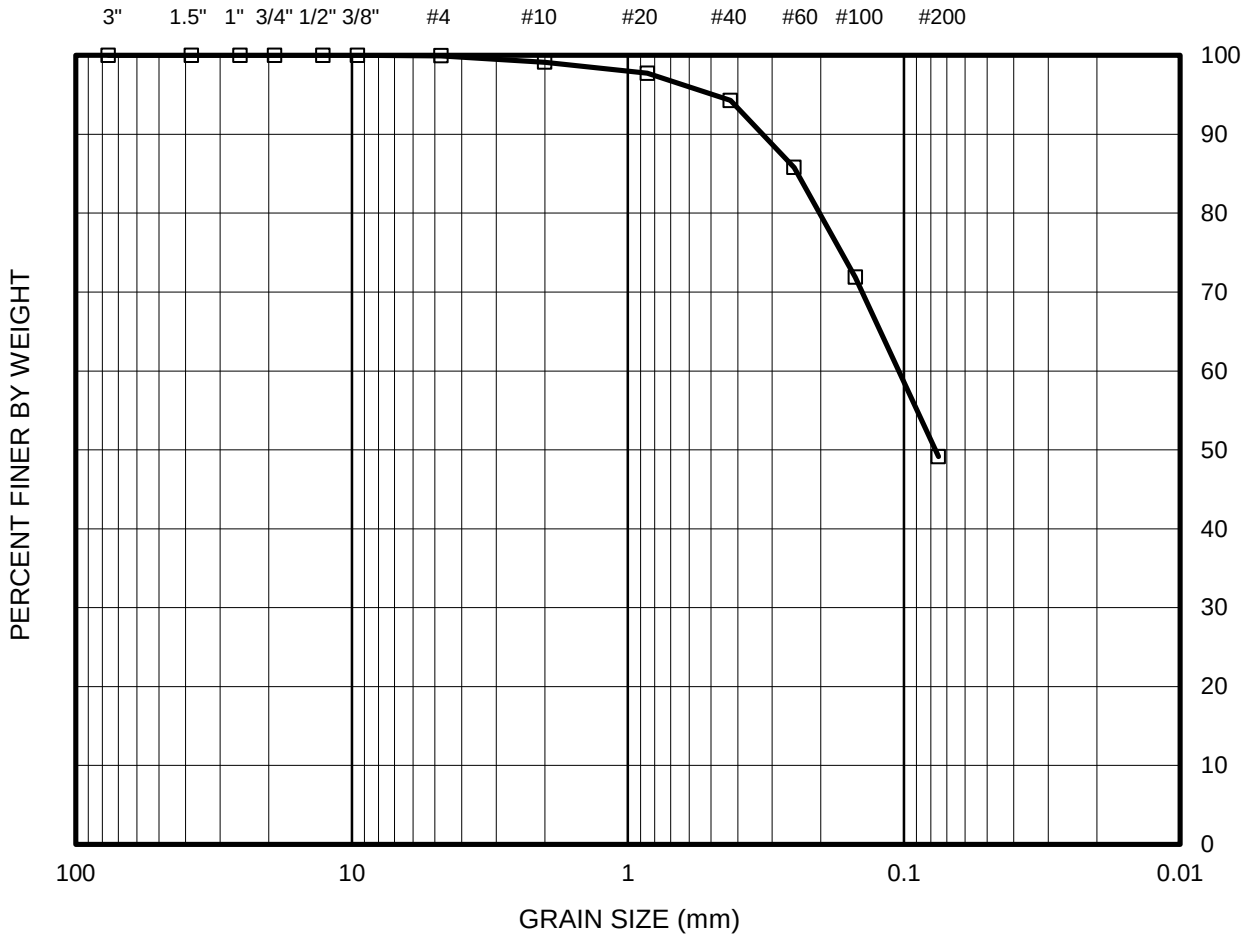
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-5	3	10.0	CAL	SC	N/A	N/A

Gravel:	0.1%
Sand:	50.8%
Fine:	49.1%

EGLAB, INC.

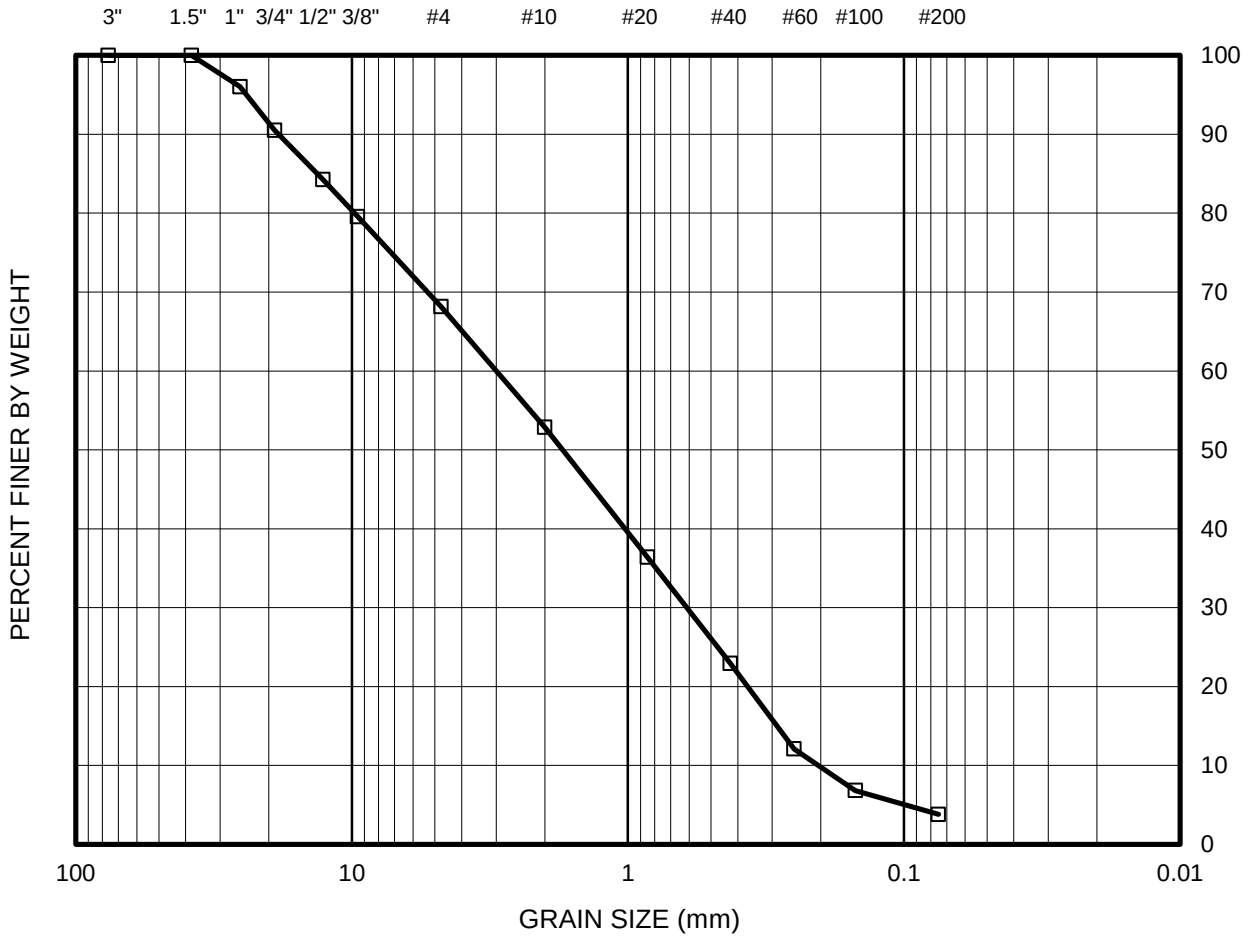
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-6	3	10.0	CAL	SW	N/A	N/A

Gravel:	31.8%
Sand:	64.4%
Fine:	3.8%

EGLAB, INC.

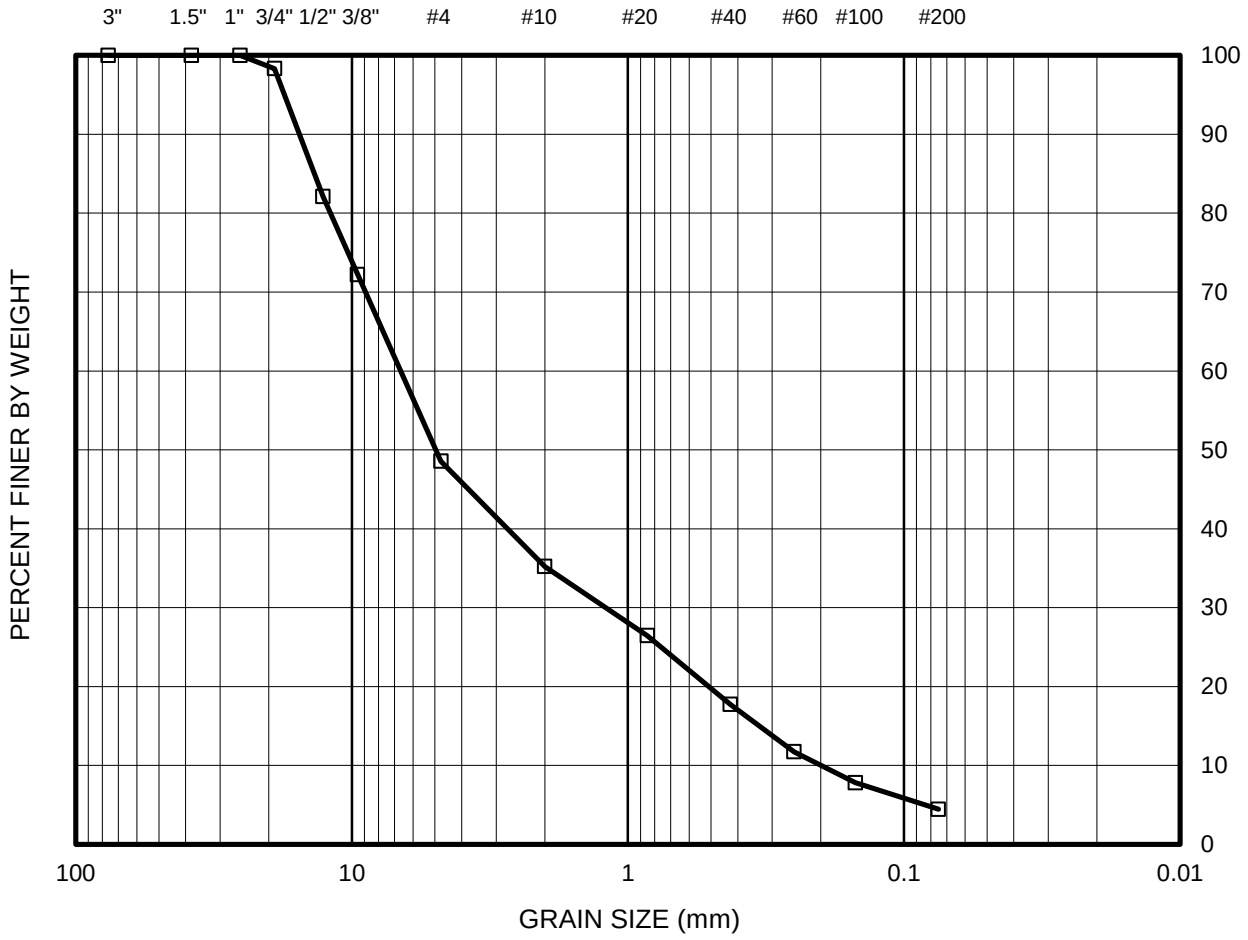
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-7	2	10.0	CAL	GW	N/A	N/A

Gravel:	51.5%
Sand:	44.1%
Fine:	4.4%

EGLAB, INC.

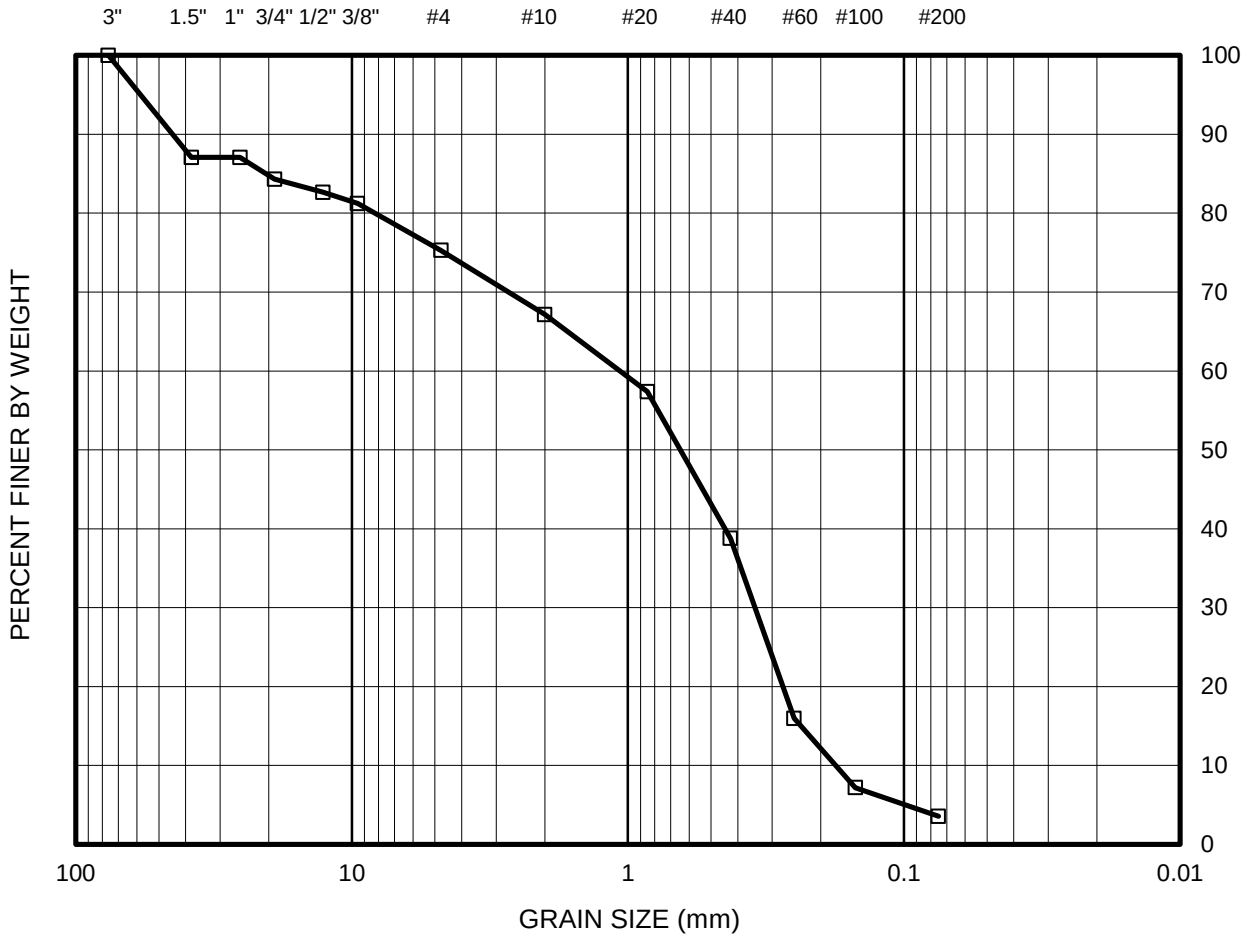
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-8	4	20.0	CAL	SW	N/A	N/A

Gravel:	24.7%
Sand:	71.7%
Fine:	3.6%

EGLAB, INC.

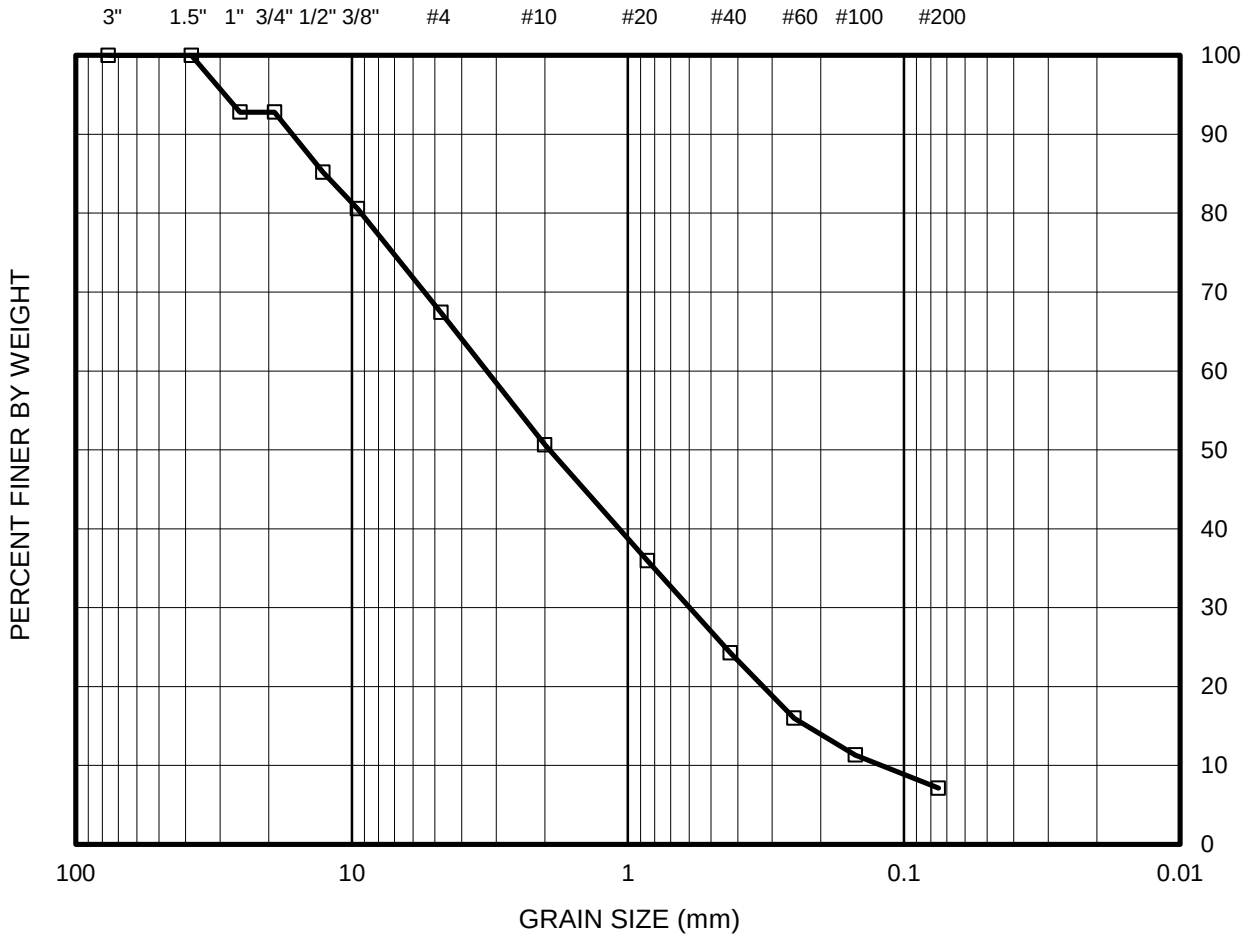
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-9	1	5.0	CAL	SW-SM	N/A	N/A

Gravel:	32.6%
Sand:	60.3%
Fine:	7.1%

EGLAB, INC.

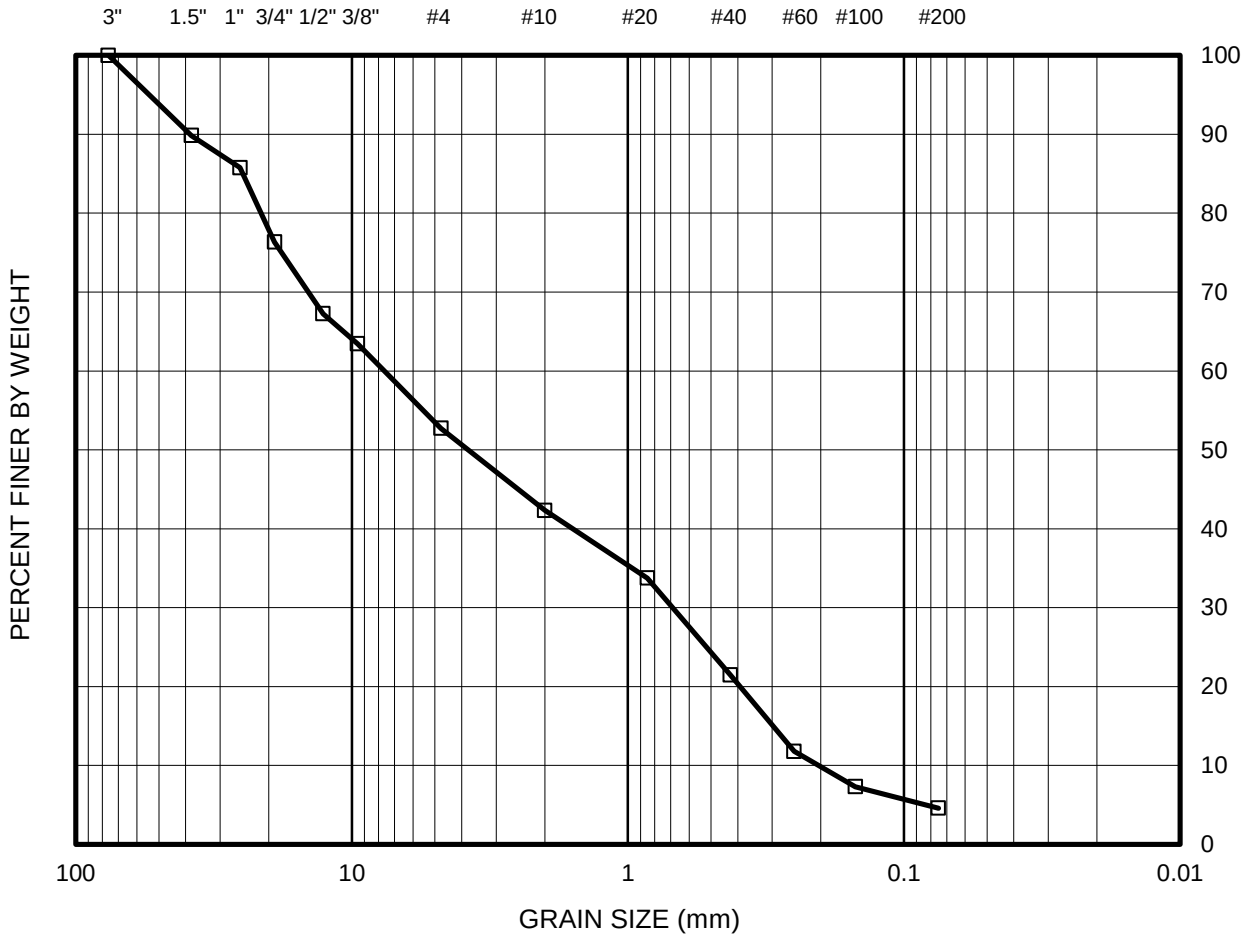
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-10	3	10.0	CAL	SW	N/A	N/A

Gravel:	47.3%
Sand:	48.1%
Fine:	4.6%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-11	1	5.0	CAL	SM	N/A	N/A

Gravel:	21.8%
Sand:	63.5%
Fine:	14.7%

EGLAB, INC.

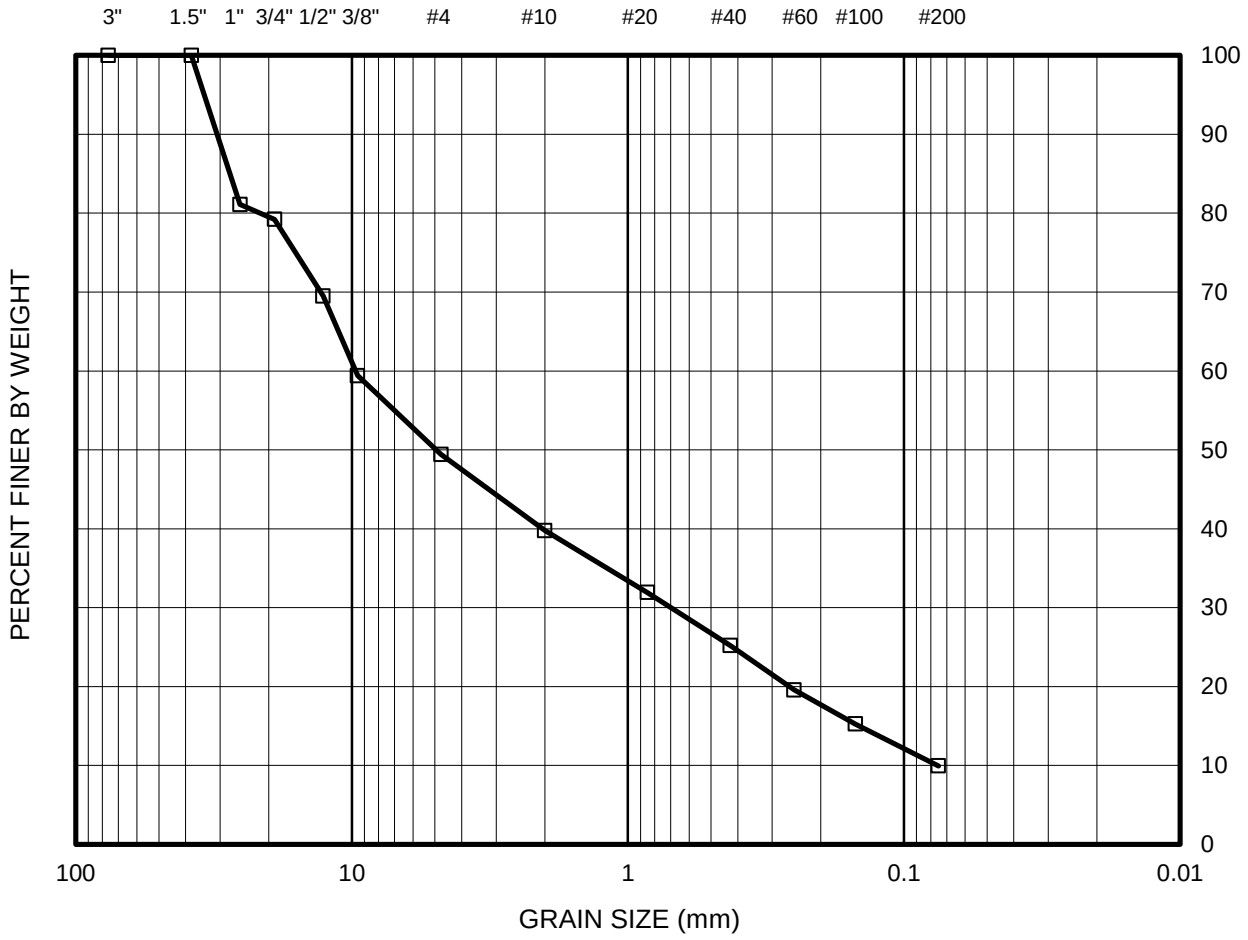
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-12	2	10.0	CAL	GW-GM	N/A	N/A

Gravel:	50.6%
Sand:	39.5%
Fine:	9.9%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-13	2	5.0	CAL	SM	N/A	N/A

Gravel:	5.0%
Sand:	70.0%
Fine:	25.0%

EGLAB, INC.

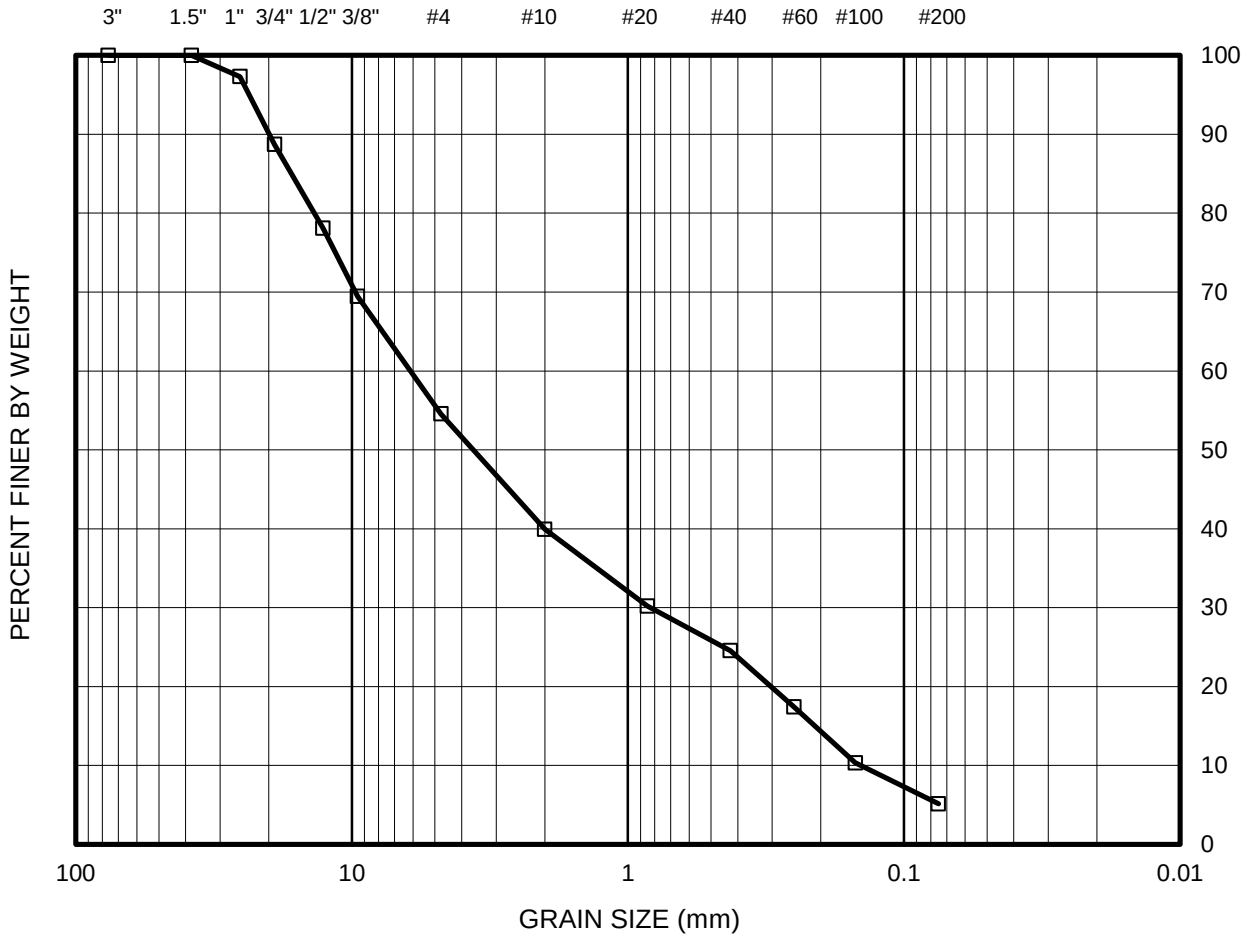
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING — U.S. STANDARD SIEVE NUMBER — HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-15	2	10.0	CAL	SW-SM	N/A	N/A

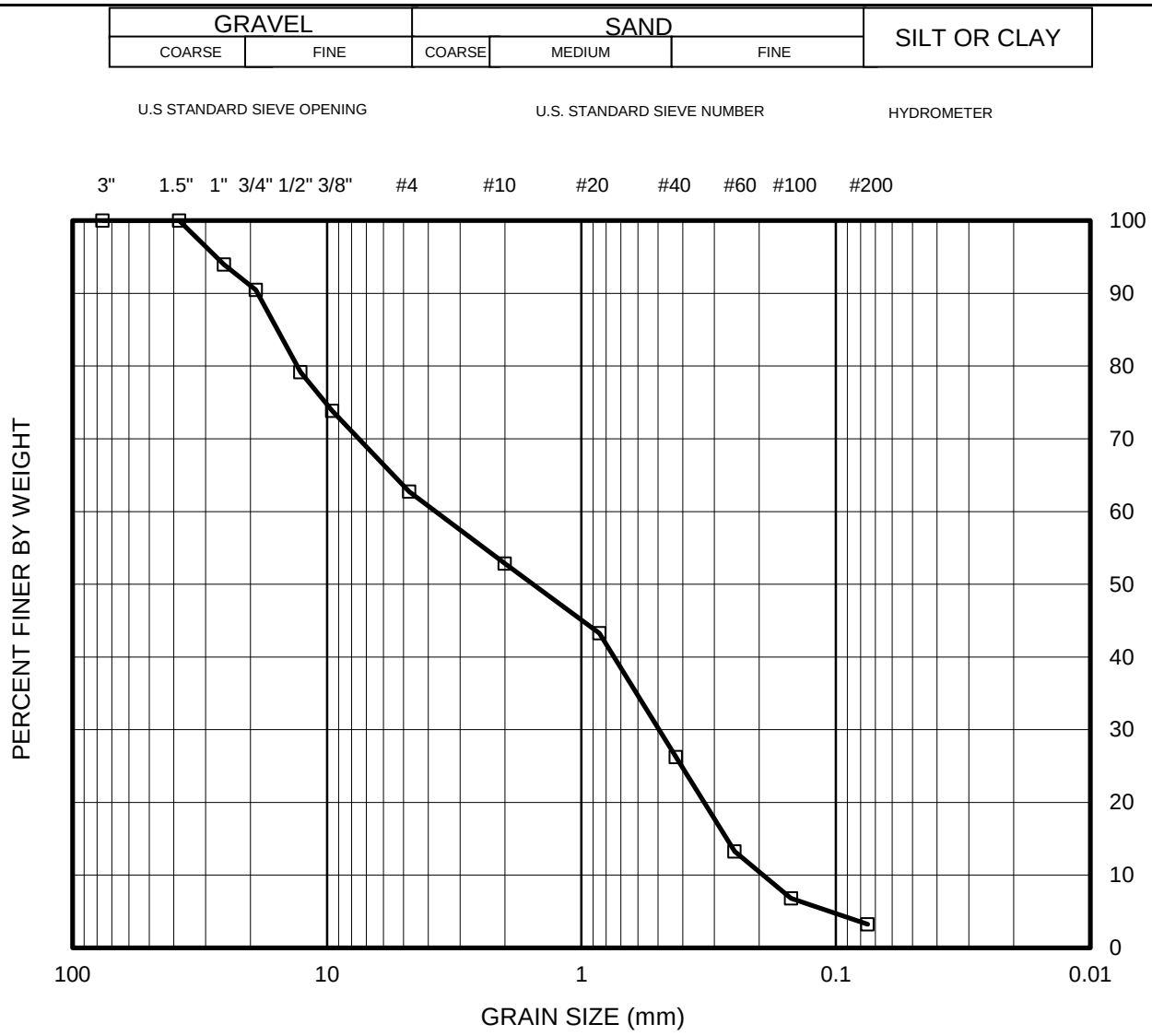
Gravel:	45.5%
Sand:	49.4%
Fine:	5.1%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-16	1	1.0-5.0	Bulk	SW	N/A	N/A

Gravel:	37.3%
Sand:	59.5%
Fine:	3.2%

EGLAB, INC.

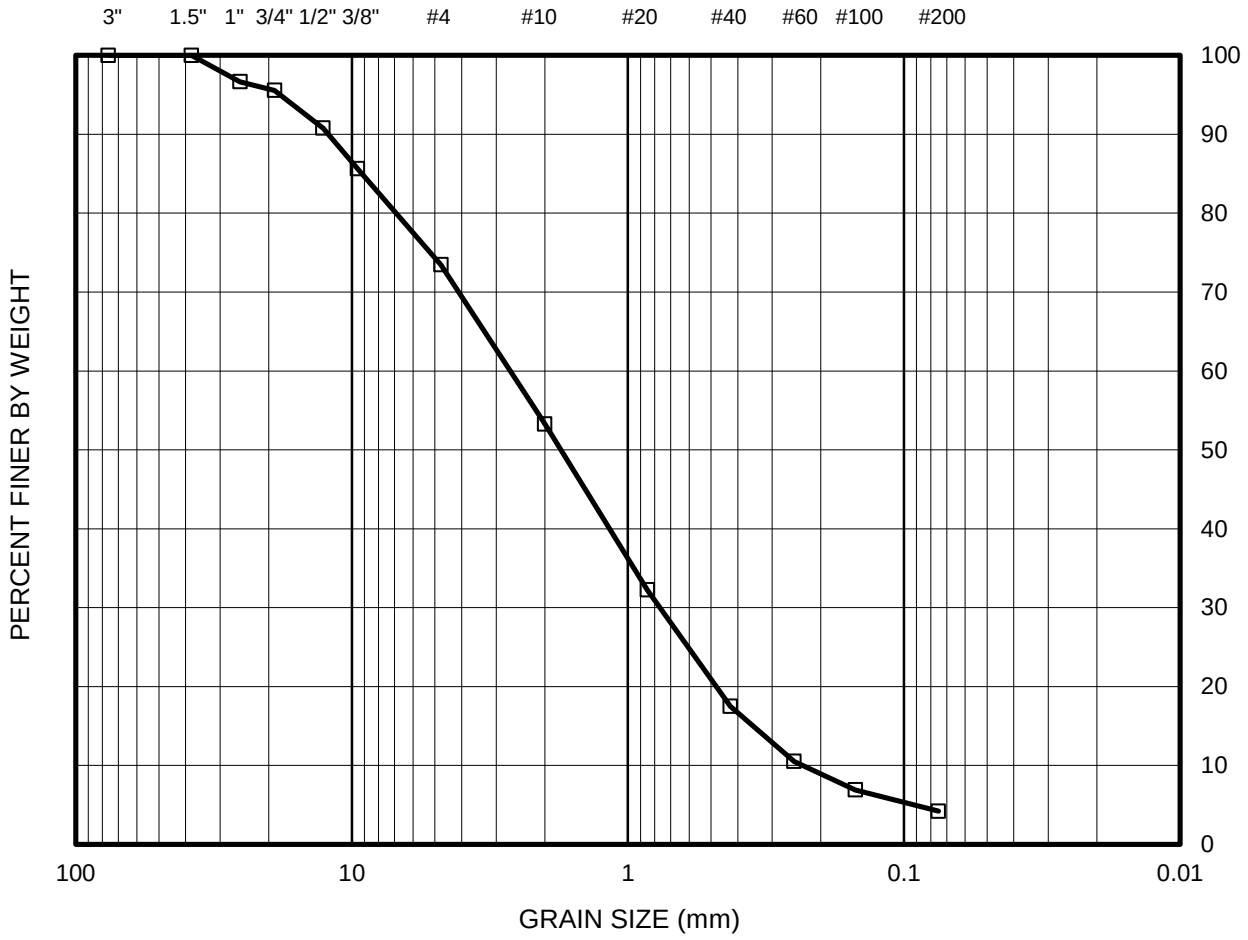
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-18	2	10.0	CAL	SW	N/A	N/A

Gravel:	26.5%
Sand:	69.3%
Fine:	4.2%

EGLAB, INC.

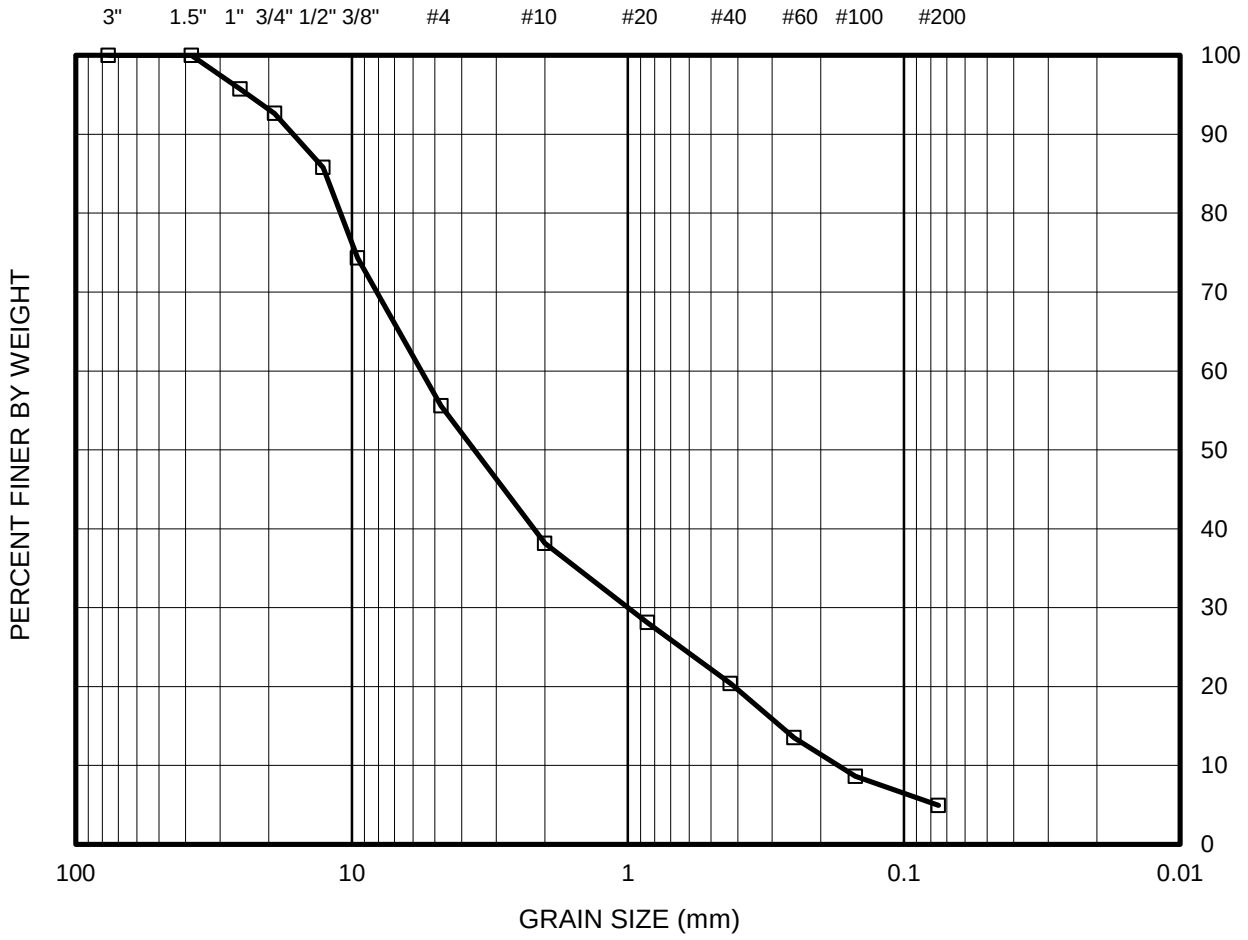
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/14/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-20	2	5.0	CAL	SW	N/A	N/A

Gravel:	44.4%
Sand:	50.7%
Fine:	4.9%

EGLAB, INC.

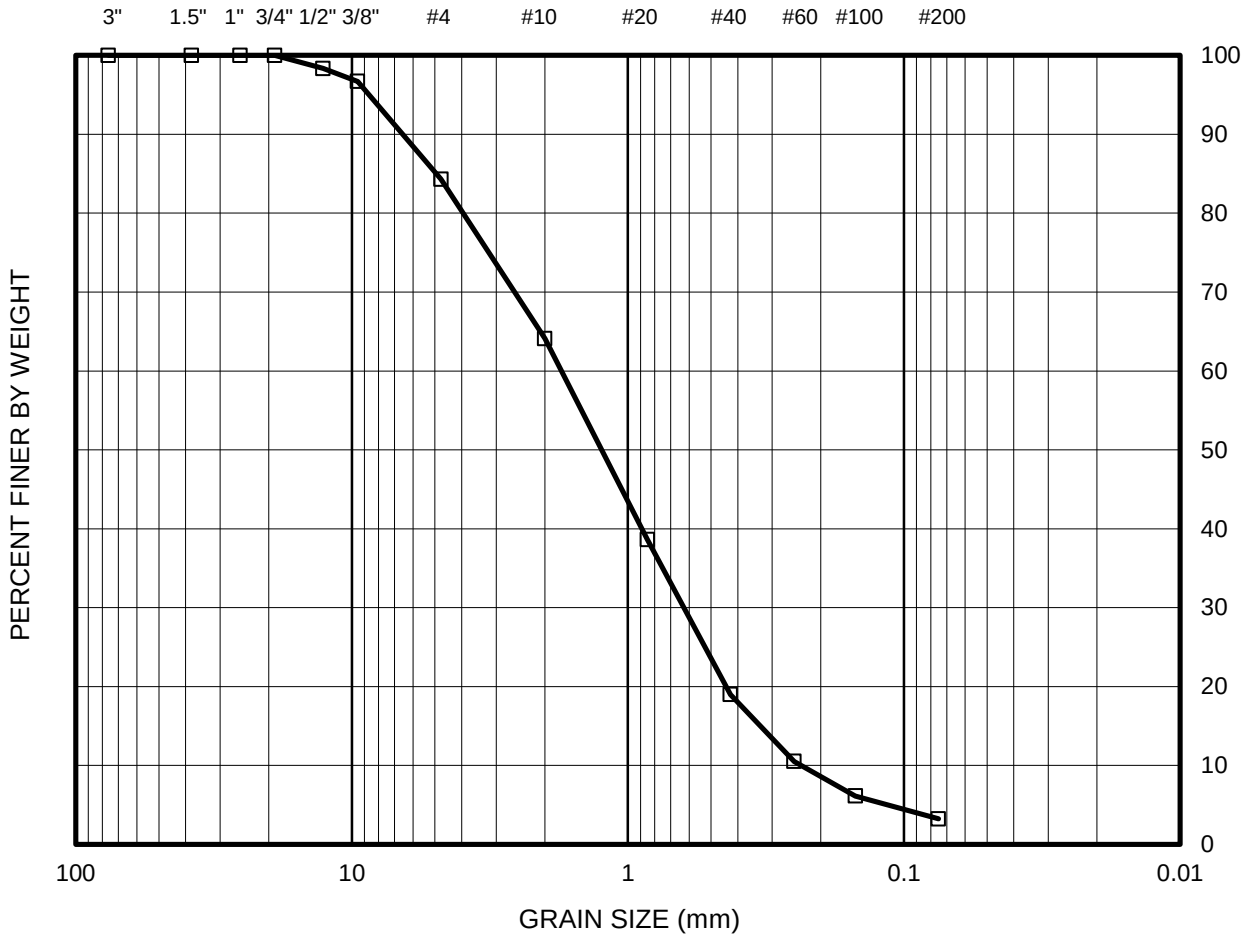
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-21	4	15.0	CAL	SW	N/A	N/A

Gravel:	15.7%
Sand:	81.1%
Fine:	3.2%

EGLAB, INC.

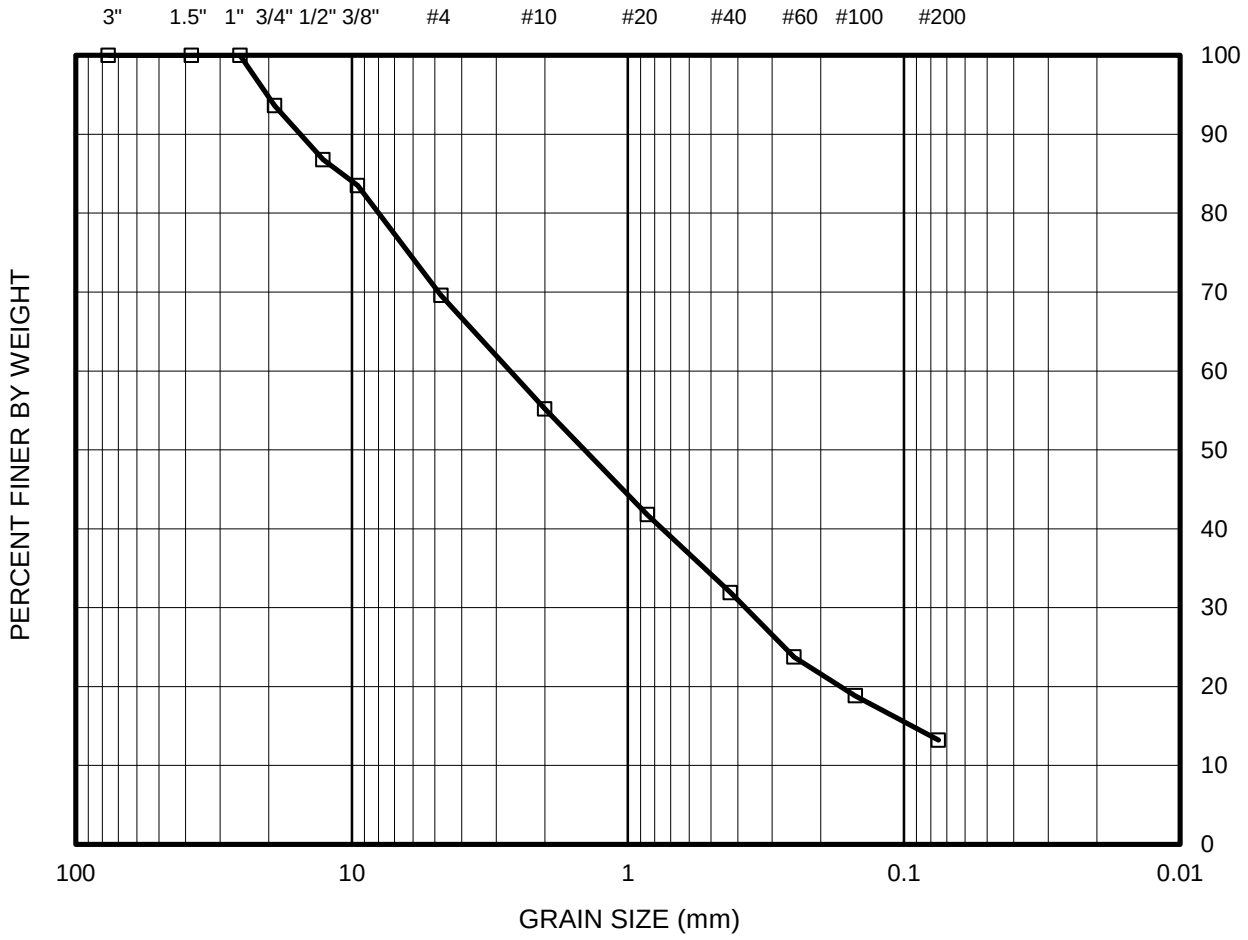
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-22	1	5.0	CAL	SM	N/A	N/A

Gravel:	30.4%
Sand:	56.4%
Fine:	13.2%

EGLAB, INC.

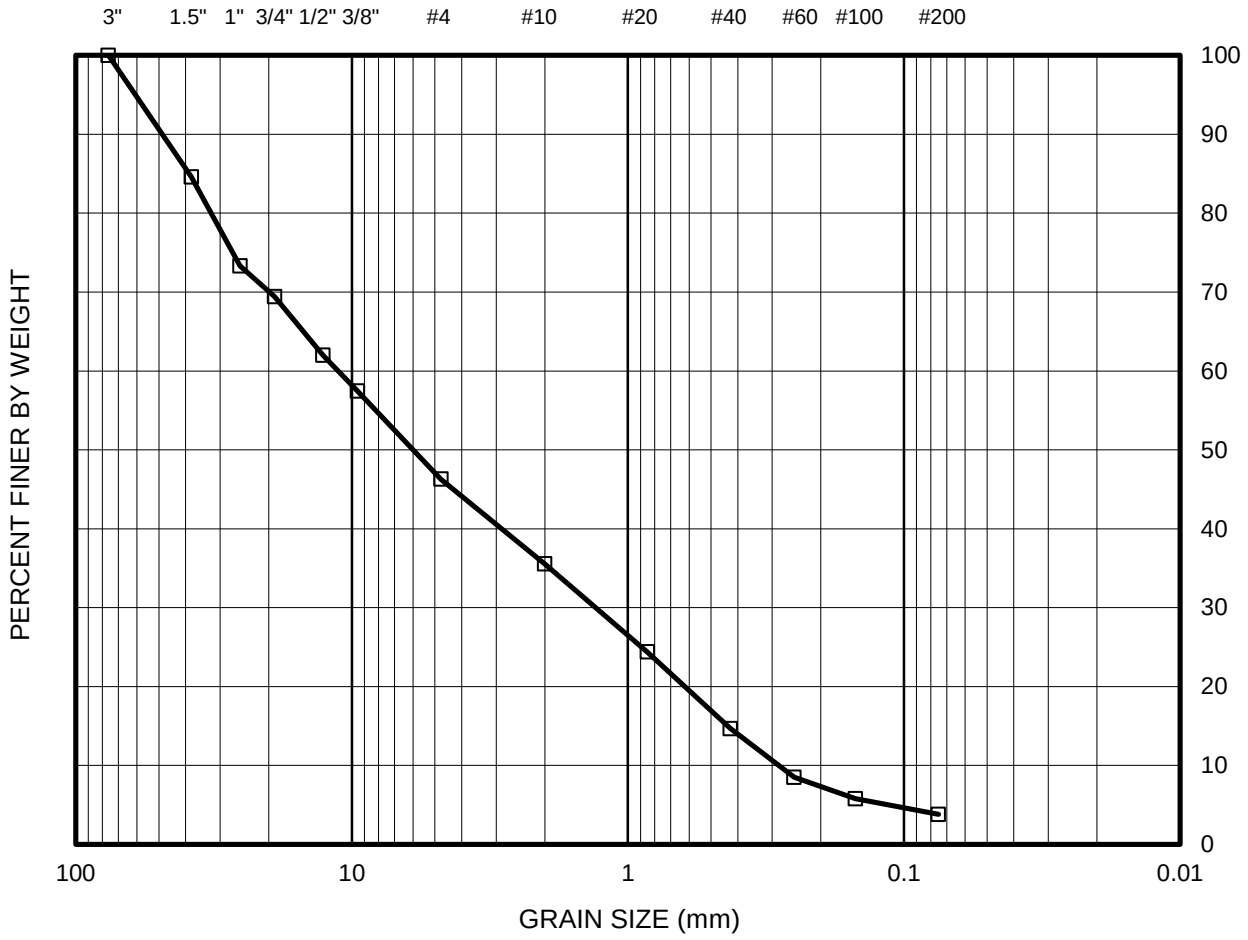
Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S STANDARD SIEVE OPENING | U.S. STANDARD SIEVE NUMBER | HYDROMETER



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	LIQUID LIMIT	PLASTICITY INDEX
□	KLF-23	1	10.0	CAL	GW	N/A	N/A

Gravel:	53.7%
Sand:	42.5%
Fine:	3.8%

EGLAB, INC.

Project Name:
Proposed Speedway Commerce Center
Client Job No.: 20221328.002A
Client Name: KLEINFELDER
EGLAB Project No.: 21-067-001

GRAIN SIZE DISTRIBUTION CURVE

10/15/21 (ASTM D422) FIGURE

APPENDIX C
INFILTRATION TEST RESULTS

Copyright 2021 Kleinfelder

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 13, 2021
Location: P-1

Method: Borehole Percolation Test Procedure

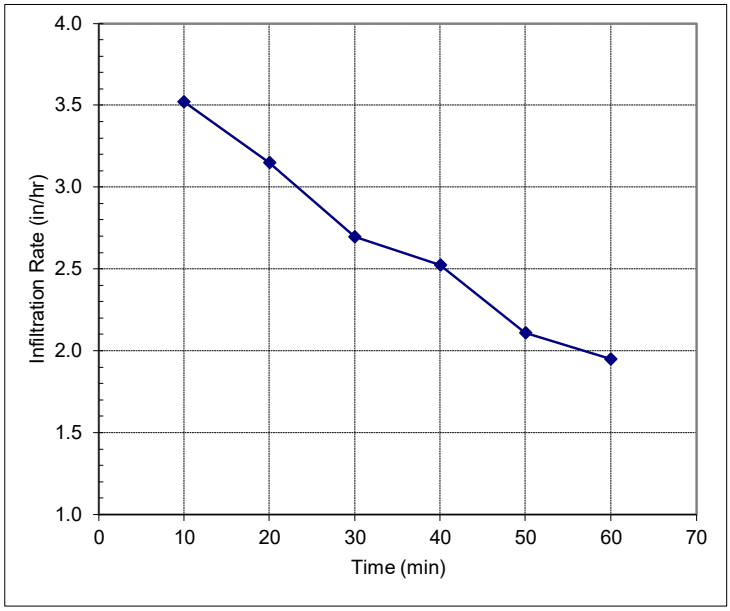
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	5.40	6.24	0.84	--	--
5	10.00	6.24	7.10	0.86	--	--
10	10.00	5.21	6.53	1.32	0.63	3.5
10	20.00	5.11	6.33	1.22	0.68	3.2
10	30.00	5.12	6.18	1.06	0.79	2.7
10	40.00	5.22	6.20	0.98	0.85	2.5
10	50.00	5.11	5.96	0.85	0.98	2.1
10	60.00	5.18	5.96	0.78	1.07	2.0

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	5.0
Well bottom depth (ft, bgs)	10.2
Final period drop delta d (in):	9.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

KLEINFELDER
Bright People. Right Solutions.

Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-1

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 13, 2021
Location: P-2

Method: Borehole Percolation Test Procedure

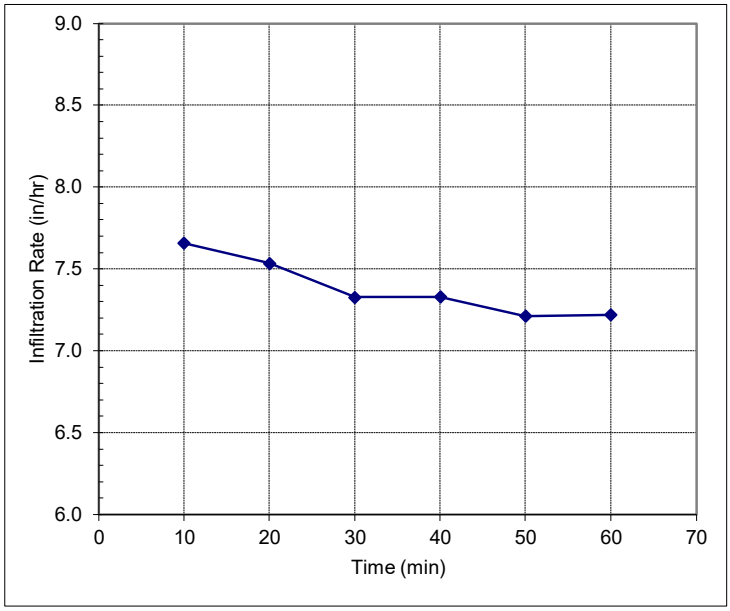
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	7.21	7.95	0.74	--	--
1	2.00	7.95	8.48	0.53	--	--
10	10.00	4.54	7.18	2.64	0.32	7.7
10	20.00	4.87	7.32	2.45	0.34	7.5
10	30.00	4.61	7.13	2.52	0.33	7.3
10	40.00	4.59	7.12	2.53	0.33	7.3
10	50.00	4.61	7.10	2.49	0.33	7.2
10	60.00	4.70	7.15	2.45	0.34	7.2

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	9.8
Final period drop delta d (in):	29.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

KLEINFELDER
Bright People. Right Solutions.

Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-2

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 14, 2021
Location: P-3

Method: Borehole Percolation Test Procedure

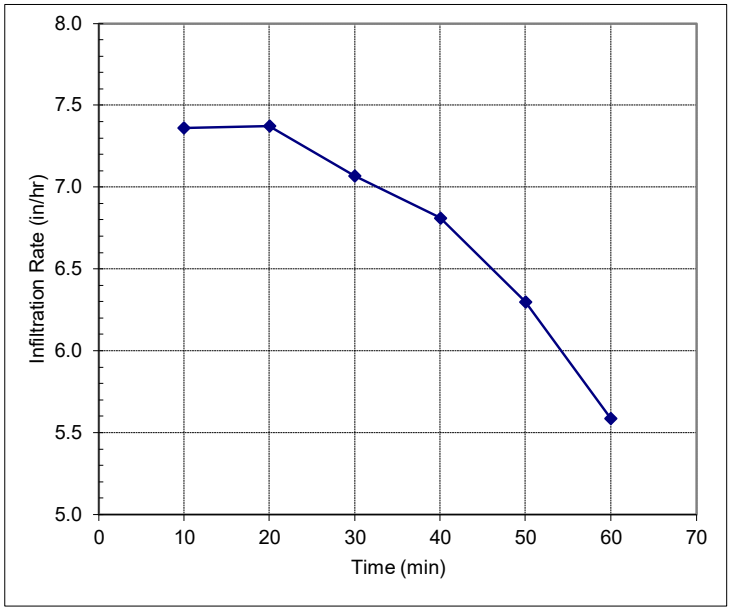
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	7.20	8.36	1.16	--	--
1	2.00	8.36	8.90	0.54	--	--
10	10.00	6.91	8.50	1.59	0.52	7.4
10	20.00	7.00	8.55	1.55	0.54	7.4
10	30.00	7.00	8.50	1.50	0.56	7.1
10	40.00	6.95	8.43	1.48	0.56	6.8
10	50.00	6.93	8.33	1.40	0.60	6.3
10	60.00	6.96	8.22	1.26	0.66	5.6

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	15.1
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-3

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 14, 2021
Location: P-4

Method: Borehole Percolation Test Procedure

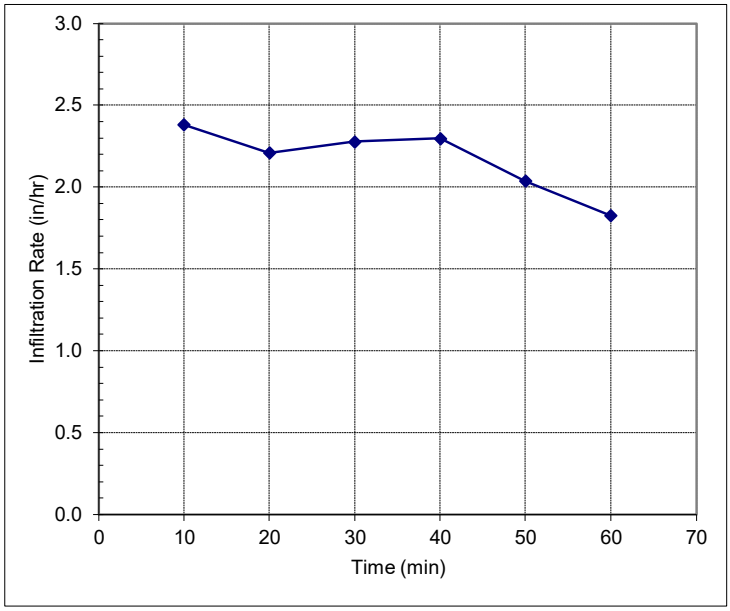
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	4.74	5.60	0.86	--	--
10	20.00	5.60	6.41	0.81	--	--
10	10.00	6.70	7.35	0.65	1.28	2.4
10	20.00	6.68	7.29	0.61	1.37	2.2
10	30.00	6.26	6.96	0.70	1.19	2.3
10	40.00	6.29	6.99	0.70	1.19	2.3
10	50.00	6.40	7.01	0.61	1.37	2.0
10	60.00	6.27	6.84	0.57	1.46	1.8

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	6.8
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-4

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 14, 2021
Location: P-5

Method: Borehole Percolation Test Procedure

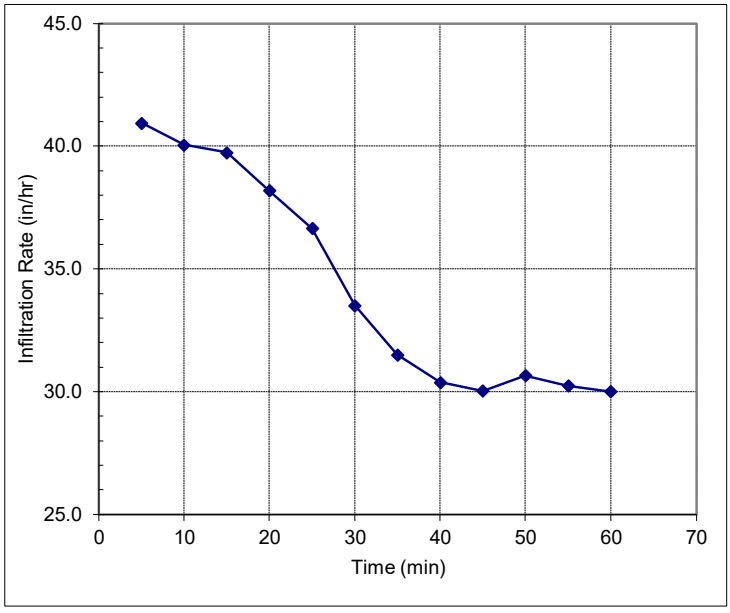
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
2	2.00	6.86	8.57	1.71	--	--
2	4.00	7.09	8.57	1.48	--	--
5	5.00	6.51	9.80	3.29	0.13	40.9
5	10.00	6.50	9.76	3.26	0.13	40.1
5	15.00	6.54	9.75	3.21	0.13	39.7
5	20.00	6.45	9.67	3.22	0.13	38.2
5	25.00	6.55	9.61	3.06	0.14	36.7
5	30.00	6.52	9.45	2.93	0.14	33.5
5	35.00	6.50	9.34	2.84	0.15	31.5
5	40.00	6.51	9.28	2.77	0.15	30.4
5	45.00	6.55	9.27	2.72	0.15	30.0
5	50.00	6.53	9.30	2.77	0.15	30.7
5	55.00	6.50	9.27	2.77	0.15	30.2
5	60.00	6.47	9.25	2.78	0.15	30.0

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	33.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-5

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 14, 2021
Location: P-6

Method: Borehole Percolation Test Procedure

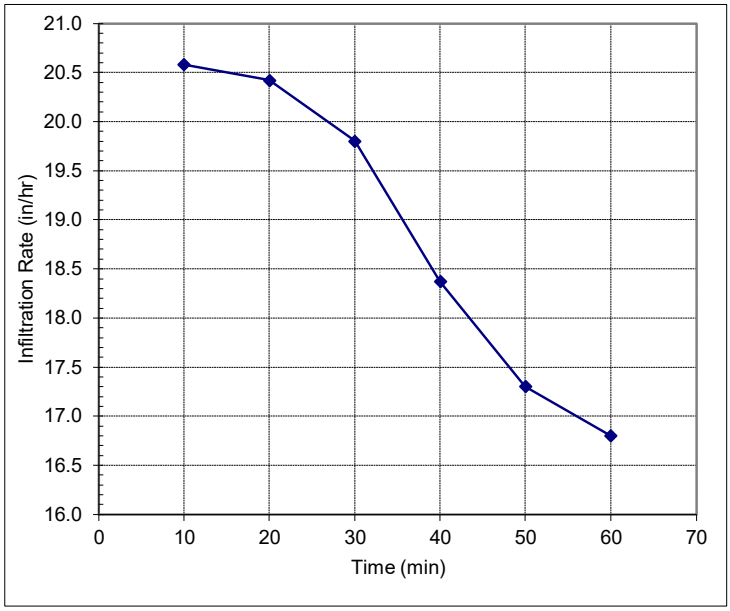
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	7.89	8.49	0.60	--	--
1	2.00	8.39	8.89	0.50	--	--
10	10.00	6.85	9.82	2.97	0.28	20.6
10	20.00	6.88	9.81	2.93	0.28	20.4
10	30.00	6.97	9.77	2.80	0.30	19.8
10	40.00	6.93	9.65	2.72	0.31	18.4
10	50.00	6.88	9.55	2.67	0.31	17.3
10	60.00	6.91	9.51	2.60	0.32	16.8

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	31.2
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-6

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 14, 2021
Location: P-7

Method: Borehole Percolation Test Procedure

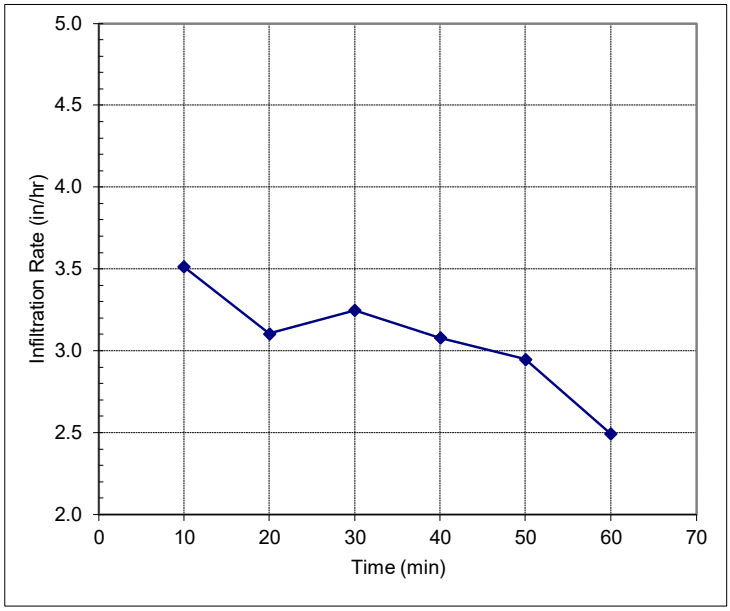
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	6.30	7.03	0.73	--	--
10	20.00	4.34	5.54	1.20	--	--
10	10.00	4.74	6.16	1.42	0.59	3.5
10	20.00	4.49	5.82	1.33	0.63	3.1
10	30.00	4.59	5.95	1.36	0.61	3.2
10	40.00	4.89	6.12	1.23	0.68	3.1
10	50.00	4.54	5.80	1.26	0.66	2.9
10	60.00	4.56	5.64	1.08	0.77	2.5

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	13.0
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-7

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-8

Method: Borehole Percolation Test Procedure

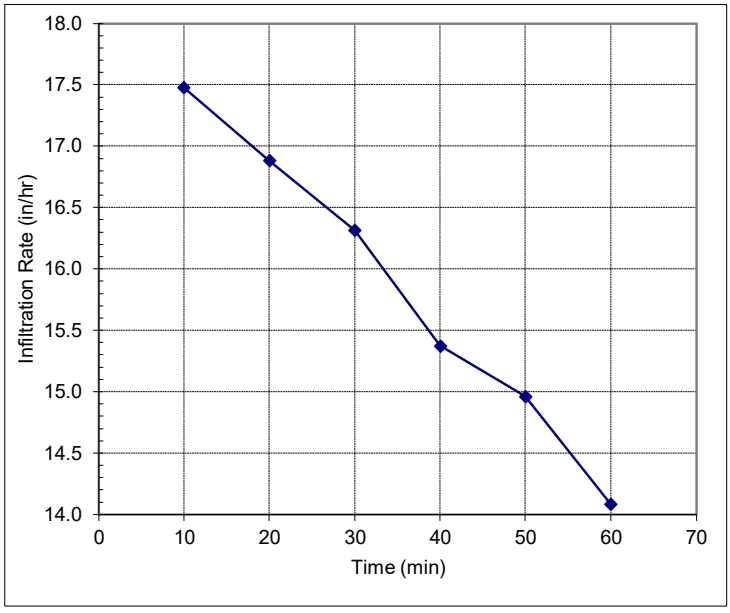
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.60	9.72	1.12	--	--
1	2.00	8.04	9.21	1.17	--	--
10	10.00	6.82	9.50	2.68	0.31	17.5
10	20.00	6.84	9.45	2.61	0.32	16.9
10	30.00	6.80	9.39	2.59	0.32	16.3
10	40.00	6.85	9.31	2.46	0.34	15.4
10	50.00	6.81	9.26	2.45	0.34	15.0
10	60.00	6.85	9.18	2.33	0.36	14.1

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.8
Final period drop delta d (in):	28.0
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-8

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-9

Method: Borehole Percolation Test Procedure

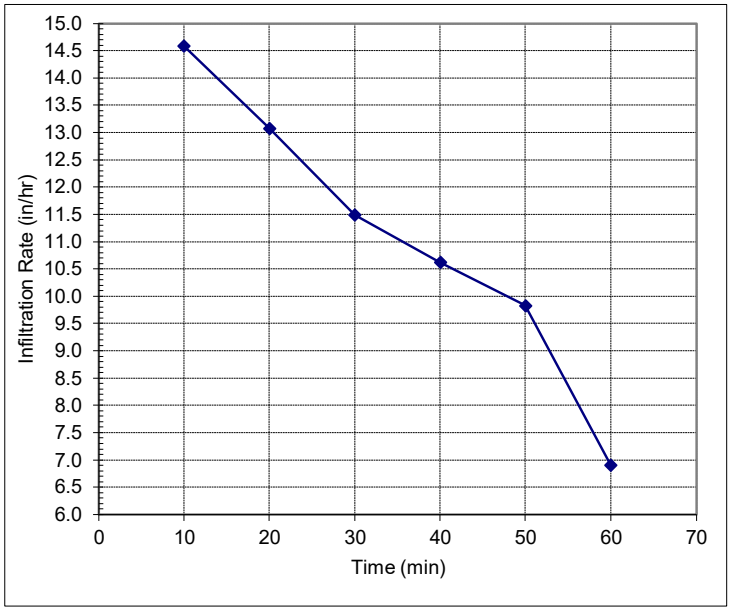
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.61	8.12	0.51	--	--
5	10.00	8.12	9.00	0.88	--	--
10	10.00	4.80	8.92	4.12	0.20	14.6
10	20.00	4.85	8.66	3.81	0.22	13.1
10	30.00	4.86	8.35	3.49	0.24	11.5
10	40.00	4.97	8.21	3.24	0.26	10.6
10	50.00	4.83	7.98	3.15	0.26	9.8
10	60.00	4.81	7.24	2.43	0.34	6.9

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	29.2
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-9

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-10

Method: Borehole Percolation Test Procedure

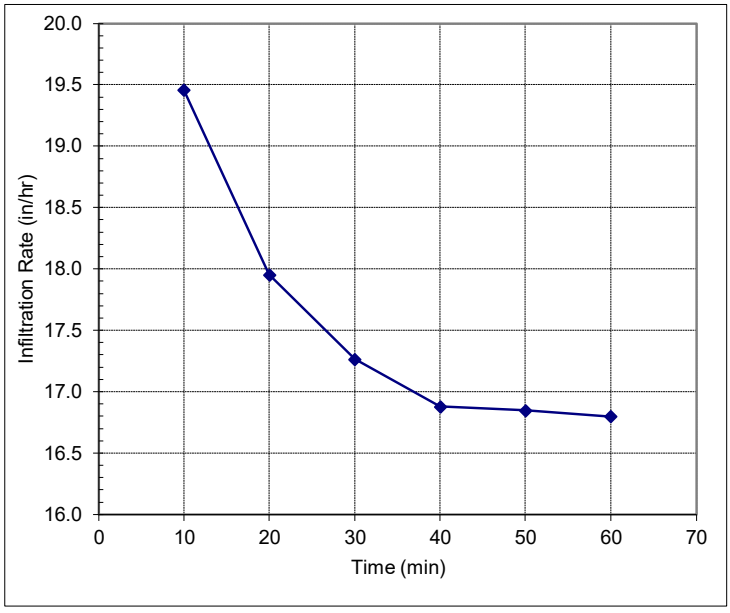
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.37	9.04	0.67	--	--
1	2.00	7.66	8.60	0.94	--	--
10	10.00	6.90	9.90	3.00	0.28	19.5
10	20.00	6.85	9.76	2.91	0.29	18.0
10	30.00	6.88	9.70	2.82	0.30	17.3
10	40.00	6.92	9.67	2.75	0.30	16.9
10	50.00	6.88	9.66	2.78	0.30	16.8
10	60.00	6.85	9.65	2.80	0.30	16.8

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	33.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-10

Project: Proposed Speedway Commerce Center
Tester YHN
Date: September 15, 2021
Location: P-11

Method: Borehole Percolation Test Procedure

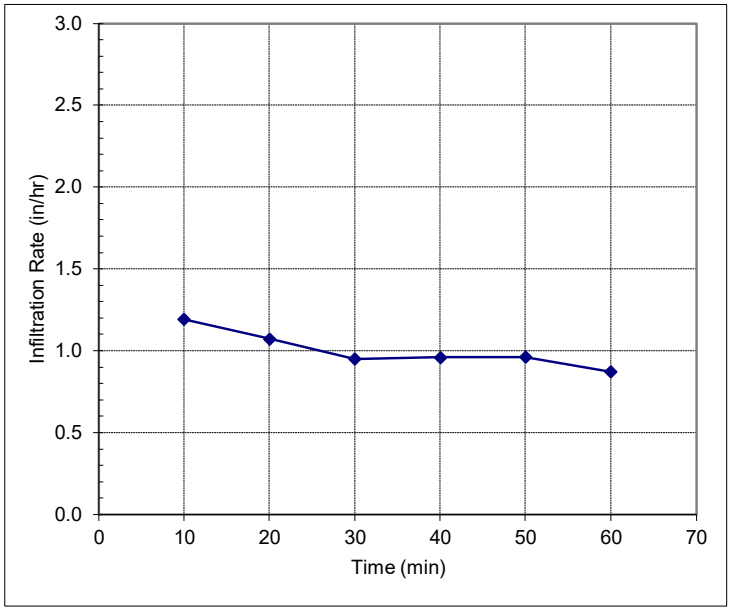
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	7.58	8.12	0.54	--	--
10	20.00	5.05	5.66	0.61	--	--
10	10.00	4.99	5.49	0.50	1.67	1.2
10	20.00	5.01	5.46	0.45	1.85	1.1
10	30.00	5.02	5.42	0.40	2.08	1.0
10	40.00	4.94	5.35	0.41	2.03	1.0
10	50.00	4.95	5.36	0.41	2.03	1.0
10	60.00	4.99	5.36	0.37	2.25	0.9

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r^* = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	4.0
Well bottom depth (ft, bgs)	10.1
Final period drop delta d (in):	4.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-11

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 28, 2021
Location: P-12

Method: Borehole Percolation Test Procedure

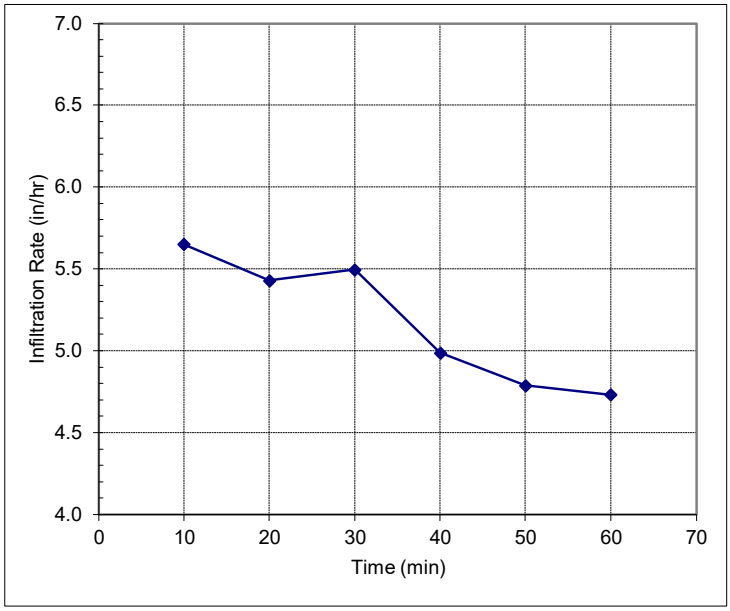
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.65	8.28	0.63	--	--
5	10.00	7.90	8.40	0.50	--	--
10	10.00	7.16	8.31	1.15	0.72	5.7
10	20.00	7.06	8.21	1.15	0.72	5.4
10	30.00	7.01	8.19	1.18	0.71	5.5
10	40.00	6.98	8.08	1.10	0.76	5.0
10	50.00	6.78	7.91	1.13	0.74	4.8
10	60.00	7.11	8.12	1.01	0.83	4.7

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	7.5
Well bottom depth (ft, bgs)	10.0
Final period drop delta d (in):	12.1
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-12

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 16, 2021
Location: P-13

Method: Borehole Percolation Test Procedure

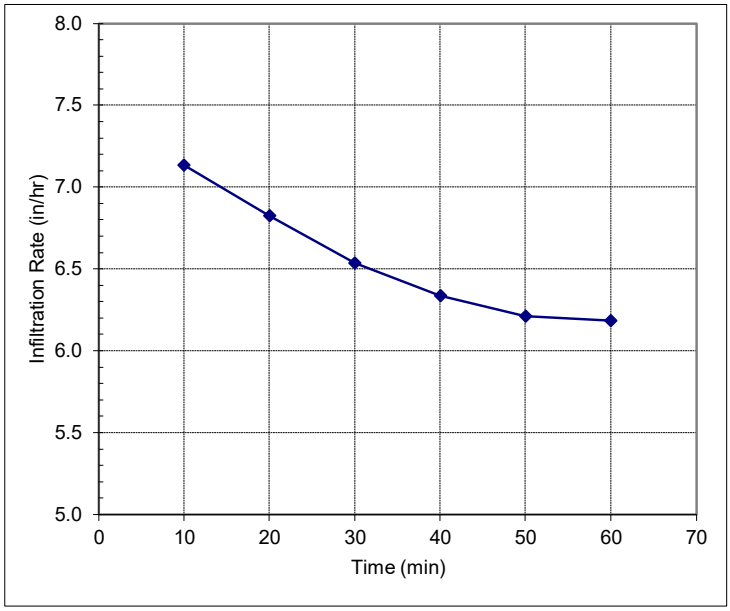
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.80	8.45	0.65	--	--
5	10.00	7.50	8.30	0.80	--	--
10	10.00	6.97	8.55	1.58	0.53	7.1
10	20.00	7.03	8.53	1.50	0.56	6.8
10	30.00	6.89	8.40	1.51	0.55	6.5
10	40.00	6.97	8.41	1.44	0.58	6.3
10	50.00	7.11	8.47	1.36	0.61	6.2
10	60.00	7.05	8.43	1.38	0.60	6.2

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.3
Final period drop delta d (in):	16.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-13

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 16, 2021
Location: P-14

Method: Borehole Percolation Test Procedure

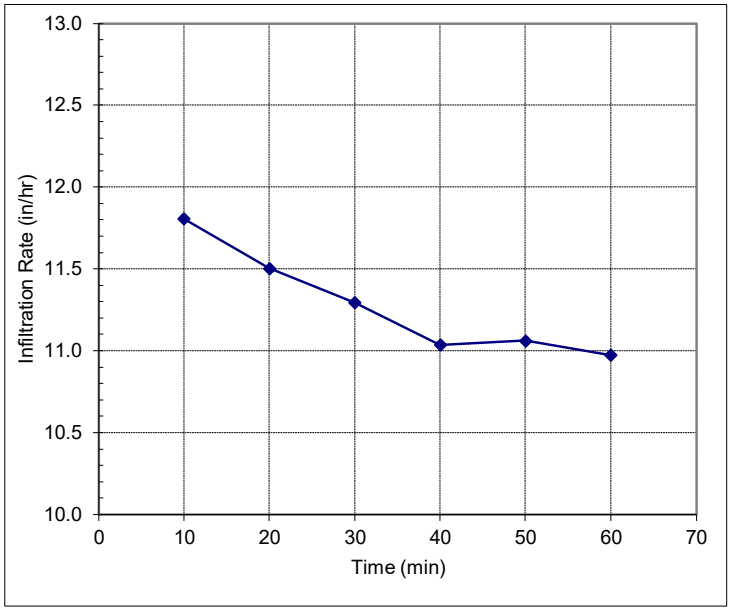
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
10	10.00	5.50	8.65	3.15	--	--
10	20.00	5.60	8.55	2.95	--	--
10	10.00	5.50	8.55	3.05	0.27	11.8
10	20.00	5.65	8.55	2.90	0.29	11.5
10	30.00	5.50	8.46	2.96	0.28	11.3
10	40.00	5.76	8.51	2.75	0.30	11.0
10	50.00	5.45	8.40	2.95	0.28	11.1
10	60.00	5.60	8.44	2.84	0.29	11.0

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	5.0
Well bottom depth (ft, bgs)	10.0
Final period drop delta d (in):	34.1
Diameter of well casing (in)	3
Diameter of boring (in):	8

KLEINFELDER
Bright People. Right Solutions.

Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-14

Project: Proposed Speedway Commerce Center
Tester CC/HM
Date: September 16, 2021
Location: P-15

Method: Borehole Percolation Test Procedure

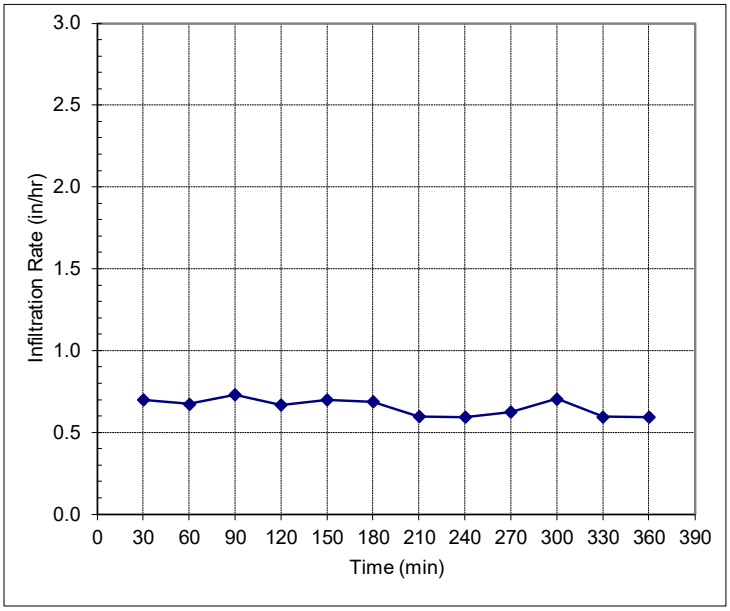
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
25	25.00	6.80	7.25	0.45	--	--
25	50.00	6.45	6.91	0.46	--	--
30	30.00	6.50	7.07	0.57	4.39	0.7
30	60.00	6.50	7.05	0.55	4.55	0.7
30	90.00	6.10	6.76	0.66	3.79	0.7
30	120.00	6.54	7.08	0.54	4.63	0.7
30	150.00	6.25	6.86	0.61	4.10	0.7
30	180.00	6.50	7.06	0.56	4.46	0.7
30	210.00	6.45	6.95	0.50	5.00	0.6
30	240.00	6.35	6.86	0.51	4.90	0.6
30	270.00	6.45	6.97	0.52	4.81	0.6
30	300.00	6.40	6.99	0.59	4.24	0.7
30	330.00	6.51	7.00	0.49	5.10	0.6
30	360.00	6.50	6.99	0.49	5.10	0.6

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r^* = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	5.9
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-15

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 16, 2021
Location: P-16

Method: Borehole Percolation Test Procedure

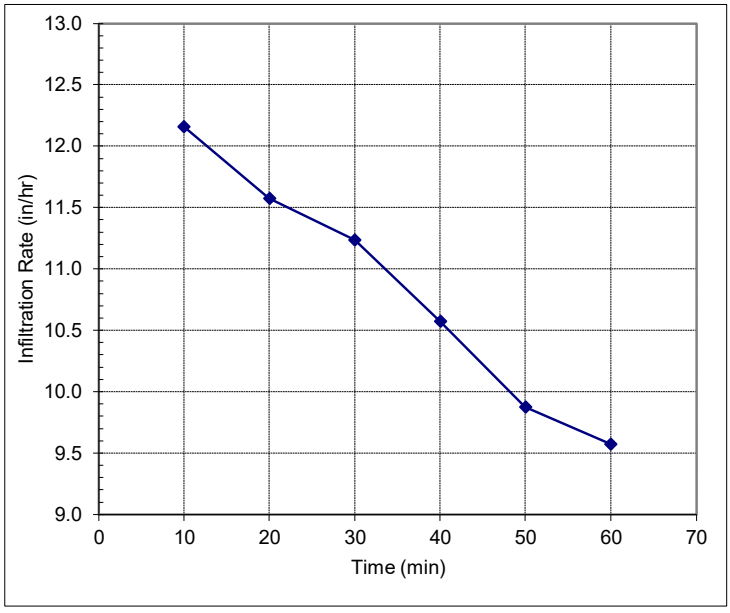
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
2	2.00	7.10	7.89	0.79	--	--
2	4.00	7.05	7.81	0.76	--	--
10	10.00	6.25	8.80	2.55	0.33	12.2
10	20.00	6.20	8.70	2.50	0.33	11.6
10	30.00	6.20	8.65	2.45	0.34	11.2
10	40.00	6.20	8.55	2.35	0.35	10.6
10	50.00	6.20	8.44	2.24	0.37	9.9
10	60.00	6.15	8.37	2.22	0.38	9.6

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	9.9
Final period drop delta d (in):	26.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-16

Project No.: 20221328.002A

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 27, 2021
Location: P-17

Method: Borehole Percolation Test Procedure

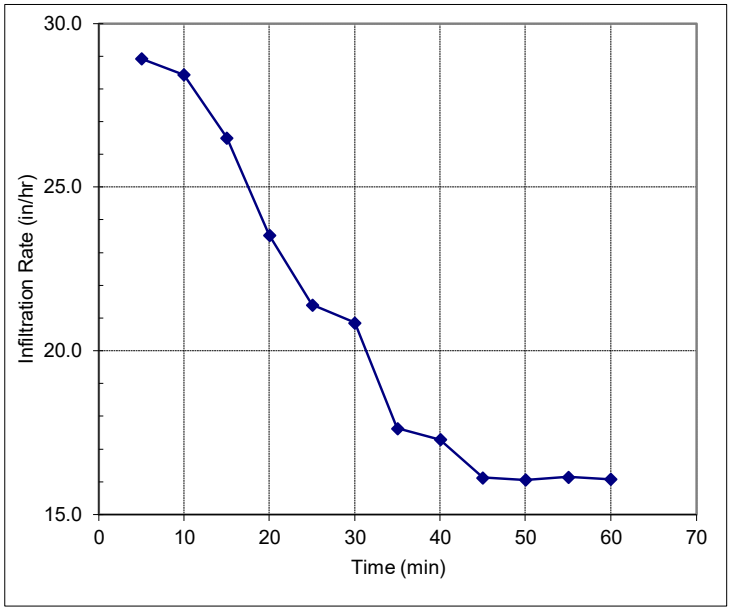
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.30	9.21	0.91	--	--
1	2.00	8.35	9.30	0.95	--	--
5	5.00	7.02	9.42	2.40	0.17	28.9
5	10.00	7.12	9.42	2.30	0.18	28.4
5	15.00	7.12	9.32	2.20	0.19	26.5
5	20.00	7.02	9.12	2.10	0.20	23.5
5	25.00	7.05	9.00	1.95	0.21	21.4
5	30.00	7.02	8.95	1.93	0.22	20.9
5	35.00	7.01	8.73	1.72	0.24	17.6
5	40.00	7.04	8.72	1.68	0.25	17.3
5	45.00	7.11	8.67	1.56	0.27	16.1
5	50.00	6.92	8.57	1.65	0.25	16.1
5	55.00	7.01	8.62	1.61	0.26	16.1
5	60.00	6.98	8.60	1.62	0.26	16.1

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^{*}r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.0
Final period drop delta d (in):	19.4
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-17

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 27, 2021
Location: P-18

Method: Borehole Percolation Test Procedure

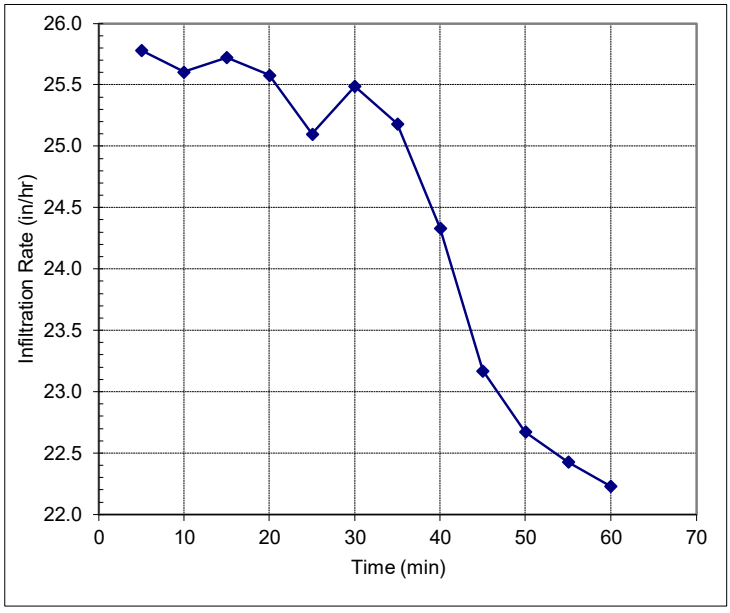
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
1	1.00	8.45	9.30	0.85	--	--
1	2.00	8.30	9.15	0.85	--	--
5	5.00	7.65	9.70	2.05	0.20	25.8
5	10.00	7.68	9.70	2.02	0.21	25.6
5	15.00	7.66	9.70	2.04	0.20	25.7
5	20.00	7.75	9.72	1.97	0.21	25.6
5	25.00	7.70	9.68	1.98	0.21	25.1
5	30.00	7.70	9.70	2.00	0.21	25.5
5	35.00	7.75	9.70	1.95	0.21	25.2
5	40.00	7.70	9.64	1.94	0.21	24.3
5	45.00	7.65	9.56	1.91	0.22	23.2
5	50.00	7.70	9.55	1.85	0.23	22.7
5	55.00	7.71	9.54	1.83	0.23	22.4
5	60.00	7.74	9.54	1.80	0.23	22.2

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	7.0
Well bottom depth (ft, bgs)	10.4
Final period drop delta d (in):	21.6
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-18

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 27, 2021
Location: P-19

Method: Borehole Percolation Test Procedure

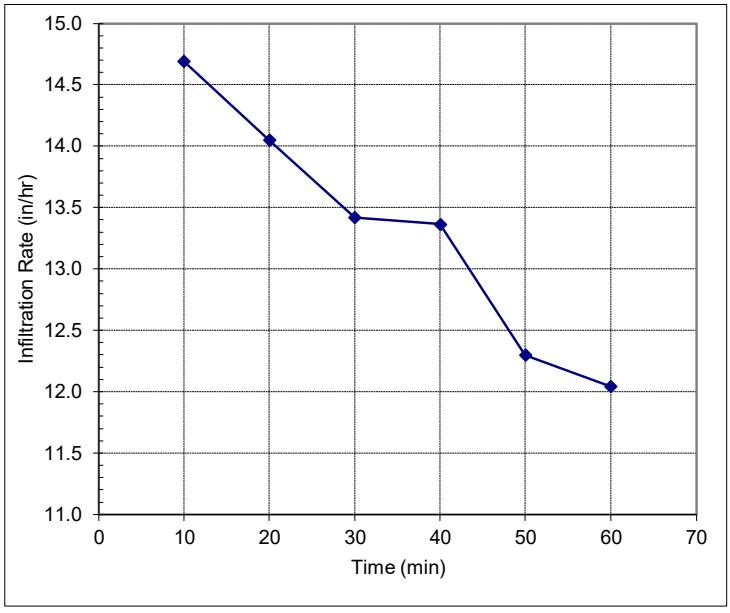
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.97	9.34	1.37	--	--
5	10.00	6.95	9.06	2.11	--	--
10	10.00	6.55	9.55	3.00	0.28	14.7
10	20.00	6.60	9.48	2.88	0.29	14.0
10	30.00	6.68	9.42	2.74	0.30	13.4
10	40.00	6.60	9.39	2.79	0.30	13.4
10	50.00	6.56	9.23	2.67	0.31	12.3
10	60.00	6.55	9.19	2.64	0.32	12.0

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.3
Final period drop delta d (in):	31.7
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Project No.: 20221328.002A

Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-19

Project: Proposed Speedway Commerce Center
Tester CC
Date: September 28, 2021
Location: P-20

Method: Borehole Percolation Test Procedure

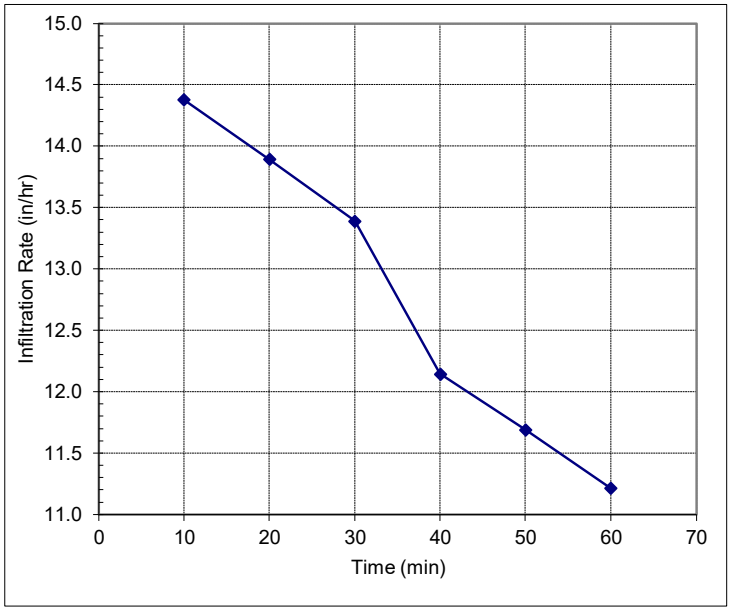
INCREMENTAL INFILTRATION RATE

Time Between Readings (minutes)	Total Elapsed Time (minutes)	Initial Depth (feet, bgs)	Final Depth (feet, bgs)	Drop in Head (feet)	Percolation Rate (min/in)	Tested Infiltration Rate (in/hour)
5	5.00	7.20	9.50	2.30	--	--
5	10.00	7.18	9.40	2.22	--	--
10	10.00	6.75	9.56	2.81	0.30	14.4
10	20.00	6.75	9.50	2.75	0.30	13.9
10	30.00	6.80	9.45	2.65	0.31	13.4
10	40.00	6.72	9.26	2.54	0.33	12.1
10	50.00	6.76	9.21	2.45	0.34	11.7
10	60.00	6.81	9.16	2.35	0.35	11.2

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches



Presoak Level (ft, bgs):	6.0
Well bottom depth (ft, bgs)	10.3
Final period drop delta d (in):	28.2
Diameter of well casing (in)	3
Diameter of boring (in):	8

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Boring Percolation Test Method
Proposed Speedway Commerce Center
Fontana, CA 92335

Figure
C-20

Project No.: 20221328.002A

Appendix E - Watershed Mapping Tool



WQMP Project Report

County of San Bernardino Stormwater Program

Santa Ana River Watershed Geodatabase

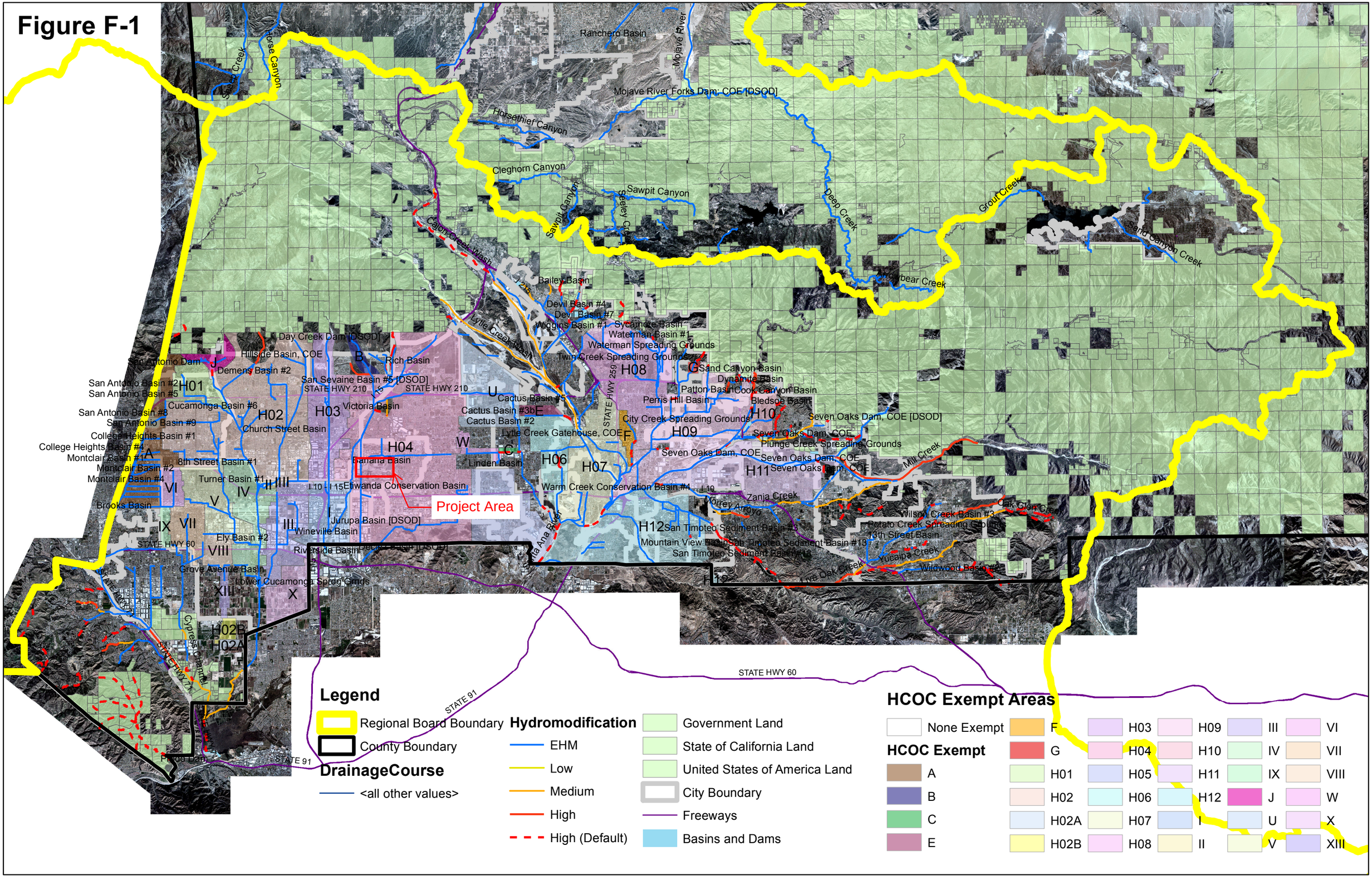
Monday, November 22, 2021

Note: The information provided in this report and on the Stormwater Geodatabase for the County of San Bernardino Stormwater Program is intended to provide basic guidance in the preparation of the applicant's Water Quality Management Plan (WQMP) and should not be relied upon without independent verification.

Project Site Parcel Number(s):	022929131, , 023111114, 023112105, 022929133, 023112105, 022929140, 023111117, 022929147, 023111120, 023111106, 023013207, 022929149, 023111109, 023101112, 023101109, 022929109, 023111113, 023101110, , 023101109, 023111118, 023111119, 023111110, 023101111, 022922313, 022929134, 022929145, 023112103, 022929132, 022929139
Project Site Acreage:	1036.703
HCOC Exempt Area:	Yes. Verify that the project is completely with the HCOC exemption area.
Closest Receiving Waters: (Applicant to verify based on local drainage facilities and topography.)	**System Number** - 801 **Facility Name** - San Sevaine Channel **Owner** - SBCFCD
Closest channel segment's susceptibility to Hydromodification:	EHM
Highest downstream hydromodification susceptibility:	EHM
Is this drainage segment subject to TMDLs?	No
Are there downstream drainage segments subject to TMDLs?	No
Is this drainage segment a 303d listed stream?	No
Are there 303d listed streams downstream?	No
Are there unlined downstream waterbodies?	No
Project Site Onsite Soil Group (s):	A
Environmentally Sensitive Areas within 200':	None
Groundwater Depth (FT):	-407
Parcels with potential septic tanks within 1000':	Yes
Known Groundwater Contamination Plumes within 1000':	Yes
Studies and Reports Related to Project Site:	Chino Basin Recharge Master Plan Chino Basin Water Master 32nd Annual Report San Servaine Channel Banana Street - San Servaine Channel Summary Report Master Storm Drainage Plan Study Summary Report Master Storm Drainage Plan Map Proposed East Etiwanda Channel Planning Study FONTANA MPD FEE STUDY Master SD Hydrology Calcs for Fontana Vol III Master SD Hydrology Calcs For Fontana Vol II Master SD Hydrology Calcs for Fontana Vol V Master SD Hydrology Calcs for Fontana Vol IV Rancho Cuc CSDP DRAFT Map San Sevaine - Boyle Map 0001 San Sevaine - Boyle Map 0002 San Sevaine - Boyle Map 0003 SBCounty CSDP Project No.2 Volume 1 SBCounty CSDP Project No.2 Volume 2 Volume 2 Map SBCounty CSDP Project No.3 Volume I SBCounty CSDP Project No.3 Volume II West Fontana Channel Preliminary Basin Study

Appendix F - HCOC Exempt Map

Figure F-1



Legend

- Regional Board Boundary
- County Boundary

DrainageCourse

- <all other values>

Hydromodification

- EHM
- Low
- Medium
- High
- High (Default)

- Government Land
- State of California Land
- United States of America Land
- City Boundary
- Freeways
- Basins and Dams

HCOC Exempt Areas

- None Exempt

HCOC Exempt

- A
- B
- C
- E
- F
- G
- H01
- H02
- H02A
- H02B
- H03
- H04
- H05
- H06
- H07
- H08
- H09
- H10
- H11
- H12
- I
- II
- III
- IV
- V
- VI
- VII
- VIII
- IX
- J
- U
- W
- X
- XIII

Hydromodification

A.1 Hydrologic Conditions of Concern (HCOC) Analysis

HCOC Exemption:

1. **Sump Condition:** All downstream conveyance channel to an adequate sump (for example, Prado Dam, Santa Ana River, or other Lake, Reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

2. **Pre = Post**: The runoff flow rate, volume and velocity for the post-development condition of the Priority Development Project do not exceed the pre-development (i.e, naturally occurring condition for the 2-year, 24-hour rainfall event utilizing latest San Bernardino County Hydrology Manual.

    a. Submit a substantiated hydrologic analysis to justify your request.

3. **Diversion to Storage Area**: The drainage areas that divert to water storage areas which are considered as control/release point and utilized for water conservation.

    a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (http://sbcounty.permitrack.com/wap) for reference.

4. **Less than One Acre**: The Priority Development Project disturbs less than one acre. The Co-permittee has the discretion to require a Project Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The project disturbs less than one acre and is not part of a common plan of development.

5. **Built Out Area**: The contributing watershed area to which the project discharges has a developed area percentage greater than 90 percent.

    a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (http://sbcounty.permitrack.com/wap) for reference.

Summary of HCOC Exempted Area

	HCOC Exemption reasoning				
	1	2	3	4	5
Area					
A			X		X
B			X		
C					X
E			X		
F					X
G			X		X
H01	X		X		
H02	X		X		
H02A	X		X		
H02B			X		
H03			X		
H04	X		X		
H05	X				
H06			X		
H07	X				
H08	X		X		
H09	X				
H10	X		X		
H11	X		X		
H12	X				
J			X		
U			X		
W			X		
I			X		
II			X		
III					X
IV			X		X
V			X*		
VI					X
VII					X
VIII			X		
IX					X
X			X		
XIII			X		

*Detention/Conservation Basin

WATER SUPPLY ASSESSMENT FOR THE SPEEDWAY COMMERCE CENTER II PROJECT

SAN BERNARDINO COUNTY, CALIFORNIA

PREPARED
FOR

FONTANA WATER COMPANY
NOVEMBER 2021

PREPARED
BY

STETSON ENGINEERS INC.
San Rafael and Covina, California
Mesa, Arizona
Denver, Colorado

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ABBREVIATIONS AND ACRONYMS

AF	Acre-Feet
AFY	Acre-Feet per Year
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CPUC	California Public Utilities Commission
CVWD	Cucamonga Valley Water District
DLIS	Delta Levees Investment Strategy
DWR	Department of Water Resources
DYYP	Dry-Year Yield Program
Fontana Union	Fontana Union Water Company
FWC	Fontana Water Company
gpm	Gallons per minute
IEUA	Inland Empire Utilities Agency
LSLS	Local Storage Limitation Solution
MGD	Million Gallons per Day
MWD	Metropolitan Water District of Southern California
PEIR	Programmatic Environmental Impact Report
RBGC	Rialto Basin Groundwater Council
SBVMWD	San Bernardino Valley Municipal Water District
sf	Square Feet
Project	Speedway Commerce Center II Project
SWP	State Water Project
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

1.0 EXECUTIVE SUMMARY

Fontana Water Company (FWC) has prepared this Water Supply Assessment (WSA) for the proposed industrial development known as the Speedway Commerce Center II Project (the "Project"). The water demands for the Project are included in this WSA.

The present and future water supplies available to FWC to provide water service to the Project are groundwater pumped from the Chino Basin, Lytle Basin, Rialto Basin, and No-Man's Land Basin, surface water diversions from Lytle Creek, imported State Water Project water from Inland Empire Utilities Agency (IEUA) and San Bernardino Valley Municipal Water District (SBVMWD), and recycled water.

The Chino Basin has enhanced reliability during drought and is FWC's most reliable source of water supply. The Chino Basin Watermaster and its technical staff ensure long-term reliability of water supplies from the Chino Basin. The Watermaster, under the direct supervision of the San Bernardino County Superior Court, manages basin water supplies, arranges for local and supplemental groundwater recharge and implements and administers the Chino Basin physical solution as prescribed in the governing Superior Court groundwater pumping rights adjudication (the "Chino Basin Judgment").

The Chino Basin Watermaster's groundwater management responsibilities are closely coordinated with IEUA water management goals and implementation of strategies. IEUA's role as a regional water wholesaler includes delivery of supplemental, imported, untreated State Water Project water directly to water purveyors like FWC, delivery of water from the Metropolitan Water District of Southern California (MWD) to the Chino Basin Watermaster for groundwater recharge, exchange, groundwater banking, and conjunctive use programs, as well as delivery of recycled water. IEUA has also analyzed future water demands and water supplies within its service area, which includes most of FWC's service area, including the Project, and concluded that sufficient water supplies will be available for the next 20 years through 2045, including during single and multiple (five consecutive) dry years.

This WSA analyzes and evaluates FWC's historical water supplies, water rights, current Urban Water Management Plans (UWMPs) developed by FWC and IEUA, the Chino Basin Optimum Basin Management Plan, and the historical and future availability of State Water

Project (SWP) water. Based on that analysis and evaluation, this WSA shows clearly that FWC's available water supplies will be sufficient to meet all of the water demands of the entire Project for the next 20 years through 2045, including during single and multiple dry years.

2.0 INTRODUCTION

PROJECT DESCRIPTION

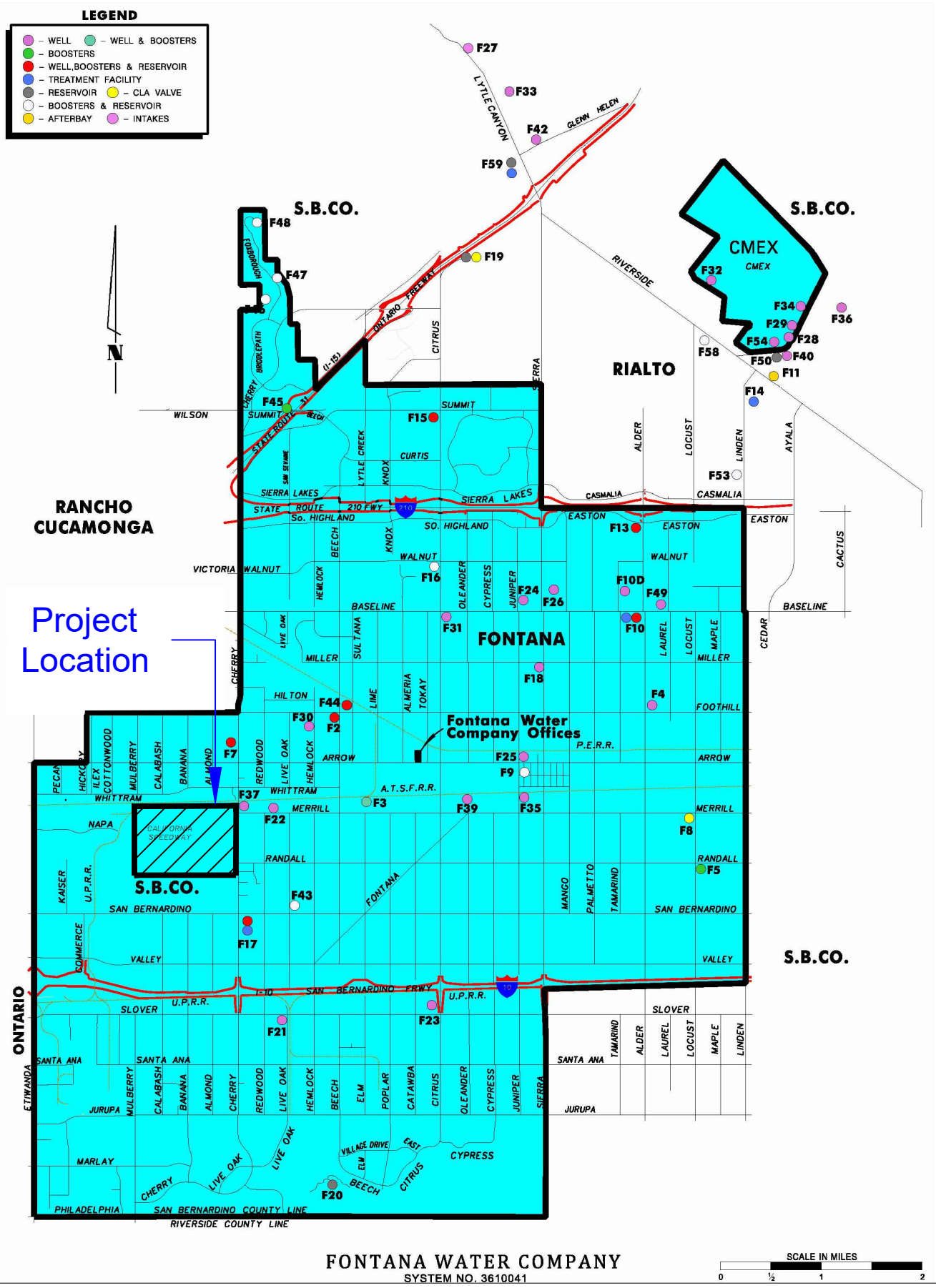
The proposed Project is located east of Etiwanda Avenue, south of Whittram Avenue, north of San Bernardino Avenue, and west of Cherry Avenue. The proposed Project is located on a portion of the existing Auto Club Speedway site within an unincorporated area of San Bernardino County. It is anticipated the existing Auto Club Speedway race track will be reconfigured into a "short track" (i.e. the existing race track will be reduced in size). As a result, portions of the proposed Project will replace the remaining areas of the existing race track. The proposed Project will include seven buildings with a total of approximately 6,507,018 square feet (sf) of warehouse floor space and 120,000 sf of office floor space. The Project will also include approximately 4,642,339 sf (106.57 acres) of surrounding parking areas (pavement) and landscaping on a Project site of approximately 522.01 acres. However, the proposed Project is separate from the Auto Club Speedway and will not include the reduced race track area (i.e. proposed short track). The Project information used in this WSA was based on a Project conceptual site plan prepared by HPA Architecture dated September 21, 2021 (See Appendix A). The proposed Project is located in the western portion of FWC's certificated service area as authorized by the California Public Utilities Commission (CPUC) (Figure 1). The Project is located within the following Assessor Parcel Numbers:

- 0231011090000
- 0231011100000
- 0231011200000
- 0231011180000
- 0231011170000
- 0231011110000
- 0231011120000
- 0231011190000

PURPOSE AND SCOPE OF ASSESSMENT

The Project is located within FWC's present CPUC certificated service area, as shown in Figure 1. FWC is ready, willing, and able to provide all necessary water utility service to meet all of the water supply needs of the entire Project.

The purpose of this WSA is to evaluate and confirm FWC's ability to provide all public utility water service to the Project. The reliability of future water supplies available to FWC is based on FWC's longstanding water rights and access to local groundwater and surface water supplies as listed in Table 1 (Summary of FWC Water Rights). Also, it is based on the Chino Basin Watermaster's and IEUA's water management goals and implementation strategies, such as the Optimum Basin Management Plan, supplemental imported water distribution programs, and the use of recycled water. This WSA evaluates all of FWC's available water supply sources and projected water demands within its service area, including the Project area.



FONTANA WATER COMPANY
SYSTEM NO. 3610041

PROJECT LOCATION AND FONTANA WATER COMPANY SERVICE AREA

J:\2048\2048-18 (Speedway Commerce)\03 Figures\FIGURE_1.dwg

TABLE 1 SUMMARY OF FWC WATER RIGHTS

Sources of Supply	Water Right	Description
Lytle Creek (Surface Water) **Lytle Basin**	Lytle Judgments, (1897 McKinley Decree and January 28, 1924 Judgment)	• Entitled to divert up to 3,480.78 miner's inches (~50,400 AFY) from Lytle Creek Region, including up to 2,500 miner's inches (~36,200 AFY) of combined surface and groundwater extractions to augment surface water diversions. • Entitled to divert groundwater from Lytle Basin up to 1,300 miner's inches (~18,800 AFY).
Chino Basin	Chino Basin Judgment, 1978	• Unrestricted pumping to provide water for beneficial use for FWC customers subject to existing appropriative rights, groundwater storage, leases, and replenishment through Watermaster. • Safe yield of Chino Basin = 131,000 AFY (subject to change). • 11.659 percent share of the "Operating Safe Yield." (FWC and FUWC)
Rialto Basin and No Man's Land	1961 Rialto Basin Decree and 2015 Rialto Basin Groundwater Council	• Adjustable rights subject to curtailment based on the Key Wells • Rialto Adjustable Rights = 550 AFY • Fixed Rights = 370 AFY • Fixed Rights – Standby Rialto Lease = 1,600 AFY • No Man's Land Adjustable Rights = 5,014 AFY

Note: AFY = Acre-Feet per Year

Water Supply Planning Provisions

Population growth in the State of California (State) has resulted in increased demands on water systems. The State legislature has enacted laws to ensure that the increased demands are adequately addressed and that a firm source of water supply is available prior to approval of certain new developments. The regulations include California Water Code Division 6, Part 2.10, Sections 10910-10915 (Water Supply Planning to Support Existing and Planned Future Use) (California Water Code) which is briefly described below. The provisions of the California Water Code seek to promote more collaborative planning between local water suppliers and cities and counties and require detailed information regarding water availability to be provided to city and county land use planners prior to approval of certain specified large land use development projects.

This WSA was prepared pursuant to the requirements of the California Water Code for the approach, required information, and criteria confirming that FWC has sufficient water supplies to meet the projected demands of the Project, in addition to existing and planned future uses. The UWMP is a foundational document for compliance with the California Water Code. The provisions of the California Water Code repeatedly identify the UWMP as a planning document that can be used by a water supplier to meet the standards set forth in both statutes. California Environmental Quality Act (CEQA) guidelines section 15083.5 contains similar provisions regarding consultation with water agencies for certain projects. FWC's 2020 UWMP (June 2021), Metropolitan Water District of Southern California's (MWD's) 2020 UWMP (June 2021), and IEUA's 2020 UWMP Update (June 2021) were prepared pursuant to California Water Code Division 6, Part 2.55, Section 10608 (Sustainable Water Use and Demand Reduction) and California Water Code Division 6, Part 2.6, Sections 10608-10656 (Urban Water Management Planning) and the Water Conservation Act of 2009 (also known as SB X7-7), describe future water demands and future availability of the water supply sources used by FWC and other retail water agencies operating within IEUA's service area. These UWMP documents were used to prepare this WSA.

This WSA includes specific Project water demand estimates and available sources of water supply. FWC will separately notify the Project developer of the specific water supply distribution system and infrastructure facilities required for FWC to provide water utility service to the Project. In addition to the annual Project water demand estimates shown in Section 4.0 of this WSA, FWC's notice to the Project developer also will include a review of any peaking factors (maximum day demands and peak hour demands), fire flow demands, storage, booster pump, and pipeline infrastructure requirements for the proposed Project together with FWC's estimate of the costs for all of the required facilities which the Project developer must deposit with FWC before those required facilities can be installed.

<FWC to update> FWC owns easements, and rights-of-way over the Project site for installation, operation, and maintenance of water facilities and related access to the Project site. Additionally, FWC owns approximately XX linear feet of XX-inch diameter underground XX

water pipeline on the Project site. Recycled water pipelines will need to be constructed on the Project site for landscape irrigation. Recycled water is currently being delivered by Inland Empire Utilities Agency to the Banana Basin and Hickory Basin recharge basins, located adjacent to the Project site.

California Water Code (Sections 10910-10915)

Existing law requires every urban water supplier to identify, as part of its UWMP, the existing and planned sources of water available to the supplier. Existing law prohibits an urban water supplier that fails to prepare or submit its UWMP to the Department of Water Resources (DWR) from receiving financial or drought assistance from the state until the plan is submitted.

The California Water Code requires an urban water supplier to include in its UWMP a description of all water supply projects and programs that may be undertaken to meet total projected water use over the next 20 years. The California Water Code requires a city or county that determines a project is subject to the CEQA to identify any public water system that may supply water for proposed developments and to request those public water systems to prepare a specific WSA, including for proposed industrial projects occupying more than 40 acres of land or having more than 650,000 square feet (sf) of floor area. If the water demands for the proposed developments have been accounted for in a recently adopted UWMP, the water supplier may incorporate information contained in that plan to satisfy certain requirements of a WSA. The California Water Code requires the assessment to include, along with other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and the quantities of water received in prior years pursuant to those entitlements, rights, and contracts.

The California Water Code also requires the public water system, or the city or county, as applicable, to submit its plans for acquiring additional water supplies if that entity concludes that water supplies are, or will be, insufficient.

3.0 FWC'S HISTORICAL WATER SUPPLIES AND USES

HISTORICAL WATER SUPPLIES

FWC is a public utility water company subject to the regulatory jurisdiction of the CPUC. FWC provides public utility water service to most of the City of Fontana and to portions of the City of Rialto, the City of Rancho Cucamonga, and to adjoining unincorporated areas of San Bernardino County. FWC's CPUC certificated service area encompasses approximately 52 square miles bordered generally by the Riverside County line on the south, Etiwanda and Cherry Avenues on the west, Lytle Creek Wash and Linden Avenue on the east, and Highland and Summit Avenues on the north, as shown on Figure 1.

FWC currently derives its water supply from 29 active groundwater production wells and a surface water treatment plant, the Summit Water Treatment Plant. The water supply is produced from groundwater wells in the Chino Basin, Rialto Basin, Lytle Basin, and the No-Man's Land Basin (an unnamed basin between the Chino Basin and the Rialto Basin), and surface water from Lytle Creek. FWC also receives untreated SWP water from IEUA and SBVMWD which is treated at FWC's Summit Water Treatment Plant. The groundwater basins are shown on Figure 2. FWC receives well water, local surface water, imported water, or a combination of those sources at various points in its water distribution system. In addition, FWC has two emergency interconnections, with a total capacity of 3,000 gallons per minute (gpm), to receive water from Cucamonga Valley Water District (CVWD). Emergency interconnections are distribution system interconnections between water purveyors for use during critical situations where one system is temporarily unable to provide sufficient potable water to meet minimum health and/or fire protection needs. Emergency interconnections allow FWC to continue serving water during critical situations such as local water supply shortages as a result of earthquakes, fires, prolonged power outages, and droughts.

Table 1 summarizes FWC's water rights, most of which are held by Fontana Union Water Company (Fontana Union) and are subject to FWC's irrevocable right to utilize, pursuant to court-approved agreements with CVWD and Fontana Union of which FWC is a principal shareholder.

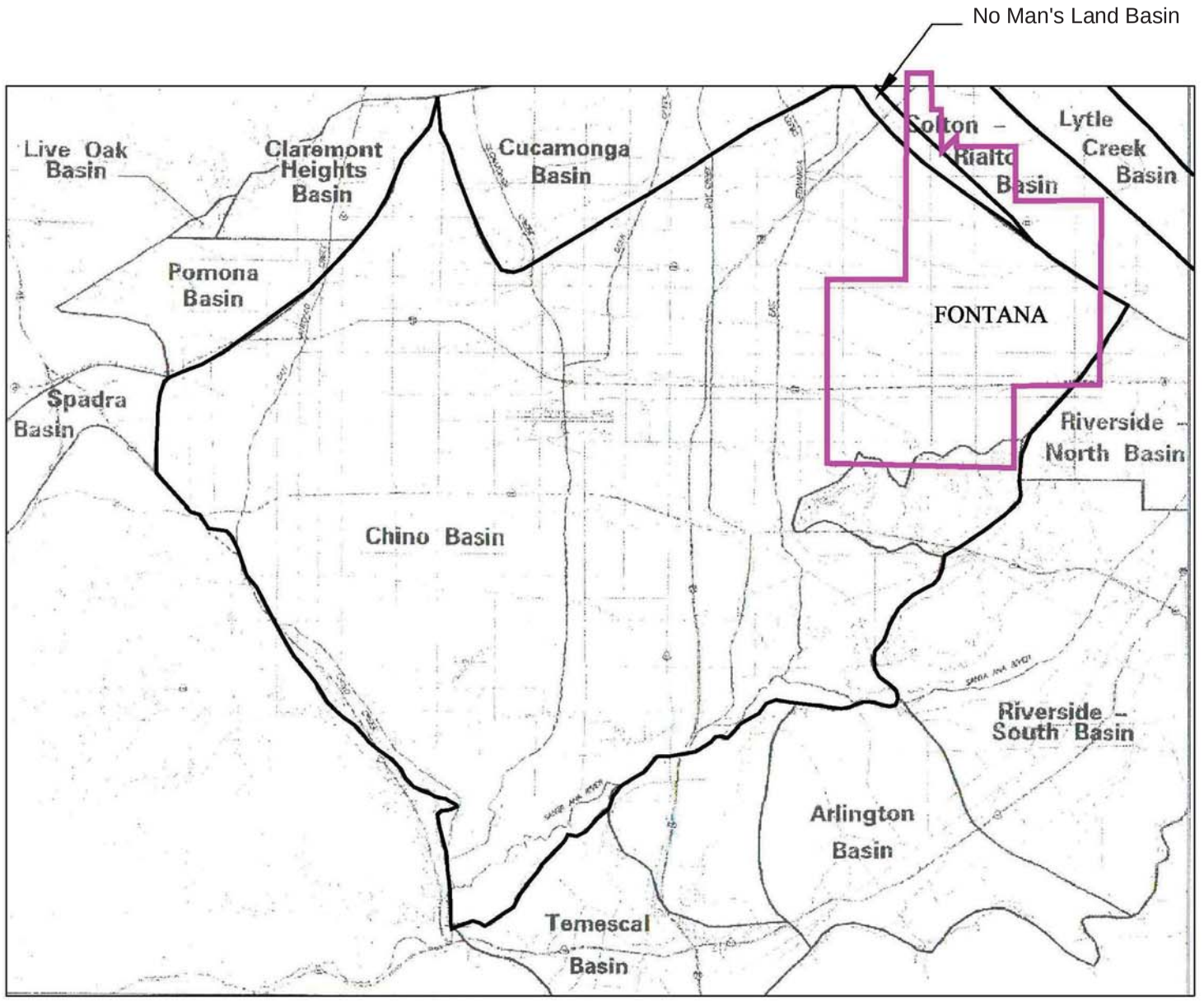
Historical annual water supplies utilized by FWC are summarized in Table 2. Annual water supplies from 2001 to 2020 ranged from 34,895 acre-feet (AF) in 2016 to 49,879 AF in 2007, with an average annual production of 42,907 AFY.

TABLE 2 HISTORICAL ANNUAL WATER SUPPLY PRODUCTION BY FWC (AFY)

Year	Groundwater					Imported Water	Lytle Creek	Recycled Water	Total
	Lytle Basin	Chino Basin	Rialto Basin	No-Man's Land	Subtotal				
2001	8,869	18,766	6,106	3,123	36,864	--	6,235	--	43,098
2002	7,520	23,060	9,452	3,135	43,166	933	2,048	--	46,147
2003	6,029	22,110	9,321	3,783	41,243	2,040	3,502	--	46,785
2004	5,664	24,718	8,173	3,930	42,485	2,530	4,484	--	49,498
2005	11,424	18,499	7,252	3,550	40,726	520	6,352	--	47,597
2006	12,593	14,747	5,695	3,683	36,718	640	11,999	--	49,356
2007	15,021	19,622	7,325	3,930	45,899	0	3,980	--	49,879
2008	10,523	16,192	6,312	4,165	37,191	2,765	7,613	--	47,569
2009	7,789	14,490	8,480	4,293	35,051	3,923	5,390	--	44,363
2010	7,073	9,921	7,782	4,421	29,197	1,099	11,473	--	41,769
2011	9,573	2,509	6,386	3,392	21,860	977	18,576	--	41,413
2012	12,604	13,305	6,306	3,875	36,090	1,086	5,616	--	42,791
2013	8,025	11,604	7,358	4,119	31,105	9,898	3,301	--	44,304
2014	5,530	13,784	7,347	4,103	30,764	9,784	1,951	--	42,498
2015	3,768	14,504	2,728	4,523	25,523	7,657	1,784	--	34,964
2016	2,649	16,299	2,563	4,341	25,852	7,617	1,419	7	34,895
2017	4,111	10,640	2,378	4,533	21,662	11,824	3,867	128	37,481
2018	5,148	10,796	2,679	4,069	22,692	12,961	2,298	163	38,113
2019	6,046	9,351	2,469	3,142	21,007	10,771	3,869	149	35,795
2020	6,423	11,859	2,538	2,633	23,453	10,027	5,966	387	39,831

Notes:
"Imported Water" deliveries of SWP water to FWC began in 2002; "Recycled Water" deliveries began in 2016

Sources:
FWC records



CHINO GROUNDWATER BASIN AND SURROUNDING BASINS

The following describes the FWC's sources of water supplies and water rights in more detail.

Chino Basin

The Chino Basin is FWC's largest and most reliable groundwater source. During the last 20 years, FWC's production from the Chino Basin ranged from approximately 2,509 AFY in 2011 to 24,718 AFY in 2004, as shown in Table 2. In most years, the Chino Basin accounted for a significant portion of FWC's total water supply.

The Chino Basin, in San Bernardino County, is the largest groundwater basin in the Upper Santa Ana River Watershed. The Chino Basin is bounded by the Rialto-Colton, Chino, San Jose, and Cucamonga faults, and by the Puente Hills and the San Gabriel Mountains. The total surface area of the basin is approximately 154,000 acres (240 square miles).

The Chino Basin currently has over 5,000,000 AF of water in storage, with an additional unused storage capacity, based on historical water levels in the basin, of about 1,000,000 AF. Over the past 20 years, total groundwater production from the Chino Basin has ranged from approximately 133,275 AFY to 188,910 AFY[1]. A majority of production is pumped for municipal and industrial purposes and the remaining production is pumped by agricultural producers.

The Chino Basin was adjudicated under the Chino Basin Judgment, entered on January 27, 1978 by the Superior Court for the County of San Bernardino. FWC is a party to the Chino Basin Judgment and is classified as an appropriator. The Chino Basin Judgment established an average Safe Yield in the Chino Basin of 131,000 AFY (July 1 to June 30), pursuant to the most recent Safe Yield reset effective in 2020. The Safe Yield is defined in the Chino Basin Judgment as "the long-term average annual quantity of ground water (excluding replenishment of stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Chino Basin under conditions of a particular year without causing an undesirable result." The 1978 Chino Basin Judgment's allocation of the Safe Yield of the Chino Basin includes three separate Pools: the "Overlying Agricultural Pool", the "Overlying Non-

[1] Pursuant to the Chino Basin Watermaster "*Fiscal Year 2019-20, 43rd Annual Report*", Appendix Hhttp://www.cbwm.org/rep_annual.htm

Agricultural Pool", and the "Appropriative Pool." FWC's appropriative rights together with those of Fontana Union (of which FWC is a principal shareholder) currently amount to approximately 11.659 percent share of the Safe Yield. Appendix B provides the historical Chino Basin production by Pool presented in the Chino Basin Watermaster's "Fiscal Year 2019-20 Annual Report".

Appropriators who are parties to the Chino Basin Judgment, such as FWC, are authorized to produce groundwater in excess of their rights. Appropriators pay assessments for such production to the Chino Basin Watermaster. The assessments are used to replenish the basin through imported surface water recharge. The Chino Basin Watermaster purchases water to replenish the Chino Basin from the MWD through IEUA or Three Valleys Municipal Water District. Additional supplemental sources of replenishment water come from recycled water and from increased recharge of local storm water. Reliability of water purchased from IEUA to replenish the Chino Basin is discussed in Section 4.

In addition, the Chino Basin Watermaster reallocates the unused portion of the Chino Basin safe yield from the Overlying Agricultural Pool to the Appropriative Pool members as a supplement to the Appropriative Pool share of Operating Safe Yield rights in any year. These transfers are permanent if agricultural land has been converted to non-agricultural use, or temporary if agricultural pool extractions are less than their share of the safe yield. From fiscal year 2000-01 to fiscal year 2019-20, the total portion of the annual Agricultural Pool available for reallocation to Appropriative Pool members[2] has ranged from 40,822 AF to 61,014 AF, with an annual average of 50,457 AF. As agricultural production declines within the Chino Basin, the reallocation of water to the Appropriative Pool will increase.

Lytle Creek Region

FWC produces water from the Lytle Creek Region that consists of surface water from Lytle Creek and groundwater from Lytle Basin. The Lytle Creek Watershed is approximately 46.4 square miles. The area of the Lytle Basin is approximately 22.3 square miles. Lytle Creek is located in the Lytle Creek Watershed which originates in the vicinity of Mount San Antonio in the San Bernardino National Forest and includes the Upper Santa Ana River Basin located in San Bernardino County. Lytle Creek includes the North Fork Lytle Creek, Middle Fork Lytle Creek,

[2] Pursuant to the Chino Basin Watermaster "*Fiscal Year 2019-20, 43rd Annual Report*", Appendix G

and South Fork Lytle Creek, each flowing eastward. Water from Lytle Creek is diverted by Southern California Edison to generate electricity from two hydroelectric power plants in the Lytle Creek Region. Following the power generation, Lytle Creek water is diverted to FWC's Afterbay where it is shared with other water purveyors pursuant to long standing agreements. FWC's share is diverted to FWC's Summit Water Treatment Plant where it is treated for domestic water use within FWC's distribution system. In addition to Lytle Creek surface flows, FWC obtains water from the Grapeland Tunnel, which is a groundwater infiltration system with extensive collector lines in Lytle Creek Canyon tributaries and a large line running below the streambed of Lytle Creek. Water from the Grapeland Tunnel historically flowed through a large transmission pipeline directly into FWC's water system. Because water from the Grapeland Tunnel is under the influence of surface water, water from the Grapeland Tunnel is currently combined with the Lytle Creek stream flow in the Afterbay and then flows to the Summit Water Treatment Plant.

The 1897 McKinley Decree, which specifies surface water allocations, and the January 28, 1924 Judgment by the Superior Court for the County of San Bernardino, which confirms the McKinley Decree and specifies allowed groundwater diversions, allow Fontana Union Water Company and FWC to divert surface water and pump groundwater from the Lytle Creek Region up to a maximum of 3,480.78 miner's inches, or 69.6 cubic feet per second (cfs) (approximately 50,400 AFY). The amount includes up to 2,500 miner's inches, (approximately 36,200 AFY) of allowable combined surface and groundwater extractions to augment deficiencies in surface water diversions. FWC is allowed to extract and divert a combined 1,300 miner's inches, or 26 cfs (approximately 18,800 AFY) of groundwater from the Lytle Creek Region. The Lytle Basin is managed by the Lytle Creek Water Conservation Association which is made up of the successors to the parties of the 1897 McKinley Decree and the 1924 Judgment. FWC's diversion and production of water from the Lytle Creek Region can vary due to fluctuations in rainfall, snowpack and runoff, especially during dry years.

Rialto Basin and No Man's Land

The Rialto Basin underlies a portion of the Upper Santa Ana Valley in southwestern San Bernardino County and northwestern Riverside County. The Rialto Basin is about 10 miles long and varies in width from about 3.5 miles in the northwestern part to about 1.5 miles in the southeastern part. The Rialto Basin is bounded by the San Gabriel Mountains on the northwest, the San Jacinto fault on the northeast, the Badlands on the southeast, and the Chino Basin and

No-Man's Land Basin on the southwest. The No Man's Land Basin is located between the Rialto and Chino Basins and is hydrogeologically separate from them.

Under the December 22, 1961 Rialto Basin Court Decree, FWC, by virtue of its shareholdings in Fontana Union, is entitled to produce water from the Rialto Basin with no extraction limit in most years. Parties to the Rialto Basin Decree, including FWC, are authorized to pump from the Rialto Basin without limitation, except pumping during certain months in some water years can be affected by groundwater elevations measured between March and May for three specific "index" wells (Duncan Well, Willow Street Well, and Boyd Well). On February 3, 2021, Fontana Union Water Company, West Valley Water District, the City of Rialto, and the City of Colton entered into the Rialto Basin Groundwater Council (RBGC) Framework Agreement for the purpose of groundwater management and coordination in the Rialto Basin. Although FWC's 2015 UWMP identified the No Man's Land Basin and the Rialto-Colton Basin as separate groundwater basins with separate production rights, the RBGC Framework Agreement incorporates the FWC production right from No Man's Land Basin into the Rialto Basin groundwater production limitations. FWC's water rights in the Rialto Basin are subject to the December 22, 1961 Rialto Basin Court Decree which are affected by the average water elevations in three index wells and other provisions among the RBGC Framework Agreement parties. The water rights allocation of Rialto Basin and No Man's Land groundwater to FWC are divided into adjustable rights and fixed rights. An addition discussion regarding FWC's water rights to the Rialto Basin and No Man's Land is provided in Section 5.0.

Inland Empire Utilities Agency

IEUA, originally known as Chino Basin Municipal Water District, was formed by popular vote of its residents in June 1950, to become a member agency of MWD for the purpose of importing supplemental water to augment local stream and groundwater supplies. Since its formation in 1950, IEUA has significantly expanded its services. These include production of recycled water, wholesaling of untreated imported water and recycled water supplies, sewage treatment, co-composting of manure and municipal biosolids, desalinization of groundwater

supplies and disposal of non-reclaimable industrial wastewater and brine. IEUA does not provide treated MWD water to retail water purveyors in its service area.

FWC is located within IEUA's service area. FWC has upgraded (including construction of conventional pretreatment facilities and capacity expansion) its existing surface water treatment plant (the Summit Water Treatment Plant) to treat SWP water from IEUA and SBVMWD, in addition to surface water from Lytle Creek. The Summit Water Treatment Plant upgrades increased the plant's capacity from 17 million gallons per day (MGD) to 29 MGD. FWC has the facilities and capacity to receive up to 40 cfs of untreated imported SWP water from IEUA and 14 cfs of untreated imported SWP water from SBVMWD. IEUA's water management goals and implementation strategies, such as its imported water distribution policy, groundwater banking, conjunctive use programs, and use of recycled water, enhances the reliability of water supplies utilized by FWC. The following discussion of water sources, future water demands, and future water supplies in IEUA's service area illustrates that sufficient water is available for FWC and the other purveyors within IEUA's service area in the future.

IEUA wholesales untreated water and provides industrial/municipal wastewater collection and treatment services, and other related services for the western portion of San Bernardino County. IEUA's service area is located in the southwestern section of San Bernardino County. The 242-square mile service area, which encompasses the Chino Groundwater Basin, consists of a relatively flat alluvial valley from east to west which slopes downward from north to south at a one to two percent grade.

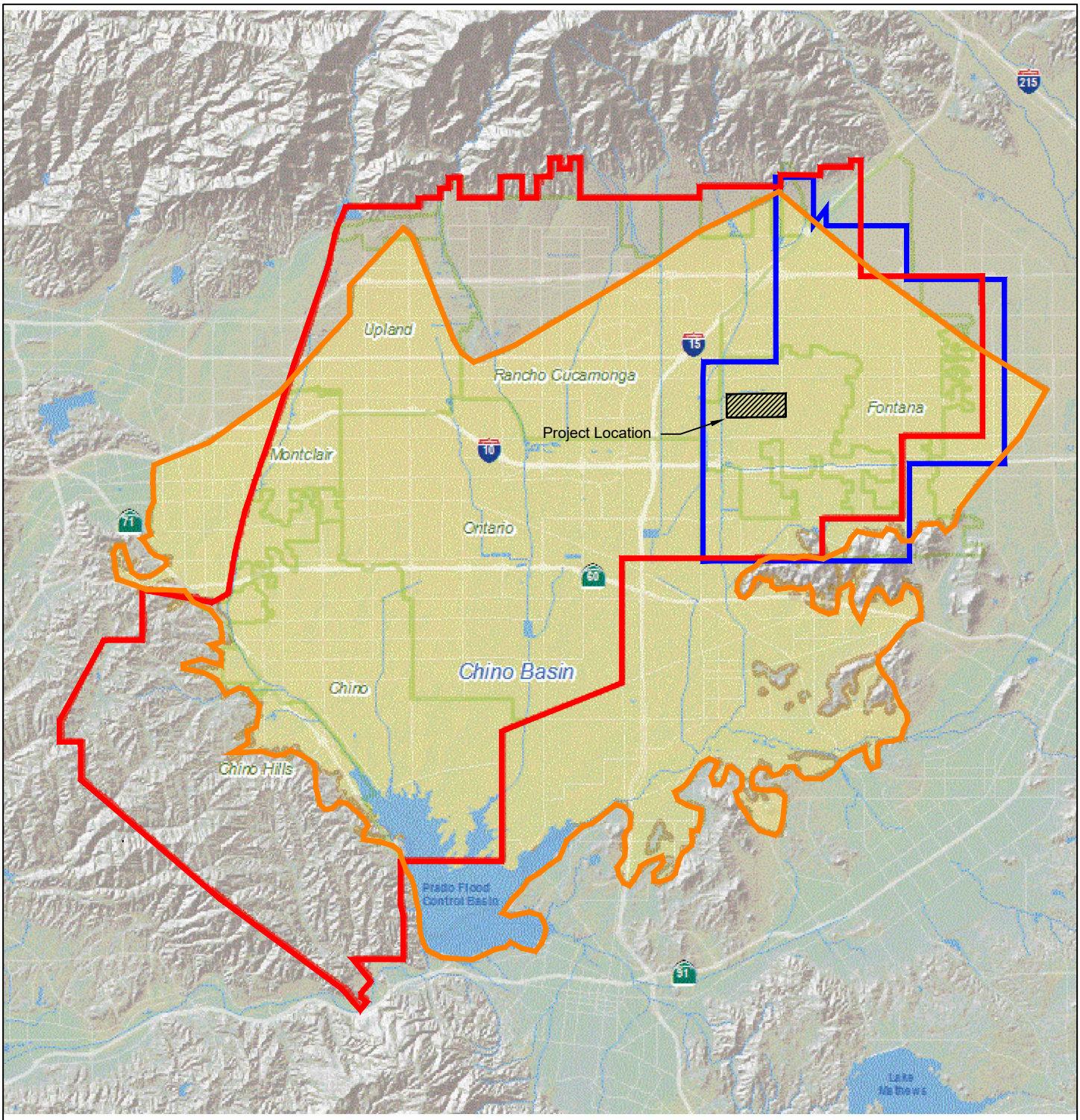
IEUA's service area includes the cities of Fontana, Chino, Chino Hills, Montclair, Pomona, Ontario, Rancho Cucamonga and Upland. According to IEUA's 2020 UWMP, approximately 906,000 people resided in IEUA's service area as of 2020. IEUA's service area, as shown in Figure 3, lies almost entirely within the Chino Groundwater Basin.

Water used in IEUA's service area comes from both local and imported sources. Local sources include local groundwater, surface water and, most recently, recycled water. IEUA purchases untreated imported water from MWD for wholesale redistribution to local retail water purveyors within its service area, including FWC. The local retail water purveyors must first treat the imported MWD water before delivery to their potable water customers.

According to IEUA's 2020 UWMP, total local groundwater production by FWC and other local retail water agencies in IEUA's service area was approximately 92,834 AF in fiscal year 2019-20, which includes production from the Chino Basin as well as the other local groundwater sources shown in Figure 2.

FWC and a number of other retail water agencies in IEUA's service area that produce groundwater from the Chino Basin also obtain a portion of their water from local surface sources. The principal sources of surface water include Lytle Creek, San Antonio Canyon, Cucamonga Canyon, Day Creek, Deer Creek, and several smaller surface streams. According to IEUA's 2020 UWMP, annual production from all such local surface supplies was approximately 16,652 AF in fiscal year 2019-20.

FWC has capacity to receive up to 40 cfs of MWD imported SWP water from IEUA for treatment at FWC's existing Summit Water Treatment Plant. Historical MWD deliveries to IEUA's service area are shown in Table 3. Full service imported water deliveries from MWD to IEUA over the past 20 years have ranged from approximately 31,713.8 AF of water in fiscal year 2015-16 to a peak of approximately 81,616 AF in fiscal year 2008-09. Additional imported water supplies from IEUA can be used for groundwater replenishment, thereby augmenting the annual yield and production from the Chino Basin.



IEUA Service Area Boundary

Fontana Water Company Service Area Boundary

Chino Groundwater Basin Boundary

Source : 2010 Inland Empire Utilities Agency Urban Water Management Plan

IEUA SERVICE AREA BOUNDARY, CHINO BASIN BOUNDARY
FONTANA WATER COMPANY SERVICE AREA BOUNDARY, AND PROJECT AREA

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Table 3 MWD Historical Water Purchases by IEUA [1] (AFY)

Fiscal Year	Full Service	Agricultural	Interruptible/Local Projects	Storage [2]	Total
1990-91	20,015.9	26.2	28,071.0	4,011.70	52,124.80
1991-92	31,924.5	152.0	0.0	75,976.10	108,052.60
1992-93	34,032.2	94.4	0.0	51,554.10	85,680.70
1993-94	28,897.1			28,046.90	56,944.00
1994-95	36,967.8	8.5		1,579.50	38,555.80
1995-96	35,204.1	77.4		4,408.80	39,690.30
1996-97	44,728.2	118.8		5,058.70	49,905.70
1997-98	39,320.6	83.8		11,895.10	51,299.5
1998-99	41,599.5	76.4	100.3	8,414.1	50,190.3
1999-00	57,070.3	104.1	495.5	5,332.1	63,002.0
2000-01	57,735.6	45.1	3,841.8	11,742.5	73,365.0
2001-02	64,996.3	44.0	4,498.9	9,006.3	78,545.5
2002-03	60,082.5	43.3	5,637.2	13,449.9	79,212.9
2003-04	64,024.7	49.3	6,561.1	7,582.0	78,217.1
2004-05	54,841.4	56.4	5,653.0	42,259.4	102,810.2
2005-06	50,607.8	90.4	8,916.5	36,227.8	95,842.5
2006-07	52,869.1	89.7	11,331.2	24,759.1	89,049.1
2007-08	70,780.0	43.2	21,307.8	0.0	92,131.0
2008-09	81,615.9	3.0	24,664.2	0.0	106,283.1
2009-10	65,539.6		20,245.1	0.0	85,784.7
2010-11	51,134.4		20,646.1	9,650.6	81,431.1
2011-12	52,059.6		20,212.9	24,407.8	96,680.3
2012-13	59,050.9		25,435.0		84,485.9
2013-14	67,833.1		26,800.8		94,633.9
2014-15	58,907.7		23,734.6		82,642.3
2015-16	31,713.8		22,933.2		54,647.0
2016-17	47,848.4		25,390.7		73,239.1
2017-18	68,157.7		13,009.9		81,167.6
2018-19	63,870.4		13,244.6		77,115.0
2019-20	64,835.4		13,272.2		78,107.6

1) Source: Metropolitan Water District of Southern California, Operations Data. Data includes full service, agricultural, local project, and/or storage program sales.

2) Seasonal Storage Service Program and Cyclic Storage Account

Water recycling involves treatment of wastewater to create a high quality, safe source of water for landscape irrigation, industrial uses, and groundwater recharge. A recycled water marketing program was initiated by IEUA in 1999. Recycled water is a critical component of the Optimum Basin Management Plan developed by the Chino Basin Watermaster in 2000 to address water supply and quality issues in the Chino Basin. Recycled water has become an increasingly important source of renewable local water supply for the region. FWC has already taken steps in constructing a recycled water system and is preparing to provide recycled water, once it is available, to customers in its service area who are able to use recycled water. Based on the IEUA's "Fiscal Year 2019-2020 Recycled Water Annual Report[3]," recycled water supplies from IEUA's facilities totaled approximately 56,388 AF in fiscal year 2019-20. The total recycled water demands in IEUA's service area in fiscal year 2019-20 were 30,495 AF, or approximately 54 percent of the available recycled water supply. The recycled water supply and demand from IEUA's facilities is expected to increase to 66,836AF and 44,691 AF, respectively, by fiscal year 2044-45 (IEUA 2020 UWMP, Tables 2-3 and 3-3). Remaining future projected recycled water supplies will be used for groundwater recharge purposes and to meet Santa Ana River obligations.

The population within IEUA's service area is projected by the local retail water agencies (including FWC) to collectively increase from approximately 906,046 in 2020 to 1,119,568 people by the year 2045 (Table 4). This represents an increase of approximately 213,500 people over a 25-year period, an average annual growth rate of approximately 0.9 percent.

TABLE 4 CURRENT AND PROJECTED POPULATION IN IEUA'S SERVICE AREA [1]

Year	2020	2025	2030	2035	2040	2045
Population	906,046	945,849	987,401	1,031,771	1,074,773	1,119,568

1) Source: IEUA 2020 UWMP (June 2021), Table 1-4

As a result of this projected regional population growth, water demand in IEUA's service area is expected to increase by approximately 33 percent over the 25-year period from 2020 to 2045. Table 5 presents the projected water demands for IEUA's service area. According to IEUA's 2020 UWMP, total annual water use is expected to increase from approximately 96,934 AF in fiscal year 2019-20 to approximately 128,756 AF in fiscal year 2044-45.

[3] https://www.ieua.org/read-our-reports/recycled-water-reports/

TABLE 5 CURRENT AND PROJECTED WATER DEMANDS IN IEUA'S SERVICE AREA [1] (AFY)

Year	2020	2025	2030	2035	2040	2045
Potable and Raw Water	66,438	77,416	79,630	81,974	84,021	84,065
Recycled Water (Direct Reuse and Groundwater Recharge)	30,496	39,300	41,297	42,162	44,191	44,691
Total Demand	96,934	116,716	120,927	124,136	128,212	128,756

1) Source: IEUA 2020 UWMP (June 2021), Table 2-4.

Projected water supplies within IEUA's service area include groundwater, surface water, recycled water, and untreated imported water purchased from MWD. Table 6 summarizes the total available supplies and water demands under a normal year.

TABLE 6 IEUA FUTURE WATER DEMAND/SUPPLY BALANCE IN NORMAL YEARS [1] (AFY)

Year	2025	2030	2035	2040	2045
Supply Totals	153,356	156,490	157,425	160,119	160,119
Demand Totals	116,716	120,927	124,136	128,212	128,756
Surplus	36,640	35,563	33,289	31,907	31,363

1) Source: IEUA 2020 UWMP (June 2021), Table 7-4

According to IEUA's 2020 UWMP, total supplies from the Chino Basin and adjacent groundwater basins are projected at 137,318 AFY through fiscal year 2044-45 for normal years, although the Chino Basin could accommodate much greater water production rates if necessary.

According to IEUA's 2020 UWMP, IEUA projected total supplies from surface water within its service area at approximately 10,089 AFY through fiscal year 2044-45 for normal years. Surface water flows are substantially greater in wet years and less during dry years.

According to IEUA's 2020 UWMP, the direct use of recycled water within IEUA's service area in fiscal year 2019-20 was approximately 30,496 AF. Recycled water use during normal years is expected to increase to approximately 44,691 AFY by fiscal year 2044-45. As part of an existing agreement with IEUA, the City of Fontana is entitled to approximately 12,000 AFY of tertiary treated recycled water. FWC has undertaken a project with the City of Fontana for the direct use of recycled water in the southern portion of FWC's service area known as the 1158 Zone. This project will provide up to approximately 2,000 AFY of recycled water within the City of Fontana to schools, parks, and commercial customers as part of a multi-phased program. Additional discussion regarding recycled water is provided in Section 5.0.

According to IEUA's 2020 UWMP, imported water supplied from the SWP and the Colorado River provided by IEUA are projected to be 98,928 AF through fiscal year 2044-45.

FWC supports and works closely with IEUA to implement a mix of water management strategies to meet the region's long-term needs. IEUA's water management goals are the following:

- Implement an effective conservation program that will maximize efficient water use and reuse in IEUA's service area;
- Continue development of a groundwater recovery program;
- The Dry-Year Yield Program (DYYP) is a groundwater storage and recovery program where supplemental water is stored in the Chino Basin during surplus years and could be recovered in-lieu of imported water from MWD through IEUA. The DYYP was developed jointly by the Chino Basin Watermaster, the IEUA, and MWD. The DYYP can store up to 100,000 AF with maximum replenishment of 25,000 AFY and maximum extraction of 33,000 AFY. The agreement that authorized the DYYP will expire in 2028.IEUA "Addendum No. 2 to the Optimum Basin Management Plan" was prepared in February 2021 and addresses managed storage within the Chino Basin following the termination of the DYYP. Based on the Chino Basin Watermaster's findings, the Local Storage Limitation Solution (LSLS) was developed. From July 1, 2017 through June 30, 2021, the Safe Storage Capacity of the Chino Basin was 600,000 AF. The Safe Storage Capacity was increased to 700,000 AF through an August 2021 San Bernardino County Superior Court ruling.
- Achieve maximum use of all available storm water;
- Achieve maximum reuse of all available recycled water; and
- Minimize dependence on imported water supplies.

The water demands and supplies for IEUA's service area were analyzed by IEUA to assess the region's ability to meet demands given a repeat of California's severe drought from 2011 to 2014. Table 7 and Table 8 present the supply-demand balance for single and multiple year drought scenarios for fiscal years 2024-25 and 2044-45. With the implementation of the local programs outlined above, the region is expected to meet 100 percent of its dry year demand.

TABLE 7 IEUA'S 2025 WATER SUPPLY AND DEMAND IN NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS [1] (AFY)

Demand and Supply	Normal Year	Single Dry Year	Multiple Dry Years				
			Dry Year 1	Dry Year 2	Dry Year 3	Dry Year 4	Dry Year 5
Total Water Supply	153,356	153,329	153,329	153,329	153,329	153,329	153,329
Total Demand	116,716	118,899	120,206	120,206	120,206	120,206	120,206
Surplus	36,640	34,431	33,124	33,124	33,124	33,124	33,124

1) Source: IEUA 2020 UWMP (June 2021), Tables 7-4, 7-5, and 7-6

TABLE 8 IEUA'S 2045 WATER SUPPLY AND DEMAND IN NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS [1] (AFY)

Demand and Supply	Normal Year	Single Dry Year	Multiple Dry Years				
			Dry Year 1	Dry Year 2	Dry Year 3	Dry Year 4	Dry Year 5
Total Water Supply	160,119	160,091	160,091	160,091	160,091	160,091	160,091
Total Demand	128,756	133,571	136,456	136,456	136,456	136,456	136,456
Surplus	31,363	26,519	23,635	23,635	23,635	23,635	23,635

1) Source: IEUA 2020 UWMP (June 2021), Tables 7-4, 7-5, and 7-6

San Bernardino Valley Municipal Water District

SBVMWD was formed in 1954. It is an independent SWP contractor and is not a member agency of MWD. The District's services include providing wholesale distribution of untreated imported SWP water, and wastewater, stormwater disposal, recreation, and fire protection services.

SBVMWD, which covers approximately 325 square miles in southwestern San Bernardino County, currently serves a population of approximately 715,900. SBVMWD's service area includes the eastern two-thirds of the San Bernardino Valley, the Crafton Hills, and a portion of the Yucaipa Valley, and includes the cities and communities of San Bernardino, Colton, Fontana, Loma Linda, Redlands, Rialto, Bloomington, Highland, Grand Terrace, and Yucaipa.

Groundwater from the Colton, Rialto, Bunker Hill, Yucaipa, and San Timoteo Basins, is the principal local source of supply in SBVMWD's service area. Other sources of water supply include surface water from Lytle Creek, the Santa Ana River, and Mill Creek as well as imported SWP water.

SBVMWD's contract entitlement for SWP water was 1,677 AF in 1972, the initial year of deliveries, and increased to a maximum entitlement of 102,600 AF in 1991. The entitlement is the fifth largest of all SWP contractors.

FWC has the ability to purchase and use untreated imported water from SBVMWD. A portion of FWC's service area is within SBVMWD's service area. FWC did not receive any SWP water from SBVMWD from 2012 to 2020. FWC projects receiving up to 3,200 AFY of imported untreated SWP water from SBVMWD. FWC has upgraded its existing Summit Water Treatment Plant to treat approximately 29 MGD of Lytle Creek surface water and SWP water. The Summit Water Treatment Plant will treat the imported untreated SWP water from SBVMWD in addition to treating available Lytle Creek surface water and SWP water from IEUA. FWC expects to receive greater quantities of SWP water from SBVMWD as population growth and development increase in the SBVMWD portion of FWC's service area.

4.0 FWC'S FUTURE WATER DEMANDS WITH THE PROJECT

FWC's 2020 UWMP was completed and adopted in June 2021 and includes water demand projections for FWC's service area over the next twenty years (through 2045).

Water demands projected in FWC's 2020 UWMP were calculated based on the urban per capita water use target developed per the Water Conservation Bill of 2009 (SB X7-7) and population projections within FWC's service area. Methodologies for calculating urban per capita water use were published by DWR in its February 2016 guidance document[4]. The methodology applied to FWC included an urban per capita water use reduction of 20 percent by 2020. DWR's guidance document was used by FWC to calculate a projected urban per capita water use target of 165 gallons per capita per day through 2045.

Projected water demands for the proposed Project include commercial, industrial and landscape irrigation demands. Based on the Project site map prepared by HPA Architecture, the proposed Project is estimated to include approximately 6,627,018 sf of combined warehouse and office building space, 106,57 acres of parking and pavement, and landscaping on a Project site of approximately 522.01 acres. The total Project water demand was estimated by multiplying the planned Project site area by a water use rate of 3,500 gallons per day (gpd) per acre derived from average recorded water use data for large industrial warehouse buildings within FWC's service area. The estimated water demand for the commercial and industrial area of the Project is approximately 596 AFY (or 6,627,018 sf x (1 acre / 43,560 sf) x 3,500 gpd per acre x (0.00112 AFY / 1 gpd)).

The Project landscape irrigation demand was estimated by the Project developer (see Appendix A). The Project developer estimated offsite irrigation demands (parkways and medians) which would be maintained by the County of San Bernardino, and onsite irrigation demands (onsite landscaping) which would be maintained by the owner. The total offsite (145

[4] California Department of Water Resources, Division of Statewide Integrated Water Management, Water Use and Efficiency Branch. *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. February 2016.

AFY) and onsite (425 AFY) irrigation demands was estimated by the developer at approximately 570 AFY.

FWC's 2020 UWMP includes current and projected future water demands for its service area over the next 25 years. It is anticipated construction of the Project will be completed by 2025 (i.e. after 2020). The proposed Project is located on a portion of the existing Auto Club Speedway site within an unincorporated area of San Bernardino County. It is anticipated the existing Auto Club Speedway race track will be reconfigured into a "short track" (i.e. the existing race track will be reduced in size). As a result, portions of the proposed Project will replace the remaining areas of the existing race track. Based on FWC records, potable water use at the Project site over the past four years has averaged approximately 4.1 AFY. In addition, the existing Auto Club Speedway currently utilizes an onsite well to meet irrigation demands (approximately 400 AFY). Because the proposed Project is separate from the Auto Club Speedway and will not include the reduced race track area (i.e. proposed short track), the projected water demands for the proposed Project are considered separate from the water demands from the Auto Club Speedway.

The potable water demand for the Project is estimated at approximately 596 AFY. However, in order for FWC to provide 596 AFY to the Project site, FWC will need to produce water supplies which account for water losses within its water distribution system. Pursuant to Water Loss Audits[5] prepared by FWC (pursuant to the California Water Code), FWC's water system losses have averaged approximately 7.8 percent over the past five years (from calendar year 2016 to calendar year 2020). Accounting for this average water loss, FWC would need to produce approximately 646 AFY of potable water in order to supply 596 AFY to the Project site. It is anticipated that recycled water will be used for landscape irrigation at the proposed project site. Also accounting for average water losses, FWC would need to produce approximately 618 AFY of recycled water in order to supply 570 AFY to the Project site.

The potable water (646 AFY) and recycled water demands (618 AFY) for the proposed Project are incorporated within the existing and projected water demands (potable and recycled) presented in FWC's adopted 2020 UWMP over a 20-year period and through 2045, as shown in

[5] https://wuedata.water.ca.gov/awwa_plans

Table 9. A further description regarding FWC's recycled water facilities, agreements, demands, and supplies is provided in Section 5.0

It should be noted, the projected water demands for the proposed "Goodman Industrial Park Fontana III Project", the "Southwest Fontana Logistics Center Project", the "Fontana Foothills Industrial Project", the "Sierra Business Center", the "Speedway Commercial Development Project", and the "Duke-Cypress at Slover Industrial Project" (six separate active/proposed projects located within FWC's service area) were also included in the overall water demands identified in FWC's 2020 UWMP. The overall projected water demands for FWC from FWC's 2020 UWMP, which incorporates the demands from the proposed Project and the six separate active/proposed projects, are provided in Table 9.

TABLE 9 PROJECTED WATER DEMAND ESTIMATES (AFY)

YEAR	2025	2030	2035	2040	2045
Potable Water Demands[1]	44,593	45,409	46,665	47,942	48,943
Recycled Water Demands[2]	1,000	1,500	2,000	2,500	3,000
Total FWC Projected Water Demands[2]	**45,593**	**46,909**	**48,665**	**50,442**	**51,943**

Notes:

[1] Water demands from the Speedway Commerce Center II Project (Project) are assumed to be included in water demands identified from FWC's 2020 UWMP. It is anticipated water demands for the Project will begin by 2025.

[2] Demand projections reported in FWC's 2020 UWMP, Table 4-4

5.0 FWC'S FUTURE WATER SUPPLIES

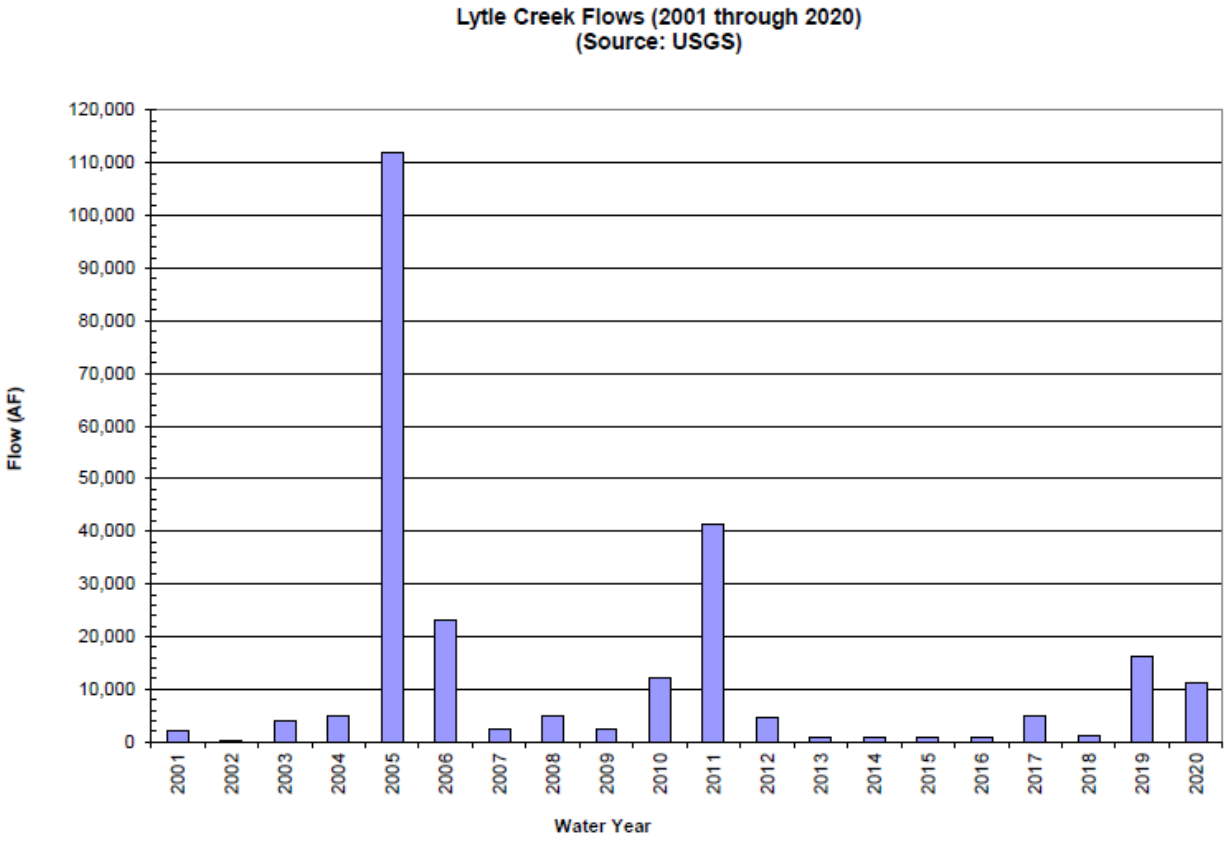
FWC's principal future water supplies available and documented in its 2020 UWMP are groundwater pumped from Chino Basin, Lytle Basin, Rialto Basin, and the No-Man's Land Basin, surface water from Lytle Creek, recycled water, and imported water from SBVMWD and IEUA. The following describes the potential yield from these sources.

LYTLE CREEK

FWC is entitled to divert up to 3,480.78 miner's inches (approximately 50,400 AFY) from the Lytle Creek Region, including up to 2,500 miner's inches (approximately 36,200 AFY) of combined surface and groundwater extractions to augment surface water diversions. Annual Lytle Creek flows from 2001 to 2020 based on United States Geological Survey (USGS) data are shown in Figure 4. USGS data from a Lytle Creek gaging station[6] in the vicinity and upstream of FWC's diversion and intake facilities was used to determine the annual Lytle Creek flows. Based on USGS data, recent drought periods occurred from 1999 to 2004, 2007 to 2009, and 2012 to 2018. Pursuant to FWC's 2020 UWMP, and based on historical diversions during normal rainfall years, FWC's projected water supplies from Lytle Creek during normal rainfall years are estimated at approximately 4,860AFY over the next twenty years. FWC's 2020 UWMP estimates that Lytle Creek projected surface water supplies could be reduced by 83 percent (to 826 AFY) in single dry or multiple dry years.

[6] https://waterdata.usgs.gov/nwis

FIGURE 4 HISTORICAL LYTLE CREEK FLOWS (2001-2020)



Source: USGS 11062000 (Lytle C NR Fontana CA) gauge station

LYTLE BASIN

FWC can pump and divert more than 18,800 AFY of groundwater from the Lytle Basin. The Lytle Basin is subject to changes in groundwater elevation depending on rainfall, snowpack, and stormwater runoff. This was demonstrated after the significant rainfall received during 1993 and 2010. In the months following a series of storms during those very wet years, basin static water levels increased as much as 200 feet in three months. However, basin static water levels could likewise decrease and thus affect groundwater production during sustained dry years. Pursuant to FWC's 2020 UWMP, and based on historical production during normal rainfall years, FWC's projected water supplies from the Lytle Basin during normal rainfall years and single dry are estimated at 6,390 AFY over the next twenty years. FWC's 2020 UWMP estimates that Lytle Basin projected groundwater supplies could be reduced by 35 percent (to 4,154 AFY) in multiple dry years.

CHINO BASIN

FWC's average annual production from the Chino Basin from 2001 to 2020 was approximately 14,824 AFY. During the most recent five years, FWC's annual production ranged from approximately 9,351 AFY to 16,299 AFY. According to IEUA's 2020 UWMP, total Chino Basin groundwater production in IEUA's service area in a normal year is estimated to be 109,813AFY through fiscal year 2044-45. The Chino Basin Judgment authorizes FWC to produce all the water it requires from the Chino Basin for beneficial use by FWC's customers, subject to replenishment requirements, and more than ample water is present in the Chino Basin to allow FWC to do so. FWC will construct additional wells and associated infrastructure in the Chino Basin to match additional water supply with additional water demands from growth in the number of customers. Because of groundwater contamination in the Chino Basin from nitrate and perchlorate, production of groundwater from affected wells may be interrupted until wellhead treatment is installed. FWC has the necessary technical and financial resources available to allow FWC to quickly respond to any such water quality incidents to assure continuity and reliability of water service. FWC's Wells F17B, F17C, F21B, and F23A, which pump from the Chino Basin, currently have perchlorate treatment equipment, which removes perchlorate from these sources. FWC plans to utilize best available treatment technologies to install additional treatment and drill replacement wells as needed to meet its water supply needs.

RIALTO BASIN AND NO MAN'S LAND

On February 3, 2021, the Rialto Basin Groundwater Council Framework Agreement was signed by Fontana Union Water Company, West Valley Water District, the City of Rialto, and the City of Colton to incorporate the FWC production right from the No Man's Land Basin (previously unrestricted) into the Rialto Basin that is subject to curtailment. The RBGC Framework Agreement was created for the purposes of coordinating, developing, and implementing groundwater management activities that affect groundwater management and sustainability in the Rialto Basin. The agreement acknowledged FWC's production capabilities of 5,014 AFY from the No Man's Land Basin and incorporating them with the Rialto Basin production capacity limits in the 1961 Rialto Basin Court Decree.

FWC's water rights as allowed under the 1961 Decree and the RBGC Framework Agreement are listed below:

- Adjustable Rights: 550 AFY
- Fixed Rights: 370 AFY
- No Man's Land Adjustable Rights: 5,014 AFY
- Fixed / Standby Rialto Lease: 1,600 AFY

- Combined Rights: 7,534 AFY (as of 2020)

Pursuant to the 1961 Decree and declining groundwater elevations in the three index wells in the Rialto Basin, FWC projects a 30 percent curtailment to its adjustable water rights by 2025. The curtailment is anticipated to decrease by 2 percent every five years thereafter (e.g., 28 percent curtailment in 2030) to reflect a coordinated plan to recharge the Rialto Basin. Groundwater production of approximately 5,865 AFY is estimated to be available to FWC from both the Rialto Basin and No-Man's Land during normal, single-dry and multiple-dry years in 2025, and is expected to increase to 6,310 AFY by 2045.

RECYCLED WATER

Achieving maximum use of all available recycled water is one of FWC's and IEUA's water management goals. Recycled water is used for groundwater recharge and storage as well as direct use by customers who are equipped and able to use recycled water. As shown in Table 2, FWC began using recycled water supplies within its service area in 2016 (with a recycled water demand of 387 AF in 2020). FWC strongly supports the use of recycled water and will provide recycled water to its customers who are able to use it when it is made available. FWC has undertaken a project with the City of Fontana for the direct use of recycled water in the southern portion of FWC's service area known as the 1158 Zone. This project will provide up to approximately 2,000 AFY of recycled water within the City of Fontana to schools, parks, and commercial customers as part of a multi-phased program. As part of an existing agreement with IEUA, the City of Fontana is entitled to approximately 12,000 AFY of tertiary treated recycled water. FWC has designed and is constructing recycled water distribution system facilities in the 1158 Zone to meet those needs. Recycled water will be provided by IEUA's Regional Water Recycling Plant 4. In addition, facilities also will be required to distribute recycled water from IEUA to FWC's customers beyond the 1158 Zone. Those additional facilities will include pipelines, booster stations and reservoirs. In 2015, FWC entered into separate agreements with

IEUA, the California Speedway Corporation (Speedway), and California Steel Industries (CSI) in which FWC will deliver recycled water supplies from IEUA to the Speedway and CSI. FWC will deliver up to 450 AFY of recycled water to the Speedway and up to 550 AFY of recycled water to CSI over an initial term of 60 years. IEUA has constructed the recycled water transmission and distribution facilities to the Speedway and CSI.

IEUA's 2020 UWMP projected the total recycled water use (for direct use and groundwater recharge) within IEUA's service area at approximately 66,836 AFY by the year 2045. As shown in Table 10, IEUA projects having enough supply to meet the recycled water demand within IEUA's service area. The report also projected that IEUA would supply approximately 8,350 AFY of recycled water for distribution within the City of Fontana. The report identified potential recycled water uses irrigation of golf courses, landscaping, parks, and schools, agricultural uses, commercial car washes and laundries, industrial cooling towers, miscellaneous construction and dust control uses, and groundwater recharge. Pursuant to FWC's 2020 UWMP, FWC is projected to use approximately 1,000 AFY of recycled water within its service area by 2025, with a gradual increase to approximately 3,000 AFY of recycled water by 2045. FWC's increased future use of recycled water for landscape and agricultural irrigation (including potential landscaping for proposed developments such as the Project), construction, industrial cooling, and groundwater recharge use, will offset the need for potable water use within FWC's service area. In the future, the Project could be connected to IEUA's regional recycled water line if there are sufficient recycled water demands in the area.

TABLE 10 PROJECTED RECYCLED WATER SUPPLY AND DEMAND ESTIMATES (AFY)

YEAR	2025	2030	2035	2040	2045
Demands (Direct Use)	22,880	24,877	25,742	27,771	28,271
Demands (Groundwater Recharge)	16,420	16,420	16,420	16,420	16,420
Total IEUA Projected Recycled Water Demand[1]	**39,300**	**41,297**	**42,162**	**44,191**	**44,691**
Total IEUA Projected Recycled Water Supply[2]	**60,073**	**63,207**	**64,142**	**66,836**	**66,836**

Notes:
[1] Demand projections reported in IEUA's 2020 UWMP, Table 5-2
[1] Supply projections reported in IEUA's 2020 UWMP, Table 4-6

IMPORTED WATER SUPPLIES

As discussed previously, FWC can purchase untreated imported SWP water from SBVMWD and untreated imported water supplies from MWD (including Colorado River water, SWP water, water storage, and water transfers) through IEUA[7]. According to FWC's 2020 UWMP, FWC conservatively estimates it will receive up to 15,000 AFY of SWP water from IEUA and up to 3,200 AFY of SWP water from SBVMWD over the next twenty years. FWC has the capacity to purchase additional imported SWP water from IEUA and SBVMWD if needed to meet current and future water demands reported in the FWC's 2020 UWMP. A discussion regarding the reliability of these imported water supply sources is provided below.

COLORADO RIVER WATER

In addition to obtaining water from the SWP, MWD obtains water from the Colorado River. MWD owns and operates the Colorado River Aqueduct which conveys water from Lake Havasu on the Colorado River to water transmission pipelines and to Lake Matthews for storage. MWD's Colorado River water right includes a fourth and fifth priority under the 1931 Seven Party Agreement relating to California's share in the Colorado River water supply. In 1964 a United States Supreme Court decree (Arizona v. California) limited California to 4.4 million AF per year from the Colorado River plus any available surplus water. An amount of 550,000 AF was allotted to California under the fourth priority right and an amount of 662,000 AF was allotted to California under the fifth priority right. MWD can receive water under the fifth priority right when the United States Secretary of the Interior determines that there is a surplus of water or if Arizona or Nevada does not use all of their allocated water.

Under a 2007 agreement reached by the seven States of the Colorado River Basin, if Lake Mead's level drops to 1,075 feet, an official shortage would be declared. That declaration would trigger cuts in water deliveries to Arizona and Nevada. During 2019, the seven States of the Colorado River Basin developed two drought contingency plans: the Upper Basin Drought Contingency Plan (Upper Basin DCP) and the Lower Basin Drought Contingency Plan (Lower Basin DCP). The Upper Basin DCP is designed to: a) protect critical elevations at Lake Powell

[7] FWC has an additional existing standby connection with IEUA to receive untreated water from MWD at its Plant F43.

and help assure continued compliance with the 1922 Colorado River Compact, and b) authorize storage of conserved water in the Upper Basin that could help establish the foundation for a Demand Management Program that may be developed in the future. The Lower Basin DCP is designed to: a) require Arizona, California and Nevada to contribute additional water to Lake Mead storage at predetermined elevations, and b) create additional flexibility to incentivize additional voluntary conservation of water to be stored in Lake Mead. Under the Lower Basin DCP, the state of California is required to make the following annual DCP contribution based on projected January 1st Lake Mead elevations:

- Elevation above 1,040 feet and at or below 1,045 feet – 200,000 AF
- Elevation above 1,035 feet and at or below 1,040 feet – 250,000 AF
- Elevation above 1,030 feet and at or below 1,035 feet – 300,000 AF
- Elevation at or below 1,030 feet – 350,000 AF

On August 16, 2021, the United States Bureau of Reclamation (USBR) released the "Colorado River Basin August 2021 24-Month Study" used to set annual operations for Lake Powell and Lake Mead. Based on the results of the Study, the USBR declared the first federal water shortage declaration for the Colorado River Basin. Because of the 2019 DCP, California has so far been spared from cuts to its Colorado River supplies for 2022. In response to the continued drought conditions and the USBR declaration, MWD's Board of Directors declared a Water Supply Alert on August 17, 2021, calling for consumers and businesses to voluntarily reduce their water use and help preserve the region's storage reserves. A Water Supply Alert is the third of four escalating conditions in MWD's framework indicating the urgency of Southern California's need to save water. The action calls for water agencies to reduce their water demand through public awareness campaigns and by adopting local measures including increased outdoor water use efficiency, prohibiting home car washing or filling of ornamental water features, and requiring that restaurants only serve water upon request. MWD's declaration seeks to avoid the need for more severe actions, including moving to the fourth and final stage in MWD's framework. In addition, while shortages in the Colorado River can potentially impact water supplies, MWD owns priority rights to the Colorado River and water supply will not be

impacted in the immediate future. MWD has indicated that its supplies from the Colorado river will not be impacted in 2022 and may be impacted in 2023 and more likely in 2024, if the drought continues[8], which could potentially trigger a Water Supply Allocation Plan through which MWD would implement higher rates for increased use among its member agencies.

In April 2021, Governor Gavin Newsom proclaimed a drought emergency in several counties. By July 2021, Governor Newsom expanded the drought emergency to a total of 50 counties (excluding the six counties within MWD's service area). However, in October 2021, Governor Newsom widened the drought emergency to all counties and called on local and regional water agencies to implement their Water Shortage Contingency Plans to conserve water. The governor also urged Californians to voluntarily reduce their water by 15 percent.

On July 1, 2021, FWC adopted a resolution to approve its 2020 Urban Water Management Plan and Water Shortage Contingency Plan. FWC's 2020 Urban Water Management Plan describes FWC's historical and existing water conservation program, the status of implementation of Demand Management Measures, and projected future conservation implementation. FWC's Water Shortage Contingency Plan describes the actions FWC will take to reduce demands or increase supplies under 10, 20, 30, 40, 50 percent, and greater than 50 percent shortage conditions.

STATE WATER PROJECT

The SWP is a water storage and delivery system maintained and operated by DWR. MWD holds a long-term contract with DWR for SWP water. MWD currently has a contractual 'Table A' amount of 1,911,500 AFY of SWP water ('Table A' represents the proportion of available SWP water allocated and delivered to each SWP contractor). The delivery reliability of SWP water is discussed below.

[8] https://www.latimes.com/california/story/2021-08-17/amid-worsening-drought-mwd-declares-water-supply-alert

The San Francisco Bay-Sacramento River Delta area (Bay-Delta) is a part of the SWP water delivery system. The reliability of the Bay-Delta to deliver water may be impacted by potential risks associated with endangered species, earthquakes, levee failure, and climate change. In order to mitigate these potential risks, State and federal resources and environmental protection agencies and a broad range of stakeholders are involved in a multiyear planning process to develop programs to greatly improve the capacity and reliability of the SWP and the environmental conditions of the Bay-Delta, including projects related to DWR's SWP conveyance capacity, water quality, and operation of the SWP.

The State of California enacted comprehensive legislation, including the Sacramento-San Joaquin Delta Reform Act of 2009 (California Water Code Division 35) which provided for an independent state agency, the Delta Stewardship Council. Pursuant to that act, the Delta Stewardship Council developed a comprehensive management plan that provides more reliable water supply for California and protects and enhances the Delta ecosystem (through development and implementation of a Delta Plan). The Delta Stewardship Council adopted a final Delta Plan in May 2013 which is the comprehensive long-term management plan for the Delta to improve statewide water supply reliability and to protect the Delta. Subsequently its 14 regulatory policies were approved by the Office of Administrative Law and became effective with legally-enforceable regulations on September 1, 2013. The Delta Stewardship Council also adopted a Programmatic Environmental impact Report (PEIR) on the Delta Plan in May 2013. The PEIR evaluates the potential impact of the Delta Plan and identifies mitigation measures. The Delta Plan was amended in February 2016, September 2016, April 2018, July 2019, and March 2020. The Delta Plan contains a set of 14 regulatory policies as well as 95 recommendations, which are non-regulatory but identify actions essential to increasing water supply reliability while protecting, restoring, and enhancing the Delta ecosystem. In May 2020, the Delta Stewardship Council authorized the Ecosystem Amendment for environmental review under CEQA. As a result, a draft Program Environmental Impact Report (PEIR) was prepared and is undergoing a 64-day public review from September 27, 2021 to November 30, 2021. The Delta Stewardship Council is also currently considering an amendment to Chapter 7 (Delta Levees Investment Strategy, or DLIS). The DLIS is a multiyear project to update the Delta Plan's 2013 interim priorities for flood risk reduction and to guide the prioritization of Delta investments that reduce

flood risk and better integrate Delta levees with other Delta actions and statewide flood control. The Delta Stewardship Council approved the DLIS priorities in 2018, however the amendment was rescinded in order to evaluate new levee geometry and hydraulic data. In August 2021, the Delta Stewardship Council directed staff to reinitiate the rulemaking process for DLIS.

In June 2013, a lawsuit was filed by the State Water Contractors and others seeking to overturn the Delta Stewardship Council's adoption of the Delta Plan, promulgation of related regulations, and certification of the above referenced PEIR. The litigation brought by the State Water Contractors and others claims that the Delta Stewardship Council exceeded its authority under the Sacramento-San Joaquin Delta Reform Act of 2009 and failed to analyze impacts under CEQA, particularly foreseeable impacts of the Delta Plan on water supplies around the state. In May 2016, the Superior Court upheld the Delta Stewardship Council on the vast majority of issues, including that the Council used best available science in developing the Delta Plan. The Court also ruled that the Delta Plan's regulations promote improved water quality, its flow recommendations promote conditions for species recovery, it promotes risk reduction strategies, and its conservation measures promote reduced reliance on the Delta. The Court, however, invalidated the entire Delta Plan because of what it identified as inadequacies in the following areas:

- The lack of enforceable, quantifiable targets for achieving reduced Delta reliance, reduced harm from invasive species, restoring more natural flows and increased water supply reliability, and
- Inadequate "promotion" of conveyance options to improve the way water projects move water across the Delta.

In November and December 2016, the Delta Stewardship Council and other parties have appealed the Court's ruling, which means the invalidation of the Delta Plan was placed on hold. In April 2020, the Third District Court of Appeal (Appellate Court) sided with the Delta Stewardship Council on all remaining issues from the 2013 lawsuit, and found the alleged failure to have sufficient performance measures and to promote conveyance options were both moot because of subsequent amendments to the Delta Plan. In August 2020, the California Supreme Court declined a petition for review made by State Water Contractors in response to the

Appellate Court decision. As a result, the central role of the Delta Stewardship Council in Delta water management and land use remains intact and is the governing law[9].

Governor Jerry Brown announced the creation of the California EcoRestore program in April 2015, committing to restore more than 30,000 acres of Delta habitat, which will be implemented on an accelerated timeline independent of the proposed water conveyance facilities. This comprehensive suite of habitat restoration actions under the California EcoRestore program includes specific targets for floodplain, tidal and sub-tidal, managed wetlands, and fish passage improvements to benefit native fish species and a commitment to adaptive management.

DWR's "The Final State Water Project Delivery Capability Report 2019" (2019 Report), dated August 26, 2020, indicates that there is a 72 percent likelihood (77 percent in the 2017 Final State Water Project Delivery Capability Report) that more than 2,000 thousand acre-feet per year (taf/year) of Table A water will be delivered under current conditions. The 2019 Report incorporated future impacts on water deliveries as a result of climate change and potential limited pumping of the SWP to protect salmon, smelt, and other species in the Sacramento-San Joaquin Delta and Central Valley areas, including operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service (USFWS) in December 2008 and the National Marine Fisheries Service (NMFS) in June 2009 governing the SWP and Central Valley Project (a Federal water storage and conveyance facility) operations. In August 2016, Reclamation and DWR requested reinitiating consultation with the USFWS and the NMFS on long-term operations of the Central Valley Project (CVP) and SWP due to new information and science on declining fish species populations. The USFWS and the NMFS released the "Biological Opinion for the Reinitiation of Consultation on the Coordinated Operations of the CVP and SWP", dated October 2019, included proposed CVP and SWP operations plans. In February 2020, Reclamation approved a Record of Decision regarding modifications to long-term operations of the CVP. The 2019 Report also incorporated DWR operations as a result of the new Incidental Take Permit (ITP) issued by the California Department of Fish and Wildlife to DWR in March 2020. The ITP covers fish species (including the Delta smelt, Longfin smelt,

[9] https://www.deltacouncil.ca.gov/pdf/news-release/2020-08-12-supreme-court-upholds-delta-plan-affirms-council-authority-for-sustainable-management-of-the-delta.pdf

winter-run Chinook salmon and spring-run Chinook salmon) which are subject to incidental take through long-term operation of the SWP. In February 2020, the Bureau of Reclamation released a Record of Decision which identified the following operations:

- Additional pumping curtailments if monitoring and analysis show Delta smelt and salmon are sensitive to the effects of water exports while also allowing for more pumping when species are not present in areas most affected by pumping;
- Provide enhanced cold water management of imperiled winter-run Chinook salmon populations on Battle Creek; and,
- Implement a strategy to supplement Delta smelt in the wild in the next 3 to 5 years.

In April and May of 2019, Governor Gavin Newsom announced a new approach for Delta water conveyance through a single tunnel alternative (to improve delivery reliability) and released Executive Order 10-19 directing state agencies to assess new planning for the single tunnel project (Delta Conveyance Project). DWR subsequently withdrew all project approvals and permit applications for the previously proposed twin tunnels project under the California WaterFix and Bay Delta Conservation Plan (BDCP). DWR released a "Notice of Preparation of Environmental Impact Report for the Delta Conveyance Project" in January 2020 to start planning for the Delta Conveyance Project. DWR also released a scoping summary report in July 2020 and anticipates release of a Public Draft Environmental Impact Report / Environmental Impact Statement for review mid-2022[10].

As discussed previously, on August 17, 2021, MWD's Board of Directors declared a Water Supply Alert on August 17, 2021, calling for consumers and businesses to voluntarily reduce their water use and help preserve the region's storage reserves. In early 2021, the California Department of Water Resources reduced the allocation of supplies delivered on the State Water Project from 10 percent to 5 percent which resulted in MWD receiving about a one-month supply. If dry year conditions continue, SWP allocations in 2022 could be set to zero.

[10] https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Delta-Conveyance/DC_Schedule_August2020_508.pdf?la=en&hash=9069D624DB200C0BC9C8B57BAA51DB7FC3CCB19B

On November 9, 2021, MWD adopted a resolution declaring a Regional Drought Emergency and called upon its Member Agencies to reduce use of SWP supplies. MWD's Member Agencies which depend on the SWP include the Los Angeles Department of Water and Power, Calleguas Municipal Water District, Las Virgenes Municipal Water District, Upper San Gabriel Valley Municipal Water District, Three Valleys Municipal Water District, and IEUA. MWD requested these six agencies to implement actions they deem necessary under their Water Shortage Contingency Plans, including enforcing restrictions limiting outdoor water days and lowering the amount of water allowed under a first-tier price. MWD's resolution also provides MWD's General Manager with authority to take actions needed to address the regional drought emergency, including the following: enhance local water production, recycling, conservation, and storage; purchase, transfer, and exchange water supplies; procure equipment, materials, services, and supplies; and provide media buying and placement services for a water awareness and conservation advertising campaign. MWD also expanded several water saving programs including increased rebates for turf removal and providing additional funding for rebate programs for water-efficient toilets and devices.

As discussed previously, FWC adopted a resolution to approve its 2020 Urban Water Management Plan and Water Shortage Contingency Plan on July 1, 2021. FWC's 2020 Urban Water Management Plan describes FWC's historical and existing water conservation program, the status of implementation of Demand Management Measures, and projected future conservation implementation. FWC's Water Shortage Contingency Plan describes the actions FWC will take to reduced demands or increase supplies under 10, 20, 30, 40, 50 percent, and greater than 50 percent shortage conditions.

Imported Water from SBVMWD

FWC projects receiving up to 3,200 AFY of imported water supplies from SBVMWD. FWC expects to receive greater quantities of SWP water from SBVMWD as population and water use increase in the SBVMWD portion of FWC's service area.

The delivery reliability of SWP water from SBVMWD is similar to the previous discussion of SWP deliveries above. SBVMWD currently has a contractual 'Table A' amount of 102,600 AFY of SWP water. FWC's 2020 UWMP conservatively projects that it will receive up to 3,200 AFY of SWP water from SBVMWD in the next twenty years. Supplies from SBVMWD could be reduced by up to 95 percent in single dry years and up to 78 percent during multiple dry years. SBVMWD anticipates storage of SWP water during normal and wet years for use, along with direct deliveries, during dry years. Imported water provided by SBVMWD will be treated at FWC's Summit Water Treatment Plant, which is discussed in the following section on imported water from IEUA.

Imported Water from IEUA

FWC's upgraded Summit Water Treatment Plant can treat imported water from IEUA and SBVMWD and local surface water from Lytle Creek. The Summit Water Treatment Plant, which has a capacity of up to 29 MGD, includes a 40 cfs connection with IEUA to receive untreated SWP water. FWC's 2020 UWMP conservatively assumed that FWC will receive up to approximately 15,000 AFY of SWP water from IEUA in the next twenty years. Imported water supplies will allow FWC flexibility in managing its water supply sources both short and long term, as well as in normal and dry years. Also, the upgraded Summit Water Treatment Plant allows FWC to treat and maximize the use of SWP supplies and turbid Lytle Creek storm water flows that could not be used in the past.

WATER SUPPLY SUMMARY

Based on the above discussion of the available water supply sources, FWC's water supply-demand balance in normal, single dry, and multiple dry years during the next twenty years are summarized in Tables 11, 12, and 13, respectively.

The Chino Basin is an important source of groundwater for FWC now and will continue to be in the future. In addition, the Chino Basin Watermaster's Optimum Basin Management Program (the Chino Basin Watermaster updated the "Optimum Basin Management Program

Report" in January 2020), including a Storage Management Plan, will greatly increase the Chino Basin's reliability and safe yield through recharge of imported water, additional local storm water, and recycled water. FWC currently has a total pumping capacity from the Chino Basin of approximately 35,000 gpm. At the present time FWC has five inactive wells in the Chino Basin (with a total pumping capacity of approximately 9,500 gpm or 15,300 AFY) which cannot be used because of high levels of perchlorate and nitrate contamination.

FWC is planning to restore most, if not all, of the lost pumping capacity in the Chino Basin through construction of additional wells or installing wellhead treatment on existing wells in the near future. FWC is also planning to replace existing aging and poor producing wells, which will result in a net increase in production over existing capacity. Additional well capacity will provide emergency water supply in case of interruptions of water service due to migration of contamination, loss of power, physical damage to electrical power supply equipment, or failure of a water transmission pipeline.

Tables 11, 12, and 13 show that the water supplies available to FWC will be sufficient to meet all present and future water supply requirements of the Project for the next twenty years (through 2045), including during single and multiple dry years.

TABLE 11 FWC'S FUTURE WATER SUPPLIES IN NORMAL YEARS (AFY)

Year		2025	2030	2035	2040	2045
Demands from 2020 UWMP[1]		**45,593**	**46,909**	**48,665**	**50,442**	**51,943**
Potable Water Demand		44,593	45,409	46,665	47,942	48,943
Recycled Water Demand		1,000	1,500	2,000	2,500	3,000
Total FWC Projected Water Demands[1]		**45,593**	**46,909**	**48,665**	**50,442**	**51,943**
Water Supplies[2]	Surface Water	4,860	4,860	4,860	4,860	4,860
	Lytle Basin	6,390	6,390	6,390	6,390	6,390
	Chino Basin	9,278	9,983	11,128	12,293	13,183
	Rialto Basin/No Man's Land	5,865	5,976	6,087	6,199	6,310
	Recycled Water	1,000	1,500	2,000	2,500	3,000
	Imported Water from SBVMWD	3,200	3,200	3,200	3,200	3,200
	Imported Water from IEUA	15,000	15,000	15,000	15,000	15,000
	Total	**45,593**	**46,909**	**48,665**	**50,442**	**51,943**

Notes:

1) Demand projections reported in adopted FWC 2020 UWMP, Table 4-4. Water demands from the Speedway Commerce Center II Project (Project) are assumed to be included.

2) Water supplies projection reported in adopted FWC 2020 UWMP, Table 6-12

TABLE 12 COMPARISON OF FWC 2025 WATER SUPPLY AND DEMAND IN NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS (AFY) FOR THE PROJECT

Demand and Supply		Normal Year	Single Dry Year [2]	Multiple Dry Years [2]				
				Dry Year 1	Dry Year 2	Dry Year 3	Dry Year 4	Dry Year 5
Demands from 2020 UWMP[1]		**45,593**	**34,006**	**42,886**	**41,415**	**34,074**	**34,006**	**36,526**
Potable Water Demand		44,593	33,006	41,886	40,415	33,074	33,006	35,526
Recycled Water Demand		1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total FWC Projected Water Demands		**45,593**	**34,006**	**42,886**	**41,415**	**34,074**	**34,006**	**36,526**
Water Supplies[3]	Surface Water	4,860	826	826	826	826	826	826
	Lytle Basin	6,390	6,390	4,154	4,154	4,154	4,154	4,154
	Chino Basin	9,278	4,765	15,210	13,738	6,397	6,329	8,849
	Rialto Basin/ No Man's Land	5,865	5,865	5,865	5,865	5,865	5,865	5,865
	Recycled Water	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	Imported Water from SBVMWD	3,200	160	832	832	832	832	832
	Imported Water from IEUA	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	Total	**45,593**	**34,006**	**42,887**	**41,415**	**31,770**	**34,006**	**36,526**

Notes:

1) Demand projections reported in adopted FWC 2020 UWMP, Table 7-4, Table 7-5, and Table 7-6. Water demands from the Speedway Commerce Center II Project (Project) are assumed to be included.

2) Single Dry Year and Multiple Dry Year projections are based on percentage of the Dry Year Demand compared to the Total Normal Year Demand multiplied by the Normal Demand for each Project. Projected water demands are assumed to be included in water demands identified from FWC's 2020 UWMP.

3) Supply projections reported in adopted FWC 2020 UWMP, Table 6-2.

TABLE 13 COMPARISON OF FWC'S 2045 WATER SUPPLY AND DEMAND IN NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS (AFY) FOR THE PROJECT

Demand and Supply		Normal Year	Single Dry Year [2]	Multiple Dry Years [2]				
				Dry Year 1	Dry Year 2	Dry Year 3	Dry Year 4	Dry Year 5
Demands from 2020 UWMP[1]		**51,943**	**38,742**	**48,859**	**47,183**	**38,819**	**38,742**	**41,613**
Potable Water Demand		48,943	35,742	45,859	44,183	35,819	35,742	38,613
Recycled Water Demand		3,000	3,000	3,000	3,000	3,000	3,000	3,000
Total FWC Projected Water Demands		**51,943**	**51,943**	**51,943**	**51,943**	**51,943**	**51,943**	**51,943**
Water Supplies[3]	Surface Water	4,860	826	826	826	826	826	826
	Lytle Basin	6,390	6,390	4,154	4,154	4,154	4,154	4,154
	Chino Basin	13,183	7,056	18,865	17,189	8,825	8,748	11,620
	Rialto Basin/ No Man's Land	6,310	6,310	6,310	6,310	6,310	6,310	6,310
	Recycled Water	3,000	3,000	3,000	3,000	3,000	3,000	3,000
	Imported Water from SBVMWD	3,200	160	704	704	704	704	704
	Imported Water from IEUA	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	Total	**51,943**	**38,742**	**48,859**	**47,183**	**38,819**	**38,742**	**41,613**

Notes:

1) Demand projections reported in adopted FWC 2020 UWMP, Table 7-4, Table 7-5, and Table 7-6. Water demands from the Speedway Commerce Center II Project (Project) are assumed to be included.

2) Single Dry Year and Multiple Dry Year projections are based on percentage of the Dry Year Demand compared to the Total Normal Year Demand multiplied by the Normal Demand for each Project. Projected water demands are assumed to be included in water demands identified from FWC's 2020 UWMP.

3) Supply projections reported in adopted FWC 2020 UWMP, Table 6-2.

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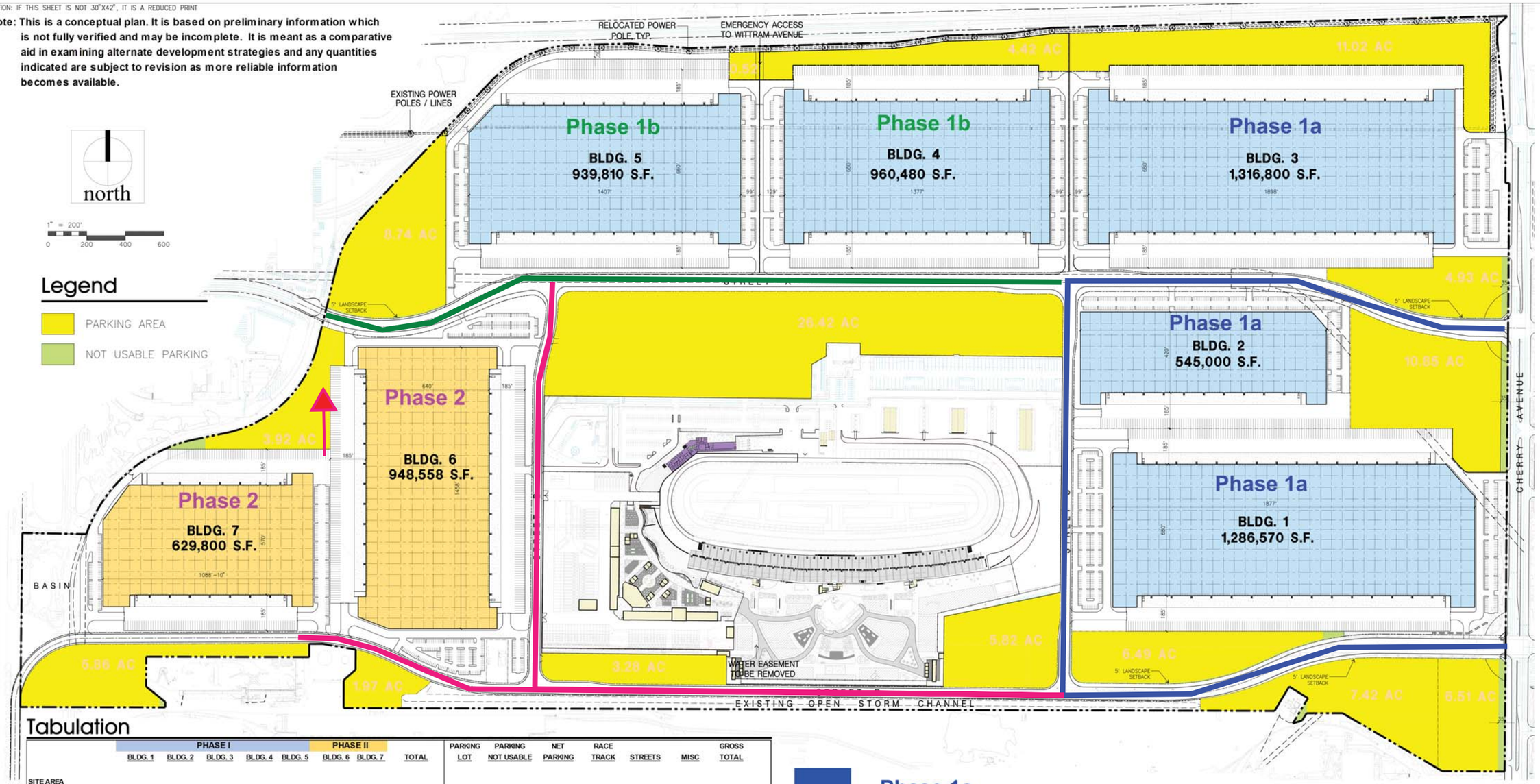
APPENDIX A

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT

Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.



Tabulation

	PHASE I					PHASE II			PARKING	PARKING	NET	RACE			GROSS	
	BLDG. 1	BLDG. 2	BLDG. 3	BLDG. 4	BLDG. 5	BLDG. 6	BLDG. 7	TOTAL	LOT	NOT USABLE	PARKING	TRACK	STREETS	MISC	TOTAL	
SITE AREA																
in square feet (s.f.)	2,315,445	1,001,368	2,310,835	1,707,357	1,770,472	1,819,217	1,321,815	12,246,509	4,642,339	91,485	4,550,854	3,891,589	1,462,987	495,364	22,738,788	s.f.
in acres (AC)	53.16	22.99	53.05	39.20	40.64	41.76	30.34	250.80	106.57	2.10	104.47	89.34	33.59	11.37	522.01	AC
BUILDING AREA																
Office	20,000	10,000	20,000	20,000	20,000	20,000	10,000	120,000								
Warehouse	1,266,570	535,000	1,296,800	940,480	919,810	928,558	619,800	6,507,018								
TOTAL	1,286,570	545,000	1,316,800	960,480	939,810	948,558	629,800	6,627,018							6,627,018	s.f.
PARKING REQUIRED																
Office @ 1/250 s.f.	80	40	80	80	80	80	40	480							480	stalls
Whse: 1st 40K @ 1/1,000	40	40	40	40	40	40	40	280							280	stalls
Above 40K @ 1/4,000	307	124	314	225	220	222	145	1557							1557	stalls
TOTAL	427	204	434	345	340	342	225	2317							2317	stalls
AUTO PARKING PROVIDED																
Standard (9' x 19')	416	324	353	294	235	319	202	2,143							2,143	stalls
TRAILER PARKING PROVIDED																
Trailer (12' x 53')	280	107	292	213	267	205	147	1,511							1,511	stalls

Phase 1a

Phase 1b

Phase 2

Conceptual Site Plan

Speedway Commerce Center

County of San Bernardino, CA

HPA architecture
18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

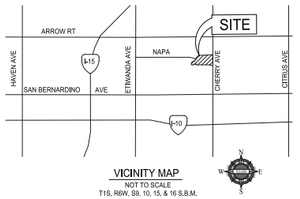
HILLWOOD
A PEROT COMPANY

September 21, 2021 / Job #19318

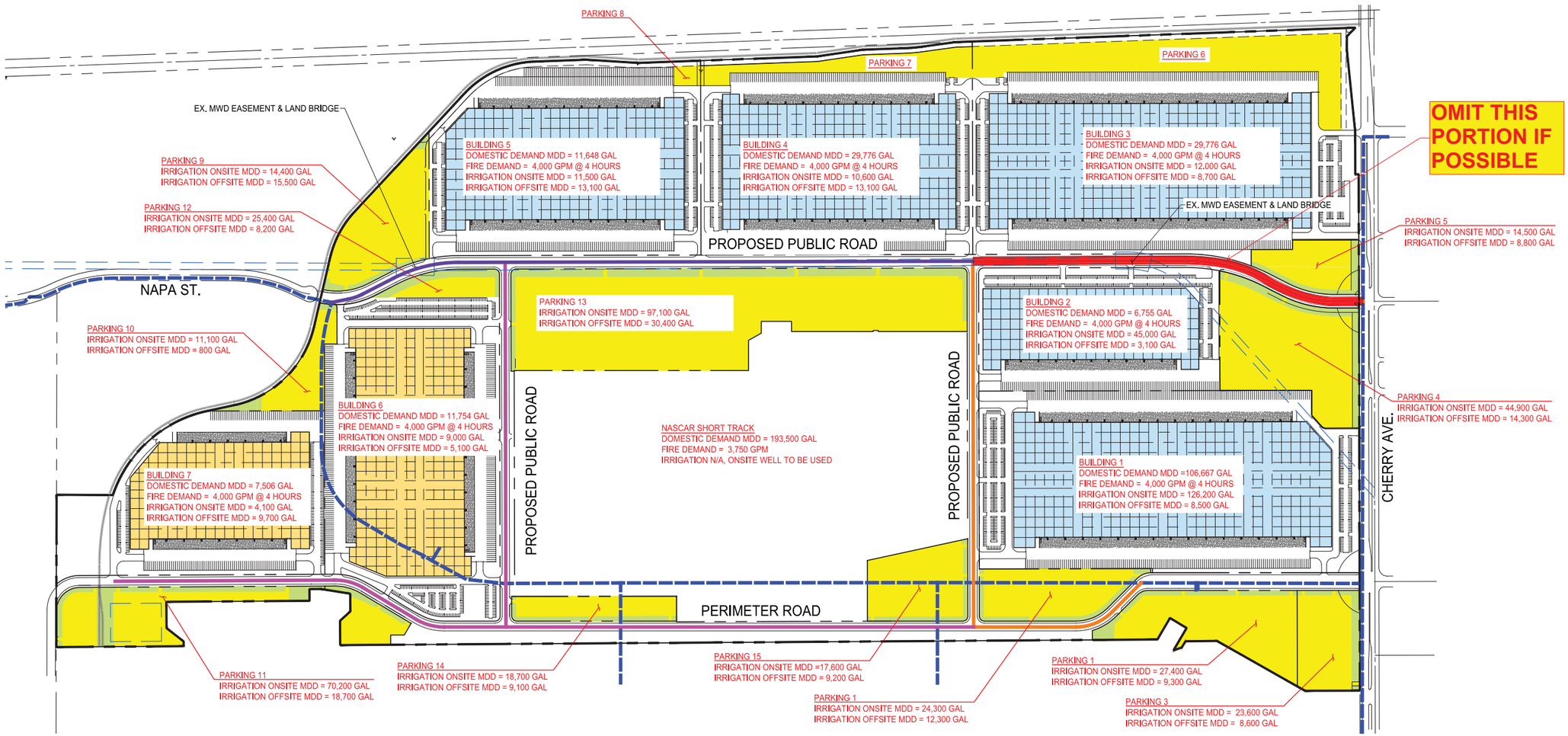
Scheme 22

SPEEDWAY COMMERCE CENTER II

FONTANA WATER COMPANY WSA PHASING AND WATER DEMAND EXHIBIT



VICINITY MAP
NOT TO SCALE
T1S, R6W, S9, 10, 15, & 16 S.B.M.



LEGEND:

- EXISTING FONTANA WATER COMPANY WATERLINE
- PROPOSED PHASE I WATERLINE
- PROPOSED PHASE II WATERLINE
- PROPOSED PHASE III WATERLINE
- PHASE I BUILDING
- PHASE II BUILDING
- PARKING AREAS

ASSUMPTIONS:

PEAK DEMAND = 2.5 x AVERAGE DAILY DEMAND (ADD)
MAXIMUM DAY DEMAND (MDD) = 1.6 x ADD

N
W E
S

1"= 250"
0 250 500 750

PRELIMINARY

SCALE: 1"=250'	ALBERT A. WEBB ASSOCIATES	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE, CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	SPEEDWAY COMMERCE CENTER II COUNTY OF SAN BERNARDINO, CA FONTANA WATER COMPANY – WSA EXHIBIT	W.O. 21-0160 SHEET 1 OF 1 SHEETS DWG. NO.
DATE: 8/26/21				
DESIGNED:				
CHECKED:				
PLN CK REF:				
F.B.				

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APPENDIX B

HISTORY OF TOTAL ANNUAL GROUNDWATER PRODUCTION FROM THE CHINO BASIN (ACRE-FEET)

Production Year	Appropriative Pool[13]	Agricultural Pool[13]	Non-Agricultural Pool[13]	Chino Basin Desalters[14]	Department of Toxic Substances Control[15]	Total Production[16]
77-78	62,408	91,714	10,102 [1]	-	-	164,224
78-79	61,372	81,479	7,263	-	-	150,114
79-80	65,371	70,050	7,541	-	-	142,961
80-81	71,443	67,726	5,777	-	-	144,945
81-82	66,844	64,032	5,801	-	-	136,676
82-83	63,557	56,858	2,448	-	-	122,864
83-84	70,544	60,076	3,258	-	-	133,877
84-85	76,903	54,248	2,446	-	-	133,598
85-86	80,885	50,611	3,255	-	-	134,751
86-87	84,662	57,964	2,696	-	-	145,322
87-88	91,579 [2]	55,949	3,018	-	-	150,545
88-89	93,617 [3]	45,683	3,692	-	-	142,992
89-90	101,344 [4]	47,358	4,927	-	-	153,629
90-91	86,513 [5]	47,011	5,479	-	-	139,003
91-92	91,736 [6]	43,456	4,900	-	-	140,092
92-93	86,584 [7]	44,300	5,226	-	-	136,110
93-94	80,934 [8]	44,492	4,322	-	45	129,793
94-95	93,608 [9]	55,415	4,091	-	45	153,159
95-96	103,729 [10]	43,639	3,240	-	60	150,668
96-97	112,205	44,923	3,779	-	76	160,983
97-98	99,810 [11]	43,370	3,274 [12]	-	83	146,537
98-99	111,048	47,792	3,734	-	81	162,655
99-00	128,892	44,242	5,605	-	82	178,821
00-01	116,204	39,285	5,991	7,989	100	169,570
01-02	123,531	38,196	4,150	9,458	81	175,416
02-03	121,748	35,168	3,979	10,439	79	171,413
03-04	125,320	38,192	2,057	10,605	79	176,253
04-05	118,030	31,505	2,246	9,854	81	161,715
05-06	107,249	30,253	2,641	16,542	80	156,765
06-07	119,438	29,653	3,251	27,077	79	179,498
07-08	120,650	23,539	3,421	30,121	81	177,813
08-09	134,119	23,277	2,420	29,012	83	188,910
09-10	117,299	21,043	2,039	28,857	85	169,323
10-11	99,172	21,030	1,986	29,043	87	151,319
11-12	93,615	22,319 [17]	3,162	28,411	89	147,595
12-13	109,294	23,718 [17]	3,686	27,098	87	163,883
13-14	113,976	21,796 [17]	3,834	29,282	85	168,973
14-15	97,842	17,118 [17]	3,371	30,022	84	148,436
15-16	100,297	17,109 [17]	2,670	28,191	85	148,352
16-17	93,699	17,715 [17]	3,636	28,284	104	143,438
17-18	88,740	18,827	2,919	30,088	83	140,656
18-19	83,280	15,478	3,204	31,233	80	133,275
19-20	95,418	15,722	2,350	35,630	72	149,190

* Total Production adjusted from prior annual reports to include previously omitted production from wells that have become non-active over time.

[1] Includes 3,945 AF of mined water pumped by Edison as agent for IEUA.
[2] Does not include 7,674.3 AF exchanged with MWDSC.
[3] Does not include 6,423.6 AF exchanged with MWDSC.
[4] Does not include 16,377.1 AF exchanged with MWDSC.
[5] Does not include 14,929.1 AF exchanged with MWDSC.
[6] Does not include 12,202.4 AF exchanged with MWDSC.
[7] Does not include 13,657.3 AF exchanged with MWDSC.
[8] Does not include 20,194.7 AF exchanged with MWDSC.
[9] Does not include 4,221.9 AF exchanged with MWDSC.
[10] Does not include 6,167.2 AF exchanged with MWDSC.
[11] Does not include 4,275.4 AF exchanged with MWDSC.
[12] Does not include 216.5 AF exchanged with MWDSC.
[13] Represents total physical production by Pools, not assessed production.
[14] Production by the Chino Basin Desalters is not considered assessable production; Desalter replenishment obligation accounting is shown in the Assessment Package.
[15] Production by DTSC is accounted separately, by agreement, such that the production is not assessed by Watermaster.
[16] Total reflects physical production by pumpers and does not account for any adjustments that are made in the Assessment Packages.
[17] Total Agricultural Pool production revised due to incorrect multiplier used on an irrigation well meter.

APPENDIX K

Acoustical Assessment
Speedway Commerce Center II Specific Plan Project
San Bernardino County, California

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LIST OF ABBREVIATED TERMS

APN	Assessor's Parcel Number
ADT	average daily traffic
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CSMA	California Subdivision Map Act
CNEL	community equivalent noise level
L_{dn}	day-night noise level
dB	decibel
du/ac	dwelling units per acre
L_{eq}	equivalent noise level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	heating ventilation and air conditioning
Hz	hertz
in/sec	inches per second
L_{max}	maximum noise level
µPa	micropascals
L_{min}	minimum noise level
PPV	peak particle velocity
RMS	root mean square
VdB	vibration velocity level

1 INTRODUCTION

This report documents the results of an Acoustical Assessment completed for the Speedway Commerce Center II Specific Plan Project (Project). The purpose of this Acoustical Assessment is to evaluate the potential construction and operational noise and vibration levels associated with the Project and determine the level of impact the Project would have on the environment.

1.1 Project Location

The Project site is in an unincorporated area of southwestern San Bernardino County and within the City of Fontana Sphere of Influence (SOI). The Project site is approximately 40 miles east of downtown Los Angeles, 20 miles west of downtown San Bernardino, and 30 miles northeast of central Orange County. The approximately 522.30-acre site is located north of the San Bernardino Freeway (I-10) and San Bernardino Avenue and is bounded by Cherry Avenue to the east, the Burlington Northern and Santa Fe (BNSF) Railroad to the north, the West Valley Materials Recycling Facility to the west, and California Steel Industries to the south.

The City of Fontana is located to the north, east, and south of the site. The City of Rancho Cucamonga is located to the west and northwest and the City of Ontario is located to the southwest, as shown in Exhibit 1: Regional Vicinity and Exhibit 2: Site Vicinity.

1.2 Project Description

The Project encompasses approximately 433 acres of the approximately 522-acre site that is currently developed with the Auto Club Speedway (ACS), formerly known as the California Speedway, in the County. The Project proposes conceptual land uses that include, but are not limited to, approximately 6.6 million square feet of high cube warehouse and e-commerce uses with approximately 12 acres (261,000 sf) of accessory commercial uses. The Project site would also be developed with greenbelts, public roads, other support amenity features, and water detention areas. The Project would surround the separate Next Gen in California Project, which was approved by the County on June 7, 2021; see Exhibit 3: Conceptual Site Plan. Construction of the Project, including recordation of final subdivision map(s) and design review may be progressively implemented in stages, provided that vehicular access, public facilities, and infrastructure are constructed to adequately service the development, or as needed for public health and safety. However, the actual phasing sequence and time-frame may vary depending on market conditions.

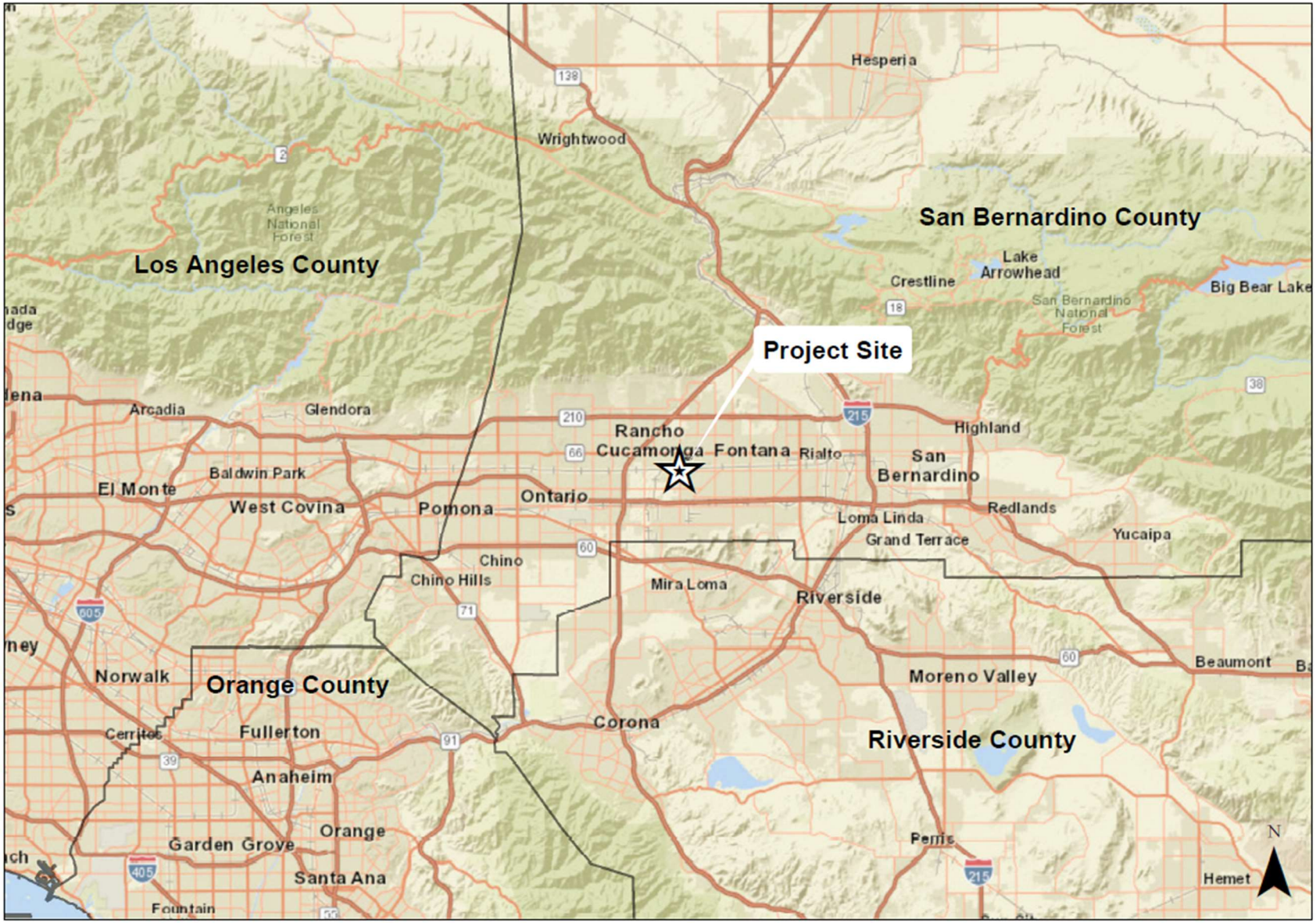
The current county land use category is C-Commercial and the zoning for the Project site is SD-COM-Special Development-Commercial. Table 1: Proposed Land Uses shows the summary of the proposed land uses and attributed areas. Parking would be scattered throughout the site and located on the north, west, east, south, and center portions of the Project site. The proposed Project would dedicate 78.5 acres to Parking Fields/Drop Lots.

Table 1: Proposed Land Uses

Land Use	Speedway Commerce SP	Planning Area(s)
Warehouse	281.5 acres/approximately 6.6 million sq.ft.	PA 1a, PA 2a, PA 3a and PA 4a
Accessory Commercial	30[1] acres/261,360 sq.ft.	PA 5a, PA 1c, PA 2c
Parking Field/Drop Out	78.5 acres	PA 1b, PA 2b, PA 3b, PA 4c, PA 5b, PA 6a, PA 6b, PA 6c
Open Space/Basin	9 acres	PA 4b and PA 5c
Public Right-of-Way	33.5 acres	NA
Total	432.5 acres	NA

Source: Kimley-Horn. 2021, *Speedway Commerce Center II Specific Plan*, Table 3-1: Land Use, 2021.
1. Includes approximately 23.5 acres of parking field/drop lot. Total potential parking/drop lot areas is 101 acres.

Exhibit 1: Regional Vicinity



Source: ESRI World Street Map

Exhibit 2: Site Vicinity

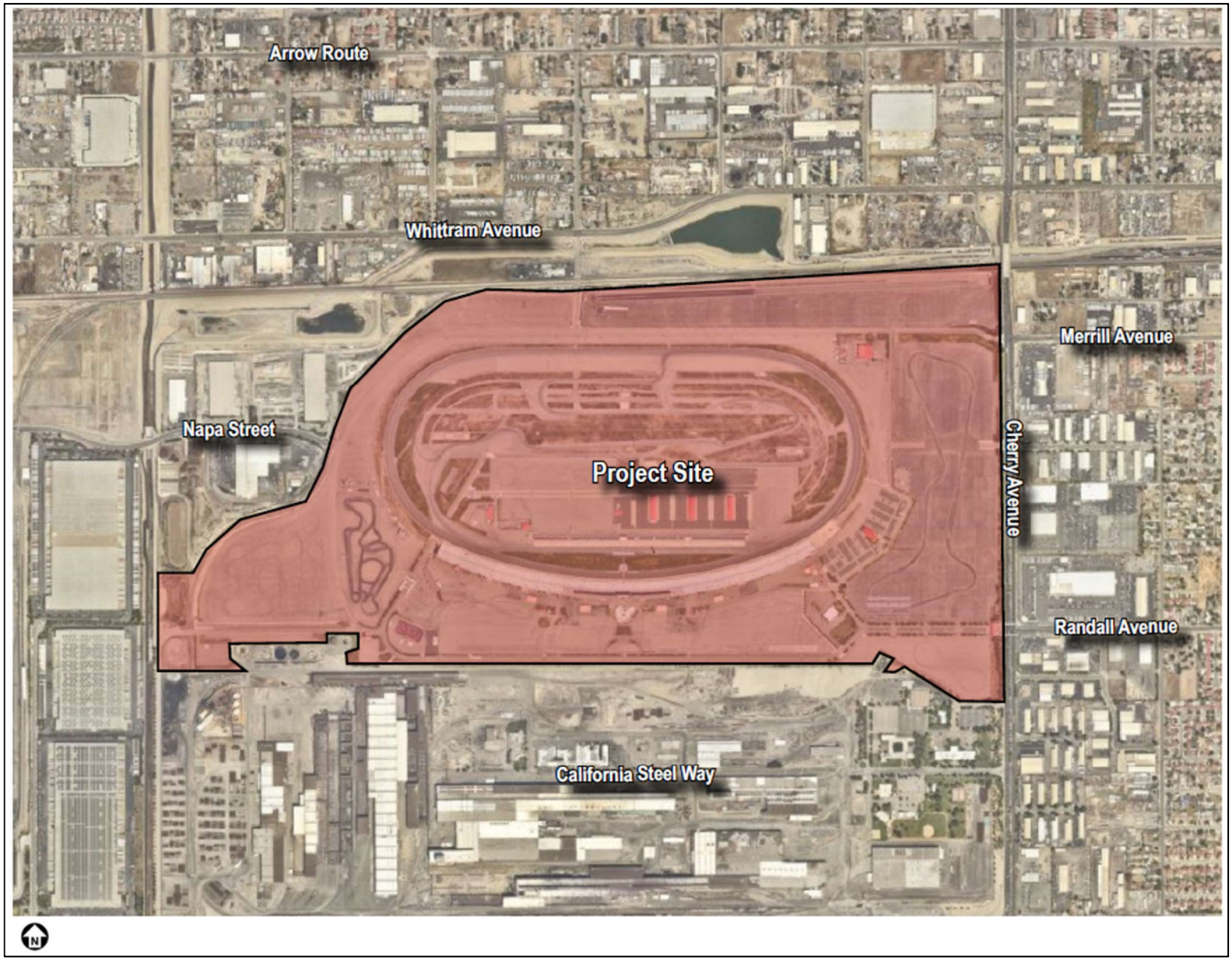
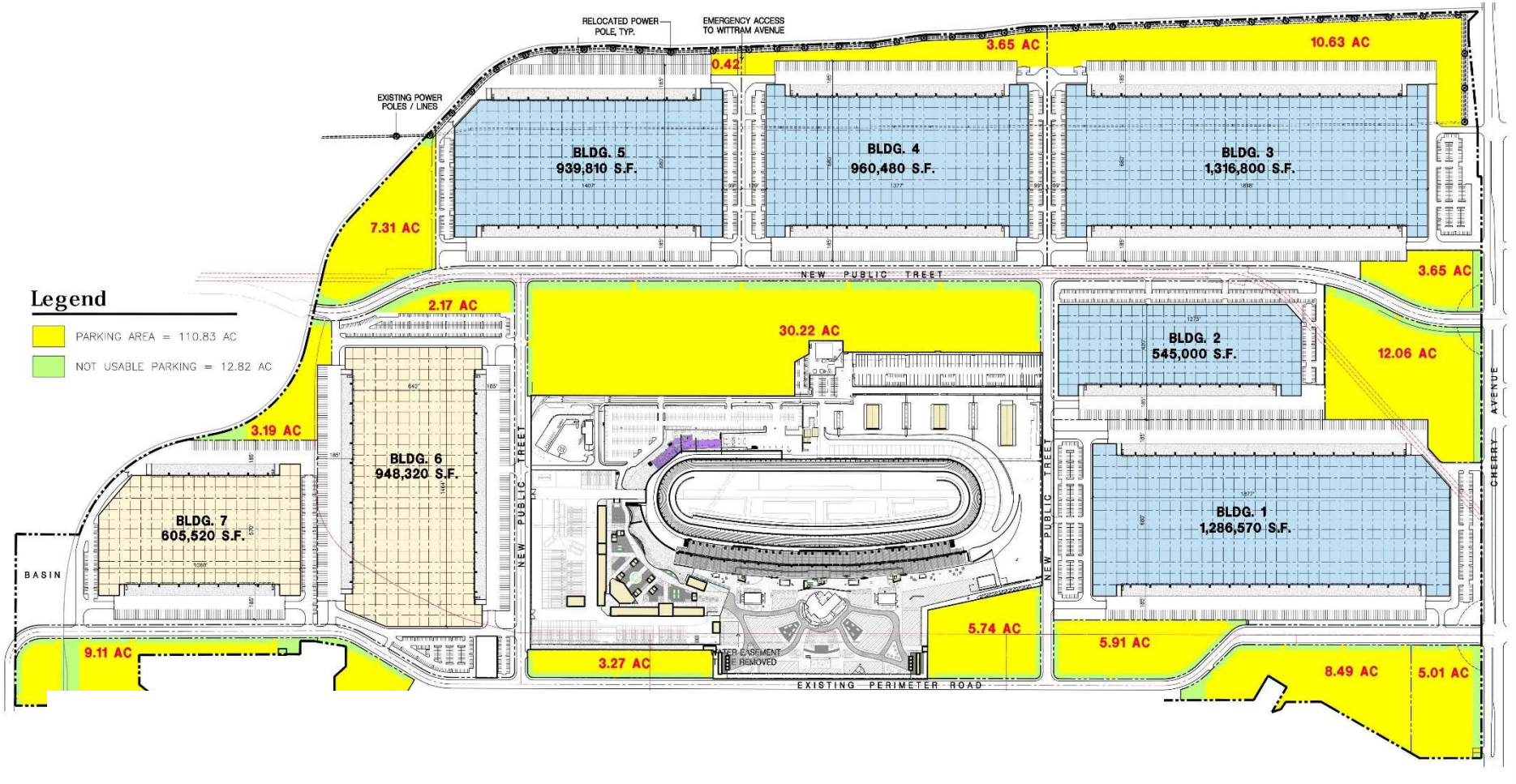


Exhibit 3: Conceptual Site Plan



2 ACOUSTIC FUNDAMENTALS

2.1 Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. In acoustics, the fundamental model consists of a noise source, a receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (µPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. Table 2: Typical Noise Levels provides typical noise levels.

Table 2: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**– 70 –**	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	**– 60 –**	
		Large business office
Quiet urban daytime	**– 50 –**	Dishwasher in next room
Quiet urban nighttime	**– 40 –**	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	**– 0 –**	Lowest threshold of human hearing

Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. While the equivalent noise level (L_{eq}) represents the continuous sound pressure level over a given time period, the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Each is applicable to this analysis and defined in Table 3: Definitions of Acoustical Terms.

Table 3: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in µPa (or 20 micronewtons per square meter), where 1 pascals is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 µPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01}, L_{10}, L_{50}, L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5 dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound (L_{eq}) or the statistical behavior of the variations (L_{xx}) must be utilized. The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dB. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on various factors, such as the distance between the receptor and the noise source, character of the ground surface (e.g., hard or soft), and the presence or absence of structures (e.g., walls or buildings) or topography and how well inputs in the model reflect these conditions present in the local setting.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10.[1] When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound.[2] When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3dBA higher than one source under the same conditions. Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.[3]

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source.[4] Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics.[5] No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed when soft ground conditions exist between the source and receptor locations.[6] For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed in this report.

[1] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.
[2] *Noise Sources and Their Effects,* https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm, accessed April 12, 2022.
[3] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.
[4] Ibid.
[5] Ibid.
[6] Federal Highway Administration, *FHWA Traffic Noise Model User's Guide*, January 1998.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 15 dBA.[7] The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA.[8] Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted:[9]

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where

[7] Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.
[8] Compiled from James P. Cowan, *Handbook of Environmental Acoustics,* 1994, and Cyril M. Harris, *Handbook of Noise Control*, 1979.
[9] Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and Federal Highway Administration, *Noise Fundamentals,* 2017.

hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.[10]

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance[11].

2.2 Groundborne Vibration

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave and is expressed in terms of inches-per-second (in/sec). The RMS velocity is defined as the average of the squared amplitude of the signal and is expressed in terms of velocity decibels (VdB). The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 4: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

[10] U.S. Department of Labor, Occupational Safety and Health Standards, *29 CFR 1910* (Occupational Noise Exposure).
[11] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

Table 4: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations

Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.01	Barely Perceptible	--	--
0.04	Distinctly Perceptible	--	--
0.1	Strongly Perceptible	Fragile buildings	--
0.12	--	--	Buildings extremely susceptible to vibration damage
0.2	--	--	Non-engineered timber and masonry buildings
0.25	--	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	Severe	--	--
0.5	--	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)

PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration

Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020 and Federal Transit administration, *Transit Noise and Vibration Assessment Manual*, 2018.

3 REGULATORY SETTING

To limit population exposure to physically or psychologically damaging as well as intrusive noise levels, the Federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

3.1 State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.2 Local

County of San Bernardino Countywide Policy Plan

The County of San Bernardino Countywide Policy Plan contains the following goals and policies that address noise as part of the Hazards Element:

Goal HZ-2: People and the natural environment protected from exposure to hazardous materials, excessive noise, and other human-generated hazards.

Policy HZ-2.6: **Coordination with transportation authorities**. We collaborate with airport owners, FAA, Caltrans, SBCTA, SCAG, neighboring jurisdictions, and other transportation providers in the preparation and maintenance of, and updates to transportation-related plans and projects to minimize noise impacts and provide appropriate mitigation measures.

Policy HZ-2.7: **Truck delivery areas**. We encourage truck delivery areas to be located away from residential properties and require associated noise impacts to be mitigated.

Policy HZ-2.8: **Proximity to noise generating uses**. We limit or restrict new noise sensitive land uses in proximity to existing conforming noise generating uses and planned industrial areas.

Policy HZ-2.9: **Control sound at the source**. We prioritize noise mitigation measures that control sound at the source before buffers, soundwalls, and other perimeter measures.

San Bernardino County Code of Ordinances

The San Bernardino County Code of Ordinances (San Bernardino County Code) establishes the following noise provisions that are relevant to the Project:

Section 83.01.080 Noise

(c) Noise Standards for Stationary Noise Sources

(1) *Noise Standards.* Table 5: Noise Standards for Stationary Noise Sources describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 5: Noise Standards for Stationary Noise Sources

Affected Land Uses (Receiving Noise)	7:00 a.m. – 10 p.m. L_{eq}	10:00 p.m. – 7:00 a.m. L_{eq}
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)
L_{eq} = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.		
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.		
L_{dn} = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way L_{dn} takes into account the lower tolerance of people for noise during nighttime periods.		
Source: County of San Bernardino, *San Bernardino County, CA Code of Ordinances*, current through Ord. 4424, December 14, 2021.		

(2) *Noise Limit Categories.* No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Subdivision (b) (Noise-Impacted Areas), above, for a cumulative period of more than 30 minutes in any hour.
(B) The noise standard plus five dB(A) for a cumulative period of more than 15 minutes in any hour.
(C) The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour
(D) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

(E) The noise standard plus 20 dB(A) for any period of time.

(d) Noise Standards for Adjacent Mobile Noise Sources

Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 6: Noise Standards for Stationary Noise Sources.

Table 6: Noise Standards for Adjacent Mobile Noise Sources

Land Use		L_{dn} (or CNEL) dB(A)	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single and multi-family, duplex, mobile homes	45	60[3]
Commercial	Hotel, motel, transient housing	45	60[3]
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:
1. The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.
2. The outdoor environment shall be limited to:
   - Hospital/office building patios
   - Hotel and motel recreation areas
   - Mobile home parks
   - Multi-family private patios or balconies
   - Park picnic areas
   - Private yard of single-family dwellings
   - School playgrounds
3. An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.
4. CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

Source: County of San Bernardino, *San Bernardino County, CA Code of Ordinances*, current through Ord. 4424, December 14, 2021.

(e) Increases in Allowable Noise Levels

If the measured ambient level exceeds any of the first four noise limit categories in Subdivision (d)(2), above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subdivision (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

(f) Reductions in Allowable Noise Levels.

If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 8 (Noise Standards for Stationary Noise Sources) (Table 5) shall be reduced by five dB(A).

(g) Exempt Noise.

The following sources of noise shall be exempt from the regulations of this Section:

(1) Motor vehicles not under the control of the commercial or industrial use.

(2) Emergency equipment, vehicles, and devices.

(3) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(h) Noise Standards for Other Structures.

All other structures shall be sound attenuated against the combined input of all present and projected exterior noise to not exceed the criteria (see Table 7: Noise Standards for Other Structures).

Table 7: Noise Standards for Other Structures

Typical Uses	12-Hour Equivalent Sound Level (Interior) in dBA L_{dn}
Educational, institutions, libraries, meeting facilities, etc.	45
General office, reception, etc.	50
Retail stores, restaurants, etc.	55
Other areas for manufacturing, assembly, testing, warehousing, etc.	65

Source: County of San Bernardino, *San Bernardino County, CA Code of Ordinances*, current through Ord. 4424, December 14, 2021.

In addition, the average of the maximum levels on the loudest of intrusive sounds occurring during a 24-hour period shall not exceed 65 dBA interior.

Section 83.01.090 Vibration

(a) Vibration Standard. No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths inches per second measured at or beyond the lot line.

(b) Vibration Measurement. Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line next to a parcel within a residential, commercial and industrial land use zoning district.

(c) Exempt Vibrations. The following sources of vibration shall be exempt from the regulations of this Section.

(1) Motor vehicles not under the control of the subject use.

(2) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

Auto Club Speedway Revised Noise Standards

The *Auto Club Speedway Revised Noise Standards Draft Recirculated Subsequent Environmental Impact Report* (March 2010) analyzed impacts associated with the proposed relocation of the drag strip (Revision 9) and the revised noise standards for the ACS. The proposed noise standards replaced the then-existing noise standard applicable to the Speedway, as evaluated in the 1995 Final EIR and applied under the Planned Development. Revision 11 established a noise standard of 85 dBA L_{max} as measured at 550 feet from the Speedway property line for standard operating days (330 days annually), and 100 dBA L_{max}, at 550 feet from the property line of the Speedway for the remaining 35 days of the year. The standards apply to all permitted activities at the ACS, including racing in the oval and drag strip, speaker amplification, and crowd noise. The Revision 11 noise standard was designed to protect sensitive receptors, as it meets U.S. EPA noise criteria for hearing loss and required monitoring at a set distance of 550 feet from the Speedway (20 feet south of the nearest residence) to monitor compliance. Noise levels exceeding 100 dBA L_{max} would be allowed for a total of 35 days per year annually to be scheduled in advance with the County.

4 EXISTING CONDITIONS

4.1 Existing Noise Sources

The Project site is impacted by various noise sources. Mobile sources of noise, especially cars, trucks, and trains are the most common and significant sources of noise. Other noise sources are the various land uses (i.e., residential, commercial, and industrial) throughout the Project area that generate stationary-source noise.

Mobile Sources

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the Project's Transportation Impact Study (Kimley-Horn, 2021). The noise prediction model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (also referred to as energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data indicates that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along roadway segments in proximity to the Project site are included in Table 8: Existing Traffic Noise Levels.

Table 8: Existing Traffic Noise Levels

Roadway	Segment	ADT	dBA CNEL 100 Feet from Roadway Centerline
Highland Avenue	West of Beech Avenue	7,100	61.7
	Beech Avenue to Citrus Avenue	10,050	63.1
	Citrus Avenue to Sierra Avenue	14,370	64.8
Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	20,200	67.4
	I-15 SB Ramps to I-15 NB Ramps	23,960	68.9
	I-15 NB Ramps to Cherry Avenue	23,530	67.2
	Cherry Avenue to Beech Avenue	24,070	67.2
	Beech Avenue to Citrus Avenue	18,380	66.1
	Citrus Avenue to Sierra Avenue	16,120	65.5
Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	38,120	70.4
	I-15 NB Ramps to Etiwanda Avenue	28,360	69.1
	Etiwanda Avenue to Beech Avenue	21,620	67.8
	Cherry Avenue to Beech Avenue	21,440	67.8
	Beech Avenue to Citrus Avenue	22,540	66.7
	Citrus Avenue to Sierra Avenue	19,880	66.2
Arrow Route	Milliken Avenue to Etiwanda Avenue	19,980	67.3
	Etiwanda Avenue to Cherry Avenue	14,740	64.8
	Cherry Avenue to Beech Avenue	15,380	65.0
	Beech Avenue to Citrus Avenue	13,760	64.5
	Citrus Avenue to Sierra Avenue	13,950	62.2
Merrill Avenue	Cherry Avenue to Beech Avenue	6,610	60.1
	Beech Avenue to Citrus Avenue	7,730	60.8
	Citrus Avenue to Sierra Avenue	10,520	62.2
Randall Avenue	Cherry Avenue to Beech Avenue	5,680	59.5
	Beech Avenue to Citrus Avenue	4,260	58.2

Table 8: Existing Traffic Noise Levels

Roadway	Segment	ADT	dBA CNEL 100 Feet from Roadway Centerline
	Citrus Avenue to Sierra Avenue	6,540	60.1
Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	23,700	72.3
	I-15 NB Ramps to Etiwanda Avenue	15,160	69.2
	Etiwanda Avenue to Commerce Drive	10,580	68.4
	Commerce Drive to Cherry Avenue	16,810	70.5
	Cherry Avenue to Beech Avenue	11,030	66.0
	Beech Avenue to Citrus Avenue	8,630	64.9
	Citrus Avenue to Sierra Avenue	10,700	65.9
Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	19,260	70.9
	Cherry Avenue to Beech Avenue	17,240	70.4
Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	10,290	66.6
	Foothill Boulevard to Arrow Route	13,920	68.7
	Arrow Route to San Bernardino Avenue / Fourth Street	15,770	70.0
	San Bernardino Avenue / Fourth Street to Valley Boulevard	17,010	69.7
	Valley Boulevard to I-10 WB Ramps	22,920	71.2
	I-10 WB Ramps to I-10 EB Ramps	23,800	71.2
Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	15,450	69.0
	SR-210 EB Ramps to Baseline Avenue	19,040	69.3
	Baseline Avenue to Foothill Boulevard	21,090	70.0
	Foothill Boulevard to Arrow Route	19,940	68.8
	Arrow Route to Whittram Avenue	21,800	69.2
	Whittram Avenue to Merrill Avenue	24,510	69.5
	Merrill Avenue to Randall Avenue	23,490	71.2
	Randall Avenue to San Bernardino Avenue	23,890	71.4
	San Bernardino Avenue to Valley Boulevard	20,230	70.5
	Valley Boulevard to I-10 WB Ramps	30,560	72.7
	I-10 WB Ramps to I-10 EB Ramps	33,470	72.9
	I-10 EB Ramps to Slover Avenue	27,850	71.6
	South of Slover Avenue	18,610	69.4
Beech Avenue	Highland Avenue to Baseline Avenue	10,090	62.1
	Foothill Boulevard to Arrow Route	3,760	57.7
	Arrow Route to Merrill Avenue	7,810	60.9
	Merrill Avenue to Randall Avenue	5,310	59.2
	Randall Avenue to San Bernardino Avenue	4,230	58.2
	San Bernardino to Valley Boulevard	3,170	56.9
Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	24,020	70.1
	SR-210 EB Ramps to Baseline Avenue	23,070	65.7
	Baseline Avenue to Foothill Boulevard	17,450	64.4
	Foothill Boulevard to Arrow Route	19,000	64.8
	Arrow Route to Merrill Avenue	21,700	64.1
	Merrill Avenue to Randall Avenue	17,620	63.2
	Randall Avenue to San Bernardino Avenue	16,910	64.3
	San Bernardino Avenue to Valley Boulevard	18,590	65.9
	Valley Boulevard to I-10 WB Ramps	27,620	67.8
	I-10 WB Ramps to I-10 EB Ramps	23,150	67.0

Table 8: Existing Traffic Noise Levels

Roadway	Segment	ADT	dBA CNEL 100 Feet from Roadway Centerline
Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	27,580	70.0
	SR-210 EB Ramps to Highland Avenue	36,110	70.2
	Highland Avenue to Baseline Avenue	24,910	68.5
	Baseline Avenue to Foothill Boulevard	18,930	64.8
	Foothill Boulevard to Arrow Route	18,380	62.5
	Arrow Route to Merrill Avenue	17,470	62.3
	Merrill Avenue to Randall Avenue	20,390	65.2
	Randall Avenue to San Bernardino Avenue	21,450	65.4
	San Bernardino Avenue to Valley Boulevard	29,530	66.9
	Valley Boulevard to I-10 Ramps	47,340	68.0

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Based on traffic data within the *Speedway Commerce Center II Specific Plan Project Traffic Impact Study*, prepared by Kimley-Horn, 2021. Refer to Appendix B for traffic noise modeling assumptions and results.

As depicted in Table 8, the existing traffic-generated noise levels on Project-vicinity roadways currently ranges from 56.9 dBA CNEL to 72.9 dBA CNEL 100 feet from the centerline. As previously described, CNEL is 24-hour average noise level with a 5 dBA "weighting" added to the hourly average noise levels (L_{eq}) during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to the hourly L_{eq} noise levels during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Stationary Sources

The nearest stationary noise sources in the Project vicinity include mechanical equipment and operational activities at the industrial uses surrounding the Project site. Noise sources from industrial uses typically include mechanical equipment such as heating, ventilation, and air conditioning (heating, ventilation, and air conditioning [HVAC]) units, pneumatic tools, idling trucks, loading/unloading activities, and on-site vehicles (e.g., forklifts), among others. Other sources of stationary noise include freight rail operations and maintenance at the industrial uses to the north, south, and west of the Project site. The noise associated with these sources may represent a single-event noise occurrence or short-term noise.

Auto Club Speedway Race Event Noise

As noted above, the Auto Club Speedway (ACS) is centered along the south portion of the Specific Plan area. The ACS hosts various racing events annually, some of which produce high noise levels and are the dominant noise source in the Project area during such events. For example, noise measurements taken during a NASCAR race at the 2-mile ACS oval show that those events can generate noise levels up to 85 dBA L_{max} approximately 550 feet from the ACS property line.[12] For the approved but not yet constructed Next Gen motorsports facility, noise levels would be required to adhere to current ACS noise limits. According to noise measurement data obtained by Kimley-Horn at a racetrack similarly configured to the

[12] See 2010 Recirculated Subsequent EIR, Auto Club Speedway; 2021 Next Gen In California Addendum. The ACS noise standard also permits noise levels to exceed 100 dBA L_{max} as measured 550 feet from the property line on 35 days annually to be scheduled in advance with the County, with the amount of noise in excess of 85 dBA L_{max} on any single day limited to a maximum of 60 minutes and at varying increments of noise levels above 85 dBA L_{max}. The latter standard was intended to apply to drag strip operations at the ACS.

proposed Next Gen facility and modeled to estimate noise levels for the new track, NASCAR race events at the Next Gen facility would not exceed 85 dBA L_{max} as measured 550 feet from the ACS property line.[13], but can generate noise levels up to approximately 117 dBA L_{max} at a distance of 50 feet. Although race events are high producers of noise, they occur infrequently and do not represent daily baseline ambient noise levels for the Project area.

4.2 Noise Measurements

The Project site is currently occupied by the Auto Club Speedway. To quantify existing ambient noise levels in the Project area, Kimley-Horn conducted seven short-term noise measurements on December 1, 2021; see Appendix A: Existing Ambient Noise Measurements. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. The 10-minute measurements were taken between 9:08 a.m. and 11:15 a.m. Measurements of L_{eq} are considered representative of the noise levels in the Project area, as noise-generating activities at the surrounding land uses are consistent throughout the day and do not vary by time period. The average noise levels and sources of noise measured at each location are listed in Table 9: Existing Noise Measurements and shown on Exhibit 4: Noise Measurement Locations.

Table 9: Existing Noise Measurements

Site	Location	Date	Time	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
1	Southern side of Arrow Route, south of the southernmost end of Gallup Court	12/1/2021	9:08 a.m.	73.4	53.4	86.9
2	Eastern side of Calabash Avenue, adjacent to the southern property line of 8695 Calabash Avenue	12/1/2021	9:28 a.m.	60.4	45.4	82.0
3	Northeast corner of the Arrow Route and Almond Avenue intersection	12/1/2021	9:45 a.m.	73.4	53.9	94.5
4	Western side of Redwood Avenue, north of the Pine Avenue and Redwood Avenue intersection	12/1/2021	10:06 a.m.	62.4	44.4	79.9
5	Eastern side of Live Oak Avenue, across the street from Live Oak Elementary School	12/1/2021	10:24 a.m.	61.9	45.1	74.5
6	Northern side of El Molino Street, north of 9881 Cherry Avenue	12/1/2021	10:46 a.m.	60.1	53.9	80.3
7	Eastern side of Calabash Avenue, west of IAA Vehicle Purchasing	12/1/2021	11:05 a.m.	61.5	51.9	73.7

Source: Noise measurements taken by Kimley-Horn, December 1, 2021. See Appendix A for noise measurement results.

[13] Based on noise measurements conducted by Kimley-Horn and Associates at Martinsville Speedway on June 10, 2020. See 2021 Next Gen In California Addendum.

Exhibit 4: Noise Measurement Locations



4.3 Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise sensitive uses typically include residences, hospitals, schools, childcare facilities, and places of assembly. Vibration sensitive receivers are generally similar to noise sensitive receivers but may also include businesses, such as research facilities and laboratories that use vibration-sensitive equipment. The Project site is primarily surrounded by railroad infrastructure to the north of the Project site as well as truck/trailer storage warehousing, manufacturing, offices, and single-family residential units. Service garage, light industrial, and office land uses are present immediately south of the Project site. Warehousing, truck leasing, automotive dealers, and single-family residential units are located east of the Project site. Finally, warehousing, distribution, and logistics land uses as well as the San Sevaine Channel are located west of the Project site. Sensitive land uses nearest to the Project are listed in Table 10: Sensitive Receptors.

Table 10: Sensitive Receptors[1]

Receptor Description	Distance and Direction from the Project (Measured from the Nearest Property Lines)
Single-family Residences	410 feet to the east
Single-family Residences	540 feet to the north
Single-family Residences	675 feet to the east
Paduma Monastery	1,100 to the north
Single-family Residences	1,300 feet to the east
Redwood Elementary School	1,370 feet to the northeast
Single-family Residences	1,800 feet to the north
Living Waters Ministry Church of God in Christ	2,000 feet to the north
Single-family Residences	2,100 feet to the north

Notes:
1. Distances measured from the nearest Project site boundary to the property boundary of the identified sensitive receptor.

Source: Google Earth, 2021.

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA Thresholds

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains analysis guidelines related to noise impacts. These guidelines have been used by the County to develop thresholds of significance for this analysis. A project would create a significant environmental impact if it would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

5.2 Methodology

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). Construction noise is assessed in dBA L_{eq}. This unit is appropriate because L_{eq} can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period.

Construction noise modeling was conducted using the FHWA Roadway Construction Noise Model (RCNM). Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise.

For the purposes of analyzing construction noise, the construction activities for the e-commerce, high-cube logistics, and ancillary commercial uses were modeled in four separate phases (Phase 1a, Phase 1b, Phase 2, and Commercial) to be developed successively over four years. Construction was modeled generally according to the following timeline:

- Phase 1a (Buildings 1 through 3): Commence in 2023 with a 12-month duration.
- Phase 1b (Buildings 4 and 5): Commence in 2024 with a 12-month duration.
- Phase 2 (Buildings 6 and 7): Commence in 2025 with a 12-month duration.
- Commercial Parcel: Commence in 2026 with an 11-month duration.

Operations

The analysis of the Without Project and With Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels are collected from field noise measurements and other published sources from similar types of activities and are used to estimate noise levels expected from the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise level from stationary sources can vary throughout the day. Operational noise is evaluated based on the standards within the County's Noise Ordinance and General Plan. The Without Project and With Project traffic noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108).

Vibration

Groundborne vibration levels associated for the Project's construction-related activities were evaluated by utilizing typical groundborne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential groundborne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and reference vibration levels from the FTA.

For a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any vibration damage. FTA guidelines show that modern engineered buildings built with reinforced-concrete, steel or timber can withstand vibration levels up to 0.50 in/sec and not experience vibration damage. The Caltrans 2020 *Transportation and Construction Vibration Guidance Manual* identifies the vibration threshold for human annoyance: vibrations levels of 0.1 in/sec begin to cause annoyance and levels of 0.2 in/sec are considered annoying.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 Acoustical Impacts

Threshold 6.1 Would the Project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Typical noise levels associated with individual construction equipment are listed in Table 11: Typical Construction Noise Levels. During construction, exterior noise levels could affect the residential neighborhoods surrounding the construction site. Construction activities would include demolition, site preparation, grading, building construction, paving, and architectural coating.

The San Bernardino County does not establish quantitative exterior construction noise standards. Instead, the San Bernardino County Code establishes limited hours of construction activities. San Bernardino County Code Section 83.01.080 states that temporary construction, maintenance, repair, or demolition activities shall be exempt from noise regulations detailed in this section between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays. Concrete pouring routinely occurs during early morning hours (i.e., beginning at 1:00 a.m.) to avoid heat that could cause the concrete to set too quickly and lose workability; however, concrete pours typically do not involve significant noise levels, as shown in Table 12 through Table 16 below. The County of San Bernardino would be required to approve any nighttime construction activities. In accordance with Standard Condition (SC) NOI-1, all other Project construction activities will be limited to the hours between 7:00 a.m. and 7:00 p.m. and will not occur on Sundays or Federal holidays; therefore, the Project's construction-related noise would not exceed the County's Development Code standards. However, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses to evaluate construction noise impacts.[14] Construction activities associated with the Project would occur in multiple phases. The timing assumed for each phase is described above in Section 5.2.

[14] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-2, Page 179, September 2018.

Table 11: Typical Construction Noise Levels	
Equipment	**Typical Noise Level (dBA) at 50 feet from Source**
Air Compressor	80
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Mobile	83
Dozer	85
Generator	82
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pneumatic Tool	85
Pump	77
Roller	85
Saw	76
Scraper	85
Shovel	82
Truck	84
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.	

Following FTA's methodology for quantitative construction noise assessments, construction-generated noise levels associated with the Project were calculated using FHWA's RCNM computer program. RCNM enables the prediction of construction noise levels for a variety of construction operations based on a compilation of empirical data and the application of acoustical propagation formulas. The program enables the calculation of construction noise levels in more detail and with more accuracy than manual methods while avoiding the need to collect extensive amounts of project-specific input data. See Appendix B: Noise Modeling Data for more information regarding the construction assumptions used in this analysis.

Table 12: Construction Equipment for RCNM Modeling, shows the equipment types and quantities modeled in RCNM for each construction phase. Table 13: Phase 1a Project Construction Noise Levels show estimated exterior construction noise levels at the nearest sensitive uses (residences located approximately 1,900 feet northeast of the acoustic center for Phase 1a construction activities) without accounting for attenuation from physical barriers or topography. Thus, estimated noise levels at the sensitive receptors shown in Table 12 through Table 16 below are likely higher than they would be if attenuation was accounted for. Following FTA methodology, when calculating construction noise, all equipment is assumed to operate at the center of the construction area because equipment would operate throughout the site and not at a fixed location for extended periods of time. Therefore, the distance used in the RCNM model was 1,900 feet for the nearest residential uses located to the northeast of Phase 1a construction. As indicated in Table 13, Phase 1a Project construction noise levels would not exceed the FTA's 80 dBA threshold at the nearest residential uses.

Table 12: Construction Equipment for RCNM Modeling			
Project Phase	**Construction Phase**	**Equipment**	**Quantity**
Phase 1a Phase 1b Phase 2 Commercial	Demolition	Concrete Saw	1
		Dozer	1
	Road Construction/Utilities	Excavator	1
		Dozer	1
	Excavation/Mass Site Grading	Grader	1
		Roller	1
	Concrete Pour	Crane	1
		Pumps	1
	Paving/Landscape/Site Finishes	Grader	1
	Architectural Coating	Air Compressor	2
Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix B for noise modeling results.			

Table 13: Phase 1a Project Construction Noise Levels			
Construction Phase	**Modeled Exterior Construction Noise Level (dBA L_{eq})[1]**	**Noise Threshold (dBA L_{eq})**	**Exceed Threshold?**
Demolition	52.2	80	No
Road Construction/Utilities	48.7	80	No
Excavation/Mass Site Grading	50.1	80	No
Concrete Pour	47.4	80	No
Paving/Landscape/Site Finishes	52.0	80	No
Architectural Coating	45.1	80	No
Note: 1. Following FTA methodology, all equipment is assumed to operate at the center of the Phase 1a construction site because equipment would operate throughout the Project site and not at a fixed location for extended periods of time. Thus, the distance used in the RCNM model was approximately 1,900 feet for the nearest sensitive receptors to the northeast of the active Phase 1a construction zone.			
Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix B for noise modeling results.			

Table 14: Phase 1b Project Construction Noise Levels depicts the estimated noise levels from 1b construction at the nearest residential uses located approximately 1,270 feet to the north of Phase 1b construction activities (again without accounting for attenuation from physical barriers or topography). As indicated in Table 14, Phase 1b Project construction noise levels would not exceed the FTA's 80 dBA threshold at the nearest residential uses.

Table 14: Phase 1b Project Construction Noise Levels			
Construction Phase	**Modeled Exterior Construction Noise Level (dBA L_{eq})**	**Noise Threshold (dBA L_{eq})**	**Exceed Threshold?**
Demolition	55.7	80	No
Road Construction/Utilities	52.2	80	No
Excavation/Mass Site Grading	53.6	80	No
Concrete Pour	50.9	80	No
Paving/Landscape/Site Finishes	55.5	80	No
Architectural Coating	48.6	80	No
Note: 1. Following FTA methodology, all equipment is assumed to operate at the center of the Phase 1b construction site because equipment would operate throughout the Project site and not at a fixed location for extended periods of time. Thus, the distance used in the RCNM model was approximately 1,270 feet for the nearest sensitive receptors to the north of the active Phase 1b construction zone.			
Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix B for noise modeling results.			

Table 15: Phase 2 Project Construction Noise Levels depicts the estimated noise levels from Phase 2 construction noise levels at the nearest residential uses located approximately 3,000 feet to the north of Phase 2 construction activities (again without accounting for attenuation from physical barriers or topography). As indicated in Table 15, Phase 2 Project construction noise levels would not exceed the FTA's 80 dBA threshold at the nearest residential uses.

Table 15: Phase 2 Project Construction Noise Levels

Construction Phase	Modeled Exterior Construction Noise Level (dBA L_{eq})	Noise Threshold (dBA L_{eq})	Exceed Threshold?
Demolition	48.2	80	No
Road Construction/Utilities	44.7	80	No
Excavation/Mass Site Grading	46.1	80	No
Concrete Pour	43.5	80	No
Paving/Landscape/Site Finishes	48.0	80	No
Architectural Coating	41.1	80	No

Note:
1. Following FTA methodology, all equipment is assumed to operate at the center of the Phase 2 construction site because equipment would operate throughout the Project site and not at a fixed location for extended periods of time. Thus, the distance used in the RCNM model was approximately 3,000 feet for the nearest sensitive receptors to the north of the active Phase 2 construction zone.

Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix B for noise modeling results.

Table 16: Commercial Project Construction Noise Levels depicts a worst-case scenario from construction of the commercial uses at the nearest residential uses located approximately 2,000 feet to the east of commercial construction activities (again without accounting for attenuation from physical barriers or topography). As indicated in Table 16, commercial construction noise levels would not exceed the FTA's 80 dBA threshold at the nearest residential uses.

Table 16: Commercial Project Construction Noise Levels

Construction Phase	Modeled Exterior Construction Noise Level (dBA L_{eq})	Noise Threshold (dBA L_{eq})	Exceed Threshold?
Demolition	51.8	80	No
Road Construction/Utilities	48.2	80	No
Excavation/Mass Site Grading	49.6	80	No
Concrete Pour	47.0	80	No
Paving/Landscape/Site Finishes	51.5	80	No
Architectural Coating	44.7	80	No

Note:
1. Following FTA methodology, all equipment is assumed to operate at the center of the Commercial construction area because equipment would operate throughout the Project site and not at a fixed location for extended periods of time. Thus, the distance used in the RCNM model was approximately 2,000 feet for the nearest sensitive receptors to the east of the active commercial construction zone.

Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix B for noise modeling results.

Construction activities may also cause increased noise along site access routes due to movement of equipment and workers. Based on the air quality modeling outputs for the proposed Project in the *Speedway Commerce Center II Specific Plan Project Air Quality Assessment* (Kimley-Horn, 2022), a maximum of 1,167 daily construction trips (i.e., worker, vendor, and hauling trips) would occur during the excavation/mass site grading phase during Phase 1a construction. According to the California Department of Transportation (Caltrans), traffic volumes on Project area roadways would have to approximately

double to result in a barely perceptible 3-dBA increase in traffic noise levels.[15] As indicated above in Table 8, existing traffic volumes along Cherry Avenue and San Bernardino Avenue (the nearest access routes to the Project site for construction traffic) ranges from 16,810 ADT to 23,490 ADT. Thus, Project construction traffic (up to 1,167 daily trips) would represent less than seven percent of existing ADT volumes along roadways in the Project vicinity and would result in a minimal increase in traffic noise levels.

As discussed above, construction noise levels would not exceed the FTA noise standard of 80 dBA at the nearest sensitive receptors during Project construction, and construction traffic would not result in a noticeable increase in traffic noise levels. In addition, compliance with the best management practices and allowable construction hours in the San Bernardino County Code, as set forth in Standard Condition SC NOI-1, would further minimize impacts from construction noise. SC NOI-1 would ensure that all construction equipment is equipped with properly operating and maintained mufflers and other State required noise attenuation devices,[16] signs are posted near residences with contact information and dates of construction activities, construction notices are sent to adjacent residences, construction haul routes avoid sensitive uses where possible, and designating a noise disturbance coordinator to minimize and manage construction noise, among others. Therefore, construction-related noise impacts would be less than significant in this regard.

Operations

Implementation of the proposed Project would create new sources of noise in the Project vicinity. The major noise sources associated with the Project would include train noise; mechanical equipment (i.e., HVAC equipment); truck deliveries and loading activities; parking areas (i.e., car door slamming, car radios, engine start-up, and car pass-by); and off-site traffic noise.

Train Noise

There is one rail spur that crosses the site at the southwest end of the Project site, and one rail spur is located directly to the west of the site. An active freight passenger line lies just north along the northern boundary of the Project. There are currently five at-grade rail crossings located within one mile of the Project site. The Project would not impact the use, location, or function of these existing spur lines or crossings. However, the Project would include converting two existing private at-grade rail crossings to two new public at-grade rail crossings at the west end of Street "A" and at Street "D" which will cross the existing spur lines located along the Project's western boundary and improvements to one existing at-grade rail crossing at San Bernardino Avenue. The Master Developer is coordinating with Union Pacific (UP), BNSF, and California Public Utilities Commission (CPUC) for the proposed modifications to accommodate the Project right of way improvements. The proposed at-grade crossings would not result in an increase in train horn activity in the Project area or a new source of noise as these are existing railroad crossings within the Project area. The two crossings are not located closer to sensitive receptors than they currently are and the Project site is within an industrial area surrounded by industrial uses and trains currently operate within the Project area. Furthermore, the Project will include the construction of new buildings and landscaping which will further help to buffer the noise to the residential properties to the north and east of the Project site. Therefore, train horn noise levels at the existing sensitive receptors

[15] According to the California Department of Transportation, *Technical Noise Supplement to Traffic Noise Analysis Protocol* (September 2013), it takes a doubling of traffic to create a noticeable (i.e., 3 dBA) noise increase.

[16] Per the Federal Highway Administration's *Special Report - Measurement, Prediction, and Mitigation*, Chapter 4 Mitigation, 2017, muffler systems can reduce noise levels by 10 dBA or more.

in the Project vicinity (e.g., residences to the north and east of the Project site) would be similar or less as a result of the Project, and a less than significant impact would occur in this regard.

In addition, Metrolink has an existing rail line adjacent to the Project area's northern boundary. The Project would not interfere with and/or alter existing Metrolink operations. Therefore, Metrolink rail noise would not increase as a result of the Project.

Mechanical Equipment

The Project is located near residential properties to the north and east which are scattered among warehouse and manufacturing businesses. Potential stationary noise sources related to long-term operation of the Project site would include mechanical equipment. The primary noise-generating mechanical equipment utilized at the Project site would consist of HVAC equipment,[17] which typically generates noise levels of approximately 52 dBA at 50 feet.[18] Noise has a decay rate due to distance attenuation, which is calculated based on the Inverse Square Law of sound propagation. Based upon the Inverse Square Law, sound levels decrease by 6 dBA for each doubling of distance from the source. The nearest potential location for HVAC equipment would be located approximately 560 feet from the residential property line to the east of the Project site along Cherry Avenue. At this distance and conservatively assuming the simultaneous operation of 10 HVAC units, HVAC noise levels would attenuate to approximately 36.0 dBA,[19] which is below the County's 55 dBA and 45 dBA daytime and nighttime stationary noise standards, respectively, for residential uses. In addition, HVAC noise levels (36.0 dBA at the nearest sensitive receptor) would not exceed the measured ambient levels in the Project vicinity; see Table 9. Therefore, the proposed Project would result in a less than significant impact related to mechanical equipment noise levels.

Truck Delivery and Loading Dock Noise

On-site movements from truck deliveries and truck loading/unloading activities would occur at the logistics buildings throughout the Project site. In addition, less frequent truck deliveries would occur at the commercial uses in the southeastern portion of the Project site along Cherry Avenue. During truck loading and unloading activities at the Project site, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; backing up toward the docks; dropping down the dock ramps; and maneuvering away from the docks. As noted above, San Bernardino County Code Section 83.01.080(C) employs noise standards for stationary sources as received at a variety of land uses (i.e., residential, professional services, commercial, industrial uses). Due to the slow speed of travel and idling of trucks at the Project site, the County's stationary noise standards are utilized below to analyze impact from truck delivery and loading dock noise.

The proposed logistics buildings would include dock-high doors for truck loading/unloading for high cube logistics and e-commerce and operations. The dock-high doors are set back as close as approximately 700 feet from the property line of the nearest residences to the east of the Project site along Cherry Avenue and approximately 800 feet to the property line of the nearest residence to the north. Truck and loading dock noise (i.e., noise from truck movements to the loading docks, backup alarms, idling, and

[17] Other stationary noise sources from the Project, including loading activities and truck deliveries, are discussed below.

[18] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

[19] Assuming a 5 dBA reduction from the Cherry Avenue overcrossing structure and existing industrial building located between the Project site and nearest residence to the east; see Table 17.

loading/unloading activities) is typically 64.4 dBA at 50 feet.[20] As a result, noise levels from on-site truck deliveries and loading activities would attenuate under the inverse square law of sound propagation to approximately 36.5 dBA[21] and 40.3 dBA at the nearest residential uses to the east and north, respectively. Thus, noise levels from on-site truck deliveries and loading activities would not exceed the County's most stringent nighttime noise standard of 45 dBA for residential uses. Furthermore, loading dock doors would also be surrounded with protective aprons, gaskets, or similar improvements that, when a trailer is docked, would serve as a noise barrier between the interior warehouse activities and the exterior loading area. This would attenuate noise emanating from interior activities, and as such, noise from interior loading and associated activities would not be perceptible at the nearest sensitive receptors. In addition, intervening warehouse buildings and retaining walls on the Project site would act as a buffer and reduce truck loading/unloading noise levels at the nearest sensitive receptors (residential uses) from the Project site. Therefore, noise levels from trucks and loading/unloading activities would not exceed any local noise standards and a less than significant impact would occur.

Parking Noise

Surface parking would be provided for automobiles and truck trailers in the northern, eastern, southeastern, southern, southwestern, western, and central portions of the Project site. In total, the proposed Project would provide 98 acres of parking fields/drop lots. The instantaneous maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys range from 53 to 61 dBA.[22] Noise levels associated with truck trailer movements at the drop lots would be similar to those described above for truck loading activities, and therefore are conservatively assumed to be approximately 64.4 dBA at 50 feet. Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dBA at 50 feet for normal speech to 50 dBA at 50 feet for very loud speech.[23] Based on the car and truck reference noise levels identified above and the inverse square law of sound propagation, parking lot noise levels would reach approximately 42.7 dBA[24] at the closest residences approximately 410 feet to the east of the parking area for Building 3 at the Project site. It should be noted, however, that parking lot noise would be short in duration and would not occur on a frequent basis. Rather, parking lot noise from automobiles and trucks would occur intermittently and could see an increase during peak travel periods. Trucks would also be limited to five minutes of idling in compliance with State regulations, which would further reduce parking lot noise levels. As such, parking lot noise levels from the Project are expected to be lower than the estimates provided above when averaged over time and are not anticipated to exceed the County's noise standards for stationary sources.

It should also be noted that the Cherry Avenue overcrossing structure and a small industrial building are located between the nearest residence to the east and the Project site, which would act as noise buffers and further reduce Project-generated noise levels at the nearest residence to the east. Additionally, parking noise occurs under existing conditions at the Project site and surrounding properties; thus, the

[20] Loading dock reference noise level measurements conducted by Kimley-Horn on December 18, 2018 at the La Palma Neighborhood Walmart, approximately 50 feet from the Walmart loading dock area. Loading dock activities included trucks arriving at the docks, backing up, and loading/unloading using palette jacks.

[21] Assuming a 5 dBA reduction from the Cherry Avenue overcrossing structure and existing industrial building located between the Project site and nearest residence to the east; see Table 17.

[22] Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

[23] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

[24] This represents the combined automobile (61 dBA) and truck parking lot (64.4 dBA) noise levels at the nearest residences approximately 410 feet away, and assumes a 5 dBA reduction from the Cherry Avenue overcrossing structure and existing industrial building located between the Project site and nearest residence to the east.

Project would not introduce a new noise source to the Project area. Therefore, noise impacts associated with parking would be less than significant.

Combined Stationary Source Noise Levels

Noise levels associated with mechanical equipment, truck deliveries and loading activities, and parking areas were logarithmically combined to estimate the Project's composite operational noise level at the nearest sensitive receptor(s); see Table 17: Stationary Source Noise Levels. It should be noted that predicted noise levels in Table 17 are conservative estimates since it was assumed that all equipment and operational activity at the Project site would occur in a constant, simultaneous manner. In reality, it is anticipated that these noise sources would occur intermittently throughout the day and night (except for HVAC which could operate in a steady-state manner).

As shown in Table 17, the Project's combined stationary source noise levels would be approximately 44.3 dBA at the nearest residential use, which would not exceed the County's most stringent nighttime noise standard of 45 dBA for residential uses. It should be noted the noise levels in Table 17 conservatively assume the simultaneous, constant operation of all on-site stationary noise sources; in reality, these noise sources would operate intermittently throughout the day and night and not in a continuous manner. Thus, the Project's combined stationary noise levels are anticipated to be lower than those identified in Table 17. It is also noted that the County allows for a 10 dBA increase over the stationary noise standards in Table 5 for a cumulative period of five minutes or less in any hour (see San Bernardino County Code Section 83.01.080(c)(2)(C)). Trucks parking/idling at the Project site would idle for more than five minutes in compliance with State requirements, and thus, would not contribute to a temporary noise increase over five minutes in duration. Therefore, operational noise levels from the project's stationary sources would not exceed the County's applicable noise standards, and a less than significant impact would occur in this regard.

Table 17: Stationary Source Noise Levels

Nearest Land Use	Direction	Distance (feet)	Reference Noise Level at 50 ft (dBA)	Noise Level at Receiver (dBA)[1]	County Noise Standard (dBA L_{eq})[2]	Standard Exceeded?
Mechanical Equipment						
Residential	East	560	52.0[3]	36.0	45	No
Truck Delivery and Loading Dock Noise						
Residential	East	700	64.4[4]	36.5	45	No
Parking Noise						
Residential	East	410	66.0[5]	42.7	45	No
Combined Noise Level (Mechanical Equipment + Truck Delivery and Loading Dock Noise + Parking Noise)						
Residential	East	410	-	44.3[6]	45	No

Notes:
1. Assumes a 5 dBA reduction from the Cherry Avenue overcrossing structure and existing industrial building located between the Project site and nearest residence to the east.
2. The County's most stringent noise standard for stationary sources is 45 dBA L_{eq} (for residential uses during nighttime hours).
3. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.
4. Loading dock reference noise level measurements conducted by Kimley-Horn on December 18, 2018 at the La Palma Neighborhood Walmart, approximately 50 feet from the Walmart loading dock area. Loading dock activities included trucks arriving at the docks, backing up, and loading/unloading using palette jacks.

5. Parking lot noise level was calculated based on the logarithmic decibel scale and represents the combined automobile (61 dBA) and truck parking lot (64.4 dBA) noise levels discussed in the "Parking Noise" section above.
6. Calculated based on the logarithmic decibel scale and the calculated noise levels for mechanical equipment, truck delivery and loading dock noise, and parking area noise levels identified above.

Off-Site Traffic Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. Based on the Project's Transportation Impact Study, the proposed Project would result in approximately 43,549 daily trips at full buildout, including approximately 9,865 daily truck trips. It is noted that daily vehicle trips from the Project would incrementally increase from Opening Year to full buildout, as shown in the trip generation table in the Project's Transportation Impact Study. Off-site traffic noise levels were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) utilizing the Project fleet mix (i.e., the percentage of heavy trucks, medium trucks, and passenger vehicles) from the Project's Transportation Impact Study to estimate traffic noise levels by vehicle type and roadway segment. The Project fleet mix varies by roadway segment and is provided in the Project's Transportation Impact Study and the RD-77-108 modeling results in Appendix B.

Opening Year 2024 – Phase 1 Traffic Conditions

The Opening Year "2024 Without Project" and "2024 Plus Phase 1" scenarios are compared in Table 18: Opening Year 2024 and Opening Year 2024 Plus Phase 1 Traffic Noise Levels. As shown in Table 18, Opening Year 2024 Without Project traffic noise levels would range from 57.2 dBA CNEL to 73.4 dBA CNEL, and Opening Year 2024 Plus Phase 1 traffic noise Levels would range between 57.2 dBA CNEL and 73.9 dBA CNEL. Project generated traffic would result in a maximum increase of 3.8 dBA CNEL along Randall Avenue (from Cherry Avenue to Citrus Avenue). In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. Table 18 shows that increases in traffic noise levels along Randall Avenue (from Cherry Avenue to Citrus Avenue) would exceed 3.0 dBA and would exceed the County's applicable noise standard of 60 dBA CNEL for residential uses.

The impacted roadway segments along Randall Avenue comprise approximately three miles and land uses along this stretch are primarily residential. Potential mitigation measures to reduce the Project's traffic noise impacts at the impacted residences would include the construction of sound walls, noise abatement design features (e.g., providing upgraded windows), and/or re-paving the impacted roadway segments with rubberized asphalt. However, there are several issues with the aforementioned measures that would make off-site mitigation for traffic noise impacts infeasible:

- The Project applicant (and the future Master Developer/Site Developers) does not have jurisdiction over the local roadways and/or existing residences to directly mitigate traffic noise impacts at the impacted receivers.

- Sound walls are not feasible at the impacted residences due to driveway access issues. The noise barriers would have gaps to allow for driveway access and would be ineffective.

- Sound walls could create safety issues for ingress/egress at the residential driveways.

- The cost of a sound wall and/or rubberized asphalt is not proportional to a barely perceptible increase (+3 dBA) for two roadway segments, while a barely perceptible increase would occur at the remaining segments.

- Individual residences may deny approval of sound walls or upgraded windows.

- Rubberized asphalt surface would not be consistent with the rest of the roadway(s) in the Project area. This could also cause logistical issues for the County Public Works Department and road maintenance contractors.

- Portions of Randall Avenue are not within the County's jurisdiction (i.e., from the mid-block of Elm Avenue and Poplar Avenue east to Citrus Avenue are within the City of Fontana).

For the reasons mentioned above, off-site mitigation to reduce mobile traffic noise impacts from the Project are not feasible for implementation. Therefore, because the Project would result in a substantial increase in traffic noise levels and would exceed the County's applicable noise standards under Opening year 2024 Plus Phase 1 conditions and there is no feasible mitigation for existing development, a significant and unavoidable impact would occur in this regard.

Table 18: Opening Year 2024 and Opening Year 2024 Plus Phase 1 Traffic Noise Levels

Roadway Segment		2024 Without Project		2024 Plus Phase 1		Change	Noise Threshold, (dBA CNEL)	Significant Impacts[1]
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
Highland Avenue	West of Beech Avenue	7,526	62.0	7,526	62.0	0.0	60	No
	Beech Avenue to Citrus Avenue	10,653	63.4	10,653	63.4	0.0	60	No
	Citrus Avenue to Sierra Avenue	15,232	65.1	15,232	65.1	0.0	60	No
Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	21,412	67.7	21,442	67.7	0.0	60	No
	I-15 SB Ramps to I-15 NB Ramps	25,398	69.2	25,618	69.2	0.1	60	No
	I-15 NB Ramps to Cherry Avenue	24,942	67.4	25,272	67.6	0.1	60	No
	Cherry Avenue to Beech Avenue	26,534	67.7	28,424	68.6	0.9	60	No
	Beech Avenue to Citrus Avenue	20,353	66.5	22,003	67.3	0.8	60	No
	Citrus Avenue to Sierra Avenue	17,597	65.9	18,567	66.5	0.6	60	No
Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	41,147	70.7	41,727	71.1	0.4	60	No
	I-15 NB Ramps to Etiwanda Avenue	31,152	69.5	31,732	70.2	0.6	60	No
	Etiwanda Avenue to Beech Avenue	22,927	68.1	22,927	68.1	0.0	60	No
	Cherry Avenue to Beech Avenue	23,346	68.2	24,456	68.7	0.5	60	No
	Beech Avenue to Citrus Avenue	24,532	67.1	25,642	67.7	0.6	60	No
	Citrus Avenue to Sierra Avenue	21,563	66.6	22,433	67.0	0.5	60	No
Arrow Route	Milliken Avenue to Etiwanda Avenue	21,569	67.6	22,289	67.9	0.3	60	No
	Etiwanda Avenue to Cherry Avenue	15,624	65.0	16,974	65.4	0.4	60	No
	Cherry Avenue to Beech Avenue	16,783	65.4	17,783	66.0	0.7	60	No
	Beech Avenue to Citrus Avenue	15,116	64.9	16,176	65.7	0.8	60	No
	Citrus Avenue to Sierra Avenue	15,107	62.6	15,747	63.2	0.6	60	No
Merrill Avenue	Cherry Avenue to Beech Avenue	7,277	60.5	7,837	61.4	0.9	60	No
	Beech Avenue to Citrus Avenue	8,464	61.2	9,024	62.0	0.8	60	No
	Citrus Avenue to Sierra Avenue	11,631	62.6	12,381	63.8	1.2	60	No
Randall Avenue	Cherry Avenue to Beech Avenue	9,261	61.6	12,921	65.4	3.8	60	Yes
	Beech Avenue to Citrus Avenue	7,306	60.6	10,166	64.4	3.8	60	Yes
	Citrus Avenue to Sierra Avenue	8,162	61.1	9,982	63.6	2.4	60	No
	I-15 SB Ramps to I-15 NB Ramps	25,762	72.7	26,882	73.0	0.3	60	No

Table 18: Opening Year 2024 and Opening Year 2024 Plus Phase 1 Traffic Noise Levels

Roadway Segment		2024 Without Project		2024 Plus Phase 1		Change	Noise Threshold, (dBA CNEL)	Significant Impacts[1]
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	17,220	69.7	19,440	70.5	0.8	60	No
	Etiwanda Avenue to Commerce Drive	12,495	69.1	16,755	70.7	1.6	60	No
	Commerce Drive to Cherry Avenue	20,259	71.3	27,169	73.0	1.7	60	No
	Cherry Avenue to Beech Avenue	11,972	66.3	12,722	66.8	0.4	60	No
	Beech Avenue to Citrus Avenue	9,308	65.3	9,838	65.7	0.4	60	No
	Citrus Avenue to Sierra Avenue	11,572	66.2	12,122	66.6	0.4	60	No
Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	20,416	71.1	20,416	71.1	0.0	60	No
	Cherry Avenue to Beech Avenue	18,304	70.7	18,874	70.8	0.1	60	No
Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	11,177	67.0	11,687	67.3	0.3	60	No
	Foothill Boulevard to Arrow Route	16,125	69.4	17,215	69.9	0.6	60	No
	Arrow Route to San Bernardino Avenue / Fourth Street	18,476	70.7	19,176	71.1	0.4	60	No
	San Bernardino Avenue / Fourth Street to Valley Boulevard	18,301	70.0	19,631	70.4	0.4	60	No
	Valley Boulevard to I-10 WB Ramps	24,565	71.5	25,895	71.8	0.3	60	No
	I-10 WB Ramps to I-10 EB Ramps	25,438	71.5	26,318	71.7	0.2	60	No
Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	16,917	69.4	18,857	70.0	0.6	60	No
	SR-210 EB Ramps to Baseline Avenue	21,102	69.8	24,732	70.6	0.9	60	No
	Baseline Avenue to Foothill Boulevard	24,435	70.6	30,515	71.9	1.3	60	No
	Foothill Boulevard to Arrow Route	23,826	69.6	31,016	71.1	1.5	60	No
	Arrow Route to Whittram Avenue	26,278	70.0	35,818	71.8	1.8	60	No
	Whittram Avenue to Merrill Avenue	29,171	70.2	38,711	71.8	1.6	60	No
	Merrill Avenue to Randall Avenue	28,359	72.0	38,459	73.7	1.7	60	No
	Randall Avenue to San Bernardino Avenue	29,323	72.3	34,673	73.3	1.1	60	No
	San Bernardino Avenue to Valley Boulevard	24,334	71.3	28,694	72.3	1.0	60	No
	Valley Boulevard to I-10 WB Ramps	35,254	73.3	39,044	73.9	0.7	60	No
	I-10 WB Ramps to I-10 EB Ramps	37,448	73.4	39,598	73.8	0.4	60	No
	I-10 EB Ramps to Slover Avenue	30,191	72.0	31,361	72.2	0.2	60	No
	South of Slover Avenue	20,267	69.8	21,197	70.1	0.3	60	No
Beech Avenue	Highland Avenue to Baseline Avenue	10,695	62.3	10,695	62.3	0.0	60	No
	Foothill Boulevard to Arrow Route	4,006	58.0	4,006	58.3	0.4	60	No
	Arrow Route to Merrill Avenue	8,349	61.1	8,409	61.5	0.3	60	No
	Merrill Avenue to Randall Avenue	5,679	59.5	5,739	59.9	0.5	60	No
	Randall Avenue to San Bernardino Avenue	4,624	58.6	4,884	59.1	0.5	60	No
	San Bernardino to Valley Boulevard	3,360	57.2	3,360	57.2	0.0	60	No
Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	25,661	70.4	26,021	70.6	0.2	60	No
	SR-210 EB Ramps to Baseline Avenue	24,724	66.0	25,204	66.3	0.3	60	No

Table 18: Opening Year 2024 and Opening Year 2024 Plus Phase 1 Traffic Noise Levels

Roadway Segment		2024 Without Project		2024 Plus Phase 1		Change	Noise Threshold, (dBA CNEL)	Significant Impacts[1]
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
	Baseline Avenue to Foothill Boulevard	18,547	64.7	18,577	64.9	0.2	60	No
	Foothill Boulevard to Arrow Route	20,190	65.0	20,220	65.2	0.2	60	No
	Arrow Route to Merrill Avenue	23,102	64.4	23,192	64.6	0.2	60	No
	Merrill Avenue to Randall Avenue	18,837	63.5	18,997	63.8	0.3	60	No
	Randall Avenue to San Bernardino Avenue	19,015	64.8	19,515	65.3	0.5	60	No
	San Bernardino Avenue to Valley Boulevard	20,575	66.3	20,815	66.5	0.2	60	No
	Valley Boulevard to I-10 WB Ramps	30,117	68.2	30,927	68.7	0.5	60	No
	I-10 WB Ramps to I-10 EB Ramps	25,119	67.4	25,559	67.8	0.4	60	No
Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	29,405	70.2	29,705	70.4	0.1	60	No
	SR-210 EB Ramps to Highland Avenue	38,477	70.5	38,827	70.6	0.1	60	No
	Highland Avenue to Baseline Avenue	26,735	68.8	27,335	69.0	0.3	60	No
	Baseline Avenue to Foothill Boulevard	20,316	65.1	20,666	65.4	0.3	60	No
	Foothill Boulevard to Arrow Route	19,693	62.8	19,863	63.4	0.5	60	No
	Arrow Route to Merrill Avenue	18,908	62.7	19,378	63.4	0.8	60	No
	Merrill Avenue to Randall Avenue	21,783	65.4	22,023	65.6	0.1	60	No
	Randall Avenue to San Bernardino Avenue	23,387	65.7	24,287	66.2	0.5	60	No
	San Bernardino Avenue to Valley Boulevard	31,772	67.2	32,502	67.6	0.3	60	No
	Valley Boulevard to I-10 Ramps	50,580	68.3	51,070	68.5	0.2	60	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:
1. In accordance with CEQA Guidelines Appendix G, Section XIII(a), a significant traffic noise impact would occur if the proposed Project would result in a substantial increase (i.e., 3.0 dBA) over ambient conditions AND exceeds the County's traffic noise standard of 60 dBA CNEL for residential uses. The County allows for traffic noise levels up to 65 dBA CNEL at residential uses provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed.

Source: Based on traffic data within the *Speedway Commerce Center II Specific Plan Project Traffic Impact Study*, prepared by Kimley-Horn, January 2022. Refer to Appendix B for traffic noise modeling assumptions and results.

Opening Year 2027 Plus Phases 1 & 2 Traffic Conditions[25]

The Opening Year "2027 Without Project" and "2027 Plus Phases 1 & 2" scenarios were also compared. As shown in Table 19: Opening Year 2027 and Opening Year 2027 Plus Phases 1 & 2 Traffic Noise Levels, roadway noise levels would range between 57.4 dBA CNEL and 73.7 dBA CNEL at 100 feet from the centerline without the Project and between 57.4 dBA CNEL and 74.3 dBA CNEL with Phases 1 & 2 under Opening Year 2027 conditions. The Project would result in a maximum increase of 4.5 dBA CNEL along Randall Avenue (from Beech Avenue to Citrus Avenue). Table 19 shows that increases in traffic noise levels along Randall Avenue (from Cherry Avenue to Citrus Avenue) would exceed 3.0 dBA and would exceed the County's applicable noise standard of 60 dBA CNEL for residential uses along Randall Avenue. As discussed above in the "Opening Year 2024 – Phase 1 Traffic Conditions" traffic noise analysis, there is no

[25] Traffic from the commercial development is included in Phase 2 and is consistent with the Trip Generation table in the Project's Transportation Impact Study (Kimley-Horn, January 2022).

feasible mitigation to reduce off-site traffic noise impacts at the existing residential development along Randall Avenue. Therefore, implementation of the Project would result in a substantial increase in traffic noise levels and would exceed the County's applicable noise standards under Opening Year 2027 Plus Phases 1 & 2 conditions, and there is no feasible mitigation for existing development. A significant and unavoidable impact would occur in this regard.

Table 19: Opening Year 2027 and Opening Year 2027 Plus Phases 1 & 2 Traffic Noise Levels

Roadway Segment		2027 Without Project		2027 Plus Phases 1 & 2		Change	Noise Threshold (dBA CNEL)	Significant Impacts
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
Highland Avenue	West of Beech Avenue	7,952	62.2	7,952	62.2	0.0	60	No
	Beech Avenue to Citrus Avenue	11,256	63.6	11,256	63.6	0.0	60	No
	Citrus Avenue to Sierra Avenue	16,094	65.3	16,094	65.3	0.0	60	No
Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	22,624	67.9	22,624	67.9	0.0	60	No
	I-15 SB Ramps to I-15 NB Ramps	26,835	69.4	26,975	69.5	0.1	60	No
	I-15 NB Ramps to Cherry Avenue	26,354	67.7	26,624	67.7	0.1	60	No
	Cherry Avenue to Beech Avenue	27,978	67.9	30,218	68.7	0.9	60	No
	Beech Avenue to Citrus Avenue	21,456	66.7	23,126	67.4	0.8	60	No
	Citrus Avenue to Sierra Avenue	18,564	66.1	19,874	66.6	0.7	60	No
Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	43,434	71.0	45,194	62.2	0.5	60	No
	I-15 NB Ramps to Etiwanda Avenue	32,853	69.8	35,503	63.6	0.9	60	No
	Etiwanda Avenue to Beech Avenue	24,224	68.3	24,264	65.3	0.0	60	No
	Cherry Avenue to Beech Avenue	24,633	68.4	25,773	67.9	0.5	60	No
	Beech Avenue to Citrus Avenue	25,885	67.3	27,355	69.5	0.7	60	No
	Citrus Avenue to Sierra Avenue	22,756	66.8	23,656	67.8	0.5	60	No
Arrow Route	Milliken Avenue to Etiwanda Avenue	22,768	67.9	23,488	68.8	0.3	60	No
	Etiwanda Avenue to Cherry Avenue	16,509	65.3	16,509	67.5	0.0	60	No
	Cherry Avenue to Beech Avenue	17,706	65.6	18,706	66.8	0.7	60	No
	Beech Avenue to Citrus Avenue	15,941	65.1	17,001	71.5	0.8	60	No
	Citrus Avenue to Sierra Avenue	15,944	62.8	16,584	70.7	0.6	60	No
Merrill Avenue	Cherry Avenue to Beech Avenue	7,673	60.8	8,233	68.3	0.9	60	No
	Beech Avenue to Citrus Avenue	8,928	61.4	9,488	68.9	0.8	60	No
	Citrus Avenue to Sierra Avenue	12,262	62.9	13,672	68.0	1.4	60	No
Randall Avenue	Cherry Avenue to Beech Avenue	9,602	61.8	15,572	67.3	4.4	60	Yes
	Beech Avenue to Citrus Avenue	7,561	60.7	12,401	68.2	4.5	60	Yes
	Citrus Avenue to Sierra Avenue	8,555	61.3	10,705	65.3	2.5	60	No
Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	27,184	72.9	29,014	66.3	0.4	60	No
	I-15 NB Ramps to Etiwanda Avenue	18,129	70.0	21,619	65.9	1.0	60	No
	Etiwanda Avenue to Commerce Drive	13,130	69.3	16,840	63.4	1.4	60	No
	Commerce Drive to Cherry Avenue	21,267	71.5	28,927	61.6	1.8	60	No
	Cherry Avenue to Beech Avenue	12,634	66.6	13,804	62.3	0.5	60	No
	Beech Avenue to Citrus Avenue	9,826	65.5	10,776	64.3	0.6	60	No
	Citrus Avenue to Sierra Avenue	12,214	66.5	13,184	66.2	0.5	60	No
Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	21,571	71.4	21,571	65.2	0.0	60	No
	Cherry Avenue to Beech Avenue	19,339	70.9	20,609	63.9	0.3	60	No
Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	11,795	67.2	12,315	73.3	0.3	60	No
	Foothill Boulevard to Arrow Route	16,960	69.6	20,170	71.0	1.0	60	No
	Arrow Route to San Bernardino Avenue / Fourth Street	19,422	70.9	23,352	70.8	1.1	60	No
	San Bernardino Avenue / Fourth Street to Valley Boulevard	19,321	70.3	20,771	73.2	0.4	60	No
	Valley Boulevard to I-10 WB Ramps	25,940	71.8	27,390	67.1	0.3	60	No
	I-10 WB Ramps to I-10 EB Ramps	26,866	71.8	27,806	66.1	0.2	60	No
Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	17,844	69.7	19,224	66.9	0.5	60	No

Table 19: Opening Year 2027 and Opening Year 2027 Plus Phases 1 & 2 Traffic Noise Levels

Roadway Segment		2027 Without Project		2027 Plus Phases 1 & 2		Change	Noise Threshold (dBA CNEL)	Significant Impacts
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
	SR-210 EB Ramps to Baseline Avenue	22,245	70.0	24,735	71.4	0.7	60	No
	Baseline Avenue to Foothill Boulevard	25,701	70.9	31,231	71.2	1.2	60	No
	Foothill Boulevard to Arrow Route	25,023	69.8	31,653	67.5	1.4	60	No
	Arrow Route to Whittram Avenue	27,586	70.3	35,216	70.6	1.5	60	No
	Whittram Avenue to Merrill Avenue	30,641	70.4	38,271	72.0	1.3	60	No
	Merrill Avenue to Randall Avenue	29,769	72.2	37,959	70.7	1.4	60	No
	Randall Avenue to San Bernardino Avenue	30,757	72.5	38,577	72.1	1.3	60	No
	San Bernardino Avenue to Valley Boulevard	25,548	71.5	31,938	72.8	1.3	60	No
	Valley Boulevard to I-10 WB Ramps	37,087	73.5	42,207	74.3	0.8	60	No
	I-10 WB Ramps to I-10 EB Ramps	39,456	73.7	42,596	74.1	0.5	60	No
	I-10 EB Ramps to Slover Avenue	31,862	72.2	33,062	72.4	0.2	60	No
	South of Slover Avenue	21,383	70.0	22,343	70.3	0.3	60	No
Beech Avenue	Highland Avenue to Baseline Avenue	11,301	62.5	11,301	62.5	0.0	60	No
	Foothill Boulevard to Arrow Route	4,231	58.2	4,561	58.9	0.7	60	No
	Arrow Route to Merrill Avenue	8,817	61.4	9,207	61.9	0.5	60	No
	Merrill Avenue to Randall Avenue	5,997	59.7	6,387	60.4	0.7	60	No
	Randall Avenue to San Bernardino Avenue	4,878	58.8	5,138	59.3	0.5	60	No
	San Bernardino to Valley Boulevard	3,550	57.4	3,550	57.4	0.0	60	No
Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	27,102	70.6	27,462	70.8	0.2	60	No
	SR-210 EB Ramps to Baseline Avenue	26,108	66.2	26,598	66.5	0.3	60	No
	Baseline Avenue to Foothill Boulevard	19,594	64.9	19,954	65.2	0.3	60	No
	Foothill Boulevard to Arrow Route	21,330	65.3	21,690	65.5	0.2	60	No
	Arrow Route to Merrill Avenue	24,404	64.6	24,824	64.9	0.3	60	No
	Merrill Avenue to Randall Avenue	19,894	63.7	20,334	64.0	0.3	60	No
	Randall Avenue to San Bernardino Avenue	20,029	65.0	20,859	65.6	0.6	60	No
	San Bernardino Avenue to Valley Boulevard	21,691	66.5	21,931	66.7	0.1	60	No
	Valley Boulevard to I-10 WB Ramps	31,774	68.4	33,284	69.0	0.6	60	No
	I-10 WB Ramps to I-10 EB Ramps	26,508	67.6	27,398	68.1	0.4	60	No
Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	31,060	70.5	31,370	70.6	0.1	60	No
	SR-210 EB Ramps to Highland Avenue	40,643	70.7	41,013	70.8	0.1	60	No
	Highland Avenue to Baseline Avenue	28,229	69.0	28,839	69.3	0.2	60	No
	Baseline Avenue to Foothill Boulevard	21,452	65.3	22,132	65.7	0.4	60	No
	Foothill Boulevard to Arrow Route	20,796	63.1	21,626	63.7	0.7	60	No
	Arrow Route to Merrill Avenue	19,956	62.9	21,086	63.8	0.9	60	No
	Merrill Avenue to Randall Avenue	23,007	65.7	23,247	65.8	0.1	60	No
	Randall Avenue to San Bernardino Avenue	24,674	66.0	25,574	66.5	0.5	60	No
	San Bernardino Avenue to Valley Boulevard	33,544	67.5	34,364	67.8	0.4	60	No
	Valley Boulevard to I-10 Ramps	53,421	68.5	54,001	68.7	0.2	60	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:

Table 19: Opening Year 2027 and Opening Year 2027 Plus Phases 1 & 2 Traffic Noise Levels

Roadway Segment	2027 Without Project		2027 Plus Phases 1 & 2		Change	Noise Threshold (dBA CNEL)	Significant Impacts
	ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			

1. In accordance with CEQA Guidelines Appendix G, Section XIII(a), a significant traffic noise impact would occur if the proposed Project would result in a substantial increase (i.e., 3.0 dBA) over ambient conditions AND exceeds the County's traffic noise standard of 60 dBA CNEL for residential uses. The County allows for traffic noise levels up to 65 dBA CNEL at residential uses provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed.

Source: Based on traffic data within the *Speedway Commerce Center II Specific Plan Project Traffic Impact Study*, prepared by Kimley-Horn, January 2022. Refer to Appendix B for traffic noise modeling assumptions and results.

Horizon Year 2040 Plus Phases 1 & 2 Traffic Conditions

The Horizon Year "2040 Without Project" and "2040 Plus Phases 1 & 2" scenarios were also compared. As shown in Table 20: Horizon Year 2040 and Opening Year 2040 Plus Phases 1 & 2 Traffic Noise Levels, roadway noise levels would range between 61.3 dBA CNEL and 74.2 dBA CNEL at 100 feet from the centerline without the Project and between 61.8 dBA CNEL and 74.9 dBA CNEL with Phases 1 & 2 under Horizon Year 2040 conditions. The Project would result in a maximum increase of 3.8 dBA CNEL along Randall Avenue (from Beech Avenue to Citrus Avenue). Table 20 shows that increases in traffic noise levels along Randall Avenue (from Cherry Avenue to Citrus Avenue) would exceed 3.0 dBA and would exceed the County's applicable noise standard of 60 dBA CNEL for residential uses along Randall Avenue. As discussed above, there is no feasible mitigation for existing residential development along local roadways in the Project vicinity. Therefore, implementation of the Project would result in a substantial increase in traffic noise levels and would exceed the County's applicable noise standards under Horizon Year 2040 Plus Phases 1 & 2 conditions, and there is no feasible mitigation for existing development. A significant and unavoidable impact would occur in this regard.

Table 20: Horizon Year 2040 and Horizon Year 2040 Plus Phases 1 & 2 Traffic Noise Levels

Roadway Segment		2040 Without Project		2040 Plus Phases 1 & 2		Change	Noise Threshold (dBA CNEL)	Significant Impacts[1]
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
Highland Avenue	West of Beech Avenue	10,480	63.4	10,480	63.4	0.0	60	No
	Beech Avenue to Citrus Avenue	14,280	64.7	14,280	64.7	0.0	60	No
	Citrus Avenue to Sierra Avenue	20,640	66.4	20,640	66.4	0.0	60	No
Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	30,660	69.3	30,660	69.3	0.0	60	No
	I-15 SB Ramps to I-15 NB Ramps	31,770	70.1	31,910	70.2	0.1	60	No
	I-15 NB Ramps to Cherry Avenue	32,240	68.5	32,510	68.6	0.1	60	No
	Cherry Avenue to Beech Avenue	31,250	68.4	33,490	69.3	0.9	60	No
	Beech Avenue to Citrus Avenue	30,560	68.3	32,230	69.0	0.7	60	No
	Citrus Avenue to Sierra Avenue	28,580	68.0	29,890	68.6	0.6	60	No
Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	45,090	71.1	46,850	71.6	0.5	60	No
	I-15 NB Ramps to Etiwanda Avenue	36,570	70.2	39,220	71.1	0.9	60	No
	Etiwanda Avenue to Beech Avenue	28,920	69.1	28,960	69.1	0.0	60	No
	Cherry Avenue to Beech Avenue	28,900	69.1	30,040	69.6	0.5	60	No
	Beech Avenue to Citrus Avenue	28,580	67.7	30,050	68.4	0.7	60	No
	Citrus Avenue to Sierra Avenue	27,060	67.5	27,960	68.0	0.4	60	No
Arrow Route	Milliken Avenue to Etiwanda Avenue	38,850	70.2	39,570	70.4	0.2	60	No
	Etiwanda Avenue to Cherry Avenue	34,960	68.5	34,960	68.5	0.0	60	No
	Cherry Avenue to Beech Avenue	19,800	66.1	20,800	66.7	0.7	60	No

Table 20: Horizon Year 2040 and Horizon Year 2040 Plus Phases 1 & 2 Traffic Noise Levels

Roadway Segment		2040 Without Project		2040 Plus Phases 1 & 2		Change	Noise Threshold (dBA CNEL)	Significant Impacts[1]
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
	Beech Avenue to Citrus Avenue	18,540	65.8	19,600	66.5	0.7	60	No
	Citrus Avenue to Sierra Avenue	17,660	63.2	18,300	63.8	0.6	60	No
Merrill Avenue	Cherry Avenue to Beech Avenue	10,020	61.9	10,580	62.7	0.8	60	No
	Beech Avenue to Citrus Avenue	9,940	61.9	10,500	62.7	0.8	60	No
	Citrus Avenue to Sierra Avenue	13,680	63.4	15,090	64.7	1.4	60	No
Randall Avenue	Cherry Avenue to Beech Avenue	15,570	63.9	21,540	67.6	3.7	60	Yes
	Beech Avenue to Citrus Avenue	12,100	62.8	16,940	66.6	3.8	60	Yes
	Citrus Avenue to Sierra Avenue	10,440	62.2	12,590	64.6	2.4	60	No
Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	30,550	73.4	32,380	73.8	0.4	60	No
	I-15 NB Ramps to Etiwanda Avenue	21,800	70.8	25,290	71.7	0.9	60	No
	Etiwanda Avenue to Commerce Drive	17,000	70.5	20,710	71.7	1.2	60	No
	Commerce Drive to Cherry Avenue	27,150	72.5	34,810	74.0	1.5	60	No
	Cherry Avenue to Beech Avenue	15,710	67.5	16,880	68.0	0.5	60	No
	Beech Avenue to Citrus Avenue	11,530	66.2	12,480	66.7	0.5	60	No
	Citrus Avenue to Sierra Avenue	13,090	66.8	14,060	67.2	0.5	60	No
Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	21,570	71.4	21,570	71.4	0.0	60	No
	Cherry Avenue to Beech Avenue	28,460	72.6	29,730	72.8	0.2	60	No
Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	12,340	67.4	12,860	67.7	0.3	60	No
	Foothill Boulevard to Arrow Route	20,850	70.5	24,060	71.4	0.9	60	No
	Arrow Route to San Bernardino Avenue / Fourth Street	22,800	71.6	26,730	72.6	1.0	60	No
	San Bernardino Avenue / Fourth Street to Valley Boulevard	24,750	71.3	26,200	71.7	0.4	60	No
	Valley Boulevard to I-10 WB Ramps	34,270	73.0	35,720	73.2	0.3	60	No
	I-10 WB Ramps to I-10 EB Ramps	33,070	72.7	34,010	72.8	0.2	60	No
Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	22,330	70.6	23,710	71.0	0.4	60	No
	SR-210 EB Ramps to Baseline Avenue	24,930	70.5	27,420	71.1	0.6	60	No
	Baseline Avenue to Foothill Boulevard	31,400	71.7	36,930	72.7	1.0	60	No
	Foothill Boulevard to Arrow Route	34,470	71.2	41,100	72.4	1.1	60	No
	Arrow Route to Whittram Avenue	35,450	71.3	43,080	72.6	1.3	60	No
	Whittram Avenue to Merrill Avenue	39,840	71.6	47,470	72.7	1.1	60	No
	Merrill Avenue to Randall Avenue	37,530	73.2	45,720	74.4	1.2	60	No
	Randall Avenue to San Bernardino Avenue	38,580	73.4	46,400	74.6	1.1	60	No
	San Bernardino Avenue to Valley Boulevard	32,750	72.6	39,140	73.7	1.1	60	No
	Valley Boulevard to I-10 WB Ramps	43,730	74.2	48,850	74.9	0.7	60	No
	I-10 WB Ramps to I-10 EB Ramps	43,590	74.1	46,730	74.5	0.4	60	No
	I-10 EB Ramps to Slover Avenue	41,880	73.4	43,080	73.6	0.2	60	No
	South of Slover Avenue	26,820	71.0	27,780	71.2	0.2	60	No
Beech Avenue	Highland Avenue to Baseline Avenue	16,190	64.1	16,190	64.1	0.0	60	No
	Foothill Boulevard to Arrow Route	9,040	61.5	9,370	62.0	0.5	60	No
	Arrow Route to Merrill Avenue	13,920	63.4	14,310	63.8	0.4	60	No
	Merrill Avenue to Randall Avenue	9,390	61.7	9,780	62.3	0.6	60	No
	Randall Avenue to San Bernardino Avenue	8,710	61.3	8,970	61.8	0.4	60	No
	San Bernardino to Valley Boulevard	12,610	62.9	12,610	62.9	0.0	60	No
Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	28,280	70.8	28,640	71.0	0.2	60	No
	SR-210 EB Ramps to Baseline Avenue	26,600	66.3	27,090	66.6	0.3	60	No
	Baseline Avenue to Foothill Boulevard	20,590	65.1	20,950	65.4	0.3	60	No
	Foothill Boulevard to Arrow Route	22,980	65.6	23,340	65.8	0.2	60	No
	Arrow Route to Merrill Avenue	25,580	64.9	26,000	65.1	0.3	60	No
	Merrill Avenue to Randall Avenue	21,280	64.0	21,720	64.3	0.3	60	No

Table 20: Horizon Year 2040 and Horizon Year 2040 Plus Phases 1 & 2 Traffic Noise Levels

Roadway Segment		2040 Without Project		2040 Plus Phases 1 & 2		Change	Noise Threshold (dBA CNEL)	Significant Impacts[1]
		ADT	dBA CNEL 100 Feet from Roadway Centerline	ADT	dBA CNEL 100 Feet from Roadway Centerline			
	Randall Avenue to San Bernardino Avenue	21,140	65.2	21,970	65.8	0.6	60	No
	San Bernardino Avenue to Valley Boulevard	22,420	66.7	22,660	66.8	0.1	60	No
	Valley Boulevard to I-10 WB Ramps	33,560	68.7	35,070	69.3	0.6	60	No
	I-10 WB Ramps to I-10 EB Ramps	27,410	67.8	28,300	68.2	0.4	60	No
Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	33,530	70.8	33,840	70.9	0.1	60	No
	SR-210 EB Ramps to Highland Avenue	46,760	71.3	47,130	71.4	0.1	60	No
	Highland Avenue to Baseline Avenue	32,460	69.6	33,070	69.9	0.2	60	No
	Baseline Avenue to Foothill Boulevard	26,120	66.2	26,800	66.5	0.4	60	No
	Foothill Boulevard to Arrow Route	27,020	64.2	27,850	64.8	0.6	60	No
	Arrow Route to Merrill Avenue	25,240	63.9	26,370	64.8	0.9	60	No
	Merrill Avenue to Randall Avenue	26,680	66.3	26,920	66.5	0.1	60	No
	Randall Avenue to San Bernardino Avenue	28,700	66.6	29,600	67.1	0.5	60	No
	San Bernardino Avenue to Valley Boulevard	34,770	67.6	35,590	68.0	0.3	60	No
	Valley Boulevard to I-10 Ramps	54,870	68.7	55,450	68.8	0.2	60	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:

1. In accordance with CEQA Guidelines Appendix G, Section XIII(a), a significant traffic noise impact would occur if the proposed Project would result in a substantial increase (i.e., 3.0 dBA) over ambient conditions AND exceeds the County's traffic noise standard of 60 dBA CNEL for residential uses. The County allows for traffic noise levels up to 65 dBA CNEL at residential uses provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed.

Source: Based on traffic data within the *Speedway Commerce Center II Specific Plan Project Traffic Impact Study*, prepared by Kimley-Horn, January 2022. Refer to Appendix B for traffic noise modeling assumptions and results.

As shown in Table 18, Table 19, and Table 20, the amount of traffic generated by the Project would result in a substantial increase in traffic noise in exceedance of the County's noise standards under Opening Year 2024 Plus Phase 1, Opening Year 2027 Plus Phases 1 & 2, and Opening Year 2040 Plus Phases 1 & 2 conditions, and there is no feasible mitigation to reduce these impacts. It should be noted, however, that as electric trucks and passenger vehicles become more commercially available in accordance with California's Advanced Clean Truck (ACT) and zero emission vehicle (ZEV) rules, the truck fleets and passenger vehicles accessing the Project site would generate lower traffic noise levels compared to a business-as-usual scenario. Nonetheless, off-site traffic noise impacts from the Project would be significant and unavoidable.

Standard Conditions and Requirements:

SC NOI-1 Prior to Grading Permit issuance, the Master Developer and/or Site Developer, as applicable, shall demonstrate, to the satisfaction of the County Engineer that the Project complies with the following:

- Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other State required noise attenuation devices.

- A sign, legible at 50 feet shall be posted at the Project construction site. The sign(s) shall be reviewed and approved by the Building Official and City Planning Department, prior to posting and shall indicate the dates and duration of construction activities, as well as provide a contact name and a telephone number where residents can inquire about the construction process and register complaints.

- Prior to issuance of any Grading or Building Permit, the Contractor shall provide evidence that a construction staff member will be designated as a Noise Disturbance Coordinator and will be present on-site during construction activities. The Noise Disturbance Coordinator is responsible for responding to local complaints about construction noise. When a complaint is received, the Noise Disturbance Coordinator shall notify the County within 24-hours of the complaint, determine the cause (e.g., starting too early, bad muffler, etc.), and implement reasonable measures to resolve the complaint as deemed acceptable by the Public Works Department.

- Prior to issuance of any Grading or Building Permit, the Master Developer and/or Site Developer, as applicable, shall demonstrate to the satisfaction of the County Engineer that construction noise reduction methods shall be used where feasible. These reduction methods include shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and electric air compressors and similar power tools.

- Construction haul routes shall be designed to avoid noise-sensitive uses (e.g., residences, convalescent homes, etc.) to the extent feasible.

- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.

- Unless otherwise approved by the County, Project construction activities that generate noise shall be limited to the hours between 7:00 a.m. and 7:00 p.m., except for Sundays and Federal holidays in compliance with San Bernardino County Code Section 83.01.080(g)(3).

Mitigation Measures: There are no feasible mitigation to reduce the traffic noise impacts identified above.

Level of Significance: Significant and unavoidable impact.

Construction and Operational Noise Mitigation & Residual Impacts: On-site operational noise impacts would be less than significant and no mitigation is required. However, off-site traffic noise levels would result in a significant and unavoidable impact. Potential mitigation measures would include the construction of sound walls, noise abatement design features at the existing sensitive residences, and/or pre-paving the impacted roadway segments with rubberized. However, the Project applicant (and the future Master Developer/Site Developers) does not have jurisdiction over the local roadways and/or existing residences to properly mitigate traffic noise impacts at the impacted receivers. No additional

feasible mitigation measures are available that can reduce off-site mobile traffic noise impacts to a less than significant level.

Threshold 6.2 Would the Project generate excessive groundborne vibration or groundborne noise levels?

Construction Vibration

Construction can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved.

The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec PPV) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet.[26] This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any construction vibration damage.

Table 21: Typical Construction Equipment Vibration Levels, lists vibration levels at 25 feet for typical construction equipment. Vibration levels at 40 feet (the distance from the Project boundary to the nearest existing structure) is also included in Table 21. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in Table 21, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during Project construction range from 0.003 to 0.089 in/sec PPV at 25 feet from the source of activity.

The nearest off-site structure is located approximately 40 feet from the Project site boundary. As indicated in Table 21, vibration velocities from construction equipment at 40 feet would not exceed 0.0440 in/sec PPV, which is below the FTA's 0.20 in/sec PPV threshold for building damage and below the 0.10 in/sec PPV annoyance threshold. It is also acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. Therefore, vibration impacts associated with Project construction would be less than significant.

[26] Based on construction vibration reference levels provided in the FTA *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Table 21: Typical Construction Equipment Vibration Levels		
Equipment	**Peak Particle Velocity at 25 Feet (in/sec)**	**Peak Particle Velocity at 40 Feet (in/sec)[1]**
Large Bulldozer	0.089	0.0440
Caisson Drilling	0.089	0.0440
Loaded Trucks	0.076	0.0376
Jackhammer	0.035	0.0173
Small Bulldozer/Tractors	0.003	0.0015
Notes: 1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018; D = the distance from the equipment to the receiver.		
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.		

Operational Vibration

The Project would include truck movement activity at the Project site. These movements would generally be low-speed (i.e., less than 15 miles per hour) and would occur over new, smooth surfaces. For perspective, Caltrans has studied the effects of propagation of vehicle vibration on sensitive land uses and notes that "heavy trucks, and quite frequently buses, generate the highest earthborn vibrations of normal traffic."[27] Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that "vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 0.08 inches per second, with the worst combinations of heavy trucks and poor roadway conditions (while such trucks were moving at freeway speeds). This level coincides with the maximum recommended safe level for ruins and ancient monuments (and historic buildings)".[28] Since the Project's truck movements would be at low speed (not at freeway speeds) and would be over smooth surfaces (not under poor roadway conditions), Project-related vibration associated with truck activity would not result in excessive groundborne vibrations; no vehicle-generated vibration impacts would occur. In addition, there are no sources of substantial groundborne vibration associated with operation of the Project, such as rail or subways. The Project would not create or cause any vibration impacts due to operations.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 6.3 For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The closest airport to the Project site is the Ontario International Airport located approximately four miles to the southwest. The Project is not within 2.0 miles of a public airport or within an airport land use plan. Additionally, there are no private airstrips located within the Project vicinity. Therefore, the Project would

[27] California Department of Transportation, *Transportation Related Earthborne Vibrations*, February 20, 2002.
[28] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol ("TeNS")*, September 2013.

not expose people working in the Project area to excessive airport- or airstrip-related noise levels and no mitigation is required.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6.2 Cumulative Noise Impacts

Cumulative Construction Noise

The Project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary, and would cease upon completion of construction activities. Further, based on the noise analysis above, the Project's construction-related noise impacts would be less than significant under the San Bernardino County Code and FTA methodology, and in compliance with SC NOI-1.

There are several cumulative development projects within the immediate vicinity of the Project site. The Project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. However, construction activities at other planned and approved projects near the Project site would, be required to comply with applicable County rules related to noise including limiting construction to daytime hours with no construction on Sundays or Federal holidays. Further, projects requiring County discretionary approvals would be required to evaluate construction noise impacts, comply with the County's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. As discussed above, the Project's construction impacts were determined to be less than significant. Therefore, Project construction would not result in a cumulatively considerable contribution to a significant cumulative impact related to construction noise.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. Cumulative increases in traffic noise levels were estimated by comparing the Existing and Horizon Year Without Project scenarios to the Horizon Year Plus Project scenario. The traffic analysis considers cumulative traffic from future growth assumed in the transportation model, as well as cumulative projects.

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. To analyze the Project's cumulative contribution to traffic noise levels in the Project area and in accordance with the *King and Gardiner Farms, LLC v. County of Kern et al*. (2020) court decision mandating absolute noise thresholds for CEQA analyses, the following criteria is used to evaluate the combined and incremental effects of the cumulative noise increase.

- *Combined Effect*. The cumulative with Project noise level ("Horizon Year With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project.

- *Incremental Effects*. The "Horizon Year With Project" causes a 1.0 dBA increase in noise over the "Horizon Year Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the proposed Project and growth due to occur in the general area would contribute to cumulative noise impacts.

Table 22: Cumulative Traffic Noise Levels identifies the traffic noise effects along roadway segments in the Project vicinity for "Existing," "Horizon Year 2040 Without Project," and "Horizon Year 2040 With Phases 1&2," conditions, including incremental and net cumulative impacts.

Table 22: Cumulative Traffic Noise Levels

Roadway Segment		Existing	Horizon Year 2040 Without Project	Horizon Year 2040 With Phases 1&2	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
					Difference In dBA Between Existing and Horizon Year With Phases 1&2	Difference In dBA Between Horizon Year 2040 Without Project and Horizon Year 2040 With Phases 1&2	
Highland Avenue	West of Beech Avenue	61.7	63.4	63.4	1.7	0.0	No
	Beech Avenue to Citrus Avenue	63.1	64.7	64.7	1.5	0.0	No
	Citrus Avenue to Sierra Avenue	64.8	66.4	66.4	1.6	0.0	No
Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	67.4	69.3	69.3	1.8	0.0	No
	I-15 SB Ramps to I-15 NB Ramps	68.9	70.1	70.2	1.3	0.1	No
	I-15 NB Ramps to Cherry Avenue	67.2	68.5	68.6	1.5	0.1	No
	Cherry Avenue to Beech Avenue	67.2	68.4	69.3	2.0	0.9	No
	Beech Avenue to Citrus Avenue	66.1	68.3	69.0	2.9	0.7	No
	Citrus Avenue to Sierra Avenue	65.5	68.0	68.6	3.1	0.6	No
Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	70.4	71.1	71.6	1.2	0.5	No
	I-15 NB Ramps to Etiwanda Avenue	69.1	70.2	71.1	2.0	0.9	No
	Etiwanda Avenue to Beech Avenue	67.8	69.1	69.1	1.3	0.0	No
	Cherry Avenue to Beech Avenue	67.8	69.1	69.6	1.8	0.5	No
	Beech Avenue to Citrus Avenue	66.7	67.7	68.4	1.7	0.7	No
	Citrus Avenue to Sierra Avenue	66.2	67.5	68.0	1.8	0.4	No
Arrow Route	Milliken Avenue to Etiwanda Avenue	67.3	70.2	70.4	3.1	0.2	No
	Etiwanda Avenue to Cherry Avenue	64.8	68.5	68.5	3.8	0.0	No
	Cherry Avenue to Beech Avenue	65.0	66.1	66.7	1.8	0.7	No
	Beech Avenue to Citrus Avenue	64.5	65.8	66.5	2.0	0.7	No
	Citrus Avenue to Sierra Avenue	62.2	63.2	63.8	1.6	0.6	No
Merrill Avenue	Cherry Avenue to Beech Avenue	60.1	61.9	62.7	2.6	0.8	No
	Beech Avenue to Citrus Avenue	60.8	61.9	62.7	1.9	0.8	No
	Citrus Avenue to Sierra Avenue	62.2	63.4	64.7	2.5	1.4	No
Randall Avenue	Cherry Avenue to Beech Avenue	59.5	63.9	67.6	8.1	3.7	Yes
	Beech Avenue to Citrus Avenue	58.2	62.8	66.6	8.4	3.8	Yes
	Citrus Avenue to Sierra Avenue	60.1	62.2	64.6	4.4	2.4	Yes
	I-15 SB Ramps to I-15 NB Ramps	72.3	73.4	73.8	1.5	0.4	No

Table 22: Cumulative Traffic Noise Levels

Roadway Segment		Existing	Horizon Year 2040 Without Project	Horizon Year 2040 With Phases 1&2	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
					Difference In dBA Between Existing and Horizon Year With Phases 1&2	Difference In dBA Between Horizon Year 2040 Without Project and Horizon Year 2040 With Phases 1&2	
Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	69.2	70.8	71.7	2.5	0.9	No
	Etiwanda Avenue to Commerce Drive	68.4	70.5	71.7	3.3	1.2	Yes
	Commerce Drive to Cherry Avenue	70.5	72.5	74.0	3.6	1.5	Yes
	Cherry Avenue to Beech Avenue	66.0	67.5	68.0	2.0	0.5	No
	Beech Avenue to Citrus Avenue	64.9	66.2	66.7	1.8	0.5	No
	Citrus Avenue to Sierra Avenue	65.9	66.8	67.2	1.3	0.5	No
Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	70.9	71.4	71.4	0.5	0.0	No
	Cherry Avenue to Beech Avenue	70.4	72.6	72.8	2.4	0.2	No
Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	66.6	67.4	67.7	1.1	0.3	No
	Foothill Boulevard to Arrow Route	68.7	70.5	71.4	2.6	0.9	No
	Arrow Route to San Bernardino Avenue / Fourth Street	70.0	71.6	72.6	2.6	1.0	No
	San Bernardino Avenue / Fourth Street to Valley Boulevard	69.7	71.3	71.7	2.0	0.4	No
	Valley Boulevard to I-10 WB Ramps	71.2	73.0	73.2	2.0	0.3	No
	I-10 WB Ramps to I-10 EB Ramps	71.2	72.7	72.8	1.6	0.2	No
Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	69.0	70.6	71.0	2.0	0.4	No
	SR-210 EB Ramps to Baseline Avenue	69.3	70.5	71.1	1.8	0.6	No
	Baseline Avenue to Foothill Boulevard	70.0	71.7	72.7	2.8	1.0	No
	Foothill Boulevard to Arrow Route	68.8	71.2	72.4	3.5	1.1	Yes
	Arrow Route to Whittram Avenue	69.2	71.3	72.6	3.4	1.3	Yes
	Whittram Avenue to Merrill Avenue	69.5	71.6	72.7	3.2	1.1	Yes
	Merrill Avenue to Randall Avenue	71.2	73.2	74.4	3.3	1.2	Yes
	Randall Avenue to San Bernardino Avenue	71.4	73.4	74.6	3.2	1.1	Yes
	San Bernardino Avenue to Valley Boulevard	70.5	72.6	73.7	3.2	1.1	Yes
	Valley Boulevard to I-10 WB Ramps	72.7	74.2	74.9	2.3	0.7	No
	I-10 WB Ramps to I-10 EB Ramps	72.9	74.1	74.5	1.6	0.4	No
	I-10 EB Ramps to Slover Avenue	71.6	73.4	73.6	2.0	0.2	No
	South of Slover Avenue	69.4	71.0	71.2	1.8	0.2	No
Beech Avenue	Highland Avenue to Baseline Avenue	62.1	64.1	64.1	2.1	0.0	No
	Foothill Boulevard to Arrow Route	57.7	61.5	62.0	4.3	0.5	No
	Arrow Route to Merrill Avenue	60.9	63.4	63.8	2.9	0.4	No
	Merrill Avenue to Randall Avenue	59.2	61.7	62.3	3.1	0.6	No
	Randall Avenue to San Bernardino Avenue	58.2	61.3	61.8	3.6	0.4	No
	San Bernardino to Valley Boulevard	56.9	62.9	62.9	6.0	0.0	No
Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	70.1	70.8	71.0	0.9	0.2	No
	SR-210 EB Ramps to Baseline Avenue	65.7	66.3	66.6	0.9	0.3	No
	Baseline Avenue to Foothill Boulevard	64.4	65.1	65.4	1.0	0.3	No
	Foothill Boulevard to Arrow Route	64.8	65.6	65.8	1.1	0.2	No
	Arrow Route to Merrill Avenue	64.1	64.9	65.1	1.0	0.3	No
	Merrill Avenue to Randall Avenue	63.2	64.0	64.3	1.2	0.3	No
	Randall Avenue to San Bernardino Avenue	64.3	65.2	65.8	1.5	0.6	No
	San Bernardino Avenue to Valley Boulevard	65.9	66.7	66.8	1.0	0.1	No
	Valley Boulevard to I-10 WB Ramps	67.8	68.7	69.3	1.4	0.6	No
	I-10 WB Ramps to I-10 EB Ramps	67.0	67.8	68.2	1.2	0.4	No
Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	70.0	70.8	70.9	1.0	0.1	No
	SR-210 EB Ramps to Highland Avenue	70.2	71.3	71.4	1.2	0.1	No
	Highland Avenue to Baseline Avenue	68.5	69.6	69.9	1.4	0.2	No
	Baseline Avenue to Foothill Boulevard	64.8	66.2	66.5	1.8	0.4	No

Table 22: Cumulative Traffic Noise Levels

Roadway Segment		Existing	Horizon Year 2040 Without Project	Horizon Year 2040 With Phases 1&2	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
					Difference In dBA Between Existing and Horizon Year With Phases 1&2	Difference In dBA Between Horizon Year 2040 Without Project and Horizon Year 2040 With Phases 1&2	
	Foothill Boulevard to Arrow Route	62.5	64.2	64.8	2.3	0.6	No
	Arrow Route to Merrill Avenue	62.3	63.9	64.8	2.5	0.9	No
	Merrill Avenue to Randall Avenue	65.2	66.3	66.5	1.3	0.1	No
	Randall Avenue to San Bernardino Avenue	65.4	66.6	67.1	1.7	0.5	No
	San Bernardino Avenue to Valley Boulevard	66.9	67.6	68.0	1.1	0.3	No
	Valley Boulevard to I-10 Ramps	68.0	68.7	68.8	0.8	0.2	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Based on traffic data within the *Speedway Commerce Center II Specific Plan Project Traffic Impact Study*, prepared by Kimley-Horn, January 2022. Refer to Appendix B for traffic noise modeling assumptions and results.

Table 22 shows the volume of traffic generated by the Project would potentially meet the criteria for cumulative noise increases along several road segments. The noise levels along the following roadway segments result in combined effects and incremental effects:

- Randall Avenue from Cherry Avenue to Beech Avenue. Noise levels would be 67.6 dBA CNEL and would exceed the County's 60 dBA CNEL noise standard for residential uses. There are numerous residences located along this segment of Randall Avenue that would be impacted. However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

- Randall Avenue from Beech Avenue to Citrus Avenue. Noise levels would be 66.6 dBA CNEL and would exceed the County's 60 dBA CNEL noise standard for residential uses. There are numerous residences located along this segment of Randall Avenue that would be impacted. However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

- Randall Avenue from Citrus Avenue to Sierra Avenue. Noise levels would be 64.6 dBA CNEL and would exceed the County's 60 dBA CNEL noise standard for residential uses. There are numerous residences located along this segment of Randall Avenue that would be impacted. However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

- San Bernardino Avenue from Etiwanda Avenue to Commerce Drive. Noise levels would be 71.7 dBA CNEL; however, only industrial uses are located along this segment and the County does not employ traffic noise standards for industrial uses. Therefore, although traffic noise is anticipated to substantially increase along this roadway segment under Horizon Year 2040 With Phases 1&2

conditions, traffic noise levels would not exceed any applicable standards. Impacts along this segment would be less than significant.

- San Bernardino Avenue from Commerce Drive to Cherry Avenue. Noise levels would be 74.0 dBA CNEL; however, only industrial uses are located along this segment and the County does not employ traffic noise standards for industrial uses. Therefore, although traffic noise is anticipated to substantially increase along this roadway segment under Horizon Year 2040 With Phases 1&2 conditions, traffic noise levels would not exceed any applicable standards. Impacts along this segment would be less than significant.

- Cherry Avenue from Foothill Boulevard to Arrow Route. Noise levels would be 72.4 dBA CNEL and would exceed the County's 60 dBA CNEL noise standard for residential uses. There are numerous residences located along this segment of Cherry Avenue that would be impacted. However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

- Cherry Avenue from Arrow Route to Whittram Avenue. Noise levels would be 72.6 dBA CNEL; however, only industrial uses are located along this segment and the County does not employ traffic noise standards for industrial uses. Therefore, although traffic noise is anticipated to substantially increase along this roadway segment under Horizon Year 2040 With Phases 1&2 conditions, traffic noise levels would not exceed any applicable standards. Impacts along this segment would be less than significant.

- Cherry Avenue from Whittram Avenue to Merrill Avenue. Noise levels would be 72.7 dBA CNEL and would exceed the County's 60 dBA CNEL noise standard for residential uses (there is one residence located at the northeast corner of Cherry Avenue and Merrill Avenue, while the remaining land uses consist of industrial and vacant land that do not have mobile traffic noise standards). However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

- Cherry Avenue from Merrill Avenue to Randall Avenue. Noise levels would be 74.4 dBA CNEL; however, only industrial uses are located along this segment and the County does not employ traffic noise standards for industrial uses. Therefore, although traffic noise is anticipated to substantially increase along this roadway segment under Horizon Year 2040 With Phases 1&2 conditions, traffic noise levels would not exceed any applicable standards. Impacts along this segment would be less than significant.

- Cherry Avenue from Randall Avenue to San Bernardino Avenue. Noise levels would be 74.6 dBA CNEL and would exceed the County's 65 dBA CNEL noise standard for institutional/public uses (there is an Industrial Technical Learning Center [InTech]) to the west of Cherry Avenue along this segment), while the remaining land uses consist of industrial development that do not have mobile traffic noise standards). However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

- Cherry Avenue from San Bernardino Avenue to Valley Boulevard. Noise levels would be 73.7 dBA CNEL and would exceed the County's 60 dBA CNEL noise standard for residential uses (there are several residences to the east of Cherry Avenue along this segment, while the remaining land uses consist of industrial and commercial development that do not have mobile traffic noise standards). However, due to jurisdictional and access limitations, safety and maintenance issues, and cost, there are no feasible mitigation measures to reduce cumulative traffic noise impacts along this roadway segment. Impacts would be significant and unavoidable.

As discussed above, the Project would result in a cumulatively considerable contribution to a cumulatively significant operational traffic noise impact at several roadway segments in the Project area. There are no feasible mitigation measures to reduce off-site mobile traffic noise impacts. Therefore, a significant and unavoidable impact would occur in this regard.

Cumulative Stationary Noise

Stationary noise sources from the proposed Project would result in an incremental increase in non-transportation noise sources in the Project vicinity. However, as discussed above, operational noise from stationary sources caused by the proposed Project would be less than significant as operational noise would be within the County's standards. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts in the Project vicinity Given that noise dissipates as it travels away from its source, operational noise impacts from on-site activities and other stationary sources would be limited to the Project site and vicinity. Thus, cumulative operational noise impacts from related projects, in conjunction with Project specific noise impacts, would not be cumulatively significant.

Similar to the proposed Project, other planned and approved projects would also be required to mitigate for any potentially significant stationary noise impacts at nearby sensitive receptors, if necessary, and comply with applicable County regulations that limit operational noise.

Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there was such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

Mitigation Measures: There are no feasible mitigation to reduce the cumulative traffic noise impacts identified above.

Level of Significance: Significant and unavoidable impact.

Cumulative Construction and Operational Noise Mitigation & Residual Impacts: Cumulative construction and on-site operational noise impacts would be less than significant and no mitigation is required. However, cumulative off-site traffic noise levels would result in a significant and unavoidable impact. Feasible mitigation measures would include the construction of noise barriers and/or noise abatement design features at the existing sensitive residences. However, the Project applicant (and the future Master Developer/Site Developers) does not have jurisdiction over the local roadways and/or existing residences to properly mitigate cumulative traffic noise impacts at the impacted receivers. No additional feasible mitigation measures are available that can reduce cumulative off-site mobile traffic noise impacts to a less than significant level.

7 REFERENCES

1. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.
2. California Department of Transportation, *Traffic Noise Analysis Protocol*, 2011.
3. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020.
4. California Department of Transportation, *Transportation Related Earthborne Vibrations*, February 20, 2002.
5. County of San Bernardino, *San Bernardino County, CA Code of Ordinances*, current through Ord. 4424, passed December 14, 2021.
6. County of San Bernardino, *Countywide Policy Plan*, October 2020.
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12. Kimley-Horn and Associates, *Speedway Commerce Center II Specific Plan*, 2021.
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14. Kimley-Horn and Associates, *Speedway Commerce Center II Specific Plan Project Traffic Impact Study*, December 2021.

Appendix A

Existing Ambient Noise Measurements

Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	1	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	9:08 - 9:18 AM
Location:	Along Arrow Route, near Gallup Court		
Noise Sources:	Cars, construction, large trucks		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
73.4	53.4	86.9	104.5

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	73
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.10 inHg
Humidity:	19%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.008.s	Computer's File Name	LxTse_0005586-20211201 090858-CMW3.008.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 09:08:58	Duration	0:10:00.0
End Time	2021-12-01 09:18:58	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	73.4 dB		
LAE	101.2 dB	SEA	--- dB
EA	1.5 mPa²h		
LA_{peak}	104.5 dB	2021-12-01 09:18:00	
LAS_{max}	86.9 dB	2021-12-01 09:18:00	
LAS_{min}	53.4 dB	2021-12-01 09:18:44	
LA_{eq}	73.4 dB		
LC_{eq}	79.5 dB	LC_{eq} - LA_{eq}	6.0 dB
LAI_{eq}	76.1 dB	LAI_{eq} - LA_{eq}	2.6 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	1	0:00:02.4
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
73.4 dB	73.4 dB	0.0 dB

LDEN	LDay	LEve	LNight
73.4 dB	73.4 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	73.4 dB		79.5 dB		--- dB	
$Ls_{(max)}$	86.9 dB	2021-12-01 09:18:00	--- dB		--- dB	
$LS_{(min)}$	53.4 dB	2021-12-01 09:18:44	--- dB		--- dB	
$L_{Peak(max)}$	104.5 dB	2021-12-01 09:18:00	--- dB		--- dB	

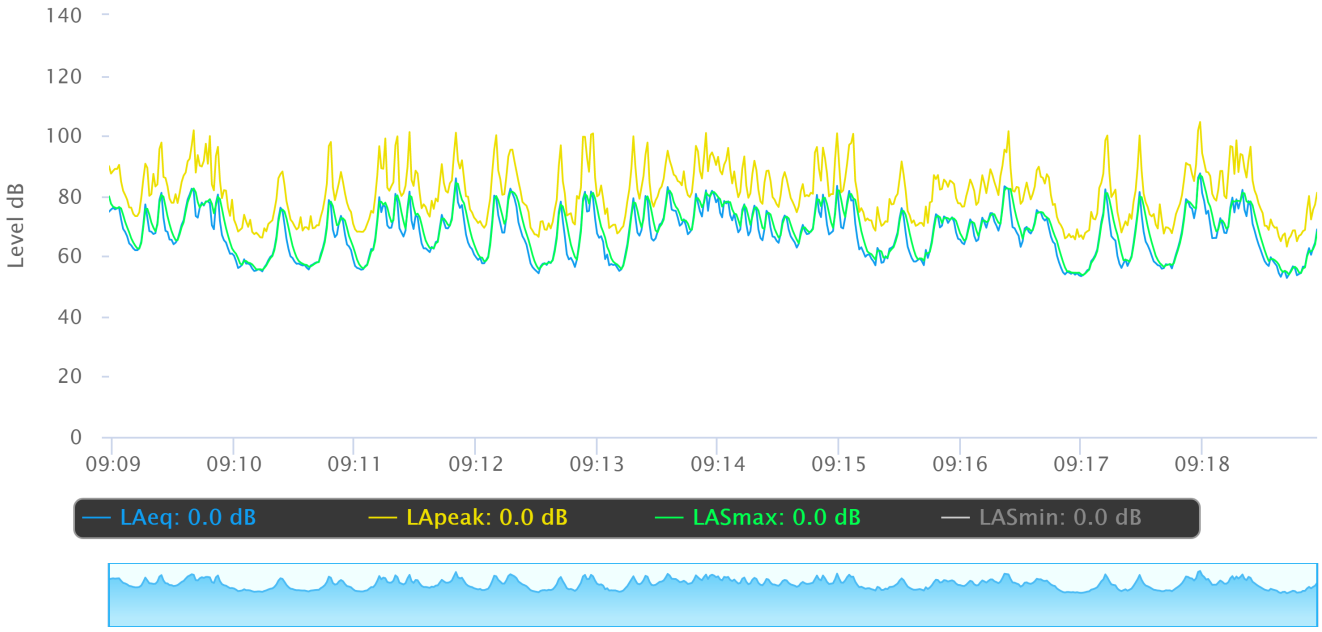
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	79.6 dB
LAS 10.0	77.9 dB
LAS 33.3	72.3 dB
LAS 50.0	68.9 dB
LAS 66.6	64.0 dB
LAS 90.0	57.0 dB

Time History



Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	2	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	9:28 - 9:38 AM
Location:	Calabash Avenue/near Whittram		
Noise Sources:	Birds, dogs, construction, residents, large trucks		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
60.4	45.4	82.0	95.8

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	76
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.09 inHg
Humidity:	18%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.009.s	Computer's File Name	LxTse_0005586-20211201 092809-CMW3.009.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 09:28:09	Duration	0:10:00.0
End Time	2021-12-01 09:38:09	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	60.4 dB		
LAE	88.1 dB	SEA	--- dB
EA	72.5 µPa²h		
LA_{peak}	95.8 dB	2021-12-01 09:32:50	
LAS_{max}	82.0 dB	2021-12-01 09:32:51	
LAS_{min}	45.4 dB	2021-12-01 09:30:51	
LA_{eq}	60.4 dB		
LC_{eq}	69.0 dB	LC_{eq} - LA_{eq}	8.6 dB
LAI_{eq}	63.3 dB	LAI_{eq} - LA_{eq}	3.0 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
60.4 dB	60.4 dB	0.0 dB

LDEN	LDay	LEve	LNight
60.4 dB	60.4 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	60.4 dB		69.0 dB		--- dB	
$Ls_{(max)}$	82.0 dB	2021-12-01 09:32:51	--- dB		--- dB	
$LS_{(min)}$	45.4 dB	2021-12-01 09:30:51	--- dB		--- dB	
$L_{Peak(max)}$	95.8 dB	2021-12-01 09:32:50	--- dB		--- dB	

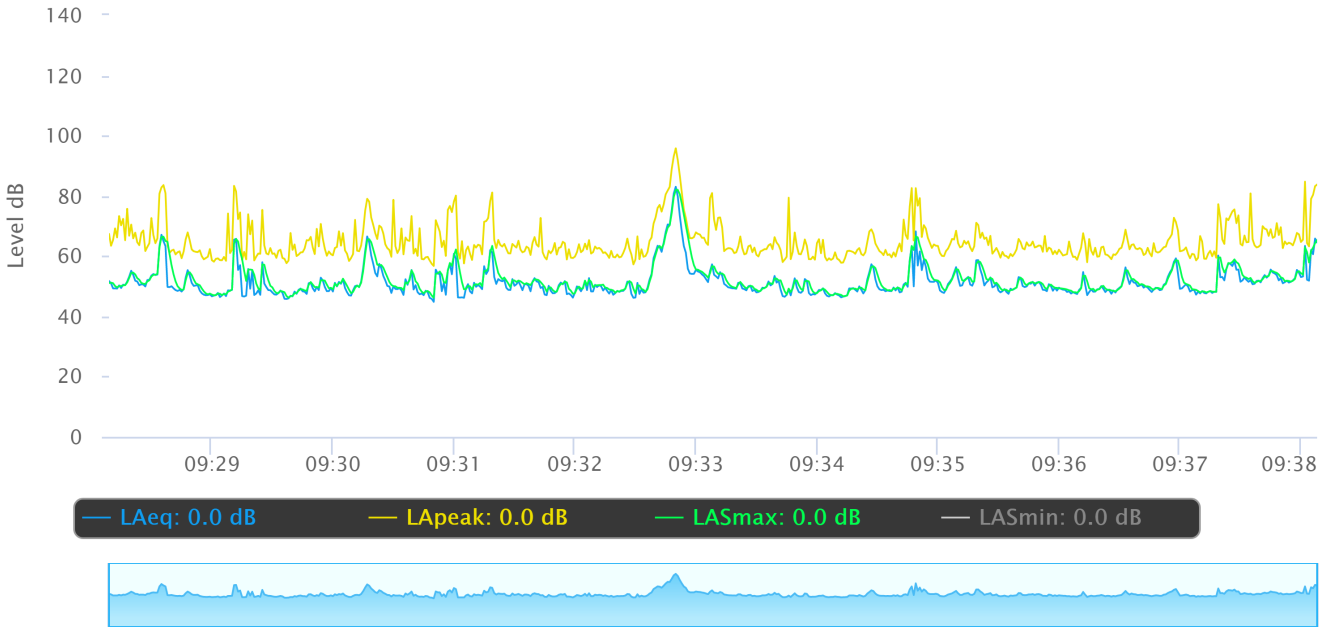
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	61.9 dB
LAS 10.0	57.0 dB
LAS 33.3	51.7 dB
LAS 50.0	50.3 dB
LAS 66.6	49.1 dB
LAS 90.0	47.9 dB

Time History



Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	3	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	9:45 - 9:55 PM
Location:	Intersection of Arrow Route and Almond Avenue		
Noise Sources:	Cars, dog, motorcycles/trucks		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
73.4	53.9	94.5	111.5

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	79
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.09 inHg
Humidity:	15%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.010.s	Computer's File Name	LxTse_0005586-20211201 094506-CMW3.010.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 09:45:06	Duration	0:10:00.0
End Time	2021-12-01 09:55:06	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	73.4 dB		
LAE	101.2 dB	SEA	--- dB
EA	1.5 mPa²h		
LA_{peak}	111.5 dB	2021-12-01 09:51:04	
LAS_{max}	94.5 dB	2021-12-01 09:51:04	
LAS_{min}	53.9 dB	2021-12-01 09:49:24	
LA_{eq}	73.4 dB		
LC_{eq}	78.7 dB	LC_{eq} - LA_{eq}	5.3 dB
LAI_{eq}	78.4 dB	LAI_{eq} - LA_{eq}	5.0 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	1	0:00:03.3
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
73.4 dB	73.4 dB	0.0 dB

LDEN	LDay	LEve	LNight
73.4 dB	73.4 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	73.4 dB		78.7 dB		--- dB	
$Ls_{(max)}$	94.5 dB	2021-12-01 09:51:04	--- dB		--- dB	
$LS_{(min)}$	53.9 dB	2021-12-01 09:49:24	--- dB		--- dB	
$L_{Peak(max)}$	111.5 dB	2021-12-01 09:51:04	--- dB		--- dB	

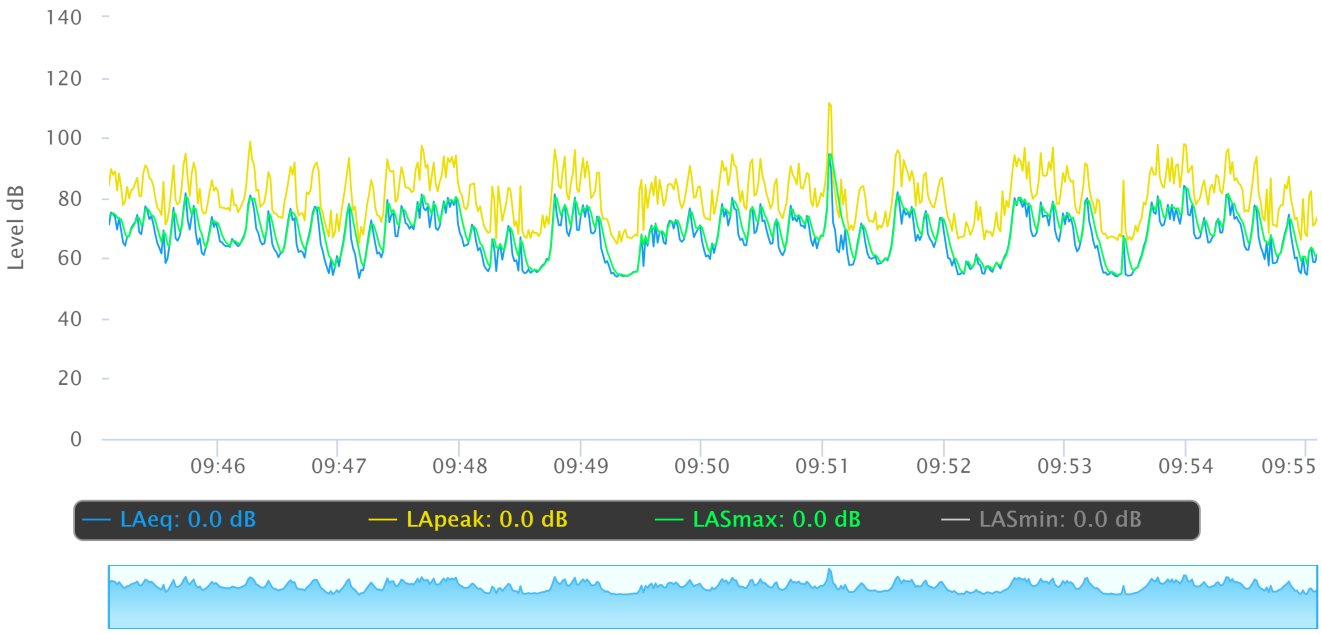
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	78.0 dB
LAS 10.0	76.4 dB
LAS 33.3	71.8 dB
LAS 50.0	68.6 dB
LAS 66.6	65.1 dB
LAS 90.0	57.4 dB

Time History



Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	4	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	10:06 - 10:17 AM
Location:	Eastern side of Redwood Avenue		
Noise Sources:	Roosters, cars, dog		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
62.4	44.4	79.9	94.5

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	81
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.09 inHg
Humidity:	13%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.011.s	Computer's File Name	LxTse_0005586-20211201 100644-CMW3.011.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 10:06:44	Duration	0:10:10.6
End Time	2021-12-01 10:17:45	Run Time	0:10:07.0
Pause Time	0:00:03.6		

Results

Overall Metrics

LA_{eq}	62.4 dB		
LAE	90.3 dB	SEA	--- dB
EA	118.4 µPa²h		
LA_{peak}	94.5 dB	2021-12-01 10:07:39	
LAS_{max}	79.9 dB	2021-12-01 10:07:39	
LAS_{min}	44.4 dB	2021-12-01 10:12:55	
LA_{eq}	62.4 dB		
LC_{eq}	69.4 dB	LC_{eq} - LA_{eq}	7.0 dB
LAI_{eq}	65.3 dB	LAI_{eq} - LA_{eq}	2.8 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
62.4 dB	62.4 dB	0.0 dB

LDEN	LDay	LEve	LNight
62.4 dB	62.4 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	62.4 dB		69.4 dB		--- dB	
$Ls_{(max)}$	79.9 dB	2021-12-01 10:07:39	--- dB		--- dB	
$LS_{(min)}$	44.4 dB	2021-12-01 10:12:55	--- dB		--- dB	
$L_{Peak(max)}$	94.5 dB	2021-12-01 10:07:39	--- dB		--- dB	

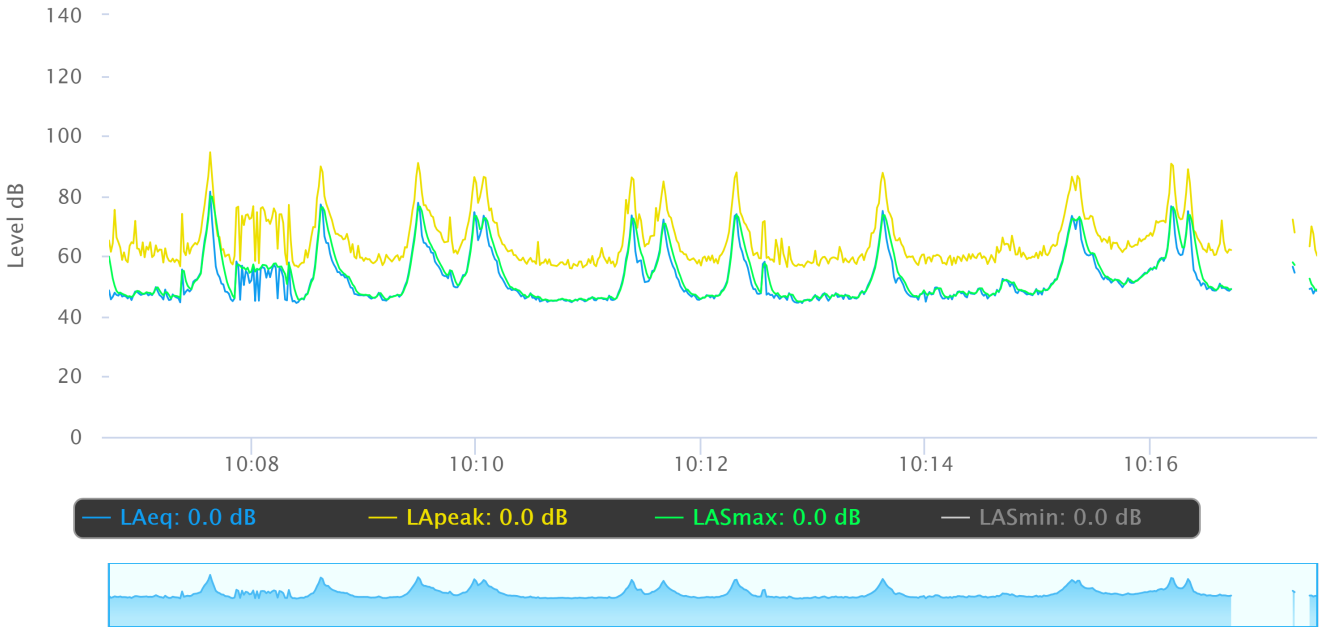
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	70.4 dB
LAS 10.0	65.7 dB
LAS 33.3	53.5 dB
LAS 50.0	49.7 dB
LAS 66.6	47.5 dB
LAS 90.0	45.8 dB

Time History



Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	5	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	10:24 - 10:34 AM
Location:	Live Oak Avenue and Manzanita Drive		
Noise Sources:	Cars, school		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
61.9	45.1	74.5	90.5

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	82
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.08
Humidity:	12%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.012.s	Computer's File Name	LxTse_0005586-20211201 102432-CMW3.012.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 10:24:32	Duration	0:10:00.0
End Time	2021-12-01 10:34:32	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	61.9 dB		
LAE	89.7 dB	SEA	--- dB
EA	104.1 µPa²h		
LA_{peak}	90.5 dB	2021-12-01 10:25:51	
LAS_{max}	74.5 dB	2021-12-01 10:29:25	
LAS_{min}	45.1 dB	2021-12-01 10:28:23	
LA_{eq}	61.9 dB		
LC_{eq}	67.9 dB	LC_{eq} - LA_{eq}	5.9 dB
LAI_{eq}	63.5 dB	LAI_{eq} - LA_{eq}	1.5 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
61.9 dB	61.9 dB	0.0 dB

LDEN	LDay	LEve	LNight
61.9 dB	61.9 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.9 dB		67.9 dB		--- dB	
$Ls_{(max)}$	74.5 dB	2021-12-01 10:29:25	--- dB		--- dB	
$LS_{(min)}$	45.1 dB	2021-12-01 10:28:23	--- dB		--- dB	
$L_{Peak(max)}$	90.5 dB	2021-12-01 10:25:51	--- dB		--- dB	

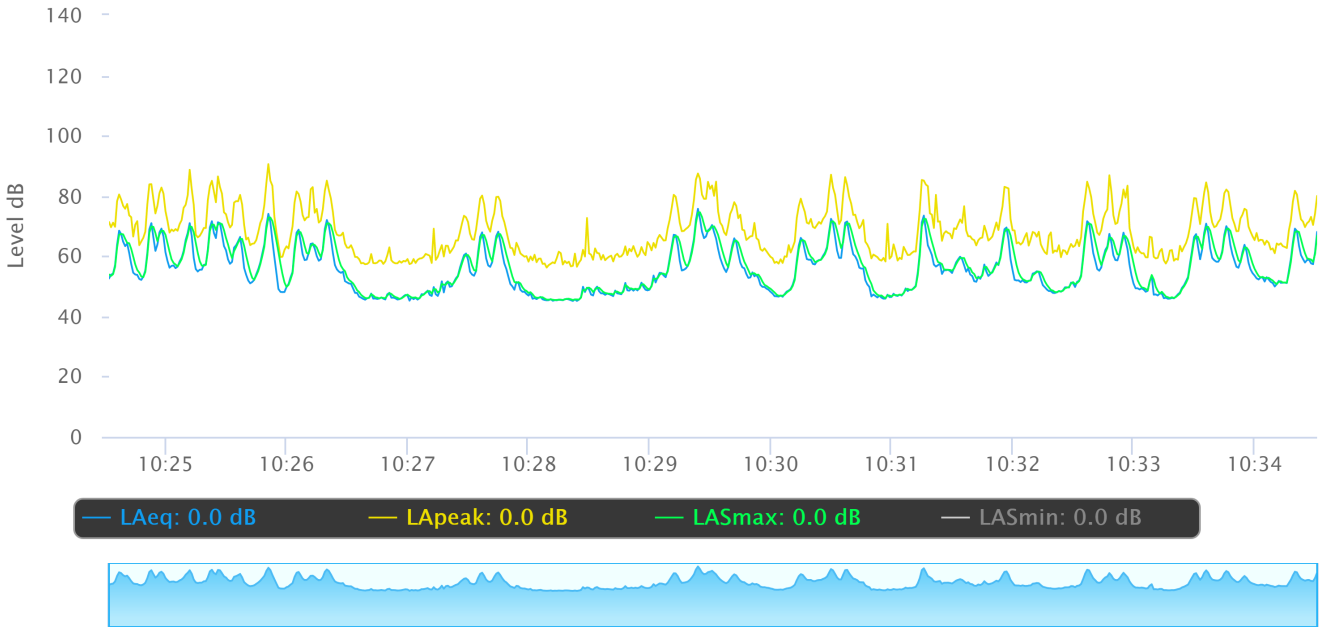
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	68.8 dB
LAS 10.0	66.8 dB
LAS 33.3	59.4 dB
LAS 50.0	55.1 dB
LAS 66.6	50.9 dB
LAS 90.0	46.6 dB

Time History



Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	6	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	10:46 - 10:56 AM
Location:	Northern side of El Molino Street		
Noise Sources:	Heavy trucks, cars, warehouse workers		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
60.1	53.9	80.3	94.1

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	83
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.07
Humidity:	12%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.013.s	Computer's File Name	LxTse_0005586-20211201 104605-CMW3.013.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 10:46:05	Duration	0:10:00.0
End Time	2021-12-01 10:56:05	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	60.1 dB		
LAE	87.9 dB	SEA	--- dB
EA	68.0 µPa²h		
LA_{peak}	94.1 dB	2021-12-01 10:47:09	
LAS_{max}	80.3 dB	2021-12-01 10:47:09	
LAS_{min}	53.9 dB	2021-12-01 10:46:19	
LA_{eq}	60.1 dB		
LC_{eq}	70.8 dB	LC_{eq} - LA_{eq}	10.7 dB
LAI_{eq}	64.1 dB	LAI_{eq} - LA_{eq}	4.0 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
60.1 dB	60.1 dB	0.0 dB

LDEN	LDay	LEve	LNight
60.1 dB	60.1 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	60.1 dB		70.8 dB		--- dB	
$Ls_{(max)}$	80.3 dB	2021-12-01 10:47:09	--- dB		--- dB	
$LS_{(min)}$	53.9 dB	2021-12-01 10:46:19	--- dB		--- dB	
$L_{Peak(max)}$	94.1 dB	2021-12-01 10:47:09	--- dB		--- dB	

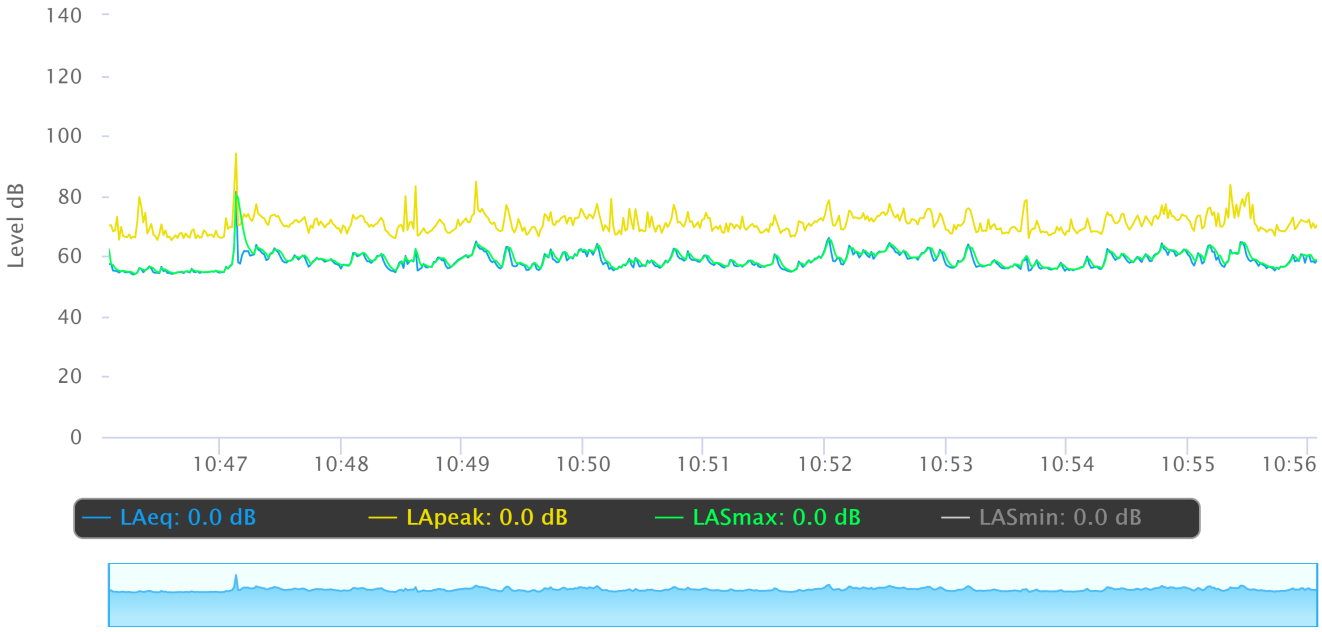
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	62.6 dB
LAS 10.0	61.6 dB
LAS 33.3	59.4 dB
LAS 50.0	58.3 dB
LAS 66.6	57.1 dB
LAS 90.0	55.5 dB

Time History



Noise Measurement Field Data

Project:	Hillwood Next Gen Speedway Commerce Center	**Job Number:**	95996114
Site No.:	7	**Date:**	12/1/2021
Analyst:	Jackie Tran and Serena Lin	**Time:**	11:05 - 11:15 AM
Location:	San Bernardino Avenue and Calabash Avenue		
Noise Sources:	Cars, large trucks, workers		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
61.5	51.9	73.7	91.5

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	86
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.07
Humidity:	9%

Photo:



Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	CMW3.014.s	Computer's File Name	LxTse_0005586-20211201 110530-CMW3.014.ldbin
Meter	LxT SE 0005586		
Firmware	2.404		
User		Location	
Job Description			
Note			
Start Time	2021-12-01 11:05:30	Duration	0:10:00.0
End Time	2021-12-01 11:15:30	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	61.5 dB		
LAE	89.3 dB	SEA	--- dB
EA	95.0 µPa²h		
LA_{peak}	91.5 dB	2021-12-01 11:07:15	
LAS_{max}	73.7 dB	2021-12-01 11:09:33	
LAS_{min}	51.9 dB	2021-12-01 11:12:00	
LA_{eq}	61.5 dB		
LC_{eq}	73.4 dB	LC_{eq} - LA_{eq}	11.8 dB
LAI_{eq}	63.5 dB	LAI_{eq} - LA_{eq}	1.9 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
61.5 dB	61.5 dB	0.0 dB

LDEN	LDay	LEve	LNight
61.5 dB	61.5 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.5 dB		73.4 dB		--- dB	
$Ls_{(max)}$	73.7 dB	2021-12-01 11:09:33	--- dB		--- dB	
$LS_{(min)}$	51.9 dB	2021-12-01 11:12:00	--- dB		--- dB	
$L_{Peak(max)}$	91.5 dB	2021-12-01 11:07:15	--- dB		--- dB	

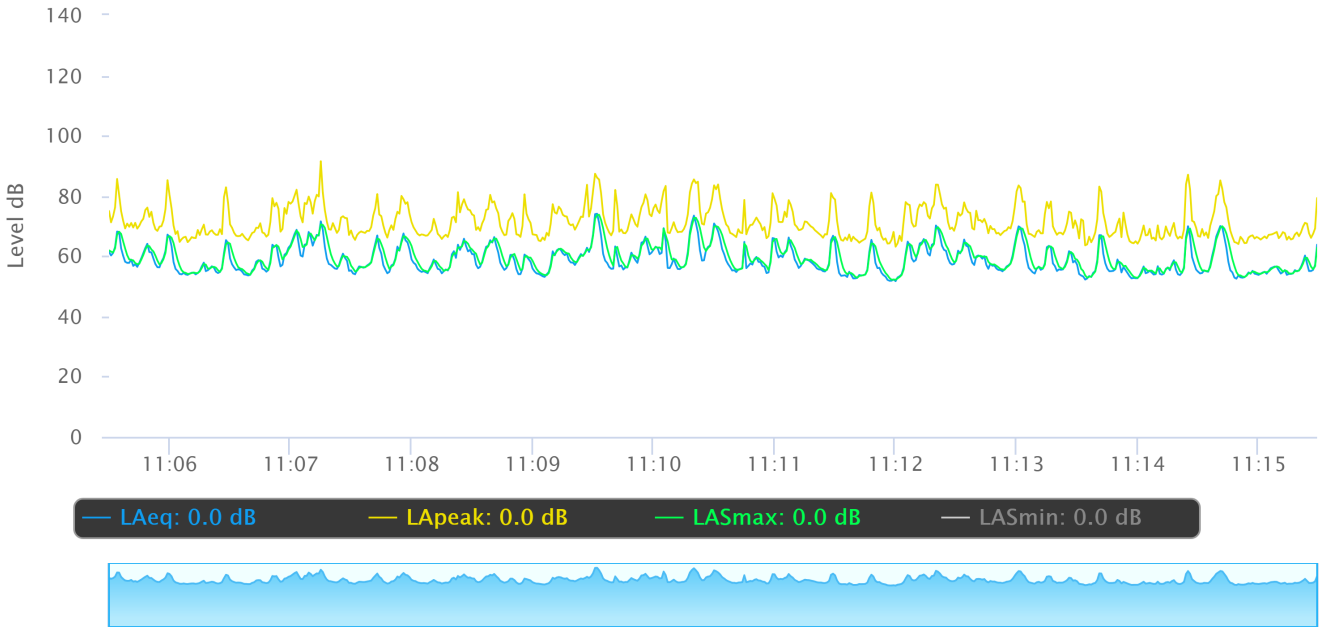
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	67.1 dB
LAS 10.0	65.1 dB
LAS 33.3	60.5 dB
LAS 50.0	58.1 dB
LAS 66.6	56.3 dB
LAS 90.0	54.2 dB

Time History



Appendix B

Noise Modeling Data

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Existing
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	7,100	45	0	2.0%	1.0%	61.7	-	-	150	473
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	10,050	45	0	2.0%	1.0%	63.1	-	65	206	652
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	14,370	45	0	2.0%	1.0%	64.8	-	96	302	956
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	20,200	50	0	2.0%	1.0%	67.4	-	176	555	1,756
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	23,960	50	0	2.0%	1.0%	68.9	-	246	777	2,457
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	23,530	45	0	2.0%	1.0%	67.2	-	164	520	1,645
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	24,070	45	0	2.0%	1.0%	67.2	-	167	530	1,675
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	18,380	45	0	2.0%	1.0%	66.1	-	128	404	1,276
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	16,120	45	0	2.0%	1.0%	65.5	-	112	353	1,117
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	38,120	50	0	2.0%	1.0%	70.4	110	348	1,100	3,478
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	28,360	50	0	2.0%	1.0%	69.1	82	259	818	2,587
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	21,620	50	0	2.0%	1.0%	67.8	-	192	607	1,919
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	21,440	50	0	2.0%	1.0%	67.8	-	190	602	1,903
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	22,540	45	0	2.0%	1.0%	66.7	47	148	467	1,478
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	19,880	45	0	2.0%	1.0%	66.2	-	132	417	1,319
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	19,980	50	0	2.0%	1.0%	67.3	54	170	538	1,702
17	Arrow Route	Etiwanda Avenue to Cherry Avenue	2	0	14,740	45	0	2.0%	1.0%	64.8	-	95	301	952
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	15,380	45	0	2.0%	1.0%	65.0	-	99	314	994
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	13,760	45	0	2.0%	1.0%	64.5	-	89	281	889
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	13,950	35	0	2.0%	1.0%	62.2	-	53	166	526
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	6,610	40	0	2.0%	1.0%	60.1	-	33	103	326
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	7,730	40	0	2.0%	1.0%	60.8	-	38	121	381
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	10,520	40	0	2.0%	1.0%	62.2	-	53	166	526
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	5,680	40	0	2.0%	1.0%	59.5	-	-	89	280
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	4,260	40	0	2.0%	1.0%	58.2	-	-	66	210
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	6,540	40	0	2.0%	1.0%	60.1	-	-	103	327
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	23,700	55	0	6.0%	5.0%	72.3	171	540	1,706	5,396
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	15,160	50	0	6.0%	5.0%	69.2	83	261	827	2,615
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	10,580	55	0	6.0%	5.0%	68.4	69	219	692	2,188
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	16,810	55	0	6.0%	5.0%	70.5	111	351	1,109	3,508
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	11,030	40	0	6.0%	5.0%	66.0	40	125	396	1,251
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	8,630	40	0	6.0%	5.0%	64.9	-	99	312	987
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	10,700	40	0	6.0%	5.0%	65.9	-	122	387	1,224
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	19,260	45	0	6.0%	10.0%	70.9	123	388	1,227	3,880
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	17,240	45	0	6.0%	10.0%	70.4	110	347	1,098	3,473
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	10,290	45	0	6.0%	5.0%	66.6	-	146	461	1,457
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	13,920	50	0	6.0%	5.0%	68.7	75	236	746	2,360
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	15,770	55	0	6.0%	5.0%	70.0	100	317	1,004	3,174

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	17,010	50	0	6.0%	5.0%	69.7	93	296	935	2,955
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	22,920	50	0	6.0%	5.0%	71.2	133	419	1,325	4,191
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	23,800	50	0	6.0%	5.0%	71.2	133	420	1,327	4,197
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	15,450	45	0	6.0%	5.0%	69.0	80	253	800	2,530
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	19,040	45	0	6.0%	5.0%	69.3	85	270	854	2,700
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	21,090	45	0	6.0%	5.0%	70.0	100	316	998	3,157
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	19,940	40	0	6.0%	5.0%	68.8	77	243	767	2,426
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	21,800	40	0	6.0%	5.0%	69.2	84	265	839	2,652
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	24,510	40	0	6.0%	5.0%	69.5	89	280	887	2,804
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	23,490	50	0	6.0%	5.0%	71.2	131	414	1,310	4,143
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	23,890	50	0	6.0%	5.0%	71.4	137	433	1,368	4,327
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	20,230	50	0	6.0%	5.0%	70.5	112	354	1,119	3,537
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	30,560	50	0	6.0%	5.0%	72.7	184	583	1,843	5,829
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	33,470	50	0	6.0%	5.0%	72.9	197	623	1,971	6,234
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	27,850	45	0	6.0%	5.0%	71.6	145	458	1,448	4,579
54	Cherry Avenue	South of Slover Avenue	6	15	18,610	45	0	6.0%	5.0%	69.4	87	277	875	2,767
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	10,090	40	0	2.0%	1.0%	62.1	-	51	160	507
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	3,760	40	0	2.0%	1.0%	57.7	-	-	59	185
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	7,810	40	0	2.0%	1.0%	60.9	-	39	122	385
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	5,310	40	0	2.0%	1.0%	59.2	-	-	83	262
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	4,230	40	0	2.0%	1.0%	58.2	-	-	66	209
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	3,170	40	0	2.0%	1.0%	56.9	-	-	49	156
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	24,020	55	0	2.0%	1.0%	70.1	103	325	1,026	3,246
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	23,070	40	0	2.0%	1.0%	65.7	-	117	371	1,173
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	17,450	40	0	2.0%	1.0%	64.4	-	87	276	873
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	19,000	40	0	2.0%	1.0%	64.8	-	95	301	951
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	21,700	35	0	2.0%	1.0%	64.1	-	82	259	820
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	17,620	35	0	2.0%	1.0%	63.2	-	66	208	657
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	16,910	40	0	2.0%	1.0%	64.3	-	85	268	846
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	18,590	45	0	2.0%	1.0%	65.9	-	122	385	1,219
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	27,620	45	0	2.0%	1.0%	67.8	-	192	608	1,922
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	23,150	45	0	2.0%	1.0%	67.0	-	160	506	1,601
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	27,580	55	0	2.0%	1.0%	70.0	99	314	993	3,141
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	36,110	50	0	2.0%	1.0%	70.2	104	329	1,042	3,294
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	24,910	50	0	2.0%	1.0%	68.5	70	222	703	2,225
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	18,930	40	0	2.0%	1.0%	64.8	-	95	300	947
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	18,380	30	0	2.0%	1.0%	62.5	-	57	179	567
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	17,470	30	0	2.0%	1.0%	62.3	-	54	170	539
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	20,390	40	0	2.0%	1.0%	65.2	-	104	327	1,035
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	21,450	40	0	2.0%	1.0%	65.4	-	109	344	1,089
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	29,530	40	0	2.0%	1.0%	66.9	-	156	493	1,558
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	47,340	35	0	2.0%	1.0%	68.0	-	200	634	2,005

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Opening Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	7,526	45	0	2.0%	1.0%	62.0	-	-	159	501
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	10,653	45	0	2.0%	1.0%	63.4	-	69	219	691
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	15,232	45	0	2.0%	1.0%	65.1	-	101	320	1,013
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	21,412	50	0	2.0%	1.0%	67.7	59	186	589	1,861
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	25,398	50	0	2.0%	1.0%	69.2	-	260	824	2,605
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	24,942	45	0	2.0%	1.0%	67.4	-	174	551	1,743
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	26,534	45	0	2.0%	1.0%	67.7	-	185	584	1,846
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	20,353	45	0	2.0%	1.0%	66.5	-	141	447	1,413
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	17,597	45	0	2.0%	1.0%	65.9	-	122	386	1,219
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	41,147	50	0	2.0%	1.0%	70.7	119	375	1,187	3,754
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	31,152	50	0	2.0%	1.0%	69.5	90	284	899	2,842
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	22,927	50	0	2.0%	1.0%	68.1	64	203	643	2,035
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	23,346	50	0	2.0%	1.0%	68.2	66	207	655	2,072
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	24,532	45	0	2.0%	1.0%	67.1	51	161	509	1,609
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	21,563	45	0	2.0%	1.0%	66.6	-	143	452	1,431
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	21,569	50	0	2.0%	1.0%	67.6	58	184	581	1,837
17	Arrow Route	Eitwanda Avenue to Cherry Avenue	2	0	15,624	45	0	2.0%	1.0%	65.0	-	101	319	1,010
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	16,783	45	0	2.0%	1.0%	65.4	34	108	343	1,084
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	15,116	45	0	2.0%	1.0%	64.9	-	98	309	977
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	15,107	35	0	2.0%	1.0%	62.6	-	57	180	569
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	7,277	40	0	2.0%	1.0%	60.5	-	36	113	359
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	8,464	40	0	2.0%	1.0%	61.2	-	42	132	417
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	11,631	40	0	2.0%	1.0%	62.6	-	58	184	582
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	9,261	40	0	2.0%	1.0%	61.6	-	46	144	457
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	7,306	40	0	2.0%	1.0%	60.6	-	36	114	360
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	8,162	40	0	2.0%	1.0%	61.1	-	-	129	408
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	25,762	55	0	6.0%	5.0%	72.7	185	587	1,855	5,866
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	17,220	50	0	6.0%	5.0%	69.7	94	297	939	2,970
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	12,495	55	0	6.0%	5.0%	69.1	82	258	817	2,584
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	20,259	55	0	6.0%	5.0%	71.3	134	423	1,337	4,228
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	11,972	40	0	6.0%	5.0%	66.3	43	136	429	1,358
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	9,308	40	0	6.0%	5.0%	65.3	-	106	337	1,065
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	11,572	40	0	6.0%	5.0%	66.2	-	132	419	1,324
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	20,416	45	0	6.0%	10.0%	71.1	130	411	1,301	4,113
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	18,304	45	0	6.0%	10.0%	70.7	117	369	1,166	3,688
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	11,177	45	0	6.0%	5.0%	67.0	50	158	501	1,583
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	16,125	50	0	6.0%	5.0%	69.4	86	273	865	2,734

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	18,476	55	0	6.0%	5.0%	70.7	118	372	1,176	3,719
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	18,301	50	0	6.0%	5.0%	70.0	101	318	1,005	3,179
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	24,565	50	0	6.0%	5.0%	71.5	142	449	1,421	4,492
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	25,438	50	0	6.0%	5.0%	71.5	142	449	1,419	4,486
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	16,917	45	0	6.0%	5.0%	69.4	88	277	876	2,771
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	21,102	45	0	6.0%	5.0%	69.8	95	299	946	2,992
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	24,435	45	0	6.0%	5.0%	70.6	116	366	1,157	3,658
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	23,826	40	0	6.0%	5.0%	69.6	92	290	917	2,898
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	26,278	40	0	6.0%	5.0%	70.0	101	320	1,011	3,197
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	29,171	40	0	6.0%	5.0%	70.2	106	334	1,055	3,337
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	28,359	50	0	6.0%	5.0%	72.0	158	500	1,582	5,001
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	29,323	50	0	6.0%	5.0%	72.3	168	531	1,680	5,311
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	24,334	50	0	6.0%	5.0%	71.3	135	425	1,345	4,255
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	35,254	50	0	6.0%	5.0%	73.3	213	672	2,126	6,724
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	37,448	50	0	6.0%	5.0%	73.4	221	698	2,206	6,975
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	30,191	45	0	6.0%	5.0%	72.0	157	496	1,570	4,964
54	Cherry Avenue	South of Slover Avenue	6	15	20,267	45	0	6.0%	5.0%	69.8	95	301	953	3,013
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	10,695	40	0	2.0%	1.0%	62.3	-	54	170	538
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	4,006	40	0	2.0%	1.0%	58.0	-	-	62	198
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	8,349	40	0	2.0%	1.0%	61.1	-	41	130	412
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	5,679	40	0	2.0%	1.0%	59.5	-	-	89	280
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	4,624	40	0	2.0%	1.0%	58.6	-	-	72	228
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	3,360	40	0	2.0%	1.0%	57.2	-	-	52	166
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	25,661	55	0	2.0%	1.0%	70.4	110	347	1,097	3,467
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	24,724	40	0	2.0%	1.0%	66.0	-	126	397	1,257
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	18,547	40	0	2.0%	1.0%	64.7	-	93	293	928
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	20,190	40	0	2.0%	1.0%	65.0	-	101	319	1,010
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	23,102	35	0	2.0%	1.0%	64.4	-	87	276	873
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	18,837	35	0	2.0%	1.0%	63.5	-	70	222	702
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	19,015	40	0	2.0%	1.0%	64.8	-	95	301	951
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	20,575	45	0	2.0%	1.0%	66.3	-	135	427	1,349
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	30,117	45	0	2.0%	1.0%	68.2	66	210	663	2,096
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	25,119	45	0	2.0%	1.0%	67.4	-	174	549	1,737
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	29,405	55	0	2.0%	1.0%	70.2	106	335	1,059	3,348
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	38,477	50	0	2.0%	1.0%	70.5	111	351	1,110	3,510
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	26,735	50	0	2.0%	1.0%	68.8	76	239	755	2,388
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	20,316	40	0	2.0%	1.0%	65.1	-	102	321	1,017
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	19,693	30	0	2.0%	1.0%	62.8	-	61	192	607
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	18,908	30	0	2.0%	1.0%	62.7	-	58	184	583
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	21,783	40	0	2.0%	1.0%	65.4	-	111	350	1,106
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	23,387	40	0	2.0%	1.0%	65.7	-	119	375	1,187
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	31,772	40	0	2.0%	1.0%	67.2	-	168	530	1,676
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	50,580	35	0	2.0%	1.0%	68.3	-	214	677	2,142

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Opening Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	7,526	45	0	2.0%	1.0%	62.0	-	-	159	501
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	10,653	45	0	2.0%	1.0%	63.4	-	69	219	691
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	15,232	45	0	2.0%	1.0%	65.1	-	101	320	1,013
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	21,442	50	0	2.0%	1.0%	67.7	59	186	589	1,864
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	25,618	50	0	2.0%	1.0%	69.2	-	265	838	2,650
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	25,272	45	0	2.1%	1.1%	67.6	-	180	569	1,799
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	28,424	45	0	2.5%	1.6%	68.6	72	227	719	2,275
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	22,003	45	0	2.4%	1.4%	67.3	-	171	539	1,705
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	18,567	45	0	2.3%	1.4%	66.5	-	141	447	1,413
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	41,727	50	0	2.3%	1.3%	71.1	129	409	1,294	4,092
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	31,732	50	0	2.5%	1.6%	70.2	104	328	1,039	3,285
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	22,927	50	0	2.0%	1.0%	68.1	65	204	645	2,040
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	24,456	50	0	2.3%	1.3%	68.7	74	233	738	2,334
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	25,642	45	0	2.4%	1.4%	67.7	59	187	590	1,866
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	22,433	45	0	2.2%	1.3%	67.0	50	160	505	1,596
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	22,289	50	0	2.1%	1.2%	67.9	62	197	622	1,967
17	Arrow Route	Eitwanda Avenue to Cherry Avenue	2	0	16,974	45	0	2.0%	1.0%	65.4	35	110	347	1,097
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	17,783	45	0	2.3%	1.4%	66.0	40	127	403	1,273
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	16,176	45	0	2.4%	1.4%	65.7	37	117	371	1,172
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	15,747	35	0	2.3%	1.3%	63.2	-	65	207	654
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	7,837	40	0	2.4%	1.4%	61.4	-	44	139	439
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	9,024	40	0	2.4%	1.4%	62.0	-	51	160	505
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	12,381	40	0	2.7%	1.8%	63.8	-	77	243	767
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	12,921	40	0	4.0%	3.3%	65.4	34	109	344	1,087
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	10,166	40	0	4.1%	3.4%	64.4	-	87	274	866
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	9,982	40	0	3.2%	2.4%	63.6	-	72	227	717
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	26,882	55	0	6.2%	5.2%	73.0	199	628	1,986	6,279
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	19,440	50	0	6.5%	5.6%	70.5	113	358	1,132	3,578
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	16,755	55	0	6.6%	5.8%	70.7	119	375	1,186	3,749
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	27,169	55	0	6.7%	5.9%	73.0	197	624	1,973	6,240
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	12,722	40	0	6.2%	5.3%	66.8	47	150	474	1,498
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	9,838	40	0	6.2%	5.3%	65.7	-	117	371	1,173
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	12,122	40	0	6.2%	5.3%	66.6	46	144	455	1,439
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	20,416	45	0	6.0%	10.0%	71.1	130	411	1,301	4,113
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	18,874	45	0	6.1%	10.0%	70.8	121	381	1,206	3,814
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	11,687	45	0	6.1%	5.2%	67.3	53	169	534	1,690
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	17,215	50	0	6.4%	5.6%	69.9	98	311	983	3,108

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	19,176	55	0	6.5%	5.6%	71.1	130	412	1,303	4,119
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	19,631	50	0	6.2%	5.2%	70.4	111	350	1,108	3,502
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	25,895	50	0	6.1%	5.2%	71.8	153	483	1,527	4,829
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	26,318	50	0	6.1%	5.1%	71.7	149	470	1,487	4,704
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	18,857	45	0	6.2%	5.2%	70.0	101	318	1,006	3,182
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	24,732	45	0	6.3%	5.4%	70.6	116	367	1,161	3,672
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	30,515	45	0	6.5%	5.6%	71.9	156	492	1,556	4,922
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	31,016	40	0	6.5%	5.7%	71.1	130	411	1,299	4,109
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	35,818	40	0	6.6%	5.8%	71.8	151	478	1,513	4,783
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	38,711	40	0	6.5%	5.7%	71.8	152	482	1,524	4,821
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	38,459	50	0	6.6%	5.8%	73.7	233	737	2,332	7,374
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	34,673	50	0	6.6%	5.7%	73.3	215	680	2,149	6,795
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	28,694	50	0	6.5%	5.7%	72.3	171	542	1,712	5,415
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	39,044	50	0	6.3%	5.4%	73.9	248	783	2,475	7,827
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	39,598	50	0	6.2%	5.3%	73.8	241	762	2,409	7,617
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	31,361	45	0	6.1%	5.1%	72.2	165	523	1,654	5,231
54	Cherry Avenue	South of Slover Avenue	6	15	21,197	45	0	6.1%	5.1%	70.1	101	321	1,014	3,208
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	10,695	40	0	2.0%	1.0%	62.3	-	54	170	538
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	4,006	40	0	2.3%	1.3%	58.3	-	-	68	215
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	8,409	40	0	2.2%	1.2%	61.5	-	44	140	443
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	5,739	40	0	2.3%	1.3%	59.9	-	-	99	312
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	4,884	40	0	2.2%	1.2%	59.1	-	-	82	259
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	3,360	40	0	2.0%	1.0%	57.2	-	-	52	166
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	26,021	55	0	2.1%	1.1%	70.6	114	360	1,137	3,595
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	25,204	40	0	2.1%	1.1%	66.3	-	134	424	1,340
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	18,577	40	0	2.1%	1.1%	64.9	-	97	307	970
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	20,220	40	0	2.1%	1.1%	65.2	-	105	333	1,052
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	23,192	35	0	2.1%	1.1%	64.6	-	92	290	917
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	18,997	35	0	2.1%	1.2%	63.8	-	75	237	750
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	19,515	40	0	2.3%	1.3%	65.3	-	107	339	1,071
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	20,815	45	0	2.1%	1.1%	66.5	44	140	442	1,397
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	30,927	45	0	2.3%	1.4%	68.7	75	236	746	2,360
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	25,559	45	0	2.2%	1.3%	67.8	-	189	598	1,892
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	29,705	55	0	2.1%	1.1%	70.4	109	344	1,087	3,438
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	38,827	50	0	2.1%	1.1%	70.6	114	360	1,138	3,598
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	27,335	50	0	2.1%	1.2%	69.0	80	253	800	2,531
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	20,666	40	0	2.2%	1.2%	65.4	-	110	348	1,101
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	19,863	30	0	2.2%	1.2%	63.4	-	68	216	685
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	19,378	30	0	2.3%	1.4%	63.4	-	70	221	699
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	22,023	40	0	2.1%	1.1%	65.6	-	114	362	1,143
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	24,287	40	0	2.2%	1.3%	66.2	-	133	420	1,329
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	32,502	40	0	2.2%	1.2%	67.6	-	182	574	1,816
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	51,070	35	0	2.1%	1.1%	68.5	-	223	705	2,229

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Opening Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	7,952	45	0	2.0%	1.0%	62.2	-	53	168	530
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	11,256	45	0	2.0%	1.0%	63.6	-	73	231	730
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	16,094	45	0	2.0%	1.0%	65.3	-	107	339	1,071
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	22,624	50	0	2.0%	1.0%	67.9	62	197	622	1,967
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	26,835	50	0	2.0%	1.0%	69.4	87	275	870	2,752
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	26,354	45	0	2.0%	1.0%	67.7	-	184	582	1,842
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	27,978	45	0	2.0%	1.0%	67.9	-	195	616	1,947
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	21,456	45	0	2.0%	1.0%	66.7	-	149	471	1,490
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	18,564	45	0	2.0%	1.0%	66.1	-	129	407	1,286
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	43,434	50	0	2.0%	1.0%	71.0	125	396	1,253	3,962
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	32,853	50	0	2.0%	1.0%	69.8	95	300	948	2,997
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	24,224	50	0	2.0%	1.0%	68.3	68	215	680	2,150
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	24,633	50	0	2.0%	1.0%	68.4	69	219	691	2,186
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	25,885	45	0	2.0%	1.0%	67.3	54	170	537	1,697
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	22,756	45	0	2.0%	1.0%	66.8	-	151	478	1,510
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	22,768	50	0	2.0%	1.0%	67.9	61	194	613	1,939
17	Arrow Route	Eitwanda Avenue to Cherry Avenue	2	0	16,509	45	0	2.0%	1.0%	65.3	34	107	337	1,067
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	17,706	45	0	2.0%	1.0%	65.6	36	114	362	1,144
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	15,941	45	0	2.0%	1.0%	65.1	33	103	326	1,030
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	15,944	35	0	2.0%	1.0%	62.8	-	60	190	601
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	7,673	40	0	2.0%	1.0%	60.8	-	38	120	378
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	8,928	40	0	2.0%	1.0%	61.4	-	44	139	440
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	12,262	40	0	2.0%	1.0%	62.9	-	61	194	614
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	9,602	40	0	2.0%	1.0%	61.8	-	47	150	473
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	7,561	40	0	2.0%	1.0%	60.7	-	37	118	373
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	8,555	40	0	2.0%	1.0%	61.3	-	-	135	428
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	27,184	55	0	6.0%	5.0%	72.9	196	619	1,957	6,190
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	18,129	50	0	6.0%	5.0%	70.0	99	313	989	3,127
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	13,130	55	0	6.0%	5.0%	69.3	86	272	859	2,716
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	21,267	55	0	6.0%	5.0%	71.5	140	444	1,403	4,438
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	12,634	40	0	6.0%	5.0%	66.6	45	143	453	1,433
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	9,826	40	0	6.0%	5.0%	65.5	-	112	355	1,124
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	12,214	40	0	6.0%	5.0%	66.5	44	140	442	1,397
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	21,571	45	0	6.0%	10.0%	71.4	137	435	1,374	4,346
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	19,339	45	0	6.0%	10.0%	70.9	123	390	1,232	3,896
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	11,795	45	0	6.0%	5.0%	67.2	53	167	528	1,670
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	16,960	50	0	6.0%	5.0%	69.6	91	288	909	2,876

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	19,422	55	0	6.0%	5.0%	70.9	124	391	1,236	3,909
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	19,321	50	0	6.0%	5.0%	70.3	106	336	1,061	3,357
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	25,940	50	0	6.0%	5.0%	71.8	150	474	1,500	4,744
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	26,866	50	0	6.0%	5.0%	71.8	150	474	1,498	4,738
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	17,844	45	0	6.0%	5.0%	69.7	92	292	924	2,922
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	22,245	45	0	6.0%	5.0%	70.0	100	315	997	3,154
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	25,701	45	0	6.0%	5.0%	70.9	122	385	1,217	3,847
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	25,023	40	0	6.0%	5.0%	69.8	96	304	963	3,044
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	27,586	40	0	6.0%	5.0%	70.3	106	336	1,061	3,356
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	30,641	40	0	6.0%	5.0%	70.4	111	350	1,108	3,505
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	29,769	50	0	6.0%	5.0%	72.2	166	525	1,660	5,250
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	30,757	50	0	6.0%	5.0%	72.5	176	557	1,762	5,571
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	25,548	50	0	6.0%	5.0%	71.5	141	447	1,413	4,467
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	37,087	50	0	6.0%	5.0%	73.5	224	707	2,237	7,074
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	39,456	50	0	6.0%	5.0%	73.7	232	735	2,324	7,349
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	31,862	45	0	6.0%	5.0%	72.2	166	524	1,657	5,238
54	Cherry Avenue	South of Slover Avenue	6	15	21,383	45	0	6.0%	5.0%	70.0	101	318	1,005	3,179
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	11,301	40	0	2.0%	1.0%	62.5	-	57	180	568
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	4,231	40	0	2.0%	1.0%	58.2	-	-	66	209
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	8,817	40	0	2.0%	1.0%	61.4	-	43	137	435
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	5,997	40	0	2.0%	1.0%	59.7	-	-	94	296
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	4,878	40	0	2.0%	1.0%	58.8	-	-	76	241
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	3,550	40	0	2.0%	1.0%	57.4	-	-	55	175
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	27,102	55	0	2.0%	1.0%	70.6	116	366	1,158	3,662
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	26,108	40	0	2.0%	1.0%	66.2	-	133	420	1,327
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	19,594	40	0	2.0%	1.0%	64.9	-	98	310	980
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	21,330	40	0	2.0%	1.0%	65.3	-	107	338	1,067
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	24,404	35	0	2.0%	1.0%	64.6	-	92	291	922
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	19,894	35	0	2.0%	1.0%	63.7	-	74	234	742
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	20,029	40	0	2.0%	1.0%	65.0	-	100	317	1,002
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	21,691	45	0	2.0%	1.0%	66.5	45	142	450	1,422
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	31,774	45	0	2.0%	1.0%	68.4	70	221	699	2,211
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	26,508	45	0	2.0%	1.0%	67.6	-	183	580	1,833
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	31,060	55	0	2.0%	1.0%	70.5	112	354	1,118	3,537
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	40,643	50	0	2.0%	1.0%	70.7	117	371	1,172	3,708
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	28,229	50	0	2.0%	1.0%	69.0	80	252	797	2,521
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	21,452	40	0	2.0%	1.0%	65.3	-	107	339	1,073
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	20,796	30	0	2.0%	1.0%	63.1	-	64	203	641
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	19,956	30	0	2.0%	1.0%	62.9	-	62	195	615
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	23,007	40	0	2.0%	1.0%	65.7	-	117	369	1,168
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	24,674	40	0	2.0%	1.0%	66.0	-	125	396	1,253
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	33,544	40	0	2.0%	1.0%	67.5	-	177	560	1,770
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	53,421	35	0	2.0%	1.0%	68.5	-	226	715	2,262

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Opening Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

							Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	7,952	45	0	2.0%	1.0%	62.2	-	53	168	530
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	11,256	45	0	2.0%	1.0%	63.6	-	73	231	730
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	16,094	45	0	2.0%	1.0%	65.3	-	107	339	1,071
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	22,624	50	0	2.0%	1.0%	67.9	62	197	622	1,967
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	26,975	50	0	2.0%	1.0%	69.5	88	279	883	2,791
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	26,624	45	0	2.1%	1.1%	67.8	-	190	599	1,895
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	30,218	45	0	2.5%	1.6%	68.8	76	242	765	2,418
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	23,126	45	0	2.4%	1.4%	67.5	-	179	567	1,792
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	19,874	45	0	2.3%	1.4%	66.8	-	151	478	1,512
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	45,194	50	0	2.3%	1.3%	71.5	140	443	1,401	4,432
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	35,503	50	0	2.5%	1.6%	70.7	116	368	1,162	3,675
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	24,264	50	0	2.0%	1.0%	68.3	68	216	683	2,159
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	25,773	50	0	2.3%	1.3%	68.9	78	246	778	2,460
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	27,355	45	0	2.4%	1.4%	68.0	63	199	629	1,991
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	23,656	45	0	2.2%	1.3%	67.3	53	168	532	1,683
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	23,488	50	0	2.1%	1.2%	68.2	66	207	656	2,073
17	Arrow Route	Eitwanda Avenue to Cherry Avenue	2	0	16,509	45	0	2.0%	1.0%	65.3	34	107	337	1,067
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	18,706	45	0	2.3%	1.4%	66.3	42	134	423	1,339
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	17,001	45	0	2.4%	1.4%	65.9	39	123	390	1,232
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	16,584	35	0	2.3%	1.3%	63.4	-	69	218	689
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	8,233	40	0	2.4%	1.4%	61.6	-	46	146	461
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	9,488	40	0	2.4%	1.4%	62.3	-	53	168	531
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	13,672	40	0	2.7%	1.8%	64.3	-	85	268	847
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	15,572	40	0	4.0%	3.3%	66.2	41	131	414	1,310
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	12,401	40	0	4.1%	3.4%	65.2	33	106	334	1,057
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	10,705	40	0	3.2%	2.4%	63.9	-	77	243	769
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	29,014	55	0	6.2%	5.2%	73.3	214	678	2,143	6,777
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	21,619	50	0	6.5%	5.6%	71.0	126	398	1,258	3,979
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	16,840	55	0	6.6%	5.8%	70.8	119	377	1,192	3,768
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	28,927	55	0	6.7%	5.9%	73.2	210	664	2,101	6,644
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	13,804	40	0	6.2%	5.3%	67.1	51	163	514	1,625
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	10,776	40	0	6.2%	5.3%	66.1	-	128	406	1,284
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	13,184	40	0	6.2%	5.3%	66.9	50	157	495	1,565
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	21,571	45	0	6.0%	10.0%	71.4	137	435	1,374	4,346
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	20,609	45	0	6.1%	10.0%	71.2	132	416	1,317	4,164
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	12,315	45	0	6.1%	5.2%	67.5	56	178	563	1,781

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	20,170	50	0	6.4%	5.6%	70.6	115	364	1,152	3,642
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	23,352	55	0	6.5%	5.6%	72.0	159	502	1,586	5,017
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	20,771	50	0	6.2%	5.2%	70.7	117	371	1,172	3,706
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	27,390	50	0	6.1%	5.2%	72.1	162	511	1,615	5,108
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	27,806	50	0	6.1%	5.1%	72.0	157	497	1,572	4,970
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	19,224	45	0	6.2%	5.2%	70.1	103	324	1,026	3,243
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	24,735	45	0	6.3%	5.4%	70.6	116	367	1,161	3,672
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	31,231	45	0	6.5%	5.6%	72.0	159	504	1,593	5,037
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	31,653	40	0	6.5%	5.7%	71.2	133	419	1,326	4,193
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	35,216	40	0	6.6%	5.8%	71.7	149	470	1,487	4,703
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	38,271	40	0	6.5%	5.7%	71.8	151	477	1,507	4,766
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	37,959	50	0	6.6%	5.8%	73.6	230	728	2,301	7,278
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	38,577	50	0	6.6%	5.7%	73.8	239	756	2,391	7,560
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	31,938	50	0	6.5%	5.7%	72.8	191	603	1,906	6,027
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	42,207	50	0	6.3%	5.4%	74.3	268	846	2,676	8,461
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	42,596	50	0	6.2%	5.3%	74.1	259	819	2,591	8,193
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	33,062	45	0	6.1%	5.1%	72.4	174	551	1,744	5,514
54	Cherry Avenue	South of Slover Avenue	6	15	22,343	45	0	6.1%	5.1%	70.3	107	338	1,069	3,381
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	11,301	40	0	2.0%	1.0%	62.5	-	57	180	568
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	4,561	40	0	2.3%	1.3%	58.9	-	-	78	245
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	9,207	40	0	2.2%	1.2%	61.9	-	49	154	486
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	6,387	40	0	2.3%	1.3%	60.4	-	35	110	347
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	5,138	40	0	2.2%	1.2%	59.3	-	-	86	272
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	3,550	40	0	2.0%	1.0%	57.4	-	-	55	175
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	27,462	55	0	2.1%	1.1%	70.8	120	379	1,200	3,794
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	26,598	40	0	2.1%	1.1%	66.5	-	141	447	1,414
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	19,954	40	0	2.1%	1.1%	65.2	-	104	330	1,042
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	21,690	40	0	2.1%	1.1%	65.5	-	113	357	1,128
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	24,824	35	0	2.1%	1.1%	64.9	-	98	310	982
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	20,334	35	0	2.1%	1.2%	64.0	-	80	254	803
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	20,859	40	0	2.3%	1.3%	65.6	-	114	362	1,144
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	21,931	45	0	2.1%	1.1%	66.7	47	147	466	1,472
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	33,284	45	0	2.3%	1.4%	69.0	80	254	803	2,540
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	27,398	45	0	2.2%	1.3%	68.1	64	203	641	2,028
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	31,370	55	0	2.1%	1.1%	70.6	115	363	1,148	3,631
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	41,013	50	0	2.1%	1.1%	70.8	120	380	1,202	3,800
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	28,839	50	0	2.1%	1.2%	69.3	84	267	844	2,670
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	22,132	40	0	2.2%	1.2%	65.7	-	118	373	1,179
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	21,626	30	0	2.2%	1.2%	63.7	-	75	236	745
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	21,086	30	0	2.3%	1.4%	63.8	-	76	240	760
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	23,247	40	0	2.1%	1.1%	65.8	-	121	382	1,207
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	25,574	40	0	2.2%	1.3%	66.5	-	140	442	1,399
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	34,364	40	0	2.2%	1.2%	67.8	-	192	607	1,920
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	54,001	35	0	2.1%	1.1%	68.7	-	236	745	2,357

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Horizon Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	10,480	45	0	2.0%	1.0%	63.4	-	70	221	698
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	14,280	45	0	2.0%	1.0%	64.7	-	93	293	927
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	20,640	45	0	2.0%	1.0%	66.4	-	137	434	1,373
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	30,660	50	0	2.0%	1.0%	69.3	84	267	843	2,665
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	31,770	50	0	2.0%	1.0%	70.1	103	326	1,030	3,258
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	32,240	45	0	2.0%	1.0%	68.5	71	225	713	2,253
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	31,250	45	0	2.0%	1.0%	68.4	69	217	688	2,174
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	30,560	45	0	2.0%	1.0%	68.3	67	212	671	2,122
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	28,580	45	0	2.0%	1.0%	68.0	63	198	626	1,980
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	45,090	50	0	2.0%	1.0%	71.1	130	411	1,301	4,114
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	36,570	50	0	2.0%	1.0%	70.2	105	334	1,055	3,336
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	28,920	50	0	2.0%	1.0%	69.1	81	257	812	2,566
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	28,900	50	0	2.0%	1.0%	69.1	81	256	811	2,565
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	28,580	45	0	2.0%	1.0%	67.7	59	187	593	1,874
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	27,060	45	0	2.0%	1.0%	67.5	57	180	568	1,796
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	38,850	50	0	2.0%	1.0%	70.2	105	331	1,046	3,309
17	Arrow Route	Eitwanda Avenue to Cherry Avenue	2	0	34,960	45	0	2.0%	1.0%	68.5	71	226	714	2,259
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	19,800	45	0	2.0%	1.0%	66.1	40	128	405	1,279
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	18,540	45	0	2.0%	1.0%	65.8	38	120	379	1,198
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	17,660	35	0	2.0%	1.0%	63.2	-	67	210	665
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	10,020	40	0	2.0%	1.0%	61.9	-	49	156	494
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	9,940	40	0	2.0%	1.0%	61.9	-	49	155	490
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	13,680	40	0	2.0%	1.0%	63.4	-	68	216	685
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	15,570	40	0	2.0%	1.0%	63.9	-	77	243	768
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	12,100	40	0	2.0%	1.0%	62.8	-	60	189	597
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	10,440	40	0	2.0%	1.0%	62.2	-	52	165	522
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	30,550	55	0	6.0%	5.0%	73.4	220	696	2,200	6,956
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	21,800	50	0	6.0%	5.0%	70.8	119	376	1,189	3,760
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	17,000	55	0	6.0%	5.0%	70.5	111	352	1,112	3,516
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	27,150	55	0	6.0%	5.0%	72.5	179	567	1,792	5,666
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	15,710	40	0	6.0%	5.0%	67.5	56	178	563	1,782
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	11,530	40	0	6.0%	5.0%	66.2	-	132	417	1,319
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	13,090	40	0	6.0%	5.0%	66.8	47	150	473	1,497
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	21,570	45	0	6.0%	10.0%	71.4	137	435	1,374	4,345
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	28,460	45	0	6.0%	10.0%	72.6	181	573	1,813	5,734
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	12,340	45	0	6.0%	5.0%	67.4	55	175	553	1,748
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	20,850	50	0	6.0%	5.0%	70.5	112	354	1,118	3,535

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	22,800	55	0	6.0%	5.0%	71.6	145	459	1,451	4,589
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	24,750	50	0	6.0%	5.0%	71.3	136	430	1,360	4,300
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	34,270	50	0	6.0%	5.0%	73.0	198	627	1,982	6,267
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	33,070	50	0	6.0%	5.0%	72.7	184	583	1,844	5,832
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	22,330	45	0	6.0%	5.0%	70.6	116	366	1,157	3,657
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	24,930	45	0	6.0%	5.0%	70.5	112	353	1,118	3,535
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	31,400	45	0	6.0%	5.0%	71.7	149	470	1,486	4,700
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	34,470	40	0	6.0%	5.0%	71.2	133	419	1,326	4,193
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	35,450	40	0	6.0%	5.0%	71.3	136	431	1,364	4,312
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	39,840	40	0	6.0%	5.0%	71.6	144	456	1,441	4,557
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	37,530	50	0	6.0%	5.0%	73.2	209	662	2,093	6,619
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	38,580	50	0	6.0%	5.0%	73.4	221	699	2,210	6,988
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	32,750	50	0	6.0%	5.0%	72.6	181	573	1,811	5,726
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	43,730	50	0	6.0%	5.0%	74.2	264	834	2,638	8,341
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	43,590	50	0	6.0%	5.0%	74.1	257	812	2,567	8,119
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	41,880	45	0	6.0%	5.0%	73.4	218	689	2,177	6,886
54	Cherry Avenue	South of Slover Avenue	6	15	26,820	45	0	6.0%	5.0%	71.0	126	399	1,261	3,988
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	16,190	40	0	2.0%	1.0%	64.1	-	81	257	814
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	9,040	40	0	2.0%	1.0%	61.5	-	45	141	446
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	13,920	40	0	2.0%	1.0%	63.4	-	69	217	686
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	9,390	40	0	2.0%	1.0%	61.7	-	46	146	463
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	8,710	40	0	2.0%	1.0%	61.3	-	43	136	429
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	12,610	40	0	2.0%	1.0%	62.9	-	62	197	622
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	28,280	55	0	2.0%	1.0%	70.8	121	382	1,208	3,821
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	26,600	40	0	2.0%	1.0%	66.3	-	135	428	1,352
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	20,590	40	0	2.0%	1.0%	65.1	-	103	326	1,030
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	22,980	40	0	2.0%	1.0%	65.6	-	115	364	1,150
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	25,580	35	0	2.0%	1.0%	64.9	-	97	306	966
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	21,280	35	0	2.0%	1.0%	64.0	-	79	251	793
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	21,140	40	0	2.0%	1.0%	65.2	-	106	335	1,058
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	22,420	45	0	2.0%	1.0%	66.7	46	147	465	1,470
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	33,560	45	0	2.0%	1.0%	68.7	74	234	738	2,335
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	27,410	45	0	2.0%	1.0%	67.8	-	190	599	1,895
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	33,530	55	0	2.0%	1.0%	70.8	121	382	1,207	3,818
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	46,760	50	0	2.0%	1.0%	71.3	135	427	1,349	4,266
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	32,460	50	0	2.0%	1.0%	69.6	92	290	917	2,899
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	26,120	40	0	2.0%	1.0%	66.2	-	131	413	1,307
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	27,020	30	0	2.0%	1.0%	64.2	-	83	263	833
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	25,240	30	0	2.0%	1.0%	63.9	-	78	246	778
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	26,680	40	0	2.0%	1.0%	66.3	-	135	428	1,355
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	28,700	40	0	2.0%	1.0%	66.6	-	146	461	1,457
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	34,770	40	0	2.0%	1.0%	67.6	-	183	580	1,835
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	54,870	35	0	2.0%	1.0%	68.7	-	232	735	2,323

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Speedway Commerce Center II Specific Plan Project
Project Number: 94914001
Scenario: Horizon Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Highland Avenue	West of Beech Avenue	4	14	10,480	45	0	2.0%	1.0%	63.4	-	70	221	698
2	Highland Avenue	Beech Avenue to Citrus Avenue	2	10	14,280	45	0	2.0%	1.0%	64.7	-	93	293	927
3	Highland Avenue	Citrus Avenue to Sierra Avenue	4	13	20,640	45	0	2.0%	1.0%	66.4	-	137	434	1,373
4	Baseline Avenue	Etiwanda Avenue to I-15 SB Ramps	5	13	30,660	50	0	2.0%	1.0%	69.3	84	267	843	2,665
5	Baseline Avenue	I-15 SB Ramps to I-15 NB Ramps	10	10	31,910	50	0	2.0%	1.0%	70.2	104	330	1,044	3,301
6	Baseline Avenue	I-15 NB Ramps to Cherry Avenue	6	17	32,510	45	0	2.1%	1.1%	68.6	73	231	732	2,314
7	Baseline Avenue	Cherry Avenue to Beech Avenue	6	15	33,490	45	0	2.5%	1.6%	69.3	85	268	847	2,680
8	Baseline Avenue	Beech Avenue to Citrus Avenue	6	14	32,230	45	0	2.4%	1.4%	69.0	79	250	790	2,498
9	Baseline Avenue	Citrus Avenue to Sierra Avenue	6	13	29,890	45	0	2.3%	1.4%	68.6	72	227	719	2,274
10	Foothill Boulevard	I-15 SB Ramps to I-15 NB Ramps	7	12	46,850	50	0	2.3%	1.3%	71.6	145	459	1,453	4,594
11	Foothill Boulevard	I-15 NB Ramps to Etiwanda Avenue	6	24	39,220	50	0	2.5%	1.6%	71.1	128	406	1,284	4,060
12	Foothill Boulevard	Etiwanda Avenue to Beech Avenue	6	12	28,960	50	0	2.0%	1.0%	69.1	81	258	815	2,577
13	Foothill Boulevard	Cherry Avenue to Beech Avenue	6	12	30,040	50	0	2.3%	1.3%	69.6	91	287	907	2,867
14	Foothill Boulevard	Beech Avenue to Citrus Avenue	4	0	30,050	45	0	2.4%	1.4%	68.4	69	219	691	2,187
15	Foothill Boulevard	Citrus Avenue to Sierra Avenue	4	11	27,960	45	0	2.2%	1.3%	68.0	63	199	629	1,989
16	Arrow Route	Milliken Avenue to Etiwanda Avenue	4	11	39,570	50	0	2.1%	1.2%	70.4	110	349	1,104	3,492
17	Arrow Route	Eitwanda Avenue to Cherry Avenue	2	0	34,960	45	0	2.0%	1.0%	68.5	71	226	714	2,259
18	Arrow Route	Cherry Avenue to Beech Avenue	2	0	20,800	45	0	2.3%	1.4%	66.7	47	149	471	1,489
19	Arrow Route	Beech Avenue to Citrus Avenue	2	0	19,600	45	0	2.4%	1.4%	66.5	45	142	449	1,420
20	Arrow Route	Citrus Avenue to Sierra Avenue	4	10	18,300	35	0	2.3%	1.3%	63.8	-	76	240	760
21	Merrill Avenue	Cherry Avenue to Beech Avenue	2	0	10,580	40	0	2.4%	1.4%	62.7	-	59	187	592
22	Merrill Avenue	Beech Avenue to Citrus Avenue	2	0	10,500	40	0	2.4%	1.4%	62.7	-	59	186	588
23	Merrill Avenue	Citrus Avenue to Sierra Avenue	4	0	15,090	40	0	2.7%	1.8%	64.7	-	93	296	935
24	Randall Avenue	Cherry Avenue to Beech Avenue	2	0	21,540	40	0	4.0%	3.3%	67.6	57	181	573	1,812
25	Randall Avenue	Beech Avenue to Citrus Avenue	2	0	16,940	40	0	4.1%	3.4%	66.6	46	144	456	1,443
26	Randall Avenue	Citrus Avenue to Sierra Avenue	4	0	12,590	40	0	3.2%	2.4%	64.6	-	90	286	904
27	Fourth Street / San Bernardino Avenue	I-15 SB Ramps to I-15 NB Ramps	9	0	32,380	55	0	6.2%	5.2%	73.8	239	756	2,392	7,563
28	Fourth Street / San Bernardino Avenue	I-15 NB Ramps to Etiwanda Avenue	4	15	25,290	50	0	6.5%	5.6%	71.7	147	465	1,472	4,655
29	Fourth Street / San Bernardino Avenue	Etiwanda Avenue to Commerce Drive	4	16	20,710	55	0	6.6%	5.8%	71.7	147	463	1,466	4,634
30	Fourth Street / San Bernardino Avenue	Commerce Drive to Cherry Avenue	4	22	34,810	55	0	6.7%	5.9%	74.0	253	800	2,528	7,995
31	Fourth Street / San Bernardino Avenue	Cherry Avenue to Beech Avenue	2	13	16,880	40	0	6.2%	5.3%	68.0	63	199	628	1,987
32	Fourth Street / San Bernardino Avenue	Beech Avenue to Citrus Avenue	4	0	12,480	40	0	6.2%	5.3%	66.7	47	149	470	1,487
33	Fourth Street / San Bernardino Avenue	Citrus Avenue to Sierra Avenue	4	0	14,060	40	0	6.2%	5.3%	67.2	53	167	528	1,669
34	Valley Boulevard	Commerce Drive / I-10 Ramps to Cherry Avenue	4	12	21,570	45	0	6.0%	10.0%	71.4	137	435	1,374	4,345
35	Valley Boulevard	Cherry Avenue to Beech Avenue	4	12	29,730	45	0	6.1%	10.0%	72.8	190	601	1,900	6,007
36	Etiwanda Avenue	Baseline Avenue to Foothill Boulevard	4	10	12,860	45	0	6.1%	5.2%	67.7	59	186	588	1,859
37	Etiwanda Avenue	Foothill Boulevard to Arrow Route	4	0	24,060	50	0	6.4%	5.6%	71.4	137	434	1,374	4,344

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
38	Etiwanda Avenue	Arrow Route to San Bernardino Avenue / Fourth Street	2	13	26,730	55	0	6.5%	5.6%	72.6	182	574	1,816	5,742
39	Etiwanda Avenue	San Bernardino Avenue / Fourth Street to Valley Boulevard	4	20	26,200	50	0	6.2%	5.2%	71.7	148	467	1,478	4,674
40	Etiwanda Avenue	Valley Boulevard to I-10 WB Ramps	7	10	35,720	50	0	6.1%	5.2%	73.2	211	666	2,106	6,661
41	Etiwanda Avenue	I-10 WB Ramps to I-10 EB Ramps	6	5	34,010	50	0	6.1%	5.1%	72.8	192	608	1,922	6,079
42	Cherry Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	24	23,710	45	0	6.2%	5.2%	71.0	127	400	1,265	4,000
43	Cherry Avenue	SR-210 EB Ramps to Baseline Avenue	4	11	27,420	45	0	6.3%	5.4%	71.1	129	407	1,287	4,071
44	Cherry Avenue	Baseline Avenue to Foothill Boulevard	6	18	36,930	45	0	6.5%	5.6%	72.7	188	596	1,884	5,957
45	Cherry Avenue	Foothill Boulevard to Arrow Route	6	16	41,100	40	0	6.5%	5.7%	72.4	172	545	1,722	5,445
46	Cherry Avenue	Arrow Route to Whittram Avenue	6	16	43,080	40	0	6.6%	5.8%	72.6	182	575	1,819	5,753
47	Cherry Avenue	Whittram Avenue to Merrill Avenue	4	0	47,470	40	0	6.5%	5.7%	72.7	187	591	1,869	5,912
48	Cherry Avenue	Merrill Avenue to Randall Avenue	6	5	45,720	50	0	6.6%	5.8%	74.4	277	877	2,772	8,766
49	Cherry Avenue	Randall Avenue to San Bernardino Avenue	6	18	46,400	50	0	6.6%	5.7%	74.6	288	909	2,876	9,094
50	Cherry Avenue	San Bernardino Avenue to Valley Boulevard	6	0	39,140	50	0	6.5%	5.7%	73.7	234	739	2,336	7,387
51	Cherry Avenue	Valley Boulevard to I-10 WB Ramps	7	25	48,850	50	0	6.3%	5.4%	74.9	310	979	3,097	9,792
52	Cherry Avenue	I-10 WB Ramps to I-10 EB Ramps	8	5	46,730	50	0	6.2%	5.3%	74.5	284	899	2,842	8,988
53	Cherry Avenue	I-10 EB Ramps to Slover Avenue	8	25	43,080	45	0	6.1%	5.1%	73.6	227	719	2,272	7,185
54	Cherry Avenue	South of Slover Avenue	6	15	27,780	45	0	6.1%	5.1%	71.2	133	420	1,330	4,204
55	Beech Avenue	Highland Avenue to Baseline Avenue	4	5	16,190	40	0	2.0%	1.0%	64.1	-	81	257	814
56	Beech Avenue	Foothill Boulevard to Arrow Route	2	0	9,370	40	0	2.3%	1.3%	62.0	-	50	159	503
57	Beech Avenue	Arrow Route to Merrill Avenue	2	0	14,310	40	0	2.2%	1.2%	63.8	-	75	239	755
58	Beech Avenue	Merrill Avenue to Randall Avenue	2	0	9,780	40	0	2.3%	1.3%	62.3	-	53	168	531
59	Beech Avenue	Randall Avenue to San Bernardino Avenue	2	0	8,970	40	0	2.2%	1.2%	61.8	-	47	150	475
60	Beech Avenue	San Bernardino to Valley Boulevard	2	0	12,610	40	0	2.0%	1.0%	62.9	-	62	197	622
61	Citrus Avenue	SR-210 WB Ramps to SR-210 EB Ramps	8	43	28,640	55	0	2.1%	1.1%	71.0	125	396	1,251	3,957
62	Citrus Avenue	SR-210 EB Ramps to Baseline Avenue	4	14	27,090	40	0	2.1%	1.1%	66.6	-	144	456	1,441
63	Citrus Avenue	Baseline Avenue to Foothill Boulevard	4	0	20,950	40	0	2.1%	1.1%	65.4	-	109	346	1,094
64	Citrus Avenue	Foothill Boulevard to Arrow Route	4	0	23,340	40	0	2.1%	1.1%	65.8	-	121	384	1,214
65	Citrus Avenue	Arrow Route to Merrill Avenue	4	12	26,000	35	0	2.1%	1.1%	65.1	-	103	325	1,028
66	Citrus Avenue	Merrill Avenue to Randall Avenue	4	0	21,720	35	0	2.1%	1.2%	64.3	-	86	271	858
67	Citrus Avenue	Randall Avenue to San Bernardino Avenue	4	0	21,970	40	0	2.3%	1.3%	65.8	-	121	381	1,205
68	Citrus Avenue	San Bernardino Avenue to Valley Boulevard	4	0	22,660	45	0	2.1%	1.1%	66.8	48	152	481	1,521
69	Citrus Avenue	Valley Boulevard to I-10 WB Ramps	6	15	35,070	45	0	2.3%	1.4%	69.3	85	268	846	2,676
70	Citrus Avenue	I-10 WB Ramps to I-10 EB Ramps	7	0	28,300	45	0	2.2%	1.3%	68.2	66	209	662	2,095
71	Sierra Avenue	SR-210 WB Ramps to SR-210 EB Ramps	6	20	33,840	55	0	2.1%	1.1%	70.9	124	392	1,239	3,917
72	Sierra Avenue	SR-210 EB Ramps to Highland Avenue	6	24	47,130	50	0	2.1%	1.1%	71.4	138	437	1,381	4,367
73	Sierra Avenue	Highland Avenue to Baseline Avenue	6	15	33,070	50	0	2.1%	1.2%	69.9	97	306	968	3,062
74	Sierra Avenue	Baseline Avenue to Foothill Boulevard	4	0	26,800	40	0	2.2%	1.2%	66.5	45	143	451	1,428
75	Sierra Avenue	Foothill Boulevard to Arrow Route	4	10	27,850	30	0	2.2%	1.2%	64.8	-	96	304	960
76	Sierra Avenue	Arrow Route to Merrill Avenue	4	10	26,370	30	0	2.3%	1.4%	64.8	-	95	301	951
77	Sierra Avenue	Merrill Avenue to Randall Avenue	4	13	26,920	40	0	2.1%	1.1%	66.5	-	140	442	1,398
78	Sierra Avenue	Randall Avenue to San Bernardino Avenue	4	13	29,600	40	0	2.2%	1.3%	67.1	51	162	512	1,619
79	Sierra Avenue	San Bernardino Avenue to Valley Boulevard	6	12	35,590	40	0	2.2%	1.2%	68.0	63	199	629	1,988
80	Sierra Avenue	Valley Boulevard to I-10 Ramps	9	4	55,450	35	0	2.1%	1.1%	68.8	77	242	765	2,420

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential NE	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1900.0	0.0
Dozer	No	40		81.7	1900.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day L10	Evening Lmax	Evening L10	Night Lmax	Night L10	Day Lmax	Day L10	Evening Lmax	Evening L10	Night Lmax	Night L10
Concrete Saw	58.0	54.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.0	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Road Construction/Utilities

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential NE	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1900.0	0.0
Dozer	No	40		81.7	1900.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	49.1	45.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.1	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	50.1	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Excavation/Mass Site Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential NE	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1900.0	0.0
Roller	No	20		80.0	1900.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	48.4	41.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.4	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Concrete Pour

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential NE	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1900.0	0.0
Pumps	No	50		80.9	1900.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	49.0	41.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	49.3	46.3			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.3	47.4			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Paving/Landscap/Site Finishes

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential NE	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1900.0	0.0
Tractor	No	40	84.0		1900.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	53.4	49.4			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	52.4	48.4			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.4	52.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential NE	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1900.0	0.0
Compressor (air)	No	40		77.7	1900.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	46.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	46.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	46.1	45.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1270.0	0.0
Dozer	No	40		81.7	1270.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	61.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.5	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Road Construction/Utilities

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1270.0	0.0
Dozer	No	40		81.7	1270.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.6	52.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Excavation/Mass Site Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1270.0	0.0
Roller	No	20		80.0	1270.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	56.9	52.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	51.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.9	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Concrete Pour

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1270.0	0.0
Pumps	No	50		80.9	1270.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	52.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	52.8	49.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.8	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Paving/Landscap/Site Finishes

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1270.0	0.0
Tractor	No	40	84.0		1270.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	56.9	52.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	55.9	51.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.9	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1270.0	0.0
Compressor (air)	No	40		77.7	1270.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	49.6	45.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	49.6	45.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.6	48.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	3000.0	0.0
Dozer	No	40		81.7	3000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	54.0	47.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.0	48.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Road Construction/Utilities

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	3000.0	0.0
Dozer	No	40		81.7	3000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	45.1	41.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	46.1	44.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Excavation/Mass Site Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		3000.0	0.0
Roller	No	20		80.0	3000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	49.4	45.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	44.4	37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.4	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Concrete Pour

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	3000.0	0.0
Pumps	No	50		80.9	3000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	45.0	37.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	45.4	42.4			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45.4	43.5			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Paving/Landscap/Site Finishes

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		3000.0	0.0
Tractor	No	40	84.0		3000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	49.4	45.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.4	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.4	48.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	3000.0	0.0
Compressor (air)	No	40		77.7	3000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	42.1	38.1			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	42.1	38.1			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	42.1	41.1			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2000.0	0.0
Dozer	No	40		81.7	2000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Night	Day	Calculated (dBA) Evening	Night	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Lmax
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq			
Leq	Lmax	Leq								
Concrete Saw		57.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Dozer		49.6	45.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
	Total	57.5	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A				

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Road Construction/Utilities

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	2000.0	0.0
Dozer	No	40		81.7	2000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	48.7	44.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	49.6	45.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.6	48.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Excavation/Mass Site Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		2000.0	0.0
Roller	No	20		80.0	2000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	53.0	49.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	48.0	41.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.0	49.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Concrete Pour

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2000.0	0.0
Pumps	No	50		80.9	2000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	48.5	40.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	48.9	45.9			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	48.9	47.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Paving/Landscap/Site Finishes

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		2000.0	0.0
Tractor	No	40	84.0		2000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	53.0	49.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	52.0	48.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.0	51.5			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/17/2022
Case Description: Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential N	Residential	1.0	1.0	1.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2000.0	0.0
Compressor (air)	No	40		77.7	2000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	45.6	41.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	45.6	41.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45.6	44.7			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX L

SB 743 VMT Analysis

for:

Speedway Commerce Center II Specific Plan

In the County of San Bernardino

Prepared by:

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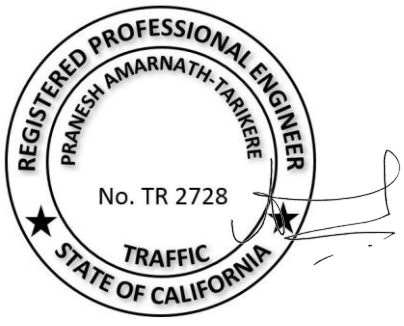


February 2022

Kimley»Horn

List of Acronyms:

- GHG – Greenhouse Gas
- LOS – Level of Service
- CEQA – California Environmental Quality Act
- OPR – Governor's Office of Planning and Research
- VMT – Vehicle Miles Traveled
- SCS – Sustainable Communities Strategies
- SOI – Sphere of Influence
- ASC – Auto Club Speedway
- SF – Square Feet
- TAZ – Traffic Analysis Zones
- TDM – Transportation Demand Management
- CTR – Commuter Trip Reduction
- CAPCOA – California Air Pollution Control Officers Association

DRAFT SB 743 VMT Analysis

Speedway Commerce Center II

February 10, 2022

Background

In 2013, SB 743 was signed into law by California Governor Jerry Brown with a goal of reducing Greenhouse Gas (GHG) emissions, promoting the development of infill land use projects and multimodal transportation networks, and to promote a diversity of land uses within developments. One significant outcome resulting from this statue is the removal of automobile delay and congestion, commonly known as Level of Service (LOS), as a basis for determining significant transportation impacts under the California Environmental Quality Act (CEQA).

The Governor's Office of Planning and Research (OPR) selected Vehicle Miles Traveled (VMT) as the principal measure to replace LOS for determining significant transportation impacts. VMT is a measure of total vehicular travel that accounts for the number of vehicle trips and the length of those trips. OPR selected VMT, in part, because jurisdictions are already familiar with this metric. VMT is already used in CEQA to study other potential impacts such as GHG, air quality, and energy impacts and is used in planning for regional Sustainable Communities Strategies (SCS).

VMT also allows for an analysis of a project's impact throughout the jurisdiction rather than only in the vicinity of the proposed project allowing for a better understanding of the full extent of a project's transportation-related impact. It should be noted that SB 743 does not disallow an agency to use LOS for other planning purposes outside the scope of CEQA.

This section documents SB 743 VMT analysis based on San Bernardino County traffic analysis guidelines [1]

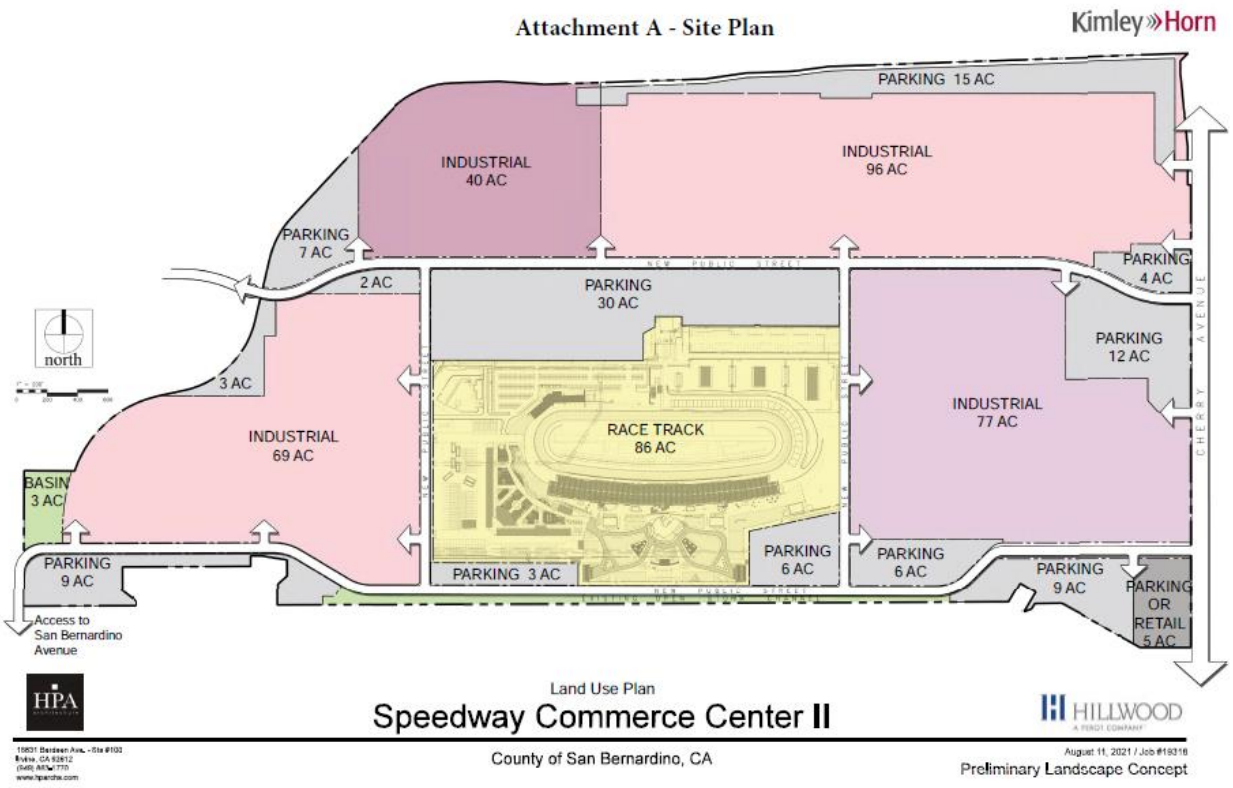
Project Description

The project site is located north of the San Bernardino Freeway (I-10) and San Bernardino Avenue in unincorporated San Bernardino County and within the City of Fontana Sphere of Influence (SOI). The project site is bounded by Cherry Avenue to the east, the Burlington Northern and Santa Fe (BNSF) Railroad to the north, the West Valley Materials Recycling Facility to the west, and California Steel Industries to the south and would surround the Auto Club Speedway (ASC) generally on three sides.

The Project encompasses approximately 433 acres of the approximately 522-acre site that is developed with the Auto Club Speedway (ACS), formerly California Speedway, in the County. The Project proposes conceptual land uses that include, but are not limited to, up to approximately 6.6 million square feet (SF) of high cube warehouse and e-commerce uses with approximately 12 acres (261,000 SF) of accessory commercial uses. The Project site would also be developed with greenbelts, public roads, other support amenity features, and water detention areas. Development of the project site will be accomplished over time, as market conditions allow. Figure 1 shows the conceptual land use plan for the project.

[1] *San Bernardino County Transportation Impact Study Guidelines,* July 9, 2019

Figure 1: Conceptual Land Use Plan



Source: HPA (August 11, 2021)

VMT Thresholds

Thresholds of significance are summarized in **Exhibit 1**. Since the proposed project is employment based, the threshold of significance is based on VMT per employee.

Exhibit 1 – VMT Thresholds of Significance

Land Use	VMT Threshold	Basis
Residential	4% below VMT per person	Existing unincorporated county average VMT per capita
Employment-Based VMT Generators	4% below VMT per employee	Existing unincorporated county average Home-based Work VMT per employee

Analysis Scenarios

The VMT analysis was completed using the most current version of San Bernardino County's travel demand model, SBTAM (referred to as the "SBTAM Model"). The model is a trip-based model and considers interaction between different land uses based on socio-economic data such as population, households, and employment. Adjustments in socio-economic data (employment) were made to the appropriate Traffic Analysis Zones (TAZ) in the SBTAM Model to reflect the project's proposed land uses.

The model was refined to include additional TAZs and local traffic access for the Speedway Commerce Center II area. Four new roads would be constructed to provide access to the Specific Plan's land uses.

- **Street "A"** - Street "A" would connect Cherry Avenue on the Project area's eastern edge with existing Napa Street on the west. Street "A" would consist four travel lanes, a 14-foot-wide painted median, and pedestrian walkways and parkway plantings. A 10-foot-wide multi-use pathway is proposed on the northern edge of the street.
- **Street "D"** - Street "D" would connect Cherry Avenue on the Project area's eastern edge and existing VIP Road on its western edge.
- **VIP Access Road** - VIP Access Road is an existing street which connects Street "D" (the existing southern perimeter road) to San Bernardino Avenue to the south.
- **Street's "B" and "C"** - Street's "B" and "C" would serve as internal circulation routes and connect Street's "A" and "D". These streets would also serve as a pedestrian connection between the Next Gen motorsports facility and the seasonal Metrolink transit stop.

The network inputs in the SBTAM model are included in Attachment A of the report. The potential change in travel patterns due to construction of these roadway connections and their effect on VMT is included in this analysis. The current version of the SBTAM Model maintains a base year condition of 2016 which, for the purposes of analysis, is considered to be representative of existing conditions. The planning horizon for the SBTAM Model is 2040.

VMT analysis was conducted for existing and cumulative scenarios and results were compared to the existing conditions. The analysis includes the following scenarios:

- **Existing Conditions -** based on 2016 SBTAM Model conditions
- **Existing Plus Project Conditions** – Based on 2016 SBTAM Model with proposed Speedway Commerce Center II land uses
- **Cumulative No Project Conditions** – Based on 2040 SBTAM Model conditions without proposed Speedway Commerce Center II land uses.
- **Cumulative Plus Project Conditions** – Based on 2040 SBTAM Model conditions with proposed Speedway Commerce Center II land uses.

Speedway Commerce Center II Land Use Conversion

In order to evaluate the project's VMT, the land use plan needed to be first turned into a SBTAM compatible dataset. This dataset relied on land use assumptions developed by as part of the Speedway Commerce Center II Plan and the trip generation estimates for the Project.

The resultant land use data was coded into the SBTAM Model for analysis. Generally speaking, for VMT analysis purposes this represented two broad land use categories:

- Employee-Based VMT (land uses where the principal source of VMT relates to worker commutes); and
- Retail uses (where the primary source of VMT is customer-based)

VMT Analysis

As described in the San Bernardino County traffic impact study guidelines, VMT significance thresholds are based on land use type, broadly categorized as efficiency metrics. Efficiency metrics include VMT/Capita (Residential) and Work VMT/employee (Employee-Based VMT).

The calculation of VMT efficiency metrics has two components – the total number of trips generated and the average trip length of each vehicle. As the proposed project has only non-residential trips, trip attractions were used from all home-based-work trip purpose matrices. Using the peak and off-peak person trip matrices, skim (distances) matrices and appropriate occupancy rates, VMT was calculated for the Speedway Commerce Center II traffic analysis zones (TAZs). **Exhibit 2** shows the efficiency metric results for the analysis scenarios.

Exhibit 2 – Project VMT Impact Evaluation – Efficiency Metrics

Analysis Scenario	Employment-Based VMT/EMP	Threshold Performance
San Bernardino Unincorporated County Average	19.6	
San Bernardino Unincorporated County Threshold (4% below Average)*	18.8	
Existing Plus Project		
Project HBW VMT / Employee	17.5	-6.9%
Cumulative Plus Project Conditions		
Project HBW VMT / Employee	16.9	-10.1%

*Source: Threshold of 4% below unincorporated county average based on San Bernardino Cunty Transportation Impact study Guidelines (July 9, 2019)

Based on the results in **Exhibit 2** and the San Bernardino County traffic impact study guidelines, the following initial unmitigated results are determined:

- The proposed project's Employment-Based VMT land uses **do not exceed the unincorporated threshold under any project scenario.**
- Local-serving Retail under 50,000 square feet per store, **is presumed to not have a finding of a significant impact.**

In addition, to evaluate the Project's effect on VMT for the region, link based total VMT per service population was also calculated for both San Bernardino County and Unincorporated San Bernardino County without and with the project. **Exhibit 3** shows the resulting findings.

Exhibit 3 – VMT per Service Population

San Bernardino County				
	2016		2040	
	No Project	With Project	No Project	With Project
VMT	89,609,307	89,898,110	120,109,275	120,472,164

Service Population	2,930,939	2,943,792	3,749,645	3,762,498
VMT per Service Population	30.6	30.5	32.03	32.02
Impact	NO		NO	
Unincorporated San Bernardino County				
	2016		**2040**	
	No Project	**With Project**	**No Project**	**With Project**
VMT	15,684,906	15,673,899	21,554,913	21,664,693
Service Population	397,145	409,998	514,908	527,761
VMT per Service Population	39.5	38.2	41.9	41.1
Impact	NO		NO	

In all cases, the project VMT per service population is less than the baseline VMT per service population, therefore the project would have less than significant impact.

VMT Reducing Design Principles, Policies, and Improvements

Given the lack of specifics that are available for this level plan, it is not possible to fully account for the effect of specific design principles, policies, and improvements that will reduce VMT as part of this analysis. However, these approaches are still important considerations in evaluating the results of this VMT analysis and as appropriate they should be accounted for within the Speedway Commerce Center II area. The model does not account for pedestrian, bicycle, transit, and other Transportation Demand Management (TDM) related improvements. Since the project includes several such elements, this section discusses potential VMT reductions from these project features that are likely to occur. Although many of the VMT reducing design principles, policies, and improvements that are listed below may ultimately potentially reduce the project VMT outlined in this evaluation, necessary details to assure implementation and appropriately evaluate their effect are not yet available. However, as discussed previously, the Project's VMT **does not exceed the unincorporated threshold.**

VMT Reductions

The following project design features have the potential to reduce the project's VMT. Given the lack of specifics that are available for this conceptual level plan, it is not possible to fully account for the effect of specific design principles, policies and improvements that will reduce VMT as part of this analysis.

Bike/Pedestrian Facilities

Sidewalks would be provided on all street sections within the Project area. For Street "A", a 10-foot-wide multipurpose trail would be provided for internal connectivity.

Transit

Omnitrans is a public transit agency in San Bernardino County providing bus services in the San Bernardino Valley. There are no existing Omnitrans public transit routes or stops providing regular service adjacent to the Project area. The closest Omnitrans Transit System routes are Route 66 along W. Foothill Boulevard and Route 61 along San Bernardino Avenue. As the Project develops, the Transit System may assess the potential demand for these facilities in the area and may establish new or extended routes in the area in the future. Coordination with Omnitrans would be required as the Project builds out to determine the need for future bus service to the Project site.

Commuter Trip Reduction Program (CTR) - Voluntary

The Project will implement voluntary Commuter Trip Reduction (CTR) Program that would provide employees with assistance in using alternative modes of travel. The CTR program may include the following:

- Carpooling encouragement
- Ride-matching assistance
- Preferential carpool parking
- Flexible work schedules for carpools
- Half time transportation coordinator
- Vanpool assistance
- Bicycle end-trip facilities (parking, showers, and lockers)

Based on California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010), the estimated reduction in VMT due to TDM measures are listed in Exhibit 4.

Exhibit 4 – TDM Measures and VMT Reductions

TDM Strategy	Potential VMT Reduction
Increase Transit Accessibility (LUT-5)	6.3%
Pedestrian Network Improvements (SDT-1)	2.0%
Voluntary CTR Program (TRT-1)	5.2%
Total	13.5%

Source: CAPCOA Quantifying Greenhouse Gas Mitigation Measures (August 2010)

The Project VMT Employee with the potential VMT reductions due to TDM measures implemented as part of project design features is shown in Exhibit 5:

Exhibit 5 – Project VMT With TDM Measures

Analysis Scenario	Employment-Based VMT/EMP	VMT/EMP with TDM
Exiting plus Project	17.5	15.1
Cumulative plus Project	16.9	14.6

Project VMT Comparison with VMT per Employee for Entire San Bernardino County

In addition to the VMT impact determination based on significance thresholds in the San Bernardino County traffic impact study guidelines, Project's VMT/employee with potential VMT reductions from the project design features was also compared to the average VMT per Employee for the entire San Bernardino County (including incorporated areas). This comparison has been shown for informational purposes only. **Exhibit 6** shows the efficiency metric results comparison to the entire San Bernardino County that includes both incorporated and unincorporated areas.

Exhibit 6– Project VMT Evaluation – Efficiency Metrics (Incorporated and Unincorporated County Areas)

Analysis Scenario	Employment-Based VMT/EMP	Project Performance
San Bernardino County Average	17.1	
Existing Plus Project		
Project HBW VMT / Employee	15.1	-11.7%
Cumulative Plus Project Conditions		
Project HBW VMT /Employee	14.6	-14.6%

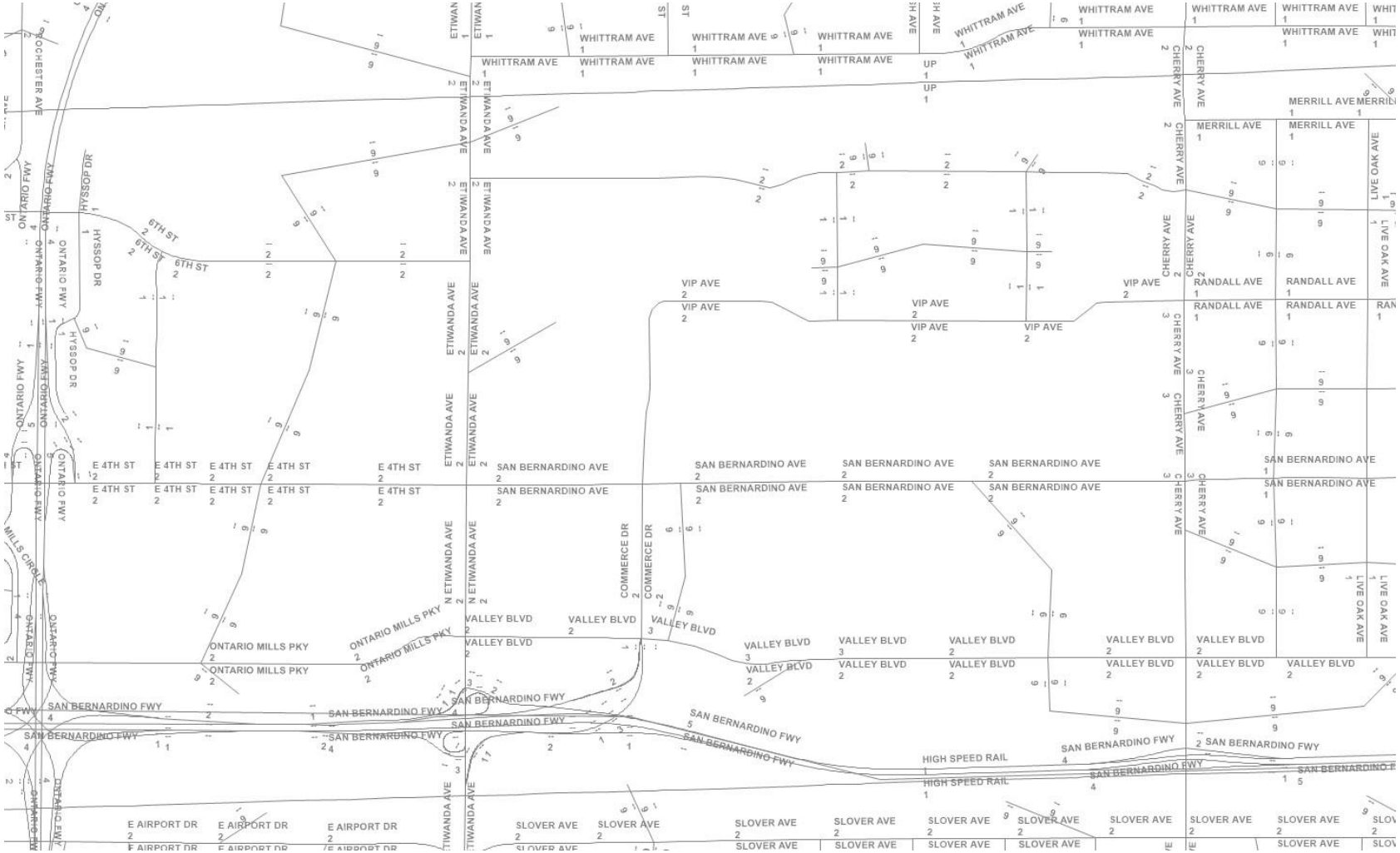
As shown on Exhibit 6, Project VMT/employee is expected to be 11.7% below County average for existing conditions and 14.6% below county average for cumulative conditions with the application of Transportation Demand Management (TDM) strategies as part of project design features.

Conclusion

Based on the results of this analysis, the following findings are made:

- The proposed project's Employment-Based VMT **do not exceed the threshold under any project scenario and as a result are determined to not have a significant transportation impact** based on the County's adopted thresholds, which are based on the Unincorporated County areas**.**
- The proposed project's modeled Employment Based VMT are slightly higher than the entire County (including incorporated areas). However, once the project design features related to sidewalks, trails, transit, and other VMT reducing items (TDMs) are included, it is substantially lower than the existing VMT/Employee for the entire County. This is for disclosure only and is not applicable based on the thresholds adopted by the County.
- Local-serving Retail under 50,000 square feet per store, per San Bernardino County traffic impact study guidelines, **is presumed to not have a significant impact.**
- The proposed project's effect on Roadway VMT per Service Population **does not exceed the threshold under any project scenario and as a result is determined to not have a significant transportation impact.**

ATTACHMENT A – SBTAM NETWORK INPUTS



Traffic Study

for:

Speedway Commerce Center II Specific Plan

In the County of San Bernardino

DRAFT

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January 2022

Kimley»Horn

TRAFFIC STUDY
FOR THE PROPOSED
SPEEDWAY COMMERCE CENTER II SPECIFIC PLAN PROJECT
IN THE COUNTY OF SAN BERNARDINO

DRAFT

Prepared by:

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January 2022

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TRAFFIC STUDY
FOR THE PROPOSED
SPEEDWAY COMMERCE CENTER II SPECIFIC PLAN PROJECT
IN THE COUNTY OF SAN BERNARDINO

INTRODUCTION

Purpose and Study Objectives

This traffic study has been prepared to address the traffic-related issues associated with the proposed Speedway Commerce Center II Specific Plan (SCCIISP) project in unincorporated San Bernardino County. This traffic study has been conducted in accordance with the traffic study requirements of the County of San Bernardino and with the San Bernardino Association of Governments (SANBAG) Congestion Management Program (CMP).

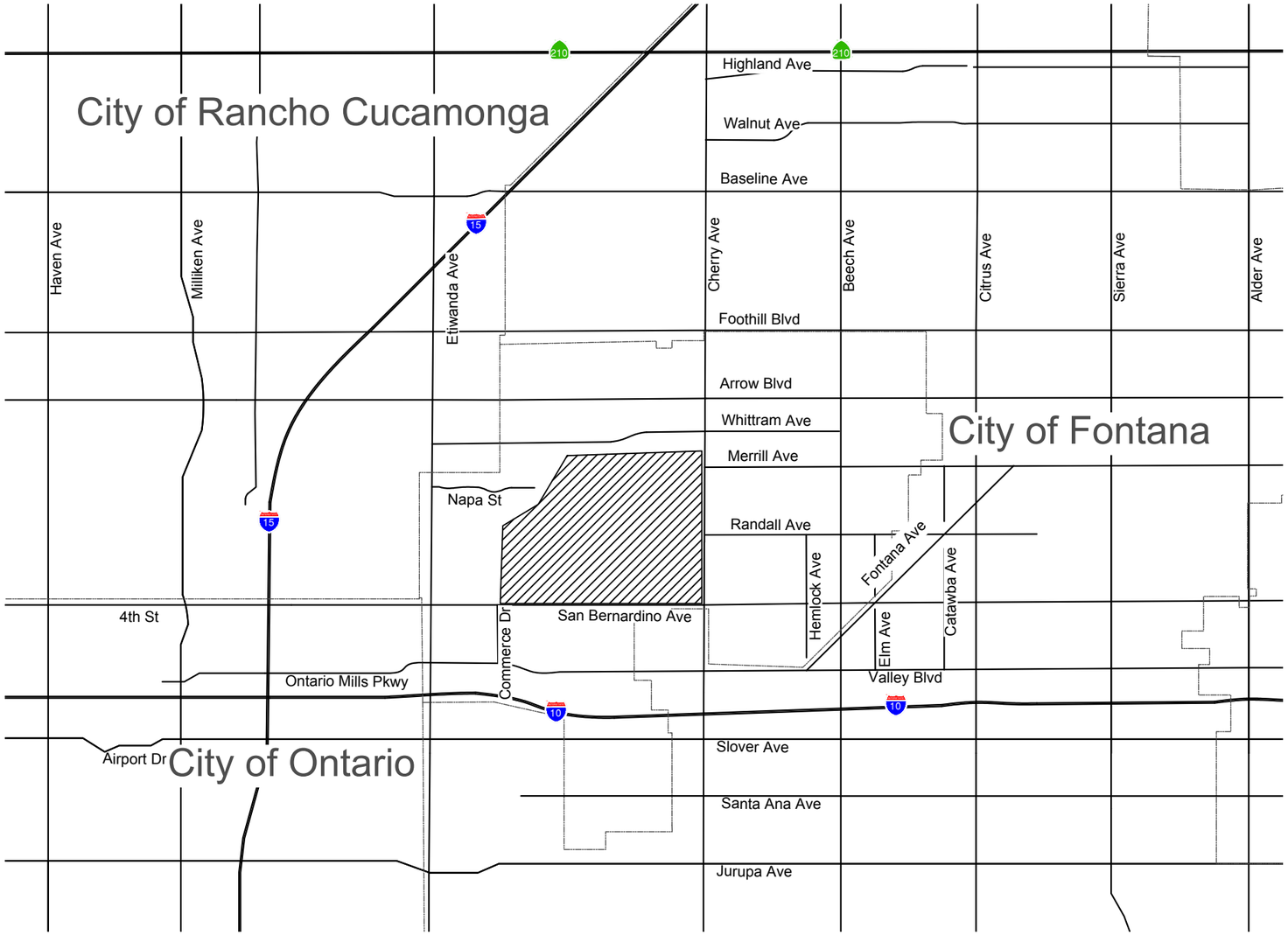
This report includes a description of existing traffic conditions in the surrounding area, estimated project trip generation and distribution, and future traffic growth. Where necessary, circulation system improvements have been identified to address future traffic condition needs at the study locations. It should be noted that this LOS-based traffic study is not a CEQA-required document and does not identify impacts or mitigation.

PROJECT DESCRIPTION

Project Overview

The project site is located north of the San Bernardino Freeway (I-10) and San Bernardino Avenue in unincorporated San Bernardino County and within the City of Fontana Sphere of Influence (SOI). The project site is bounded by Cherry Avenue to the east, the Burlington Northern and Santa Fe (BNSF) Railroad to the north, the West Valley Materials Recycling Facility to the west, and California Steel Industries to the south and would surround the Auto Club Speedway (ASC) generally on three sides. The site is shown in its regional setting on Figure 1.

The Project encompasses approximately 433 acres of the approximately 522-acre site that is currently developed with the Auto Club Speedway (ACS), formerly California Speedway, in the County. The Project proposes conceptual land uses that include, but are not limited to, up to approximately 6.6 million square feet (SF) of high cube warehouse and e-commerce uses with approximately 12 acres (261,360 SF) of accessory commercial uses. The Project site would also be developed with greenbelts, public roads, other support amenity features, and water detention areas. Construction of the Project, including recordation of final subdivision map(s) and design review may be progressively implemented in stages, provided that vehicular access, public facilities, and infrastructure are constructed to adequately service the development, or as needed for public health and safety. However, the actual phasing sequence and timeframe may vary depending on market conditions. A copy of the project site plan is provided on Figure 2.



NOT TO SCALE

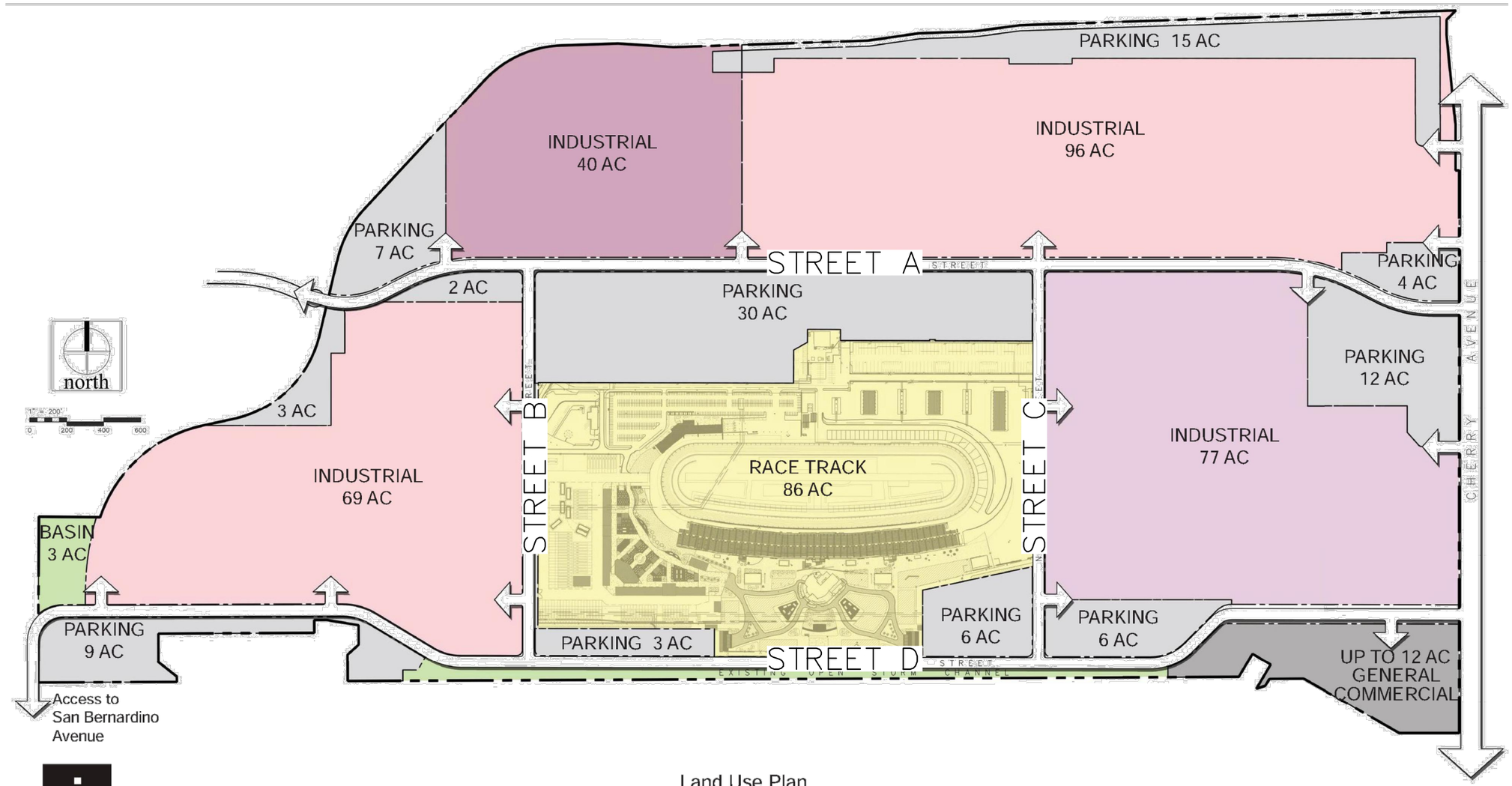
LEGEND:

= Project Site

FIGURE 1
VICINITY MAP

Kimley»Horn

NOT TO SCALE



Land Use Plan

Speedway Commerce Center II

FIGURE 2
SITE PLAN

PROPOSED SITE CIRCULATION

The Project site currently has access at Merrill Avenue, Rancho Vista Drive, and Randall Avenue off of Cherry Avenue on the site's eastern edge, and Napa Street and VIP Road on the site's western edge. The access at Randall Avenue is signalized.

Internal circulation currently includes Perimeter Road, Calabash Avenue, Back Strait Road, VIP Road, Entry Road, and Rancho Vista Drive. These internal roads may be modified or enhanced to accommodate the traffic trips anticipated with the Project. Private drives aisles are proposed to connect individual buildings within the Project area. Drive aisles would be located and sized at the time of review.

Vehicular Circulation

Four new public roads would be constructed to provide access to the Specific Plan's land uses and ACS. Vehicular circulation improvements proposed as part of the Project are as follows:

Cherry Avenue – Cherry Avenue is an existing roadway for which no improvements are proposed.

Street "A" - Street "A" is a proposed east-west public roadway which would be designed as a collector roadway. It would connect Cherry Avenue on the Project's eastern edge with existing Napa Street on the west. It would form an intersection with Rancho Vista Drive to the east of Cherry Avenue. Street "A" improvements would consist of a 96-foot right-of-way with four travel lanes, a 14-foot-wide painted median, and pedestrian walkways and parkway plantings. A 10-foot-wide multi-use pathway is proposed on the northern edge of the street.

Street "D" - Street "D" is a proposed east-west public roadway which would be designed as a collector roadway. Street "D" would connect Cherry Avenue on the Project area's eastern edge and existing VIP Road on its western edge. The cross section for Street "D" is variable, with several different conditions and rights-of-way. See the Specific Plan for further details.

VIP Access Road - VIP Access Road is an existing street which connects Street "D" (the existing southern perimeter road) to San Bernardino Avenue to the south. Improvements to VIP Road include a 50-foot right-of-way with two southbound travel lanes and one northbound travel lane.

Street's "B" and "C" - Street's "B" and "C" are proposed north-south public roadway which would be designed as collector roadways. They would serve as internal circulation routes and connect Street's "A" and "D". These streets would also serve as a pedestrian connection between the ACS and the seasonal Metrolink transit stop. Improvements for Streets "B" and "C" include a 60-foot right-of-way with two travel lanes, a 12-foot painted median, and six-foot sidewalks.

Transit/Rail

There are no existing public transit routes or stops adjacent to the Project area. The closest Omnitrans Transit System routes are Route 66 along W. Foothill Boulevard and Route 61 along San Bernardino Avenue. As the Project develops, the Transit System may assess the potential demand for these facilities in the area and may establish new or extended routes in the area. Coordination with Omnitrans would be required as the Project builds out to determine the need for future bus service to the Project site.

Metrolink is a commuter rail system serving Southern California region including Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, as well as to Oceanside in San Diego County. Metrolink has an existing rail line adjacent to the Project area's northern boundary. The closest Metrolink stops are located approximately 3.5 miles east and west of the project site.

Bike/Pedestrian Facilities

Sidewalks would be provided on all street sections within the Project area. For Street "A", a 10-foot-wide multi-purpose trail would be provided for internal connectivity.

ANALYSIS SCENARIOS AND METHODOLOGY

Analysis Scenarios

In accordance with the traffic study requirements of the County of San Bernardino, the project will be evaluated in the morning and evening peak hours for the following conditions:

- Existing Conditions
- Opening Year 2024
- Opening Year 2024 Plus Phase 1
- Opening Year 2027
- Opening Year 2027 Plus Project (Phases 1 and 2)
- Horizon Year 2040
- Horizon Year 2040 Plus Project

Study Locations

The study locations were established in consultation with County staff through the Scoping Agreement process. A copy of the approved Scope of Study Form is provided in *Appendix A*.

Study Intersections:

1. Cherry Ave at SR-210 WB Ramps
2. Citrus Ave at SR-210 WB Ramps
3. Sierra Ave at SR-210 WB Ramps
4. Cherry Ave at SR-210 EB Ramps
5. Citrus Ave at SR-210 EB Ramps
6. Sierra Ave at SR-210 EB Ramps
7. Beech Ave at Highland Ave
8. Citrus Ave at Highland Ave
9. Sierra Ave at Highland Ave
10. Etiwanda Ave at Base Line Rd
11. I-15 SB Ramps at Base Line Rd
12. I-15 NB Ramps at Baseline Ave
13. Cherry Ave at Baseline Ave
14. Beech Ave at Baseline Ave
15. Citrus Ave at Baseline Ave
16. Sierra Ave at Baseline Ave
17. Etiwanda Ave at Church St/Miller Ave
18. I-15 SB Ramps at Foothill Blvd
19. I-15 NB Ramps at Foothill Blvd
20. Etiwanda Ave at Foothill Blvd
21. Cherry Ave at Foothill Blvd
22. Beech Ave at Foothill Blvd
23. Citrus Ave at Foothill Blvd
24. Sierra Ave at Foothill Blvd
25. Etiwanda Ave at Arrow Rte
26. Cherry Ave at Arrow Rte
27. Beech Ave at Arrow Rte
28. Citrus Ave at Arrow Rte
29. Sierra Ave at Arrow Rte
30. Etiwanda Ave at Whittram Ave
31. Cherry Ave at Whittram Ave
32. Beech Ave at Whittram Ave
33. Etiwanda Ave at Napa St
34. Cherry Ave at Merrill Ave
35. Beech Ave at Merrill Ave
36. Citrus Ave at Merrill Ave
37. Sierra Ave at Merrill Ave
38. Citrus Ave at Fontana Ave
39. Cherry Ave at Randall Ave
40. Beech Ave at Randall Ave
41. Fontana Ave/Catawba Ave at Randall Ave
42. Citrus Ave at Randall Ave
43. Sierra Ave at Randall Ave
44. I-15 SB Ramps/Ontario Mills Dr at Fourth St
45. I-15 NB Ramps at Fourth St
46. Etiwanda Ave at Fourth St/San Bernardino Ave
47. Commerce Dr at San Bernardino Ave
48. VIP Rd at San Bernardino Ave
49. Cherry Ave at San Bernardino Ave
50. Beech Ave at San Bernardino Ave
51. Fontana Ave/Elm Ave at San Bernardino Ave
52. Citrus Ave at San Bernardino Ave
53. Sierra Ave at San Bernardino Ave
54. Beech Ave at Fontana Ave
55. Etiwanda Ave at Valley Blvd
56. Commerce Dr/I-10 Ramps at Valley Blvd
57. Cherry Ave at Valley Blvd
58. Fontana Ave/Hemlock Ave at Valley Blvd
59. Beech Ave at Valley Blvd
60. Citrus Ave at Valley Blvd
61. Sierra Ave at Valley Blvd
62. Etiwanda Ave at I-10 WB-Ramps
63. Cherry Ave at I-10 WB Ramps
64. Citrus Ave at I-10 WB Ramps
65. Etiwanda Ave at I-10 EB Ramps
66. Cherry Ave at I-10 EB Ramps
67. Citrus Ave at I-10 EB Ramps
68. Sierra Ave at I-10 EB/WB Ramps
69. Milliken Ave at Arrow Rte
70. Rochester Ave at Arrow Rte
71. Cherry Ave at Slover Ave
72. Cherry Ave at Santa Ana Ave

Existing lane configurations and traffic control at the study intersections are shown on Figure 3.

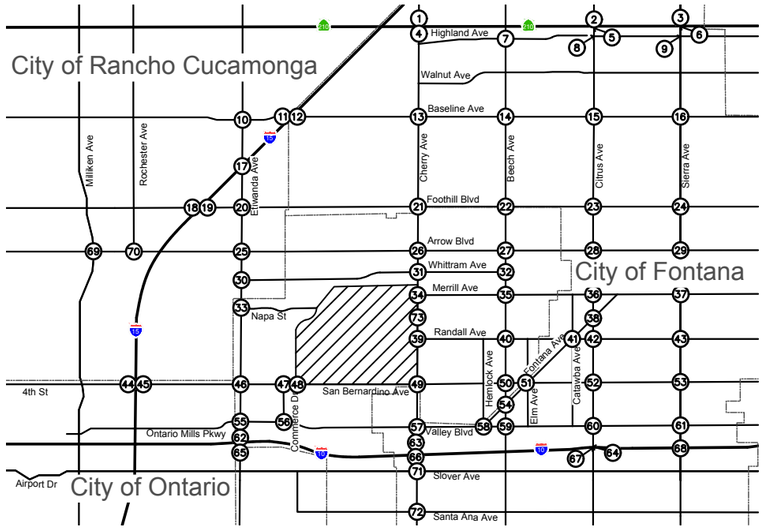
Intersection Analysis – HCM Methodology

Peak hour intersection operations were evaluated using the methodology outlined in the Highway Capacity Manual (HCM), consistent with the requirements of the County of San Bernardino and the San Bernardino County CMP. The intersection analysis was conducted using the Vistro software program and using the input parameters specified in the San Bernardino County CMP.

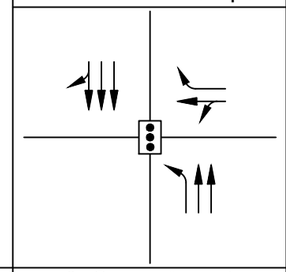
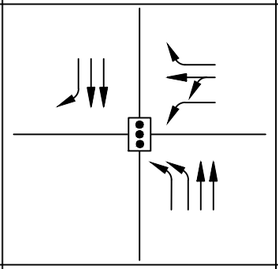
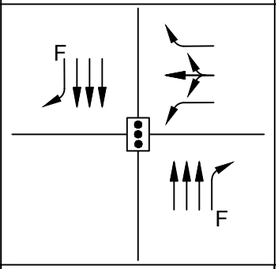
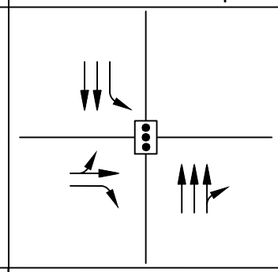
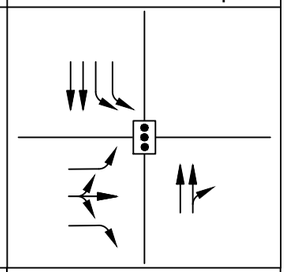
Per the HCM Methodology, Level of Service (LOS) for signalized intersections is defined in terms of average vehicle delay. Specifically, LOS criteria are stated in terms of the average control delay per vehicle during the peak hours. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay.

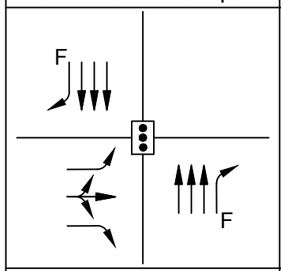
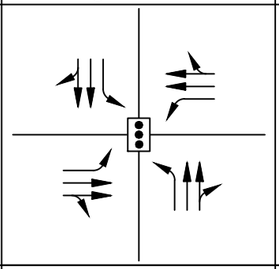
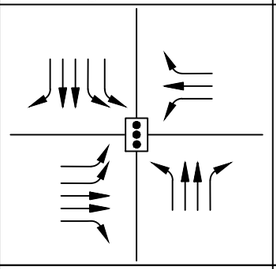
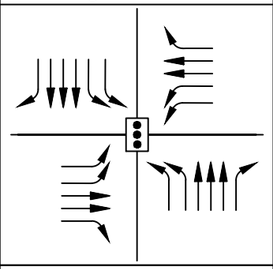
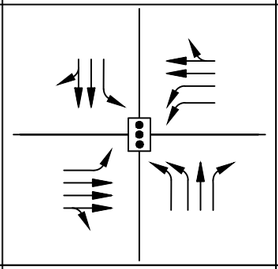
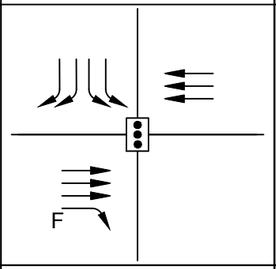
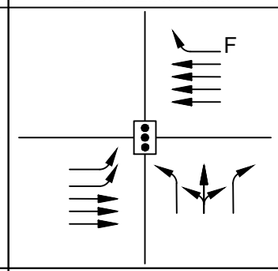
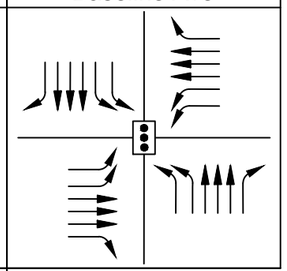
The procedure for unsignalized intersection analysis determines the average total delay, expressed in seconds of delay per vehicle for left turns from the major street and from the stop-controlled minor street traffic stream for a two-way stop controlled (TWSC) intersection. Delay values are calculated based on the relationship between traffic on the major street and the availability of acceptable "gaps" in this stream through which conflicting traffic movements can be made. For TWSC intersections the Level of Service is based on the turning movement with the highest average delay. For an all-way stop controlled (AWSC) intersection the Level of Service is based on the overall intersection delay.

The chart on the following page provides a description of the operating characteristics of each Level of Service and average seconds of delay for signalized and unsignalized intersections.



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
				

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
							

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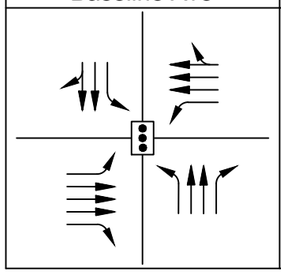	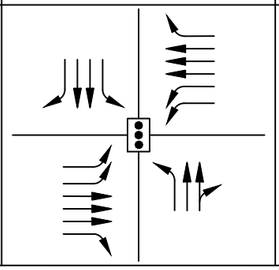	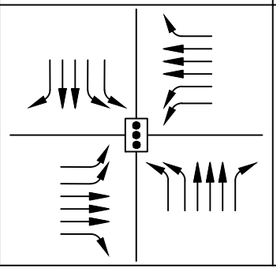	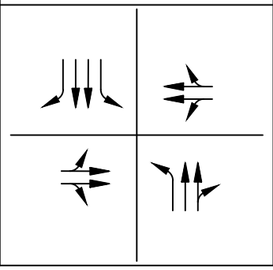	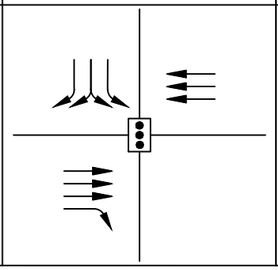	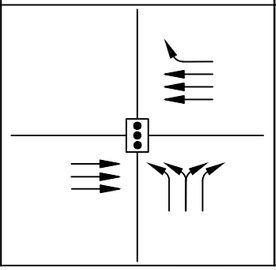	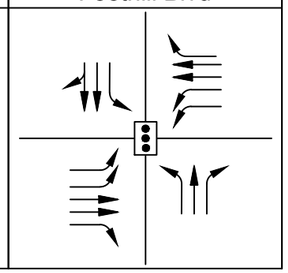

LEGEND:

- (X) = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- STOP = All Way Stop
- F = Free Right Turn

FIGURE 3A
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

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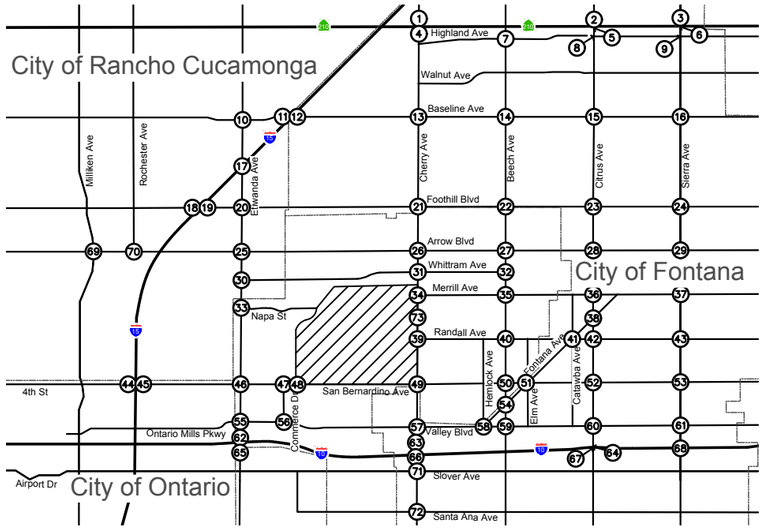

NOT TO SCALE

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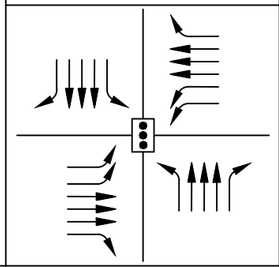
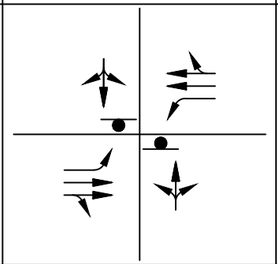
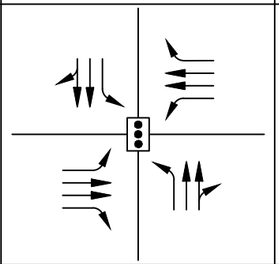
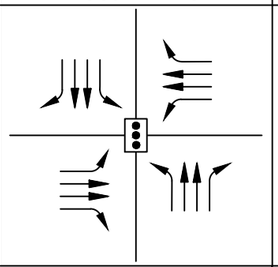
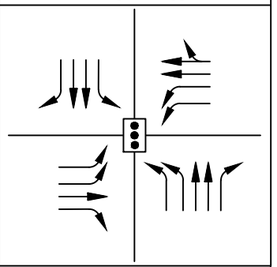
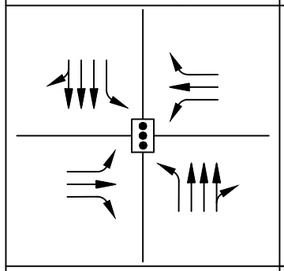
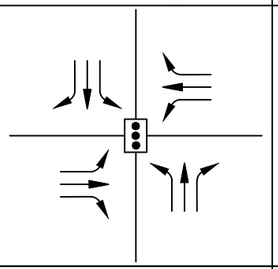
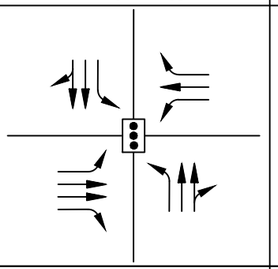
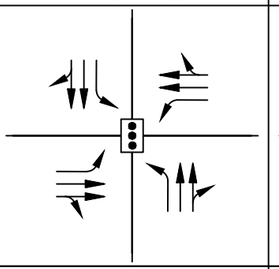
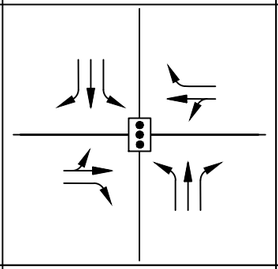
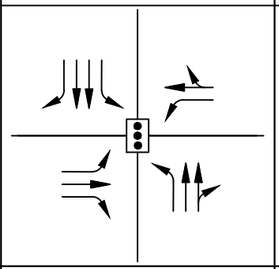
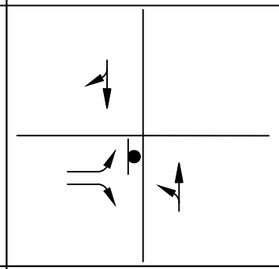
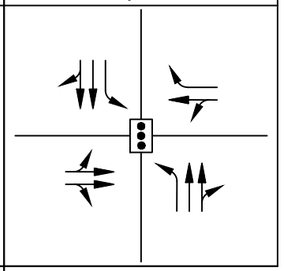
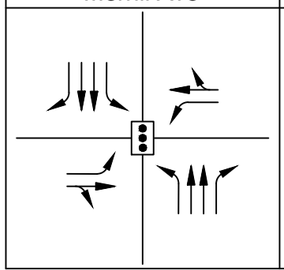
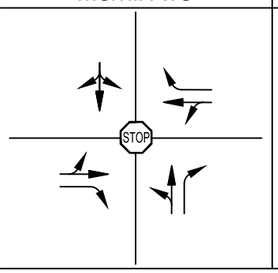
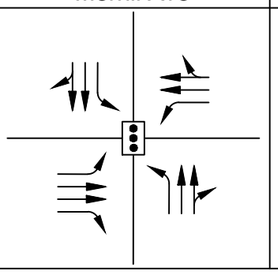
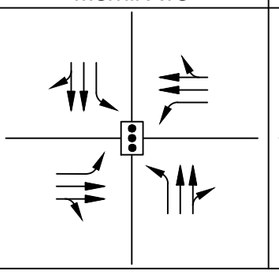
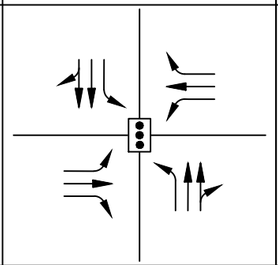
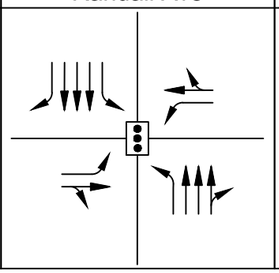
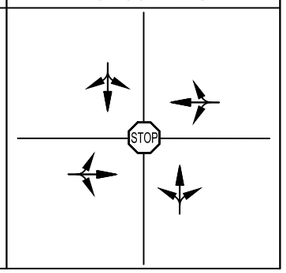
				

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
							

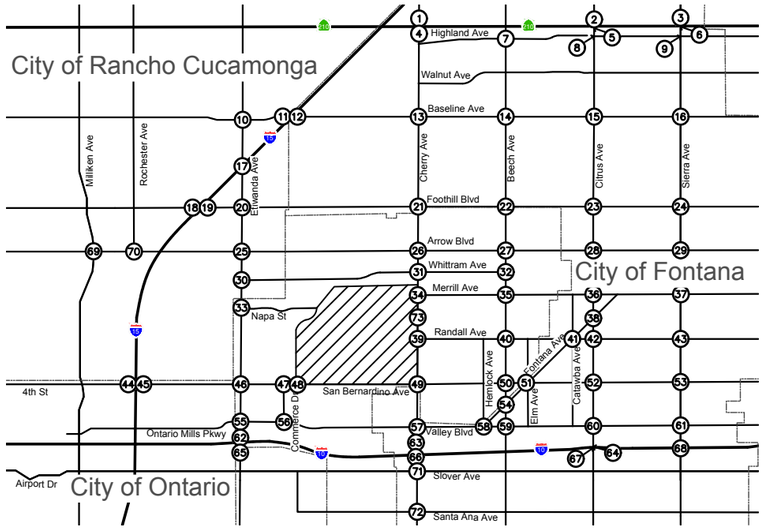
34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
						

LEGEND:

- X = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- STOP = All Way Stop
- F = Free Right Turn

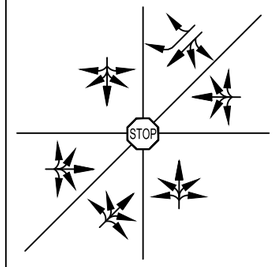
FIGURE 3B
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Kimley»Horn

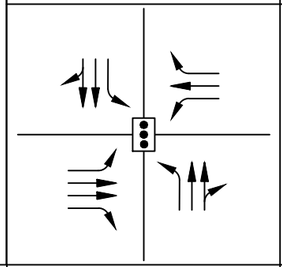


NOT TO SCALE

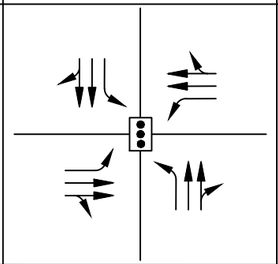
41. Fontana Ave/ Catawba Ave at Randall Ave



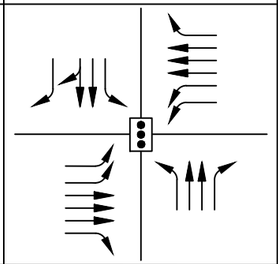
42. Citrus Ave at Randall Ave



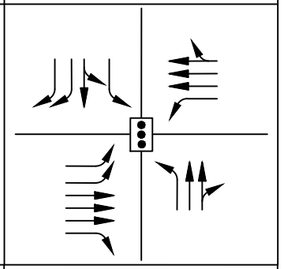
43. Sierra Ave at Randall Ave



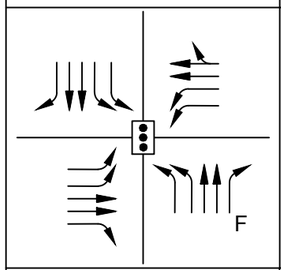
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



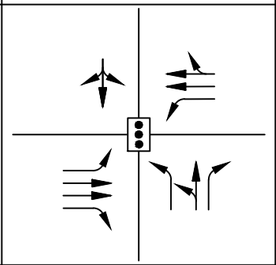
45. I-15 NB Ramps at Fourth St



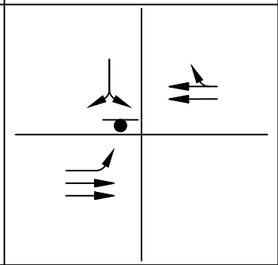
46. Etiwanda Ave at Fourth St/San Bernardino Ave



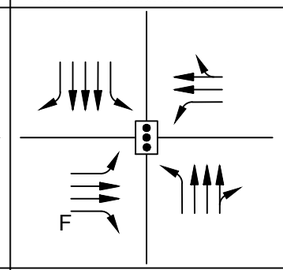
47. Commerce Dr at San Bernardino Ave



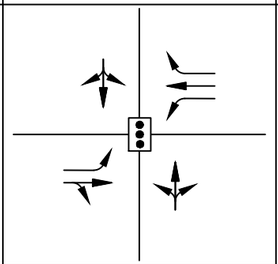
48. Vip Rd at San Bernardino Ave



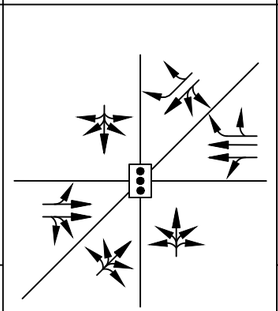
49. Cherry Ave at San Bernardino Ave



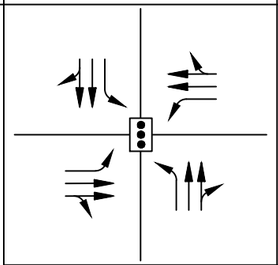
50. Beech Ave at San Bernardino Ave



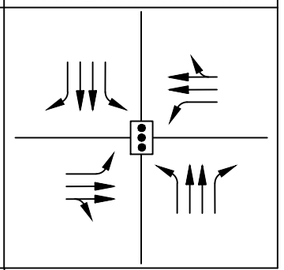
51. Fontana Ave/Elm St at San Bernardino Ave



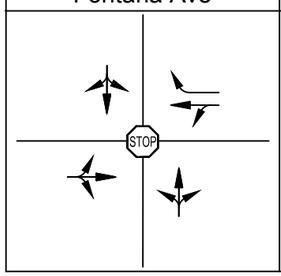
52. Citrus Ave at San Bernardino Ave



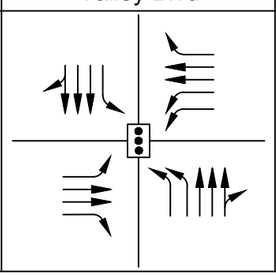
53. Sierra Ave at San Bernardino Ave



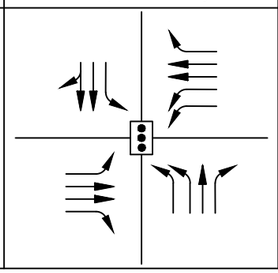
54. Beech Ave at Fontana Ave



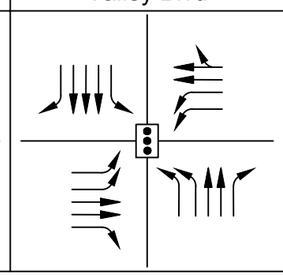
55. Etiwanda Ave at Valley Blvd



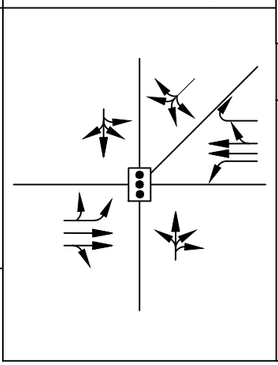
56. Commerce Dr/ I-15 Ramps at Valley Blvd



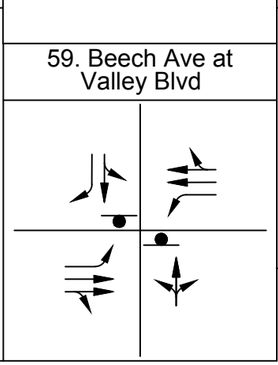
57. Cherry Ave at Valley Blvd



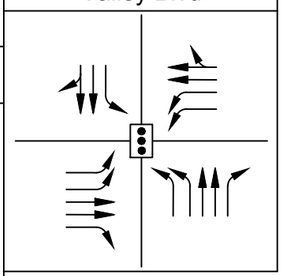
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd

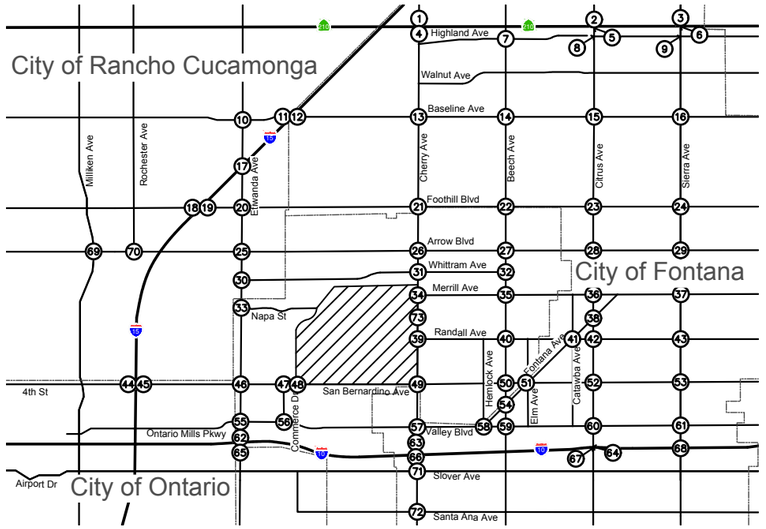


LEGEND:

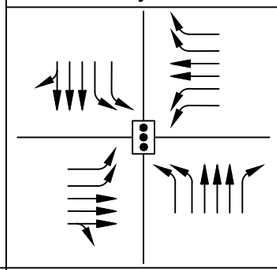
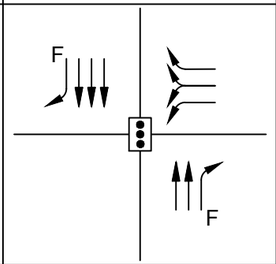
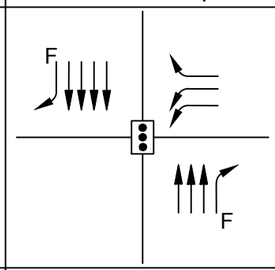
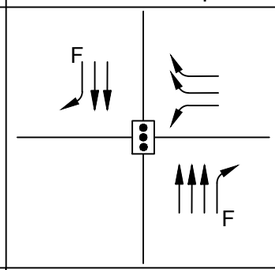
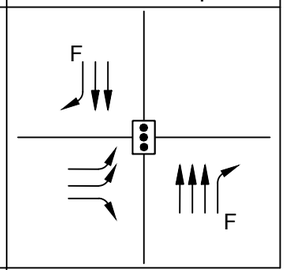
- (X) = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- STOP = All Way Stop
- F = Free Right Turn

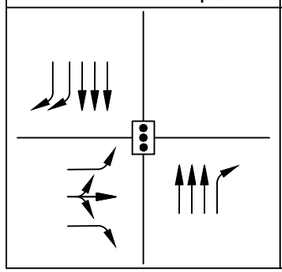
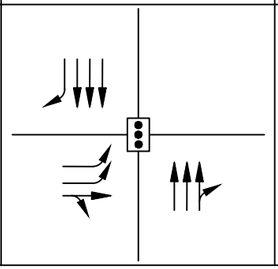
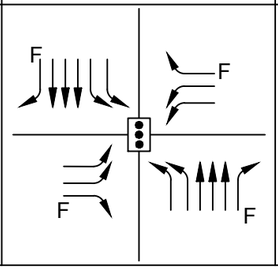
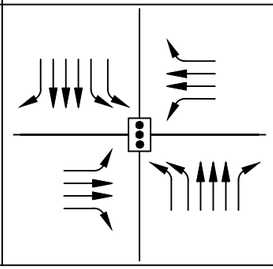
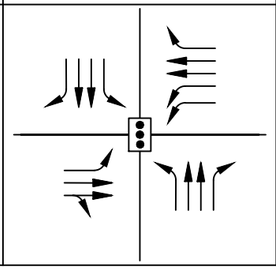
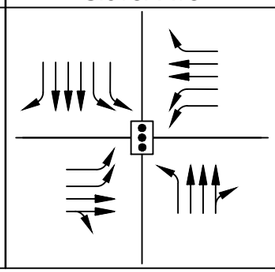
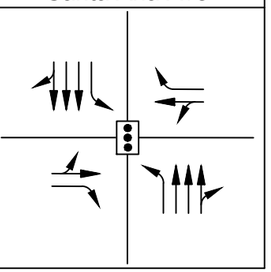
FIGURE 3C
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Kimley»Horn



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
				

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave
						

LEGEND:
- X = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- STOP = All Way Stop
- F = Free Right Turn

FIGURE 3D
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Kimley»Horn

LEVEL OF SERVICE DEFINITIONS	
Level of Service	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized, and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so.
D	This level encompasses a zone of increasing restriction, approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS		
Level of Service [1]	Signalized Intersections (Average delay per vehicle, in seconds) [2]	Unsignalized Intersections (Average delay per vehicle, in seconds) [3]
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

[1] Per the San Bernardino County CMP, intersections will be considered deficient (LOS F) if the critical v/c ratio equals or exceeds 1.0.
[2] Source: Highway Capacity Manual (HCM 6th Edition), Exhibit 18-4.
[3] Source: Highway Capacity Manual (HCM 6th Edition), Exhibits 19-1 and 20-2.

Level of Service Standards and Measure of Significance

Below are the LOS standards and measures of significance to determine project-related effects by jurisdiction. It should be noted that for study intersections to which the project contributes less than 50 peak hour trips, the project-related effect is considered to be less than significant.

San Bernardino County

The County of San Bernardino minimum Level of Service standards require that intersections in the Valley regions operate at LOS D or better during the morning and evening peak hours.

Traffic effects at signalized intersections are considered locally significant when any of the following occurs between the "without project" and the "plus project" conditions:

- Any signalized study intersection in the Valley region that is operating at an acceptable LOS D or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS E or F shall identify improvements to improve operations to LOS D or better.
- Any signalized study intersection in the Valley region that is operating at LOS E or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

Unsignalized intersections will require operational improvements if the study determines either section a) or both sections b) and c) occur:

a) The addition of project-related traffic causes the intersection to degrade from an LOS D or better to an LOS E or worse in the Valley region.
b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F in the Valley region.
c) One or both of the following conditions are met:
    i. The project adds ten (10) or more trips to any minor street approach
    ii. The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

New development is required to identify improvements at intersections that show a locally significant project effect as shown above and operate at LOS E or worse under "Plus Project" conditions. The Level of Service must be improved to LOS D or better for study intersections.

City of Fontana

The City of Fontana *Traffic Impact Analysis (TIA) Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (June 2020) establishes minimum Level of Service standards, which require that intersections operate at LOS C or better during the morning and evening peak hours.

Traffic effects are considered significant when the LOS between the "without project" and "plus project" increases by the following thresholds:

With Project LOS	Significance Threshold
A/B	10.0 Seconds
C	8.0 Seconds
D	5.0 Seconds
E	3.0 Seconds
F	1.0 Second

City of Rancho Cucamonga

The City of Rancho Cucamonga *Traffic Impact Analysis Guidelines* (June 2020) establishes minimum Level of Service standards which require that intersections operate at LOS D or better during the morning and evening peak hours. Consistent with the San Bernardino County guidelines, a project-related effect at signalized intersections within the City of Rancho Cucamonga are considered to be locally significant when any of the following occurs between the "without project" and the "plus project" conditions:

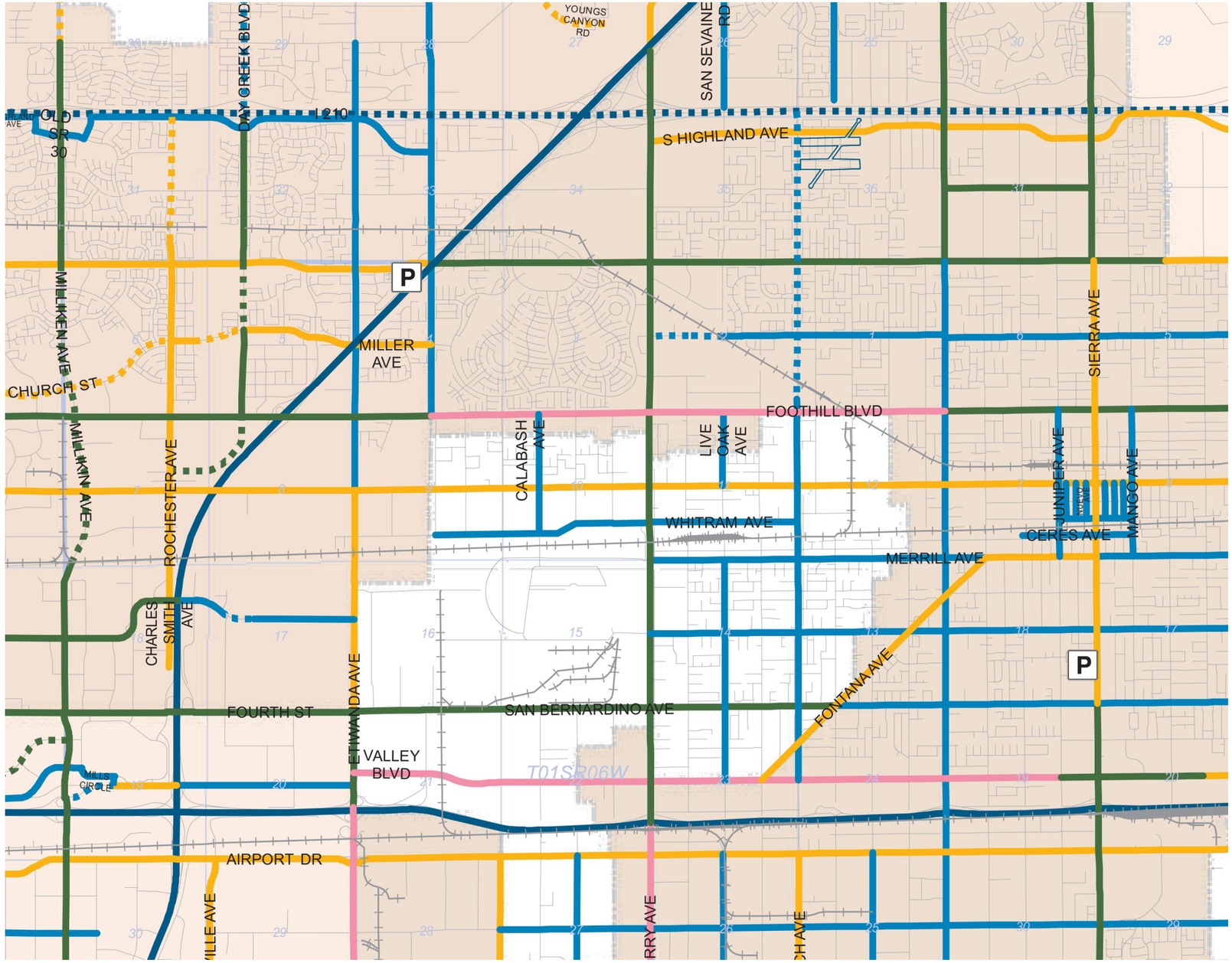
- Any signalized study intersection that is operating at an acceptable LOS D or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS E or F shall identify improvements to improve operations to LOS D or better.
- Any signalized study intersection that is operating at LOS E or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

State-Controlled Intersections (Caltrans)

For State-controlled intersections, if an existing State highway facility is operating at less than LOS D, the existing MOE (measure of effectiveness) should be maintained.

General Plan Circulation Maps

The San Bernardino County General Plan Circulation and Transportation map, the City of Fontana Hierarchy of Streets map, and the City of Rancho Cucamonga Layered Roadway Network map provide roadway designations for the roadway system serving the Specific Plan area and the surrounding vicinity. A copy of the Circulation Maps for San Bernardino County, the City of Fontana, and the City of Rancho Cucamonga, are provides in Figures 4A, 4B, and 4C, respectively.



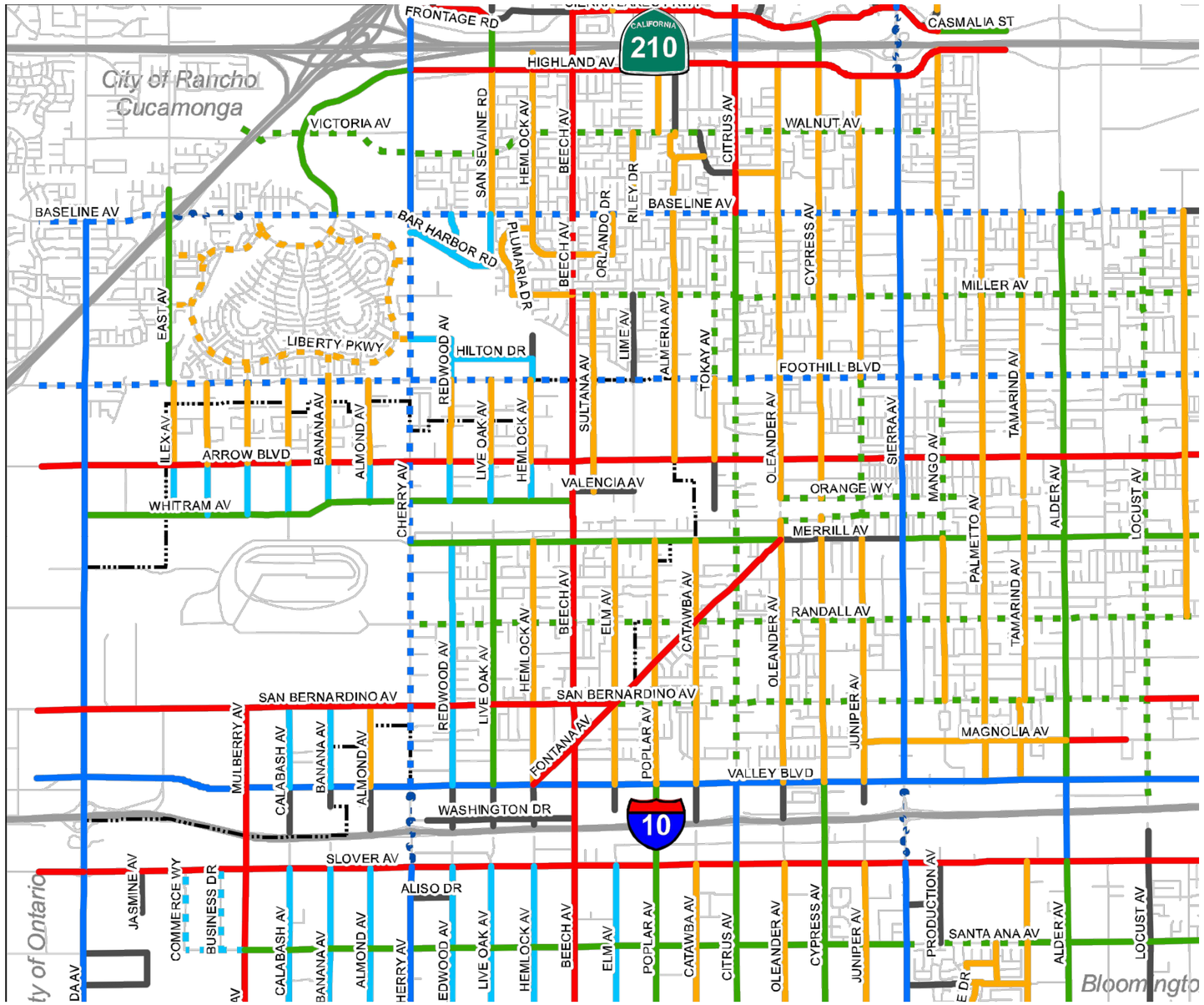
NOT TO SCALE

Legend

Existing	Proposed	
		Freeway
		Major Divided Highway
		Major Arterial Highway
		Major Highway
		Secondary Highway
		Controlled/Limited Access Collector
		Mountain Major Highway
		Mountain Secondary Highway
		State Highway (Special Standards or Conditions)

P Park & Ride — Railroad — × Airport / Airfield

FIGURE 4A
CIRCULATION MAP - SAN BERNARDINO COUNTY



NOT TO SCALE

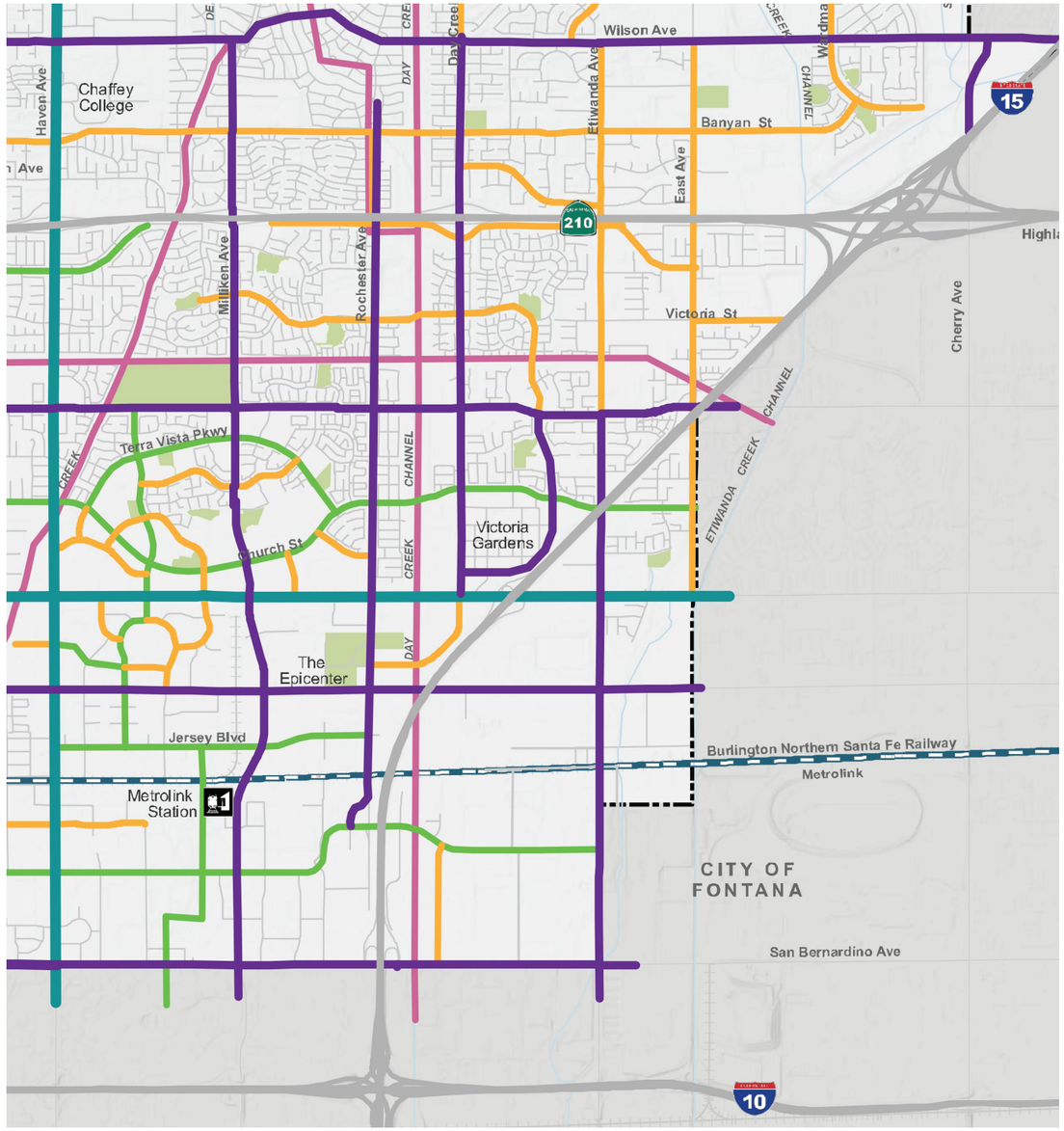
Legend

Roadway Functional Class

- To be determined
- 8 lane major Highway
- Major Highway
- Modified Major Highway
- Primary Highway
- Modified Primary Highway
- Secondary Highway
- Modified Secondary Highway
- Industrial Collector
- Modified Industrial Collector
- Collector Street
- Modified Collector Street
- Fontana Sphere of Influence

FIGURE 4B
CIRCULATION MAP - CITY OF FONTANA

Kimley»Horn



NOT TO SCALE

- Freeway
- Arterial Roadway
- Boulevard
- Collector Street
- Bicycle Corridor
- Multi-Use Trail
- Local Streets

FIGURE 4C
CIRCULATION MAP - CITY OF RANCHO CUCAMONGA

EXISTING TRAFFIC CONDITIONS

Existing Street System

Regional access to the site is provided primarily by the Interstate 10 (I-10) Freeway, located approximately 1.5 mile south of the project site; Interstate 15 (I-15) Freeway, located approximately 2.5 miles west of the project site; and State Route 210 (SR-210), located approximately 3.5 miles north of the project site. The following provides a description of the roadways surrounding the project site.

Cherry Avenue is a north-south roadway with 3 lanes in each direction that connects to the I-10 and SR-210 freeway ramps. In the project vicinity, Cherry Avenue forms the eastern project boundary. The posted speed limit is 40 miles per hour, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Cherry Avenue is designated as a Major Highway north of I-15, a Major Divided Highway between I-15 and I-10, and a Major Arterial Highway south of I-10. Cherry Avenue is designated in the City of Fontana Circulation Element as a Primary Highway north of SR-210 and south of Jurupa Avenue, and a Major Highway between SR-210 and Jurupa Avenue, as well as an 8-Lane Major Highway near the I-10 interchange.

Beech Avenue is a north-south roadway with 2 lanes in each direction north of Foothill Boulevard, and 1 lane in each direction south of Foothill Boulevard. Beech Avenue connects to the I-10 and SR-210 freeway ramps. The posted speed limit is 40 mph, and on-street parking is permitted on both sides. In the San Bernardino County General Plan, Beech Avenue is designated as a Secondary Highway within the project vicinity. Beech Avenue is designated in the City of Fontana Circulation Element as a Primary Highway.

Citrus Avenue is a north-south roadway with 2 lanes in each direction that connects to the I-10 and SR-210 freeway ramps. The posted speed limit is 40 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Citrus Avenue is designated as a Major Divided Highway north of Baseline Avenue and a Secondary Highway south of Baseline Avenue. Citrus Avenue is designated in the City of Fontana Circulation Element as a Primary Highway north of Baseline Avenue and south of Jurupa Avenue; a Secondary Highway between Baseline Avenue and Jurupa Avenue; as well as a Major Highway at the SR-210 and I-10 interchanges.

Sierra Avenue is a north-south roadway with 3 lanes in each direction that connects to the I-10 and SR-210 Ramps. The posted speed limit is 50 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Sierra Avenue is designated as a Major Divided Highway north of Baseline Avenue, a Major Highway between Baseline Avenue and San Bernardino Avenue, and a Major Divided Highway south of San Bernardino Avenue. Sierra Avenue is designated in the City of Fontana Circulation Element as a Primary Highway north of I-15 and south of Jurupa Avenue; a Major Highway between I-15 and Jurupa Avenue; as well as an 8-Lane Major Highway at the SR-210 and I-10 interchanges.

Highland Avenue is an east-west roadway with 2 lanes in each direction. The posted speed limit is 45 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Highland Avenue is designated as a Major Highway. Highland Avenue is designated in the City of Fontana Circulation Element as a Primary Highway.

Baseline Avenue is an east-west roadway with 3 lanes in each direction that connects to the I-15 freeway ramps. The posted speed limit is 45 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Baseline Avenue is designated as a Major Highway west of I-15 and a Major Divided Highway east of I-15. Baseline Avenue is designated in the City of Fontana Circulation Element as a Modified Major Highway and an 8-Lane Major Highway at the I-15 interchange. In the City of Rancho Cucamonga Circulation Element, Base Line Road is designated as an Arterial Roadway within the study area.

Foothill Boulevard is an east-west roadway with 3 lanes in each direction that connects to the I-15 freeway ramps. The posted speed limit is 50 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Foothill Boulevard is designated as a Major Divided Highway west of East Street, a Major Arterial Highway between East Street and Citrus Avenue, and a Major Divided Highway east of Citrus Avenue. Foothill Boulevard is designated in the City of Fontana Circulation Element as a Modified Major Highway. In the City of Rancho Cucamonga Circulation Element, Foothill Boulevard is designated as a Boulevard.

Arrow Route is an east-west roadway with 1 lane in each direction. The posted speed limit is 45 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Arrow Route is designated as a Major Highway. Arrow Route is designated in the City of Fontana Circulation Element as a Primary Highway. In the City of Rancho Cucamonga Circulation Element, Arrow Highway is designated as an Arterial Roadway.

Whittram Avenue is an east-west roadway with 1 lane in each direction. In the project vicinity, Whittram Avenue forms the northern project boundary. The posted speed limit is 40 mph, and on-street parking is permitted on both sides. In the San Bernardino County General Plan, Whittram Avenue is designated as a Secondary Highway. Whittram Avenue is designated in the City of Fontana Circulation Element as a Secondary Highway.

Merrill Avenue is an east-west roadway with 1 lane in each direction. The posted speed limit is 40 mph, and on-street parking is permitted on both sides. In the San Bernardino County General Plan, Merrill Avenue is designated as a Secondary Highway west of Fontana Avenue, a Major Highway between Fontana Avenue and Sierra Avenue, and a Secondary Highway east of Sierra Avenue. Merrill Avenue is generally designated in the City of Fontana Circulation Element as a Secondary Highway.

Randall Avenue is an east-west roadway with 1 lane in each direction. The posted speed limit is 40 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Randall Avenue is designated as a Secondary Highway. Randall Avenue is generally designated in the City of Fontana Circulation Element as a Modified Secondary Highway.

San Bernardino Avenue/4th Street is an east-west roadway with 2 lanes in each direction that connects to the I-15 freeway ramps. The posted speed limit is 55 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, San Bernardino Avenue is designated as a Major Divided Highway west of Fontana Avenue and a Secondary Highway east of Fontana Avenue. San Bernardino Avenue is designated in the City of Fontana Circulation Element as a Primary Highway west of Elm Avenue and east of Locust Avenue, and a Modified Secondary Highway between Elm Avenue and Locust Avenue. In the City of Rancho Cucamonga Circulation Element, San Bernardino Avenue/4th Street is designated as an Arterial Roadway.

Valley Boulevard is an east-west roadway with 3 lanes in each direction that connects to the I-10 freeway ramps. The posted speed limit is 50 mph, and on-street parking is prohibited on both sides. In the San Bernardino County General Plan, Valley Boulevard is designated as a Major Arterial Highway west of Sierra Avenue and a Major Divided Highway east of Sierra Avenue. Valley Boulevard is designated in the City of Fontana Circulation Element as a Major Highway.

Existing Transit Service

Transit service to the project area is provided by OmniTrans, which serves the City of San Bernardino and surrounding cities. The OmniTrans bus stop closest to the project site is a Route 61 stop, located on the south east corner of the intersection of Cherry Avenue and San Bernardino Avenue. A description of the bus routes serving the project area are provided below.

OmniTrans Route 61 operates in the County of San Bernardino, traveling along San Bernardino Avenue. Route 61 operates on weekdays from approximately 4:35 AM to 8:45 PM with approximately 20-minute headways (the time between bus arrivals) during peak hours and 30-minute headways during off-peak hours, Saturdays from approximately 5:20 AM to 9:10 PM with approximately 30-minute headways, and Sundays from approximately 5:35 AM to 6:10 PM with approximately 30-minute headways.

OmniTrans Route 66 operates in the County of San Bernardino, traveling along Foothill Boulevard. Route 66 operates on weekdays from approximately 4:10 AM to 10:35 PM with approximately 20-minute headways during peak hours and 30-minute headways during off-peak hours, Saturdays from approximately 5:45 AM to 9:20 PM with approximately 30-minute headways, and Sundays from approximately 6:50 AM to 6:30 PM with approximately 50-minute headways.

The Metrolink is also accessible by the project site with the Fontana Metrolink Station located approximately 3.5 miles east of the project site near Sierra Avenue and the Rancho Cucamonga Metrolink Station located approximately 3.5 miles west of the project site near Milliken Avenue.

Existing Traffic Volumes

Morning and evening peak hour turning movement counts for the study intersections were obtained in August and September 2021, while school was in session. Existing morning and evening peak hour intersection volumes are presented on Figure 5. Copies of the traffic data collection worksheets are provided in *Appendix B*.

The traffic counts included vehicle classifications for passenger cars, 2-axle trucks, 3-axle trucks, and 4+-axle trucks. The vehicle classification data was used to develop Passenger Car Equivalent (PCE) volumes by applying a PCE factor of 1.5 PCE for 2-axle trucks, 2.0 PCE for 3-axle trucks, and 3.0 for 4+-axle trucks. PCE worksheets are provided in *Appendix C*.

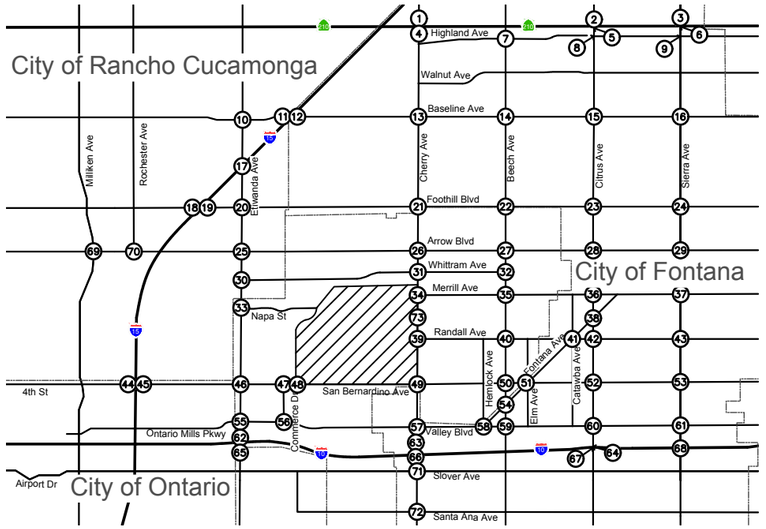
Existing Peak-Hour Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours using the analysis procedures and assumptions described previously in this report. The results are shown on Table 1.

Review of this table indicates that the following study intersections currently operate at an unacceptable Level of Service:

- #22 – Beech Ave at Foothill Blvd: AM – LOS F; PM – LOS F
- #32 – Beech Ave at Whittram Ave: PM – LOS E
- #59 – Beech Ave at Valley Blvd: AM – LOS F; PM – LOS F
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F

Copies of the intersection analysis worksheets are provided in *Appendix D*.



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
200/146 ← 712/461 → 252/135 ← 4/0 ← 360/287	355/395 ← 822/732 → 309/332 ← 1/0 ← 421/341	1079/1172 ← 291/400 ← 510/297	805/673 ← 160/72	931/682 ← 302/204
166/302 → 303/571 ←	302/323 → 906/1038 ←	792/1132 →	153/193 → 5/2 → 296/359 ↘ 427/687 ← 319/307 ←	411/496 → 3/3 → 402/344 ↘ 817/1043 ← 408/269 ←

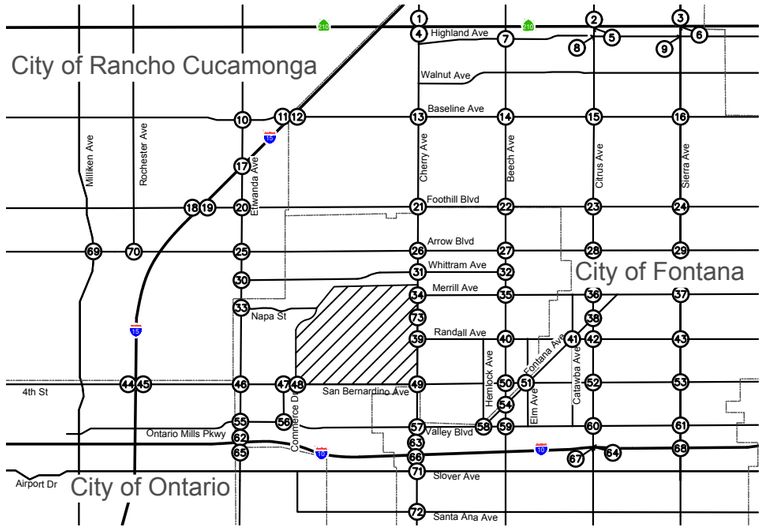
6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
26/0 ← 1265/1189	93/54 ← 502/386 ← 55/100 ↖ 61/82 ← 208/185 ← 90/68	150/106 ← 942/625 ← 337/294 ↖ 246/363 ← 197/296 ← 91/124	403/241 ← 1191/973 ← 219/357 ↖ 199/354 ← 252/171 ← 16/69	257/61 ← 286/94 ← 147/49 ↖ 236/46 ← 1112/620 ← 172/128	567/250 ← 367/258 ← 946/558	179/162 ← 1595/798	410/86 ← 828/435 ← 69/107 ↖ 66/61 ← 1336/590 ← 414/292
160/193 → 553/409 ↘ 946/1417 ← 463/643 ←	117/65 → 199/324 → 75/60 ↘ 37/26 ← 570/384 ← 67/87 ←	215/192 → 192/300 → 53/54 ↘ 75/62 ← 725/750 ← 72/75 ←	291/426 → 252/251 → 173/51 ↘ 160/59 ← 919/1316 ← 38/65 ←	107/74 → 507/991 → 78/115 ↘ 113/102 ← 268/163 ← 102/206 ←	537/1047 → 236/169 ↘	354/439 → 565/912 → 278/276 ← 2/0 ← 306/514 ←	232/305 → 502/1060 → 139/81 ↘ 63/154 ← 529/926 ← 155/338 ←

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
197/90 ← 239/191 ← 94/131 ↖ 82/121 ← 589/552 ← 45/65	237/106 ← 771/443 ← 124/127 ↖ 102/58 ← 659/526 ← 156/160	104/55 ← 1054/510 ← 220/226 ↖ 139/235 ← 492/640 ← 90/92	121/93 ← 282/224 ← 76/23 ↖ 69/30 ← 464/256 ← 94/42	849/536 ← 150/167 ← 1435/1348	197/292 ← 1219/1114 ←	230/155 ← 341/209 ← 50/62 ↖ 115/47 ← 1200/748 ← 342/104 ←
132/211 → 419/979 → 37/73 ↘ 65/94 ← 239/250 ← 13/24 ←	274/299 → 346/720 → 109/115 ↘ 120/95 ← 571/607 ← 733/69 ←	94/136 → 405/597 → 109/90 ↘ 157/104 ← 629/974 ← 56/61 ←	87/137 → 249/439 → 108/167 ↘ 141/133 ← 239/256 ← 145/98 ←	520/1898 → 798/934 ↘	441/1092 → 873/731 ← 494/465 ←	100/236 → 448/931 → 210/176 ↘ 153/260 ← 199/348 ← 67/189 ←

Note: Volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

LEGEND:
= Project Site
= Study Intersection
XX/YY = AM/PM Volumes

FIGURE 5A
EXISTING TRAFFIC VOLUMES



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
203/195 ↖ 793/634 ← 164/281 ↖ 98/123 ↑ 1138/567 ← 284/135 ↖	1526/760 ← 198/104 ↖	162/71 ↖ 724/551 ← 132/131 ↖ 78/119 ↑ 797/553 ← 235/287 ↖	126/119 ↖ 814/488 ← 192/153 ↖ 125/162 ↑ 611/501 ← 151/200 ↖	392/114 ↖ 324/235 ← 120/127 ↖ 133/144 ↑ 699/360 ← 141/100 ↖
183/247 → 414/860 → 153/100 ↘	621/1326 → 36/54 ↘	149/256 → 428/837 → 114/177 ↘	211/200 → 375/689 → 100/134 ↘	93/349 → 245/622 → 148/387 ↘
214/276 ↑ 404/828 ↑ 115/230 ↑	21/60 ↑ 102/118 ↑	143/138 ↑ 515/673 ↑ 78/87 ↑	79/103 ↑ 436/798 ↑ 79/135 ↑	325/163 ↑ 161/520 ↑ 36/116 ↑

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
95/93 ↖ 1008/777 ↓ 53/69 ↘ 59/59 ↑ 601/542 ← 154/116 ↖	84/22 ↖ 154/141 ← 14/18 ↖ 22/27 ↑ 598/429 ← 140/90 ↖	141/67 ↖ 791/729 ↓ 96/138 ↘ 131/92 ↑ 437/309 ← 226/144 ↖	69/77 ↖ 717/507 ← 58/108 ↖ 55/53 ↑ 527/311 ← 69/64 ↖	572/515 ↖ 65/196 ↘ 137/88 ↑ 234/201 ↖	89/56 ↖ 1068/688 ↓ 35/38 ↘ 68/73 ↑ 136/67 ← 150/122 ↖	111/39 ↖ 261/314 ↓ 	1/0 ↖ 753/571 ← 49/95 ↖ 40/49 ↑ 174/191 ↖
70/84 → 390/606 → 93/98 ↘	41/31 → 337/636 → 58/65 ↘	73/78 → 255/565 → 105/168 ↘	67/101 → 402/475 → 82/89 ↘	418/664 ↑ 151/283 ↑	30/87 → 30/141 → 200/294 ↘	57/80 → 66/165 ↘	0/5 → 2/30 ↘
103/138 ↑ 671/1069 ↑ 122/219 ↑	83/96 ↑ 127/151 ↑ 114/218 ↑	208/175 ↑ 617/861 ↑ 205/169 ↑	87/85 ↑ 511/770 ↑ 35/56 ↑	186/143 ↑ 806/1366 ↑ 132/112 ↑	134/88 ↑ 290/400 ↑	1/0 ↑ 551/907 ↑ 201/60 ↑	

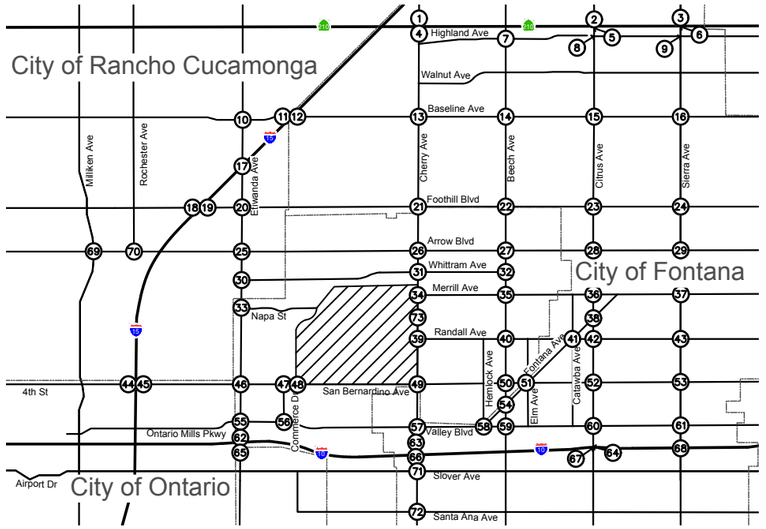
34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
0/1 ↖ 1237/841 ← 130/199 ↖ 253/206 ↑ 145/107 ↖	76/40 ↖ 145/172 ← 56/118 ↖ 153/129 ↑ 230/148 ← 67/32 ↖	92/100 ↖ 902/735 ← 61/78 ↖ 103/136 ↑ 206/195 ← 43/29 ↖	42/56 ↖ 877/696 ← 33/64 ↖ 43/46 ↑ 370/270 ← 134/111 ↖	122/106 ↖ 871/681 ← 23/34 ↖ 31/20 ↑ 78/83 ← 74/42 ↖	9/2 ↖ 1207/882 ← 156/160 ↖ 109/124 ↑ 214/165 ↖	82/31 ↖ 194/162 ← 6/34 ↖ 39/42 ↑ 173/113 ← 31/10 ↖
0/1 →	103/129 → 129/224 → 56/33 ↘	147/139 → 156/250 → 48/53 ↘	50/75 → 340/453 → 93/101 ↘	103/136 → 90/178 → 11/9 ↘	0/5 → 1/2 → 0/5 ↘	55/62 → 115/171 → 18/22 ↘
3/1 ↑ 813/1458 ↑ 117/200 ↑	51/30 ↑ 162/215 ↑ 58/48 ↑	51/45 ↑ 676/922 ↑ 27/34 ↑	57/113 ↑ 568/833 ↑ 91/164 ↑	20/18 ↑ 645/868 ↑ 75/69 ↑	10/16 ↑ 838/1461 ↑ 104/163 ↑	17/15 ↑ 193/213 ↑ 42/12 ↑

Note: Volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

LEGEND:
= Project Site
= Study Intersection
XX/YY = AM/PM Volumes

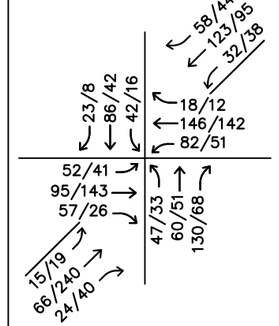
FIGURE 5B
EXISTING TRAFFIC VOLUMES

Kimley»Horn

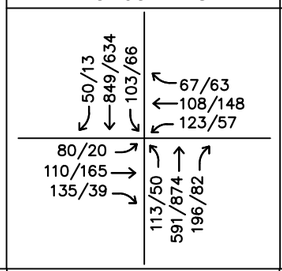


NOT TO SCALE

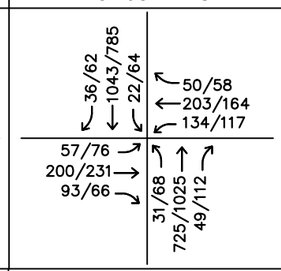
41. Fontana Ave/ Catawba Ave at Randall Ave



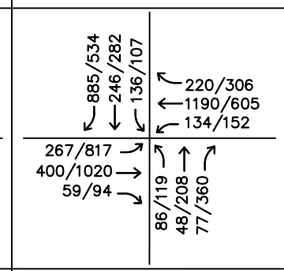
42. Citrus Ave at Randall Ave



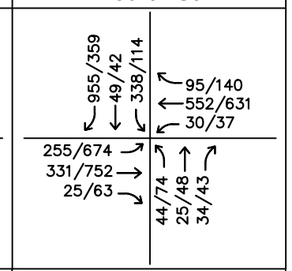
43. Sierra Ave at Randall Ave



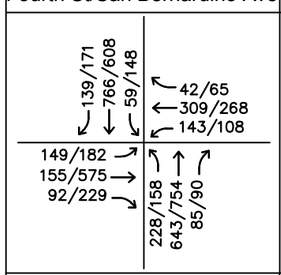
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



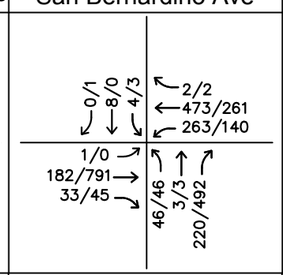
45. I-15 NB Ramps at Fourth St



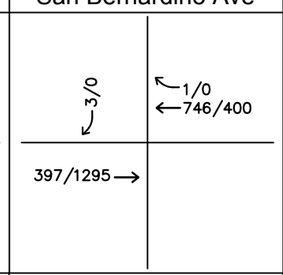
46. Etiwanda Ave at Fourth St/San Bernardino Ave



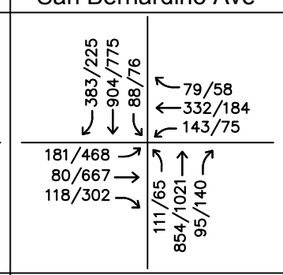
47. Commerce Dr at San Bernardino Ave



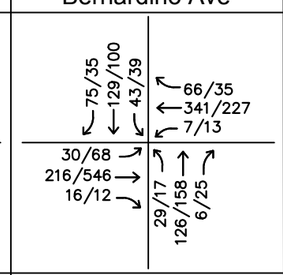
48. Vip Rd at San Bernardino Ave



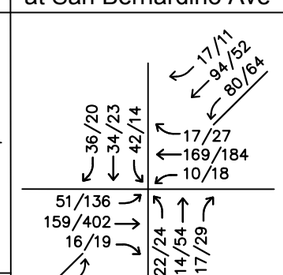
49. Cherry Ave at San Bernardino Ave



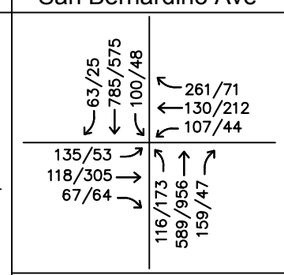
50. Beech Ave at San Bernardino Ave



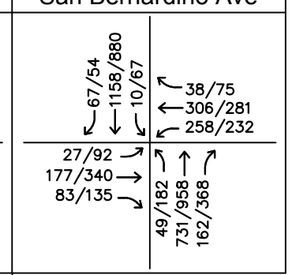
51. Fontana Ave/Elm St at San Bernardino Ave



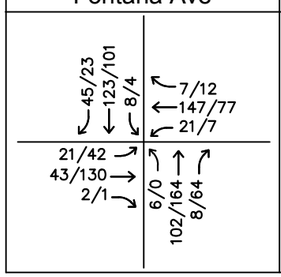
52. Citrus Ave at San Bernardino Ave



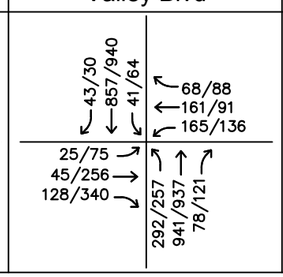
53. Sierra Ave at San Bernardino Ave



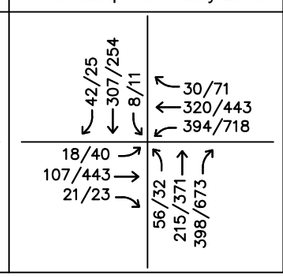
54. Beech Ave at Fontana Ave



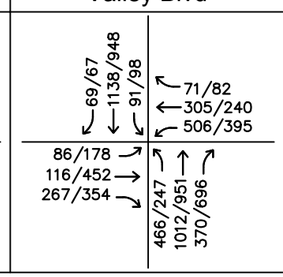
55. Etiwanda Ave at Valley Blvd



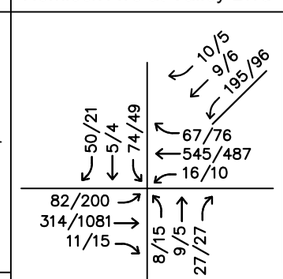
56. Commerce Dr/ I-15 Ramps at Valley Blvd



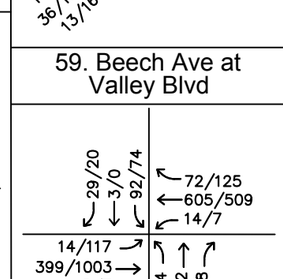
57. Cherry Ave at Valley Blvd



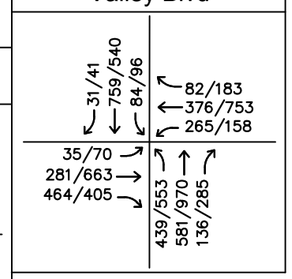
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



Note: Volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

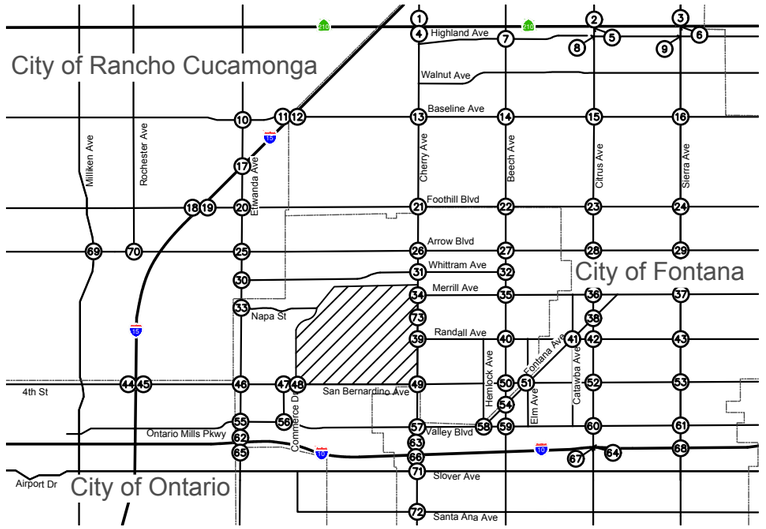
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 5C
EXISTING TRAFFIC VOLUMES



NOT TO SCALE

61. Sierra Ave at Valley Blvd

98/87 ↙ 1386/1201 ↓ 109/154 ↖ 94/106 ← 419/638 ↖ 546/633

170/267 ↗ 259/863 → 151/219 ↘ 180/236 ↑ 1217/1176 ↑ 675/727

62. Etiwanda Ave at I-10 WB Off-Ramps

408/422 ↙ 774/1033 ↓ ↖ 531/432 ↖ 490/347

762/986 ↑ 445/622 ↑

63. Cherry Ave at I-10 WB Ramps

1748/1805 ↓ ↖ 637/492 ↖ 738/518

993/1339 ↑ 543/389 ↑

64. Citrus Ave at I-10 WB Ramps

466/474 ↙ 983/892 ↓ ↖ 448/498 ↖ 363/240

654/1075 ↑ 272/256 ↑

65. Etiwanda Ave at I-10 EB Ramps

238/394 ↙ 966/969 ↓

308/298 ↗ 671/392 ↘ 1074/1287 ↑ 381/562 ↑

66. Cherry Ave at I-10 EB Ramps

1488/1182 ↙ 460/513 ↓

401/509 ↗ 6/43 → 617/548 ↘ 1234/1236 ↑ 483/419 ↑

67. Citrus Ave at I-10 EB Ramps

851/647 ↙ 534/501 ↓

304/451 ↗ 8/7 → 427/212 ↘ 651/893 ↑ 332/509 ↑

68. Sierra Ave at I-10 EB/WB Ramps

821/796 ↙ 741/861 ↓ 500/480 ↖ 550/566 ← 428/463

855/914 ↗ 501/457 ↘ 420/512 ↑ 718/1223 ↑ 357/467 ↑

69. Milliken Ave at Arrow Rte

218/118 ↙ 705/520 ↓ 108/62 ↖ 103/102 ← 1102/541 ← 156/107

77/237 ↗ 409/979 → 118/186 ↘ 176/174 ↑ 333/1468 ↑ 80/329 ↑

70. Rochester Ave at Arrow Rte

270/179 ↙ 390/219 ↓ 105/87 ↖ 134/173 ← 1013/490 ← 166/68

118/347 ↗ 333/879 → 69/21 ↘ 49/55 ↑ 170/791 ↑ 66/257 ↑

71. Cherry Ave at Slover Ave

522/405 ↙ 1110/983 ↓ 409/377 ↖ 351/364 ← 258/177 ← 53/60

407/440 ↗ 220/672 → 42/84 ↘ 28/35 ↑ 937/857 ↑ 55/66 ↑

72. Cherry Ave at Santa Ana Ave

331/130 ↙ 720/890 ↓ 114/67 ↖ 66/83 ← 21/21 ← 9/13

245/243 ↗ 39/49 → 80/30 ↘ 36/8 ↑ 762/601 ↑ 11/29 ↑

73. Cherry Ave at Street A

FUTURE INTERSECTION

Note: Volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

LEGEND:
= Project Site
(X) = Study Intersection
XX/YY = AM/PM Volumes

FIGURE 5D
EXISTING TRAFFIC VOLUMES

Kimley»Horn

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Cherry Ave at SR-210 WB Ramps	C	S	28.6	C	27.8	C
2	Citrus Ave at SR-210 WB Ramps	C	S	25.0	C	25.2	C
3	Sierra Ave at SR-210 WB Ramps	C	S	19.4	B	16.4	B
4	Cherry Ave at SR-210 EB Ramps	C	S	22.7	C	22.2	C
5	Citrus Ave at SR-210 EB Ramps	C	S	27.6	C	28.7	C
6	Sierra Ave at SR-210 EB Ramps	C	S	17.3	B	14.0	B
7	Beech Ave at Highland Ave	F	S	31.3	C	34.7	C
8	Citrus Ave at Highland Ave	F	S	35.2	D	38.5	D
9	Sierra Ave at Highland Ave	F	S	31.1	C	41.0	D
10	Etiwanda Ave at Base Line Rd	RC	S	47.3	D	40.8	D
11	I-15 SB Ramps at Base Line Rd	C	S	21.4	C	15.0	B
12	I-15 NB Ramps at Baseline Ave	C	S	31.7	C	34.6	C
13	Cherry Ave at Baseline Ave	F	S	37.1	D	37.4	D
14	Beech Ave at Baseline Ave	F	S	40.0	D	43.6	D
15	Citrus Ave at Baseline Ave	F	S	41.4	D	39.4	D
16	Sierra Ave at Baseline Ave	F	S	33.0	C	35.0	C
17	Etiwanda Ave at Church St/Miller Ave	RC	S	45.9	D	43.4	D
18	I-15 SB Ramps at Foothill Blvd	C	S	26.7	C	19.3	B
19	I-15 NB Ramps at Foothill Blvd	C	S	25.0	C	21.5	C
20	Etiwanda Ave at Foothill Blvd	RC	S	39.3	D	41.1	D
21	Cherry Ave at Foothill Blvd	F/SB	S	39.8	D	40.1	D
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F
23	Citrus Ave at Foothill Blvd	F	S	44.3	D	46.6	D
24	Sierra Ave at Foothill Blvd	F	S	40.4	D	40.5	D
25	Etiwanda Ave at Arrow Rte	RC	S	42.4	D	39.2	D
26	Cherry Ave at Arrow Rte	SB	S	39.4	D	43.2	D
27	Beech Ave at Arrow Rte	SB	S	30.0	C	24.5	C
28	Citrus Ave at Arrow Rte	F	S	41.8	D	39.0	D
29	Sierra Ave at Arrow Rte	F	S	36.5	D	35.7	D

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

30	Etiwanda Ave at Whittram Ave	RC	S	23.5	C	24.5	C
31	Cherry Ave at Whittram Ave	SB	S	33.3	C	36.1	D
32	Beech Ave at Whittram Ave	SB	U	30.5	D	35.2	E
33	Etiwanda Ave at Napa St	SB	S	15.2	B	21.5	C
34	Cherry Ave at Merrill Ave	SB	S	23.0	C	25.0	C
35	Beech Ave at Merrill Ave	SB	U	21.8	C	31.1	D
36	Citrus Ave at Merrill Ave	F	S	28.4	C	29.2	C
37	Sierra Ave at Merrill Ave	F	S	39.3	D	41.4	D
38	Citrus Ave at Fontana Ave	F	S	19.4	B	22.1	C
39	Cherry Ave at Randall Ave	SB	S	18.9	B	18.8	B
40	Beech Ave at Randall Ave	SB	U	15.8	C	12.2	B
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	14.7	B	15.4	C
42	Citrus Ave at Randall Ave	F	S	29.4	C	22.8	C
43	Sierra Ave at Randall Ave	F	S	26.0	C	28.1	C
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	42.1	D	45.3	D
45	I-15 NB Ramps at Fourth St	C	S	43.5	D	33.9	C
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	31.8	C	35.4	D
47	Commerce Dr at San Bernardino Ave	SB	S	31.2	C	39.0	D
48	Vip Rd at San Bernardino Ave	SB	U	11.1	B	0.0	
49	Cherry Ave at San Bernardino Ave	SB	S	30.7	C	37.2	D
50	Beech Ave at San Bernardino Ave	SB	S	33.2	C	35.4	D
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	31.8	C	27.0	C
52	Citrus Ave at San Bernardino Ave	F	S	35.9	D	30.1	C
53	Sierra Ave at San Bernardino Ave	F	S	28.4	C	36.2	D
54	Beech Ave at Fontana Ave	F/SB	U	9.6	A	9.6	A
55	Etiwanda Ave at Valley Blvd	SB	S	26.3	C	33.0	C
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	30.8	C	46.2	D
57	Cherry Ave at Valley Blvd	F/SB	S	38.3	D	39.1	D
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	26.9	C	14.8	B
59	Beech Ave at Valley Blvd	F	U	50.7	F	>180	F
60	Citrus Ave at Valley Blvd	F	S	45.3	D	43.1	D

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

61	Sierra Ave at Valley Blvd	F	S	32.3	C	42.9	D
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.5	C	18.8	B
63	Cherry Ave at I-10 WB Ramps	C	S	27.1	C	21.2	C
64	Citrus Ave at I-10 WB Ramps	C	S	20.6	C	18.2	B
65	Etiwanda Ave at I-10 EB Ramps	C	S	29.3	C	18.7	B
66	Cherry Ave at I-10 EB Ramps	C	S	30.8	C	30.2	C
67	Citrus Ave at I-10 EB Ramps	C	S	31.5	C	28.8	C
68	Sierra Ave at I-10 EB/WB Ramps	C	S	23.9	C	29.1	C
69	Milliken Ave at Arrow Rte	RC	S	37.4	D	37.5	D
70	Rochester Ave at Arrow Rte	RC	S	36.4	D	37.3	D
71	Cherry Ave at Slover Ave	F	S	31.6	C	34.4	C
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

OPENING YEAR 2024 CONDITIONS

The project Opening Year for Phase 1 is anticipated to be Year 2024. Opening Year 2024 Base traffic forecasts have been developed by adding an ambient growth factor of 2.0 percent per to existing traffic volumes at the study intersections.

Cumulative Projects

In addition to ambient growth, traffic volumes from Cumulative Projects in the Project vicinity are added to develop Opening Year 2024 forecasts. Cumulative Projects consist of any project that has been approved and is not yet occupied, and projects that are in various stages of the application and approval process but have not yet been approved. The locations of the Cumulative Projects are shown on Figure 6.

Information regarding Cumulative Projects in the area was obtained from previously approved traffic studies in the area. A summary of the Cumulative Projects, including the associated trip generation is provided on Table 2. The trip generation estimates for the Cumulative Projects were obtained from approved traffic studies, where available; and were developed by Kimley-Horn if approved traffic studies were not available.

Trip distribution and assignment for the Cumulative Projects were obtained from approved traffic studies, where available; and were developed by Kimley-Horn if approved traffic studies were not available. Traffic volumes associated with the Cumulative Projects were compiled for each of the study intersections and are shown on Figure 7. The Cumulative Projects traffic volumes were added to the Opening Year 2024 Base traffic volumes to develop Opening Year 2024 forecasts, which are shown on Figure 8.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for Opening Year 2024 conditions, and the results are shown on Table 3. Intersection analysis worksheets for this scenario are provided in *Appendix D*. Review of this table indicates that, with the addition of ambient growth and Cumulative Project traffic, the following intersections would operate at an unacceptable Level of Service under Opening Year 2024 conditions:

- #10 – Etiwanda Ave at Base Line Rd: AM – LOS E
- #22 – Beech Ave at Foothill Blvd: AM – LOS F; PM – LOS F
- #32 – Beech Ave at Whittram Ave: AM – LOS E; PM – LOS E
- #35 – Beech Ave at Merrill Ave: PM – LOS E
- #40 – Beech Ave at Randall Ave: AM – LOS F
- #59 – Beech Ave at Valley Blvd: AM – LOS F; PM – LOS F
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F

TABLE 2
SUMMARY OF CUMULATIVE PROJECTS

Proj #	Description	Land Use	Quantity	Units	Trip Generation Estimates						
						AM Peak Hour			PM Peak Hour		
					Daily	In	Out	Total	In	Out	Total
City of Fontana											
1	Single Family Residential	Single-Family Detached Housing	200	DU	1,888	37	111	148	125	73	198
2	Citrus Crossroads	Shopping Center	40.100	KSF	1,514	23	14	37	73	79	152
3	Fontana CDRJ	Automobile Sales (New)	44.625	KSF	1,242	61	23	84	43	65	108
4	Fontana Hyundai	Automobile Sales (New)	26.083	KSF	726	36	13	49	25	38	63
5	Walnut Village Senior Housing	Senior Adult Housing-Attached	93	Occ. DU	320	6	12	18	13	9	22
6	Providence II Amendment	Single-Family Detached Housing	96	DU	906	18	53	71	60	35	95
7	Victoria Homes Tract 20229	Single-Family Detached Housing	193	DU	1,822	36	107	143	120	71	191
8	Foothill Apartments	Multifamily Housing (Low-Rise)	24	DU	176	3	8	11	8	5	13
		Shopping Center	3.100	KSF	117	2	1	3	6	6	12
9	Taco Bell Cherry Ave	Fast-Food Restaurant w/ Drive-thru	2.077	KSF	978	43	41	84	35	33	68
10	Courtyard at Cherry	Shopping Center	66.470	KSF	2,509	39	24	63	122	132	254
11	Hilton Logistics Center	Warehousing	80.000	KSF	139	10	3	13	4	11	15
12	Happy Senior Apartments	Senior Adult Housing-Attached	78	Occ. DU	268	5	10	15	11	7	18
13	Lime Avenue Development	Single-Family Detached Housing	18	DU	170	3	10	13	11	7	18
14	Almeria Senior Housing	Senior Adult Housing-Attached	72	Occ. DU	248	5	9	14	10	7	17
15	Miller Villas	Single-Family Detached Housing	11	DU	104	2	6	8	7	4	11
16	Kingston Meadow	Single-Family Detached Housing	19	DU	179	4	11	15	12	7	19
17	Baseline Apartments	Multifamily Housing (Low-Rise)	54	DU	395	6	19	25	19	11	30
18	Multi-Family Project	Multifamily Housing (Low-Rise)	60	DU	439	6	21	27	21	12	33
19	Malaga Apartments	Multifamily Housing (Low-Rise)	18	DU	0	0	0	0	6	4	10
20	Cypress Multifamily	Multifamily Housing (Mid-Rise)	106	DU	0	10	28	38	28	18	46
21	Building Apartments	Multifamily Housing (Low-Rise)	14	DU	102	1	5	6	5	3	8
22	Valencia Apartments	Multifamily Housing (Low-Rise)	8	DU	59	1	3	4	3	2	5
23	Industrial Building	General Light Industrial	11.990	KSF	59	7	1	8	1	7	8
24	Downtown Mixed-Use Project	Shopping Center	3.252	KSF	123	2	1	3	6	6	12
		Multifamily Housing (Low-Rise)	28	DU	205	3	10	13	10	6	16
25	Foothill Starbucks	Coffee/Donut Shop w/ D.T.	2.300	KSF	1,887	104	100	204	50	50	100
26	United Gas Station	Gasoline/Service Station	8.000	FP	1,376	41	41	82	56	56	112
27	Fontana Citrus and Ceres	Fast-Food Restaurant w/ Drive-thru	2.400	KSF	1,130	49	47	96	41	38	79
28	Fontana Evergreen Senior Living	Senior Adult Housing-Attached	72	Occ. DU	248	5	9	14	10	7	17
29	47 Single Family Lots	Single-Family Detached Housing	47	DU	444	9	26	35	29	17	46
30	Unical 76 Automated Car Wash	Automated Car Wash	2.800	KSF	457	16	9	25	20	20	40
		Shopping Center	2.700	KSF	102	2	1	3	5	5	10
31	Fountain City Villas	Multifamily Housing (Low-Rise)	10	DU	73	1	4	5	4	2	6
32	Cypress Apartment Complex	Multifamily Housing (Low-Rise)	14	DU	102	1	5	6	5	3	8
33	Huibi Development Juniper	Single-Family Detached Housing	6	DU	57	1	3	4	4	2	6
34	Badiola Sierra Offices	General Office Building	4.100	KSF	40	4	1	5	1	4	5
35	Sierra Beauty Salon	Hair Salon	2.378	KSF	3	0	0	0	1	3	4
36	Assembly Hall	Synagogue	6.260	KSF	33	10	6	16	10	8	18
37	Oleander Nine Lots	Single-Family Detached Housing	9	DU	85	2	5	7	6	3	9
38	Chantry 9 Homes	Single-Family Detached Housing	9	DU	85	2	5	7	6	3	9
39	Northgate Commercial	Fast-Food Restaurant w/ Drive-thru	59.385	KSF	27,967	1,217	1,169	2,386	1,009	931	1,940

TABLE 2
SUMMARY OF CUMULATIVE PROJECTS

Proj #	Description	Land Use	Quantity	Units	Trip Generation Estimates						
						AM Peak Hour			PM Peak Hour		
					Daily	In	Out	Total	In	Out	Total
40	Valley Truck & Trailer	Automobile Parts and Service Center	28.843	KSF	470	41	15	56	26	39	65
41	Elizabeth's Insurance	Small Office Building	7.297	KSF	118	12	2	14	6	12	18
42	East Coast Truck & Auto Sale	Automobile Parts and Service Center	10.035	KSF	163	14	5	19	9	14	23
43	Baseline Apartments 2	Multifamily Housing (Low-Rise)	54	DU	395	6	19	25	19	11	30
44	9885 Sierra Avenue	Shopping Center	9.915	KSF	374	6	4	10	18	20	38
45	Almond Commerce Center	High-Cube Parcel Hub Warehouse	210.400	KSF	1,631	74	74	148	92	43	135
46	Cherry Valley Retail Center	Coffee/Donut Shop w/ D.T.	2.500	KSF	2,051	113	109	222	54	54	108
		Automobile Parts Sales	7.381	KSF	408	11	9	20	17	19	36
47	Oakmont Live Oak	Warehousing	240.750	KSF	419	32	9	41	12	33	45
48	Patriot Partners on Live Oak	Warehousing	177.660	KSF	309	23	7	30	9	25	34
49	Fontana Corporate Center	Warehousing	352.454	KSF	613	46	14	60	18	49	67
50	13860 Santa Ana	Trailer Storage Yard	13	Acres	940	12	20	32	34	17	51
51	Fontana Trailer Storage	Trailer Storage Yard	4.38	Acres	317	4	7	11	12	6	18
52	Santa Ana and Calabash	Warehousing	129.378	KSF	225	17	5	22	7	18	25
53	Cabot Commerce Center	Warehousing	159.618	KSF	278	21	6	27	8	22	30
54	10840 Cherry Ave	Warehousing	174.280	KSF	303	23	7	30	9	24	33
55	Black Creek Fontana	Warehousing	190.000	KSF	331	25	7	32	10	26	36
56	Santa Ana Warehouse	Warehousing	49.660	KSF	86	7	2	9	3	7	10
57	Duke Warehouse	Warehousing	298.210	KSF	519	39	12	51	15	41	56
58	Truck Repair	Automobile Parts and Service Center	3.530	KSF	57	5	2	7	3	5	8
59	Warehouse	Warehousing	192.794	KSF	335	25	8	33	10	27	37
60	Alvarez Car Repair	Automobile Parts and Service Center	12.000	KSF	195	17	6	23	11	16	27
61	Clover Industrial Property	Warehousing	146.843	KSF	256	19	6	25	7	20	27
62	Boyle Industrial Property	Warehousing	126.655	KSF	220	17	5	22	6	18	24
63	Boyle West Warehouse	Warehousing	88.984	KSF	155	12	3	15	5	12	17
64	Rivas Trailers	Small Office Building	1.256	KSF	20	2	0	2	1	2	3
65	Citrus & Slover Warehouse	Warehousing	194.212	KSF	338	25	8	33	10	27	37
66	Duke Realty Slover & Oleander	Warehousing	205.949	KSF	358	27	8	35	11	29	40
67	Duke Warehouse	Warehousing	623.460	KSF	1,085	82	24	106	32	87	119
68	Slover Industrial Warehouse	Warehousing	95.600	KSF	166	13	4	17	5	13	18
69	Sierra Business Center	Warehousing	705.735	KSF	1,228	92	28	120	36	98	134
70	Transwestern - Boyle Ave Bldg 2	High-Cube Parcel Hub Warehouse	77.460	KSF	600	27	27	54	34	16	50
71	Transwestern - Boyle Ave Bldg 1	High-Cube Parcel Hub Warehouse	178.142	KSF	1,381	62	62	124	77	37	114
72	Slover Ave Warehouse	Warehousing	41.000	KSF	71	5	2	7	2	6	8
73	La Quinta Inn	Hotel	104	Room	869	29	20	49	32	31	63
74	Townplace Suites, Fontana	Hotel	116	Room	970	32	22	54	35	34	69
75	Calabash Industrial Building	Warehousing	64.692	KSF	113	8	3	11	3	9	12
76	Jurupa Warehosue	Warehousing	279.859	KSF	487	37	11	48	14	39	53
77	MG Home International Warehouse	Warehousing	15.570	KSF	27	2	1	3	1	2	3
78	Henean Trucking Fontana	Warehousing	2.670	KSF	5	0	0	0	0	0	0
79	Citrus Industrial Building	Warehousing	49.987	KSF	87	7	2	9	3	7	10

TABLE 2
SUMMARY OF CUMULATIVE PROJECTS

Proj #	Description	Land Use	Quantity	Units	Trip Generation Estimates						
						AM Peak Hour			PM Peak Hour		
					Daily	In	Out	Total	In	Out	Total
San Bernardino County											
80	PROJ-2020-00160	Automobile Care Center	18.295	KSF	98	27	14	41	27	30	57
81	PROJ-2020-00200	Gasoline/Service Station	8.000	KSF	1,376	41	41	82	56	56	112
82	PROJ-2020-00179	Trailer Storage Yard	0.4	Acres	29	0	1	1	1	1	2
83	PRAA-2020-00038	Warehousing	6.133	KSF	11	1	0	1	0	1	1
84	PROJ-2019-00037	Warehousing	48.882	KSF	85	6	2	8	2	7	9
85	PROJ-2019-00070	Warehousing	12.500	KSF	22	2	0	2	1	2	3
86	PROJ-2019-00082	Trailer Storage Yard	4	Acre	289	4	6	10	11	5	16
87	PROJ-2020-00025	Warehousing	5.000	KSF	9	1	0	1	0	1	1
88	PROJ-2020-00061	Warehousing	4.200	KSF	7	1	0	1	0	1	1
89	PROJ-2020-00217	Warehousing	209.600	KSF	365	27	8	35	11	29	40
90	PROJ-2020-00227	Automobile Care Center	9.000	KSF	48	13	7	20	13	15	28
91	PROJ-2020-00230	Single-Family Detached Housing	112	DU	1,057	21	62	83	70	41	111
92	PROJ-2020-00235	Warehousing	195.960	KSF	341	26	8	34	10	27	37
City of Ontario											
93	PDEV19-021	Hotel	138.000	Room	1,154	38	27	65	42	41	83
94	PDEV21-029	General Light Industrial	15.132	KSF	75	9	1	10	1	8	9
95	PDEV19-070	Automated Car Wash	4.446	KSF	725	25	15	40	32	32	64
City of Rancho Cucamonga											
96	East Avenue Villa	Single-Family Detached Housing	12	DU	113	2	7	9	7	4	11
97	DRC2019-00558	Single-Family Detached Housing	10	DU	94	2	6	8	6	4	10
98	The Resort	Multifamily Housing (Mid-Rise)	296	DU	1,610	28	79	107	79	51	130
		Multifamily Housing (Low-Rise)	135	DU	988	14	48	62	48	28	76
		Multifamily Housing (Low-Rise)	80	DU	586	8	28	36	28	17	45
		Multifamily Housing (High-Rise)	867	DU	3,858	64	205	269	191	121	312
99	Bayan Avenue 9	Single-Family Detached Housing	9	DU	85	2	5	7	6	3	9
100	Manning Homes 17	Single-Family Detached Housing	17	DU	160	3	9	12	11	6	17
101	8281 Utica Office	General Office Building	12.000	KSF	117	12	2	14	2	12	14
102	Station 178	Fire and Rescue Station	12.363	KSF	0	0	0	0	2	4	6
103	Siamak Coffee House	Coffee/Donut Shop w/o D.T.	1.000	KSF	137	52	50	102	18	18	36
104	Hickory and Arrow Industrial	Warehousing	33.067	KSF	58	4	1	5	2	5	7
105	Milliken and Jersey Industrial	Warehousing	143.014	KSF	249	19	6	25	7	20	27
106	Hillwood - 2 Industrial Warehouses	Warehousing	651.000	KSF	1,133	85	25	110	33	90	123
107	Bernell Hydraulics	General Light Industrial	22.000	KSF	109	14	2	16	2	12	14
108	Westbury	Multifamily Housing (Low-Rise)	133	DU	974	14	47	61	47	28	75
109	Haven and 26th	Multifamily Housing (Mid-Rise)	207	DU	1,126	19	55	74	55	36	91
		Shopping Center	14.300	KSF	540	8	5	13	26	28	54
110	Alta Cuvee	Multifamily Housing (Mid-Rise)	260	DU	1,414	24	69	93	70	45	115
111	Harvest at Terra Vista	Multifamily Housing (High-Rise)	660	DU	2,937	49	156	205	145	92	237
112	Haven and Arrow	Multifamily Housing (Mid-Rise)	240	DU	1,306	23	64	87	64	41	105
Total Project Trips					91,035	3,592	3,621	7,213	3,883	3,787	7,670

DU = Dwelling Unit, KSF = 1,000 square feet, FP = Fueling Position

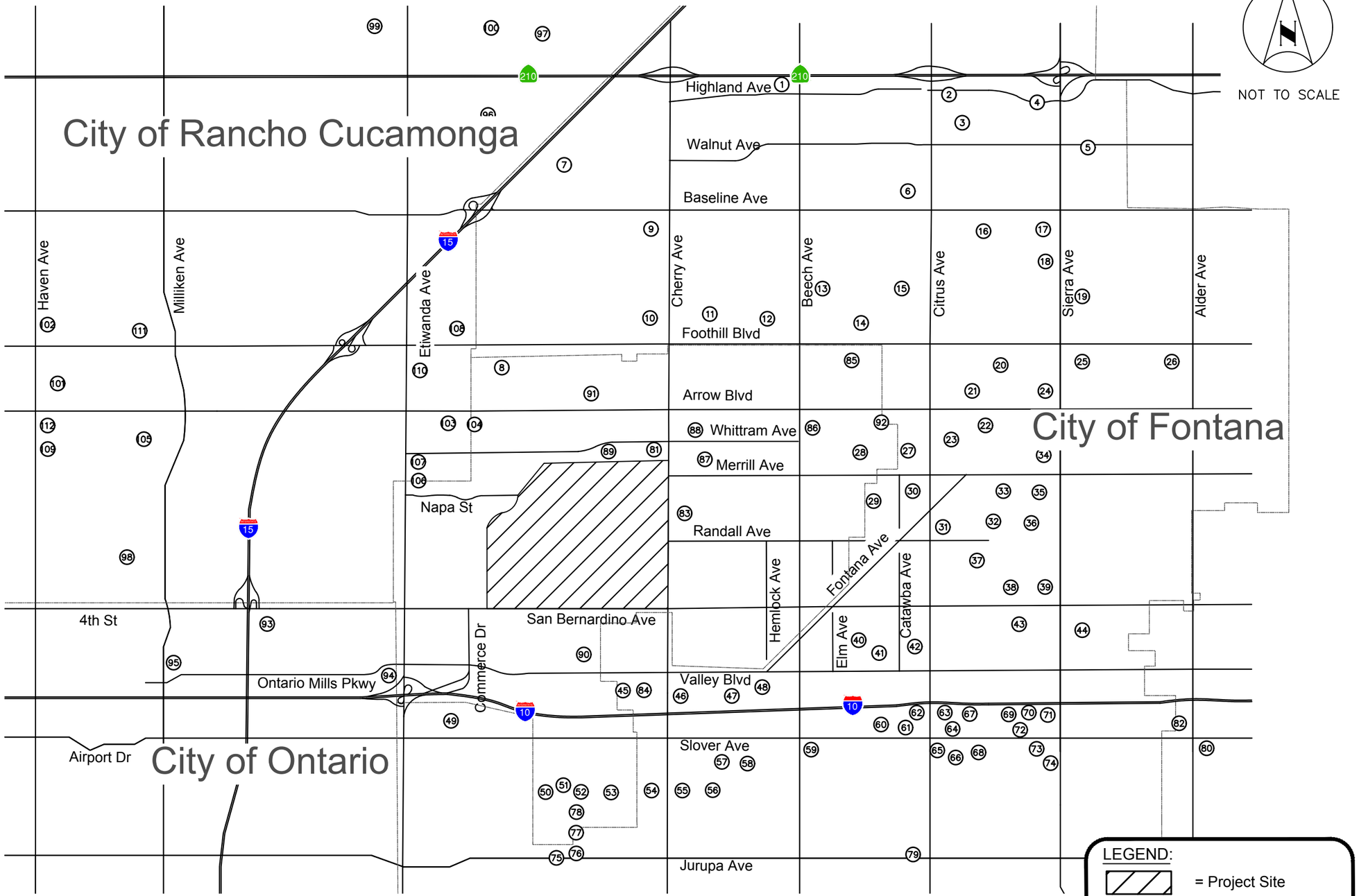
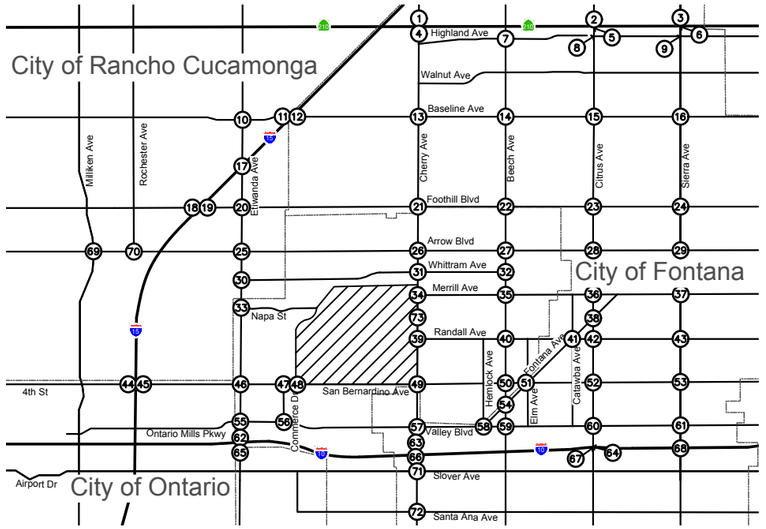


FIGURE 6
LOCATION OF CUMULATIVE PROJECTS

Kimley»Horn



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
←4/8 ←17/26 14/15 → 6/5 →	←4/8 5/7 → 6/5 →	←4/8 2/4 ← 6/5 →	←21/34 12/16 ↘ 20/20 → 22/22 →	←9/15 6/5 → 7/7 →

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
←6/12 6/5 →		←9/15 13/12 →	←6/12 9/8 →	←4/8 4/8 ↘ 6/5 → 6/5 →			←32/50 33/63 ← 42/42 → 45/39 →

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
←27/54 38/33 →	←9/15 ←14/30 2/1 11/10 → 21/18 → 2/2 → 2/2 →	←6/14 ←4/6 ←4/8 10/9 → 6/5 → 5/4 →	←8/16 0/1 ← 12/10 → 1/0 →	←26/42 ←16/16 12/16 →	←36/35 ←16/16 38/58 →	←8/17 0/1 ← 38/58 ↘ 52/51 → 13/10 → 1/0 →

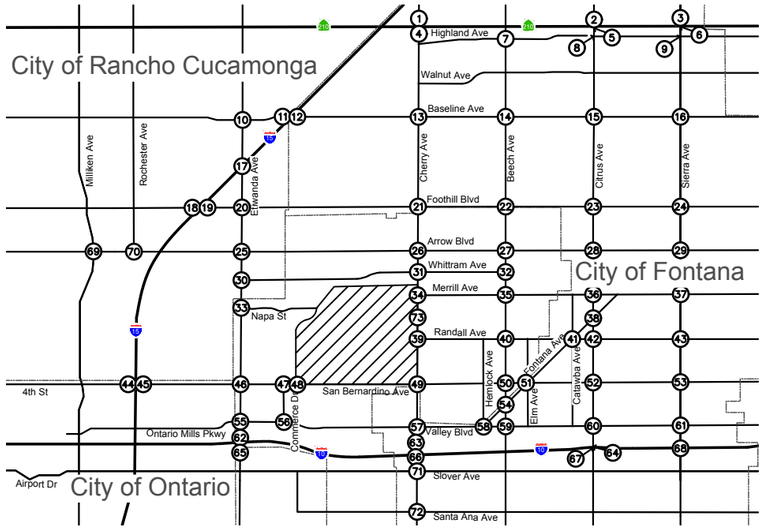
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 7A
CUMULATIVE PROJECT TRAFFIC VOLUMES



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
←0/1 ↓72/120 ←19/36 1/0 → ↑91/87 ↑29/26	←19/36 ←2/1 29/26 → ↑1/1	←2/1 ←15/28 23/21 → ↑4/4	↓2/5 ↓8/10 ←9/15 ←3/1 3/3 → 14/13 → ↑9/7 ↑2/3	←46/76 12/24 → ↑18/15 ↑66/61

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
←91/156 ←13/30 ↑121/113 ↑20/18	←2/1 ←13/30 ←2/3 20/18 → ↑1/1 ↑3/2	←2/1 ←7/17 ←2/3 11/10 → ↑4/4 ↑3/2	←11/11 ←2/5 ←2/3 3/3 → ↑11/10 ↑3/2	←58/100 ↑84/76	←104/186 ←1/2 ↑140/131	↓1/2 ↓3/2 ↑4/3	←58/100 ↖84/76 ←9/9 ↑73/88

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
←105/188 ←7/17 ↑140/131 ↑11/10	←3/2 ←7/17 11/10 → ↑4/3	←4/4 ←7/17 ←1/1 11/10 → ↑7/6 ↑1/1	↙12/17 ↙5/5 ←4/8 15/12 ↘ 6/5 → 2/2 ↘ ↑1/4 ↑5/5	↙2/1 ↙3/4 ←5/2 ←5/10 6/5 ↘ 12/9 → ↑2/2	↙16/16 ↙50/77 ↙30/48 ↖20/54 ←97/116 15/14 ↘ 123/106 → 96/93 ↘ ↑117/144 ↑40/86	↙3/2 ←102/144 4/3 ↘ 129/135 → 8/6 ↘ ↑4/8

LEGEND:

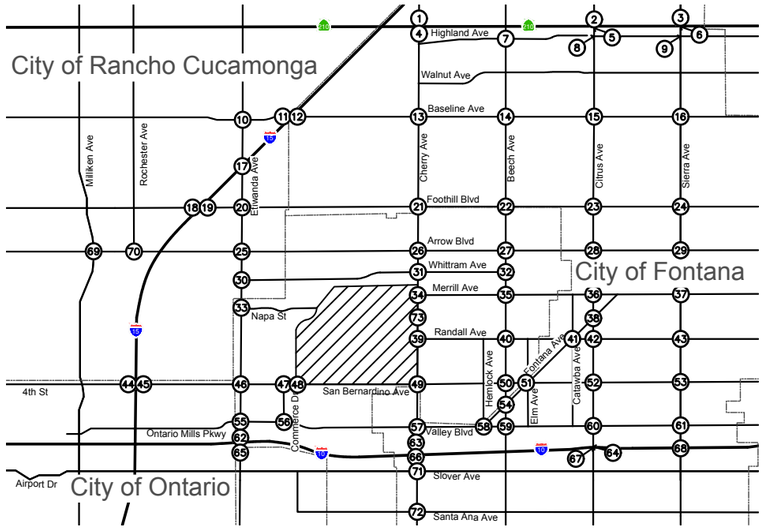
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

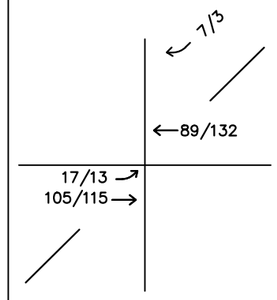
FIGURE 7B
CUMULATIVE PROJECT TRAFFIC VOLUMES

Kimley»Horn

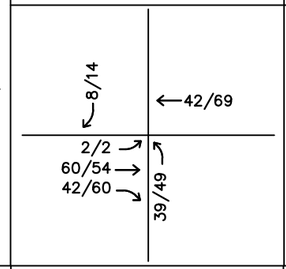


NOT TO SCALE

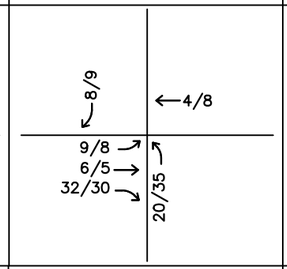
41. Fontana Ave/ Catawba Ave at Randall Ave



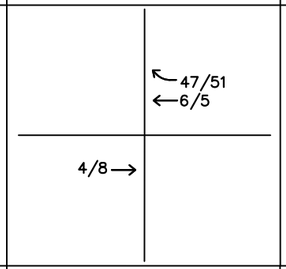
42. Citrus Ave at Randall Ave



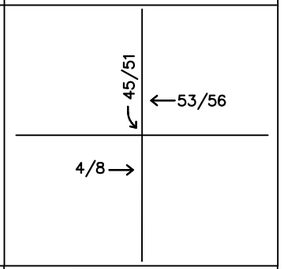
43. Sierra Ave at Randall Ave



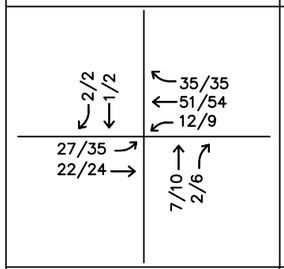
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



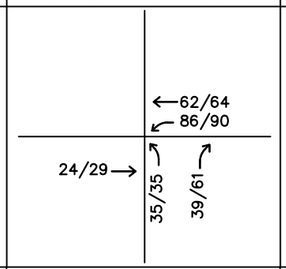
45. I-15 NB Ramps at Fourth St



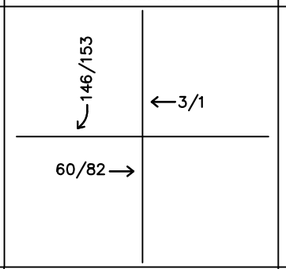
46. Etiwanda Ave at Fourth St/San Bernardino Ave



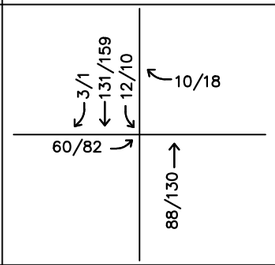
47. Commerce Dr at San Bernardino Ave



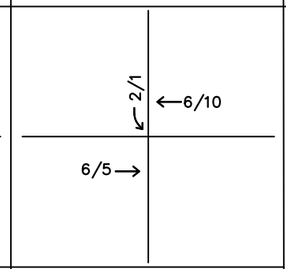
48. Vip Rd at San Bernardino Ave



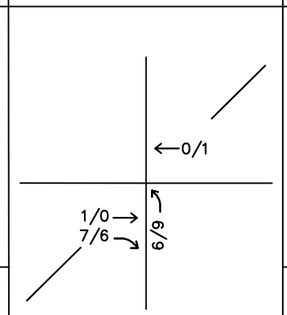
49. Cherry Ave at San Bernardino Ave



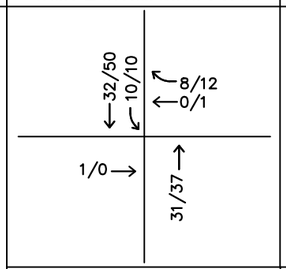
50. Beech Ave at San Bernardino Ave



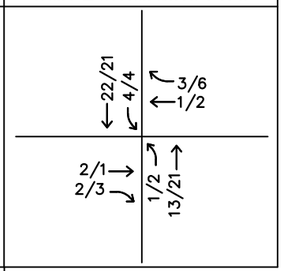
51. Fontana Ave/Elm St at San Bernardino Ave



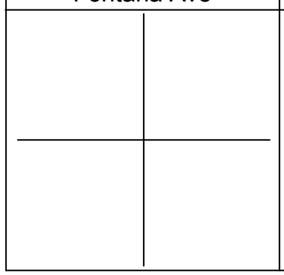
52. Citrus Ave at San Bernardino Ave



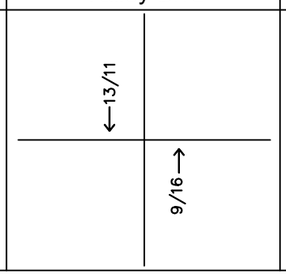
53. Sierra Ave at San Bernardino Ave



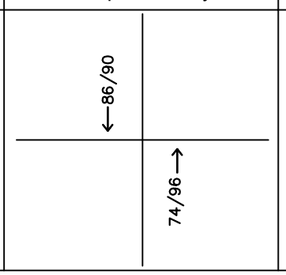
54. Beech Ave at Fontana Ave



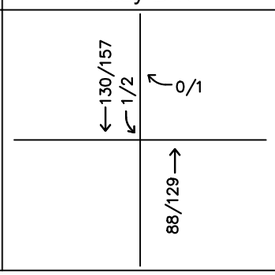
55. Etiwanda Ave at Valley Blvd



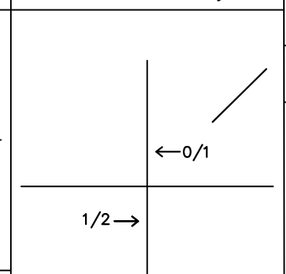
56. Commerce Dr/ I-15 Ramps at Valley Blvd



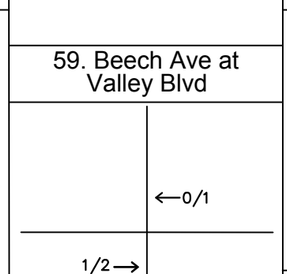
57. Cherry Ave at Valley Blvd



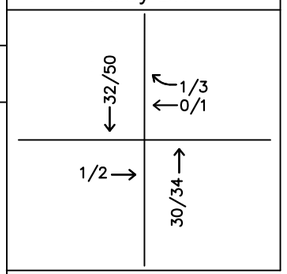
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



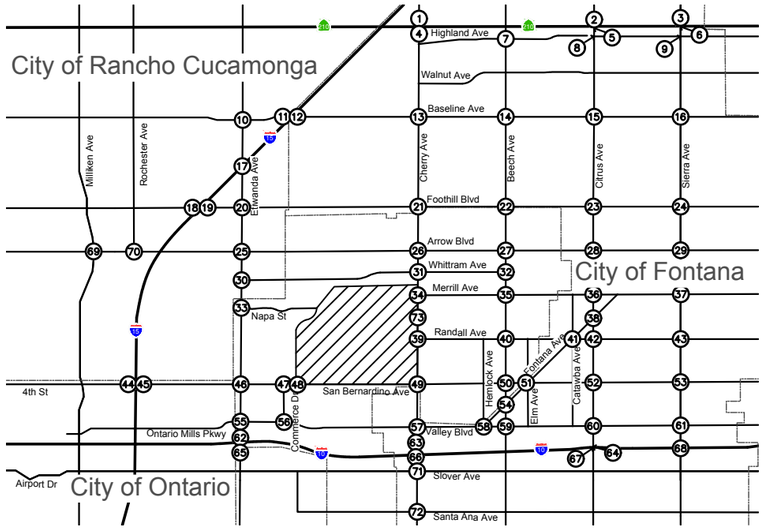
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 7C
CUMULATIVE PROJECT TRAFFIC VOLUMES



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
←18/18 ←6/5 ↖4/8 1/2↘ ↑1/4 ↑10/15	←7/6 ←6/5 ↑9/16	←124/150 ↖62/82 ↑26/47	←32/50 ↖26/26 ↑4/8	←6/5 5/8↗ ↑4/8

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
←32/28 ←92/123 5/7↗ ↑21/39	←6/5 ←26/45 ↑4/8	←6/5 ←13/16 ↖7/11 ↑4/8	←4/8 ↖6/5 ←6/5 ←6/5 4/8→ ↑4/8	←18/15 12/24→	←6/5 ←26/23 4/8↗ ↑17/31	←6/5 ←6/5 ←14/13 ↖9/15 4/8↗ ↑4/8	FUTURE INTERSECTION

LEGEND:

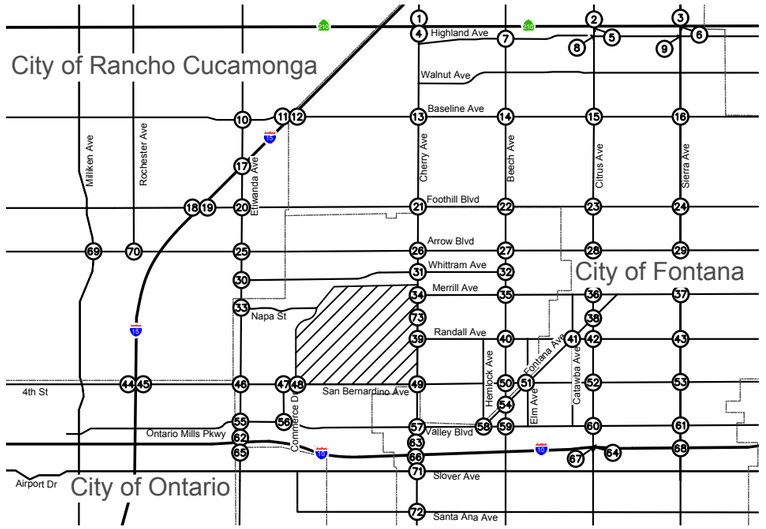
= Project Site

Ⓧ = Study Intersection

XX/YY = AM/PM Volumes

FIGURE 7D
CUMULATIVE PROJECT TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
212/155 759/497 267/143 4/0 399/330 190/335 327/610	376/419 875/784 328/352 1/0 451/368 320/342 966/1105	1148/1250 308/424 543/319 846/1205	874/747 170/76 162/205 5/2 326/397 473/748 360/347	996/738 320/216 436/526 3/3 426/365 872/1111 439/292

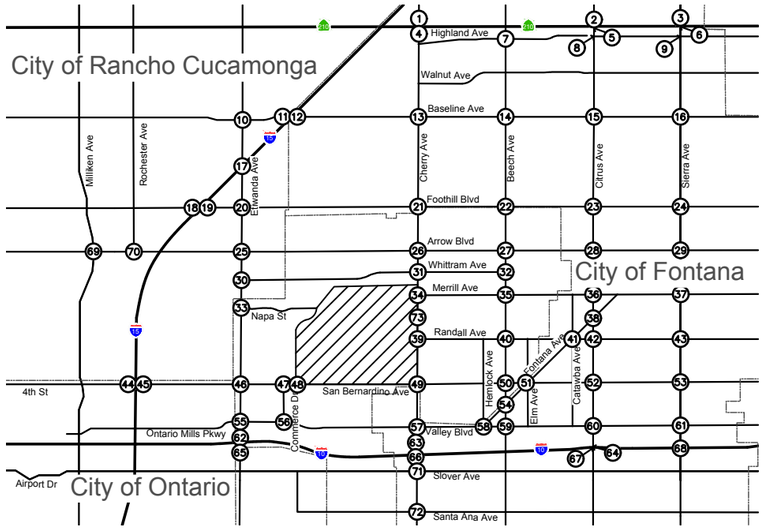
6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
26/0 1347/1272 170/205 586/434 1009/1507 491/682	99/57 532/409 58/106 65/87 220/196 95/72 124/69 211/343 80/64 39/28 604/407 71/92	159/112 1008/678 357/312 261/385 209/314 96/131 228/204 204/318 56/57 80/66 782/807 76/80	427/255 1268/1043 232/378 211/375 267/181 17/73 308/452 267/266 183/54 170/63 983/1403 40/69	272/65 307/108 156/52 250/49 1179/657 182/136 113/78 537/1050 87/130 126/113 290/178 108/218	601/265 389/273 1003/591 569/1110 250/179	190/172 1691/846 375/465 599/967 295/293 2/0 324/545	435/91 910/511 73/113 70/65 1416/625 472/373 246/323 532/1124 147/86 67/163 603/1024 209/397

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
209/95 253/202 100/139 87/128 651/639 48/69 140/224 482/1071 39/77 69/100 253/265 14/25	260/127 817/470 131/135 108/61 713/588 167/171 301/327 388/781 116/122 127/101 607/645 779/75	116/72 1121/547 233/240 147/249 526/686 95/98 110/153 435/638 116/95 166/110 672/1036 59/65	128/99 307/253 81/24 73/32 492/271 100/46 92/145 264/465 114/177 149/141 265/281 155/104	900/568 185/219 1537/1445 563/2028 846/990	245/345 1308/1197 505/1216 925/775 524/493	244/164 369/239 53/66 122/50 1272/793 363/111 106/250 475/987 261/245 214/327 224/379 72/200

Note: Volumes reflect PCE adjustments.

LEGEND:
= Project Site
= Study Intersection
XX/YY = AM/PM Volumes

FIGURE 8A
OPENING YEAR 2024 TRAFFIC VOLUMES



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
215/208 ↙ 913/792 ← 174/298 ↖ 104/130 ↖ 1206/601 ← 320/179 ↙	1637/842 ← 212/111 ↙	172/75 ↙ 769/585 ← 140/139 ↖ 83/126 ↖ 860/614 ← 249/304 ↙	136/131 ↙ 871/527 ← 204/162 ↖ 133/172 ↖ 657/546 ← 163/213 ↙	416/121 ↙ 389/325 ← 127/135 ↖ 141/153 ↖ 741/382 ← 149/106 ↙
195/262 → 439/912 → 162/106 ↘ 227/293 ↑ 519/965 ↑ 151/270 ↑	687/1432 → 38/57 ↘ 22/64 ↑ 109/126 ↑	158/271 → 477/908 → 121/188 ↘ 152/146 ↑ 550/717 ↑ 83/92 ↑	227/215 → 412/743 → 106/142 ↘ 84/109 ↑ 471/853 ↑ 86/146 ↑	99/370 → 260/659 → 169/434 ↘ 363/188 ↑ 237/612 ↑ 38/123 ↑

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
101/99 ↙ 1159/980 ↓ 56/73 ↙ 63/63 ↖ 637/575 ← 176/153 ↙	89/23 ↙ 165/150 ↓ 15/19 ↙ 23/29 ↖ 647/485 ← 150/98 ↙	149/71 ↙ 840/774 ↓ 102/146 ↙ 139/98 ↖ 470/345 ← 242/156 ↙	73/82 ↙ 771/548 ↓ 61/114 ↙ 58/56 ↖ 561/335 ← 75/71 ↙	664/646 ↙ 69/208 ↘ 145/93 ↖ 248/213 ←	94/59 ↙ 1236/915 ↓ 37/40 ↙ 72/77 ↖ 144/71 ← 160/131 ↙	119/43 ↙ 280/335 ↓	1/0 ↙ 798/605 ↓ 110/201 ↙ 126/128 ↖ 193/211 ←
74/89 → 413/642 → 99/104 ↘ 109/146 ↑ 832/1246 ↑ 149/250 ↑	43/33 → 377/692 → 61/69 ↘ 88/102 ↑ 136/161 ↑ 124/233 ↑	77/83 → 281/609 → 111/178 ↘ 220/186 ↑ 658/917 ↑ 220/181 ↑	71/107 → 429/507 → 87/94 ↘ 92/90 ↑ 553/826 ↑ 40/61 ↑	527/780 ↑ 160/300 ↑	32/92 → 32/149 → 212/312 ↘ 197/152 ↑ 994/1579 ↑ 140/119 ↑	60/85 → 70/175 ↘ 142/93 ↑ 311/427 ↑	0/5 → 2/32 ↘ 1/0 ↑ 584/961 ↑ 286/152 ↑

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
0/1 ↙ 1416/1079 ← 138/211 ↖ 268/218 ↖ 161/130 ←	81/42 ↙ 157/184 ← 59/125 ↖ 162/137 ↖ 251/174 ← 71/34 ↙	98/106 ↙ 960/783 ← 65/83 ↖ 109/144 ↖ 225/224 ← 47/32 ↙	57/76 ↙ 935/743 ← 35/68 ↖ 46/49 ↖ 396/294 ← 142/118 ↙	131/113 ↙ 926/726 ← 24/36 ↖ 33/21 ↖ 88/90 ← 83/55 ↙	26/18 ↙ 1329/1012 ← 195/218 ↖ 136/185 ↖ 97/116 ← 227/175 ↙	90/35 ↙ 206/172 ← 6/36 ↖ 41/45 ↖ 285/264 ← 33/11 ↙
0/1 → 3/1 ↑ 1002/1676 ↑ 135/222 ↑	109/137 → 148/247 → 59/35 ↘ 54/32 ↑ 176/231 ↑ 61/51 ↑	156/147 → 176/275 → 51/56 ↘ 54/48 ↑ 724/983 ↑ 30/37 ↑	68/92 → 366/485 → 101/109 ↘ 61/124 ↑ 607/888 ↑ 96/174 ↑	115/149 → 107/198 → 12/10 ↘ 21/19 ↑ 686/922 ↑ 80/73 ↑	15/19 → 124/108 → 96/98 ↘ 128/161 ↑ 928/1635 ↑ 110/173 ↑	62/69 → 251/316 → 27/29 ↘ 22/24 ↑ 205/226 ↑ 45/13 ↑

Note: Volumes reflect PCE adjustments.

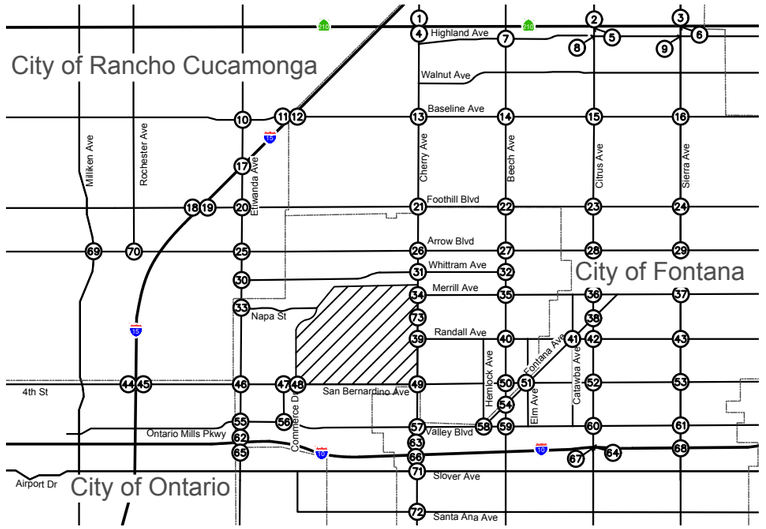
LEGEND:

= Project Site

= Study Intersection

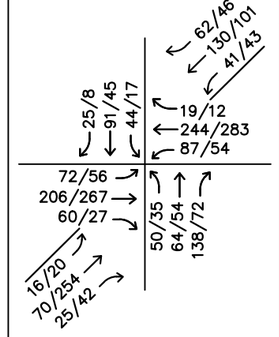
XX/YY = AM/PM Volumes

FIGURE 8B
OPENING YEAR 2024 TRAFFIC VOLUMES

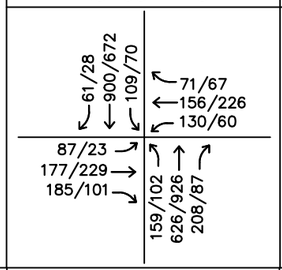


NOT TO SCALE

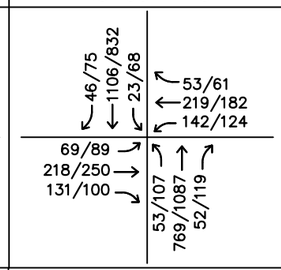
41. Fontana Ave/ Catawba Ave at Randall Ave



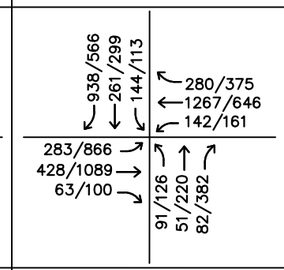
42. Citrus Ave at Randall Ave



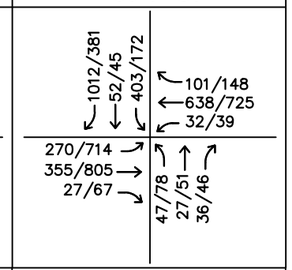
43. Sierra Ave at Randall Ave



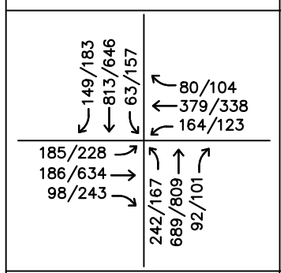
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



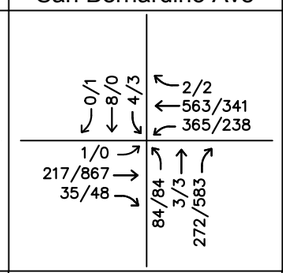
45. I-15 NB Ramps at Fourth St



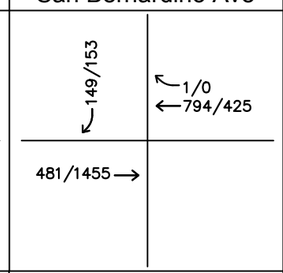
46. Etiwanda Ave at Fourth St/San Bernardino Ave



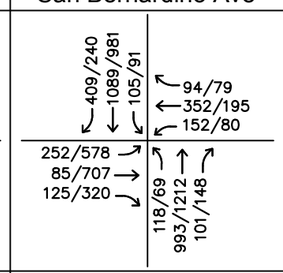
47. Commerce Dr at San Bernardino Ave



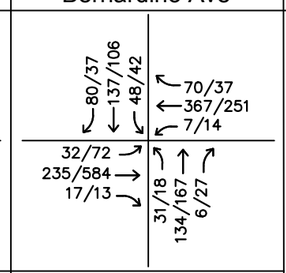
48. Vip Rd at San Bernardino Ave



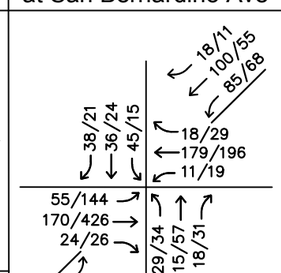
49. Cherry Ave at San Bernardino Ave



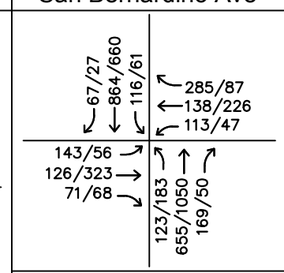
50. Beech Ave at San Bernardino Ave



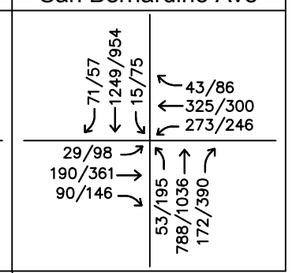
51. Fontana Ave/Elm St at San Bernardino Ave



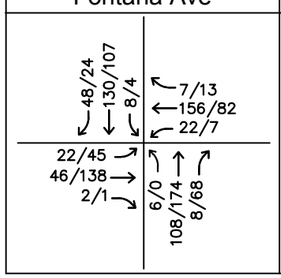
52. Citrus Ave at San Bernardino Ave



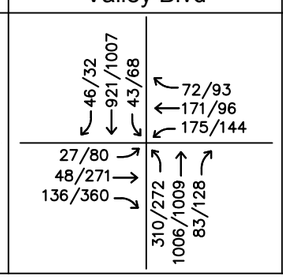
53. Sierra Ave at San Bernardino Ave



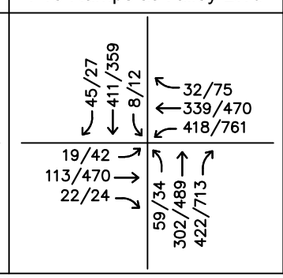
54. Beech Ave at Fontana Ave



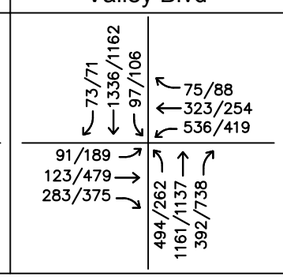
55. Etiwanda Ave at Valley Blvd



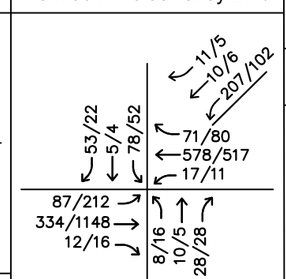
56. Commerce Dr/ I-15 Ramps at Valley Blvd



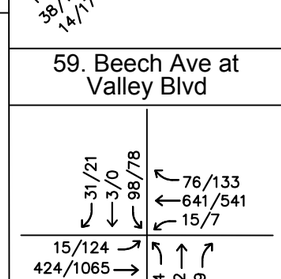
57. Cherry Ave at Valley Blvd



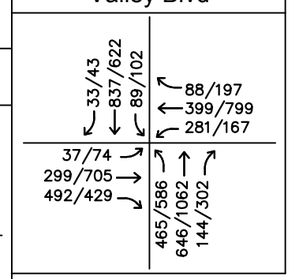
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



Note: Volumes reflect PCE adjustments.

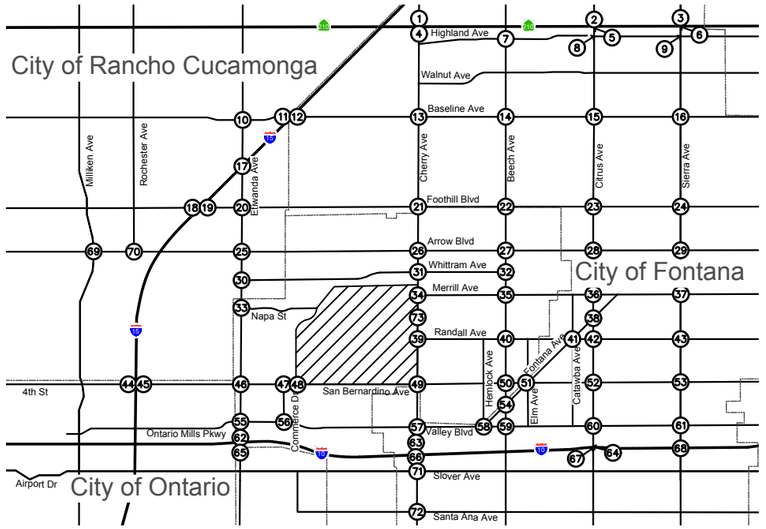
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 8C
OPENING YEAR 2024 TRAFFIC VOLUMES



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
104/92 ↙ 1487/1291 ↓ 122/168 ↖ 104/120 ← 444/676 ← 579/671	439/453 ↙ 826/1100 ↓ 563/458 ↖ 519/368	1977/2063 ↓ 737/604 ↖ 782/549	466/474 ↙ 1074/996 ↓ 501/554 ↖ 385/254	238/394 ↙ 1030/1032
180/283 → 275/915 → 161/234 ↘ 192/254 ↑ 1300/1262 ↑ 716/771	817/1061 ↑ 445/622	1079/1466 ↑ 576/412	697/1148 ↑ 272/256	308/324 → 671/416 ↘ 1142/1372 ↑ 381/562

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
1609/1281 ↓ 580/667	908/691 ↓ 592/576	870/844 ↙ 791/918 ↓ 543/525 ↖ 590/611 ← 454/491	231/125 ↙ 747/551 ↓ 118/74 ↖ 115/113 ← 1174/578 ← 171/118	286/190 ↙ 413/232 ↓ 111/92 ↖ 142/183 ← 1092/534 ← 176/72	559/434 ↙ 1203/1065 ↓ 434/400 ↖ 372/386 ← 273/188 ← 56/64	357/143 ↙ 769/948 ↓ 135/84 ↖ 79/103 ← 22/22 ← 10/14	FUTURE INTERSECTION
430/547 ↗ 6/46 → 654/581 ↘ 1329/1349 ↑ 512/444 ↑	322/478 ↗ 8/7 → 453/225 ↘ 694/955 ↑ 352/540 ↑	906/969 ↗ 531/484 ↘ 445/543 ↑ 765/1304 ↑ 378/495 ↑	82/251 ↗ 438/1046 → 125/197 ↘ 187/184 ↑ 353/1556 ↑ 89/357 ↑	125/368 ↗ 365/956 → 73/22 ↘ 52/58 ↑ 180/838 ↑ 70/272 ↑	435/474 ↗ 233/712 → 45/89 ↘ 30/37 ↑ 1010/939 ↑ 58/70 ↑	264/266 ↗ 41/52 → 85/32 ↘ 38/8 ↑ 812/645 ↑ 12/31 ↑	

Note: Volumes reflect PCE adjustments.

LEGEND:
- = Project Site
- (X) = Study Intersection
- XX/YY = AM/PM Volumes

FIGURE 8D
OPENING YEAR 2024 TRAFFIC VOLUMES

TABLE 3
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 CUMULATIVE CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Cherry Ave at SR-210 WB Ramps	C	S	30.0	C	28.7	C
2	Citrus Ave at SR-210 WB Ramps	C	S	25.9	C	26.3	C
3	Sierra Ave at SR-210 WB Ramps	C	S	19.6	B	16.6	B
4	Cherry Ave at SR-210 EB Ramps	C	S	24.1	C	23.3	C
5	Citrus Ave at SR-210 EB Ramps	C	S	29.2	C	29.9	C
6	Sierra Ave at SR-210 EB Ramps	C	S	17.6	B	14.4	B
7	Beech Ave at Highland Ave	F	S	31.7	C	34.7	C
8	Citrus Ave at Highland Ave	F	S	36.6	D	39.1	D
9	Sierra Ave at Highland Ave	F	S	32.0	C	46.1	D
10	Etiwanda Ave at Base Line Rd	RC	S	55.6	E	40.3	D
11	I-15 SB Ramps at Base Line Rd	C	S	21.5	C	15.0	B
12	I-15 NB Ramps at Baseline Ave	C	S	30.3	C	34.4	C
13	Cherry Ave at Baseline Ave	F	S	38.4	D	38.7	D
14	Beech Ave at Baseline Ave	F	S	39.9	D	43.3	D
15	Citrus Ave at Baseline Ave	F	S	47.9	D	39.6	D
16	Sierra Ave at Baseline Ave	F	S	33.7	C	35.4	D
17	Etiwanda Ave at Church St/Miller Ave	RC	S	47.4	D	43.6	D
18	I-15 SB Ramps at Foothill Blvd	C	S	32.8	C	20.7	C
19	I-15 NB Ramps at Foothill Blvd	C	S	25.4	C	21.9	C
20	Etiwanda Ave at Foothill Blvd	RC	S	42.6	D	42.8	D
21	Cherry Ave at Foothill Blvd	F/SB	S	40.5	D	43.5	D
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F
23	Citrus Ave at Foothill Blvd	F	S	47.5	D	51.4	D
24	Sierra Ave at Foothill Blvd	F	S	41.9	D	42.4	D
25	Etiwanda Ave at Arrow Rte	RC	S	42.2	D	39.9	D
26	Cherry Ave at Arrow Rte	SB	S	42.4	D	53.7	D
27	Beech Ave at Arrow Rte	SB	S	26.0	C	25.2	C
28	Citrus Ave at Arrow Rte	F	S	44.9	D	42.3	D

TABLE 3
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 CUMULATIVE CONDITIONS

29	Sierra Ave at Arrow Rte	F	S	37.1	D	36.3	D
30	Etiwanda Ave at Whittram Ave	RC	S	24.6	C	26.8	C
31	Cherry Ave at Whittram Ave	SB	S	37.4	D	46.5	D
32	Beech Ave at Whittram Ave	SB	U	36.5	E	38.8	E
33	Etiwanda Ave at Napa St	SB	S	19.5	B	27.3	C
34	Cherry Ave at Merrill Ave	SB	S	24.5	C	29.3	C
35	Beech Ave at Merrill Ave	SB	U	29.0	D	40.9	E
36	Citrus Ave at Merrill Ave	F	S	29.4	C	30.3	C
37	Sierra Ave at Merrill Ave	F	S	39.8	D	42.5	D
38	Citrus Ave at Fontana Ave	F	S	20.7	C	23.1	C
39	Cherry Ave at Randall Ave	SB	S	36.4	D	37.4	D
40	Beech Ave at Randall Ave	SB	U	67.8	F	25.7	D
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	25.1	D	28.8	D
42	Citrus Ave at Randall Ave	F	S	33.2	C	27.7	C
43	Sierra Ave at Randall Ave	F	S	28.5	C	30.8	C
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	44.6	D	51.3	D
45	I-15 NB Ramps at Fourth St	C	S	51.8	D	34.8	C
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	34.1	C	36.9	D
47	Commerce Dr at San Bernardino Ave	SB	S	34.7	C	49.8	D
48	Vip Rd at San Bernardino Ave	SB	U	13.8	B	10.8	B
49	Cherry Ave at San Bernardino Ave	SB	S	34.8	C	44.4	D
50	Beech Ave at San Bernardino Ave	SB	S	33.0	C	35.2	D
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	32.3	C	27.7	C
52	Citrus Ave at San Bernardino Ave	F	S	38.2	D	31.0	C
53	Sierra Ave at San Bernardino Ave	F	S	30.0	C	39.7	D
54	Beech Ave at Fontana Ave	F/SB	U	9.9	A	9.8	A
55	Etiwanda Ave at Valley Blvd	SB	S	26.8	C	34.1	C
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	29.5	C	51.8	D
57	Cherry Ave at Valley Blvd	F/SB	S	43.3	D	44.8	D
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	27.8	C	15.1	B

TABLE 3
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 CUMULATIVE CONDITIONS

59	Beech Ave at Valley Blvd	F	U	67.0	F	>180	F
60	Citrus Ave at Valley Blvd	F	S	51.6	D	45.2	D
61	Sierra Ave at Valley Blvd	F	S	34.2	C	51.6	D
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.7	C	19.1	B
63	Cherry Ave at I-10 WB Ramps	C	S	34.1	C	26.3	C
64	Citrus Ave at I-10 WB Ramps	C	S	21.2	C	18.7	B
65	Etiwanda Ave at I-10 EB Ramps	C	S	30.0	C	18.6	B
66	Cherry Ave at I-10 EB Ramps	C	S	35.2	D	35.3	D
67	Citrus Ave at I-10 EB Ramps	C	S	33.2	C	30.6	C
68	Sierra Ave at I-10 EB/WB Ramps	C	S	25.6	C	50.3	D
69	Milliken Ave at Arrow Rte	RC	S	38.3	D	39.7	D
70	Rochester Ave at Arrow Rte	RC	S	36.8	D	39.1	D
71	Cherry Ave at Slover Ave	F	S	33.6	C	35.7	D
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service

- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

PROJECT TRAFFIC

Project Trip Generation

Generally, trip generation estimates for the project are based on daily and peak hour trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition[1]).

Based on information provided the applicant, the following phases and mix of uses are assumed for this analysis and applicable ITE Land Use Category for each land use are as follows:

Land Use	ITE Land Use Code	Quantity	Unit
Phase 1			
E-Commerce	N/A	2,773,050	Sq. Ft.
Truck Storage	N/A	98	Acres
Phase 2 (in addition to Phase 1)			
High-Cube Short-Term Storage	154	2,141,000	Sq. Ft.
High-Cube Cold Storage	157	500,000	Sq. Ft.
Retail / Commercial	820	261,360	Sq. Ft.

Trip generation rates for the E-Commerce component of the project were based on empirical trip generation count data collected for similar E-Commerce projects, provided by the applicant. The Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) does not currently have a land use for truck storage facilities. Operational forecast data for the proposed Project were provided by the applicant and approved by the County of San Bernardino. A copy of the operational forecast and supporting data is provided in the Approved Scoping Agreement in *Appendix A*.

Passenger vehicle and truck mix assumptions were applied to the truck-intensive uses of the project, based on the City of Fontana Truck Trip Generation Study. Passenger car equivalent (PCE) factors were then applied to the truck types, based on number of axles (1.5 PCE for 2-axle trucks, 2.0 PCE for 3-axle trucks, and 3.0 PCE for 4+-axle trucks) to determine the total PCE trips to be generated by the project.

Trip generation rates and the resulting project PCE trips for Phase 1 of the project are summarized on Table 4. Review of this table indicates that Phase 1 of the Project is forecasted to generate 32,477 daily PCE trips on a daily basis, with 1,643 PCE trips during the morning peak hour (1,041 inbound and 602 outbound) and 3,099 PCE trips (1,700 inbound and 1,399 outbound) during the evening peak hour.

[1] Based on a comparison of 10th and 11th Edition trip rates for High-Cube Short-Term Storage, High-Cube Cold Storage, and Retail uses, the 10th Edition rates were higher and has been used for analysis as a conservative approach, consistent with the Scoping document. The E-Commerce and Truck Storage rates were based on actual counts.

Trip generation rates and the resulting project PCE trips for Phases 1 and 2 of the project (the total Project) are also summarized on Table 4 (previously mentioned). Review of this table indicates that the Project is forecasted to generate 47,352 daily PCE trips on a daily, with 2,188 PCE trips during the morning peak hour (1,425 inbound and 763 outbound) and 4,114 PCE trips (2,118 inbound and 1,997 outbound) during the evening peak hour. Further breakdown of project trip generation and PCE trips can be found in *Appendix A*.

Trip Distribution and Assignment

Project trip distribution assumptions for the project site were developed considering the proposed site uses, and routes to and from the freeway system. Trip distribution assumptions for passenger vehicles and trucks are shown on Figure 9. Trip distribution percentages at each study intersection were applied to the project trip generation to determine the project trips through each intersection. The Phase 1 project-related peak hour trips are shown on Figure 10. The entire project-related peak hour trips (Phases 1 and 2) are shown on Figure 11.

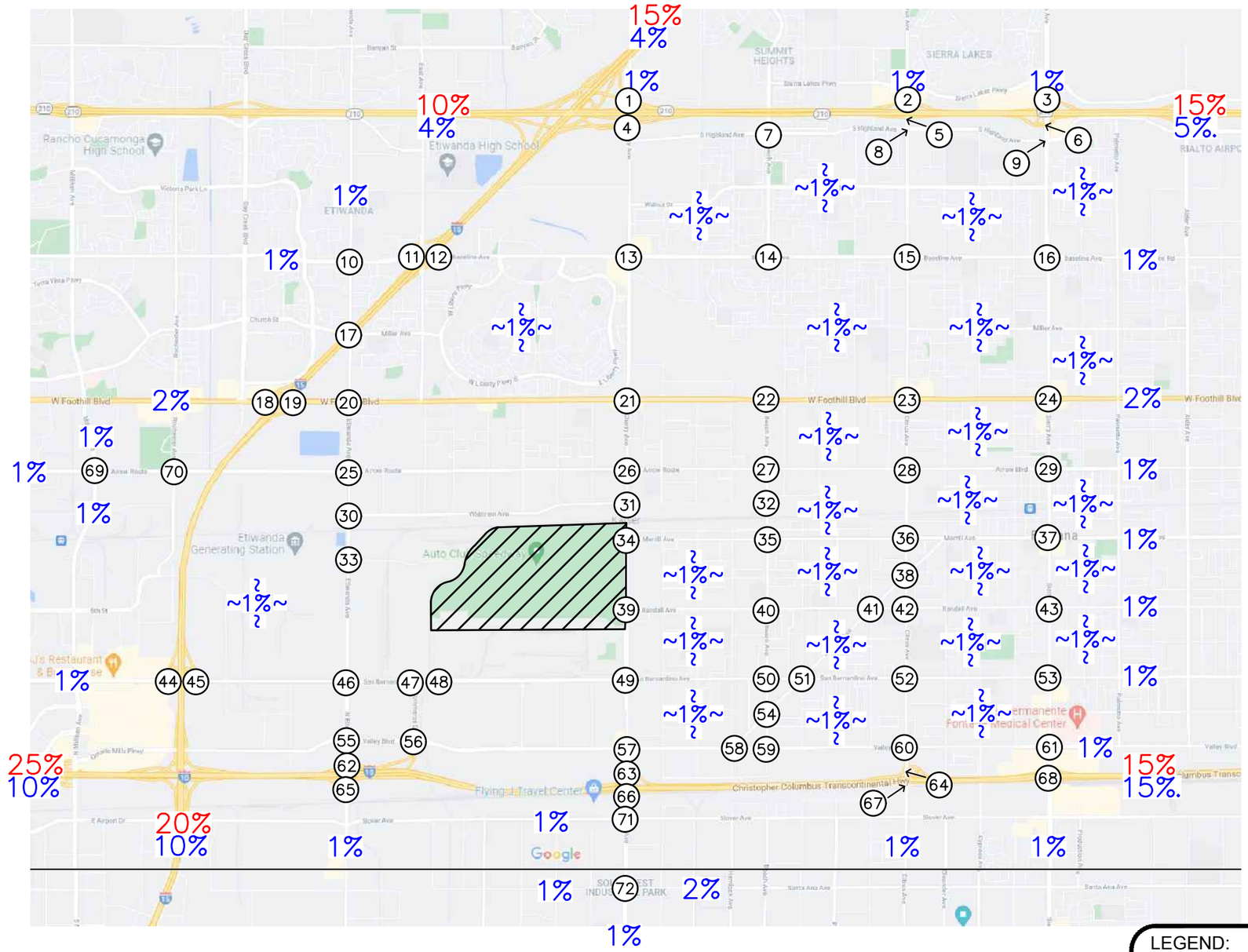
Based on the Trip Generation and Trip Distribution of the project, the following study intersections would have less than 50 peak hour trips:

- #2 – Citrus Ave at SR-210 WB Ramps
- #3 – Sierra Ave at SR-210 WB Ramps
- #5 – Citrus Ave at SR-210 EB Ramps
- #6 – Sierra Ave at SR-210 EB Ramps
- #7 – Beech Ave at Highland Ave
- #8 – Citrus Ave at Highland Ave
- #9 – Sierra Ave at Highland Ave
- #10 – Etiwanda Ave at Base Line Rd
- #11 – I-15 SB Ramps at Base Line Rd
- #32 – Beech Ave at Whittram Ave
- #54 – Beech Ave at Fontana Ave

TABLE 4
SUMMARY OF PROJECT TRIP GENERATION
TOTAL TRIP GENERATION

Vehicle Type	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
*Phase **1** Project Trips*									
E-Commerce (Could include Cold Storage) - 2,773,050 SF									
Passenger Vehicles	11,845	1.0	11,845	765	162	927	1,089	1,017	2,106
2-Axle Trucks	337	1.5	506	4	4	8	1	4	5
3-Axle Trucks	292	2.0	584	13	15	28	7	12	19
4+ Axle Trucks	1,005	3.0	3,015	56	65	121	56	88	144
Truck Storage - 98 Acres									
Passenger Vehicles	1,103	1.0	1,103	13	22	35	75	38	113
2-Axle Trucks	712	1.5	1,068	13	23	36	33	17	50
3-Axle Trucks	1,460	2.0	2,920	36	63	99	89	45	134
4+ Axle Trucks	3,812	3.0	11,436	141	248	389	350	178	528
Phase **1** Total Passenger Vehicle Trips			12,948	778	184	962	1,164	1,055	2,219
Phase **1** Total Truck PCE Trips			19,529	263	418	681	536	344	880
Phase **1** Total Proposed Project PCE Trips			32,477	1,041	602	1,643	1,700	1,399	3,099
*Phase **2** Project Trips*									
High-Cube Short-Term Storage - 2,141,000 SF									
Passenger Vehicles	2,517	1.0	2,517	112	33	145	50	129	179
2-Axle Trucks	81	1.5	122	5	2	7	2	6	8
3-Axle Trucks	109	2.0	218	10	3	13	4	11	15
4+ Axle Trucks	289	3.0	867	39	11	50	17	45	62
High-Cube Cold Storage - 500,000 SF									
Passenger Vehicles	689	1.0	689	28	8	36	12	27	39
2-Axle Trucks	63	1.5	95	4	1	5	2	4	6
3-Axle Trucks	84	2.0	168	7	2	9	3	7	10
4+ Axle Trucks	224	3.0	672	27	8	35	12	27	39
General Commercial - 261,360 SF									
Passenger Vehicles	9,527	1.0	9,527	152	93	245	316	342	657
Total Passenger Vehicle Trips (Phases **1** and 2)			25,681	1,070	318	1,388	1,542	1,553	3,094
Total Truck PCE Trips (Phases **1** and 2)			21,671	355	445	800	576	444	1,020
Total Proposed Project PCE Trips (Phases **1** and 2)			47,352	1,425	763	2,188	2,118	1,997	4,114

PCE = Passenger Car Equivalent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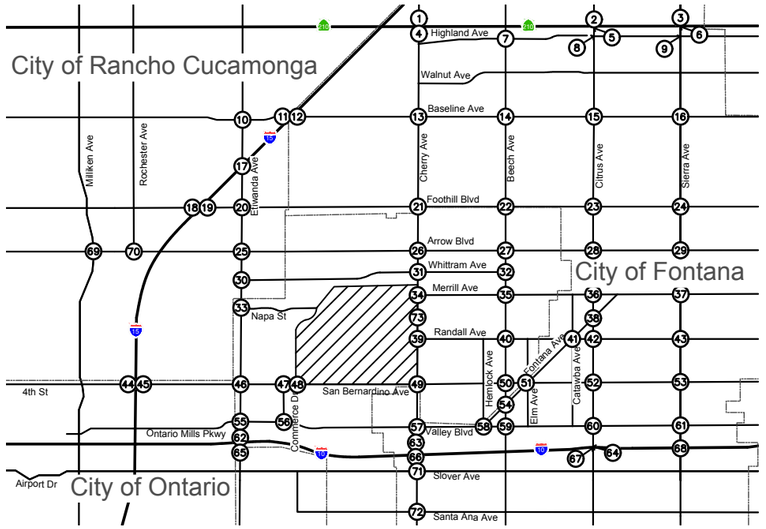


NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
←7/12 66/120→ 73/130↗ 0/12→	←7/12 8/12→ 0/12→	←7/12 4/6→ 0/12→	←73/132 107/177↘ 73/142→ 70/88↗	←15/24 0/12→ 2/11↗

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
←11/18 0/12→ 1/5↗		←15/24 2/23→	←11/18 1/17→	←7/12 7/12↘ 0/12→ 0/12→	←23/47 23/47→	48/39↗ 23/47↘	←180/309 57/97↖ 23/47↘ 48/39↗ 143/230→ 2/93↗

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
←50/85 2/81→	←15/24 ←28/49 2/21↗ 1/47→ 0/2→ 0/1↗	←14/25 ←4/6 ←7/12 1/24↗ 0/12→ 0/5→	←14/24 0/24→	←5/21 15/24→	←5/21 15/24→	←11/20 3/4↘ 0/3↖ ←0/2 2/2→ 13/22↘ 5/19→ 0/21↑

Note: Volumes reflect PCE adjustments.

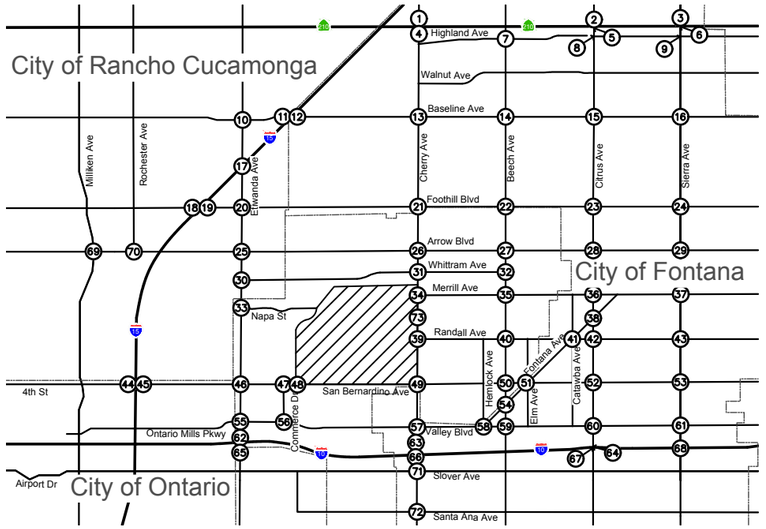
LEGEND:

= Project Site

= Study Intersection

xx/yy = AM/PM Volumes

FIGURE 10A
PROJECT-RELATED TRAFFIC VOLUMES (PHASE 1)



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
←267/464 ←34/57 5/6→ 0/5 ↗ 193/373 ↑ 5/54 ↗	←34/57 5/54→	←27/45 5/42→ 0/3 ↑	5/9 ↘ 6/9 ↓ ←15/24 0/9 ↗ 5/21→ 0/8 ↑	←24/42 5/39 ↖ ←0/29 21/36→ 0/7 ↑ 0/1 ↑

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
←306/527 ←28/50 45/78→ 5/68 ↗ 198/432 ↑ 0/50 ↗	←28/50 ←2/3 0/50→ 0/3 ↑	←16/29 ←2/3 0/29→ 0/3 ↑ 0/3 ↑	←6/9 ←5/9 ←2/3 0/9→ 0/8 ↑ 0/3 ↑	0/4 ↖ 0/4 ↑	←379/655 0/4 ↗ 203/550 ↑	←2/3 0/3 ↑	0/4 ↑

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
←379/655 ←16/28 203/554 ↑ 0/28 ↗	←2/3 ←16/28 0/28→ 0/3 ↑	←2/3 ←16/28 ←1/1 0/28→ 0/6 ↑ 0/1 ↗	10/19 ↖ ←5/5 ←7/12 0/18 ↗ 0/12 → 0/7 ↘ 4/7 ↑ 0/5 ↑	←3/4 ←5/10 0/5 ↗ 0/9→ 0/2 ↑	38/56 ↖ ←211/340 0/69 ↖ ←41/69 ←67/112 15/49 ↗ 1/116→ 186/291 ↘ 230/394 ↑ 271/455 ↑	←2/3 ←85/142 0/3 ↗ 1/144→ 0/14 ↘ 7/12 ↑

Note: Volumes reflect PCE adjustments.

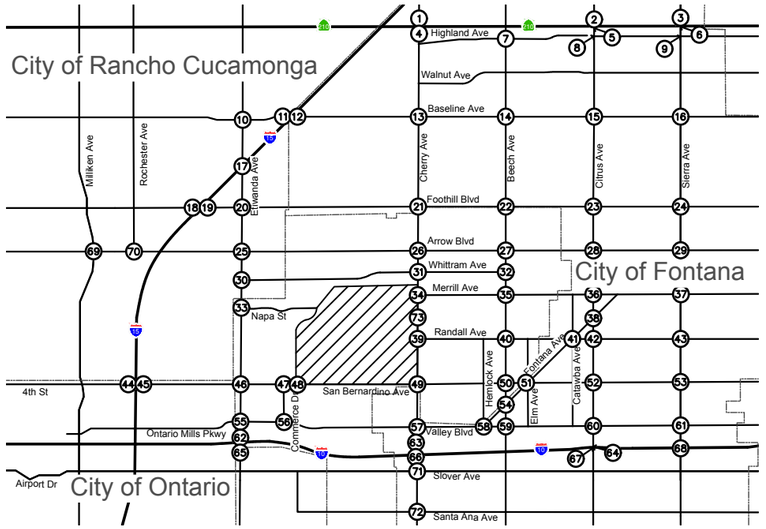
LEGEND:

= Project Site

= Study Intersection

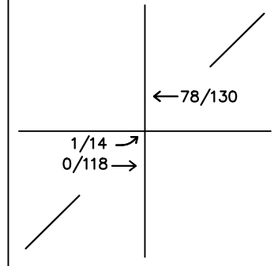
XX/YY = AM/PM Volumes

FIGURE 10B
PROJECT-RELATED TRAFFIC VOLUMES (PHASE 1)

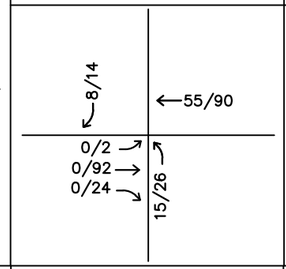


NOT TO SCALE

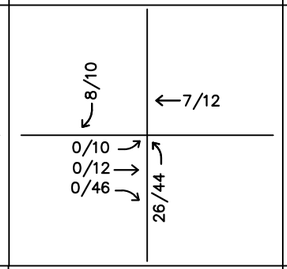
41. Fontana Ave/ Catawba Ave at Randall Ave



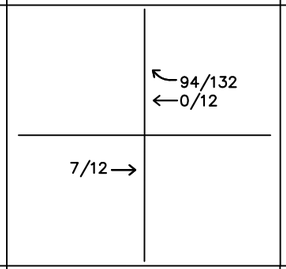
42. Citrus Ave at Randall Ave



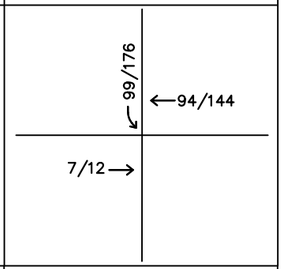
43. Sierra Ave at Randall Ave



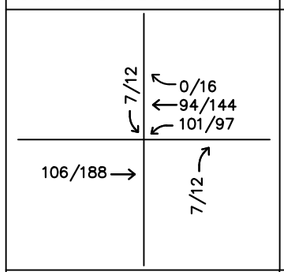
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



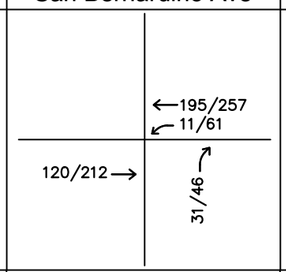
45. I-15 NB Ramps at Fourth St



46. Etiwanda Ave at Fourth St/San Bernardino Ave



47. Commerce Dr at San Bernardino Ave



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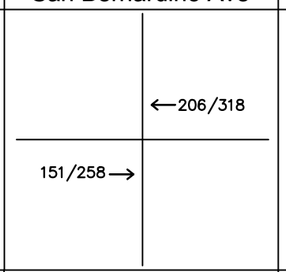
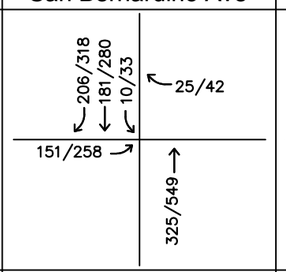
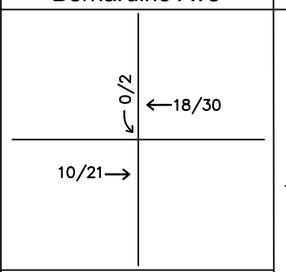


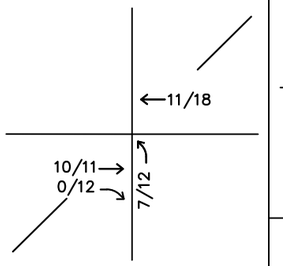
49. Cherry Ave at San Bernardino Ave



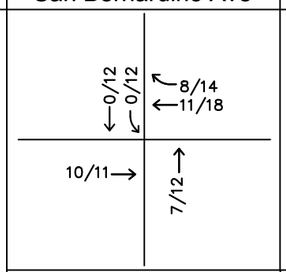
50. Beech Ave at San Bernardino Ave



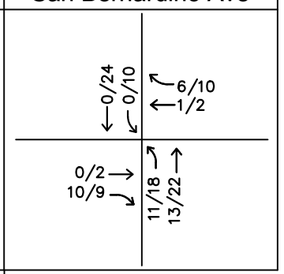
51. Fontana Ave/Elm St at San Bernardino Ave



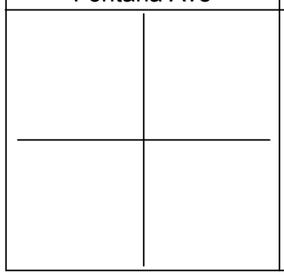
52. Citrus Ave at San Bernardino Ave



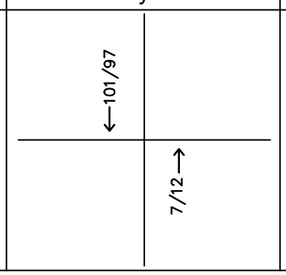
53. Sierra Ave at San Bernardino Ave



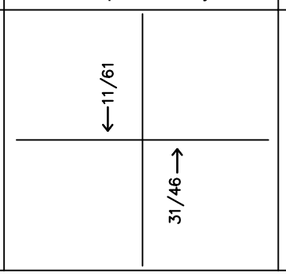
54. Beech Ave at Fontana Ave



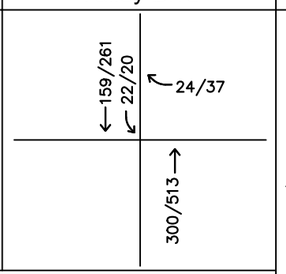
55. Etiwanda Ave at Valley Blvd



56. Commerce Dr/ I-15 Ramps at Valley Blvd



57. Cherry Ave at Valley Blvd



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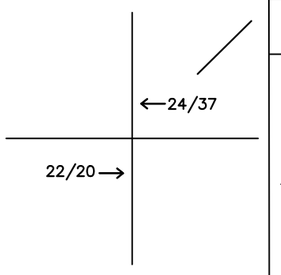
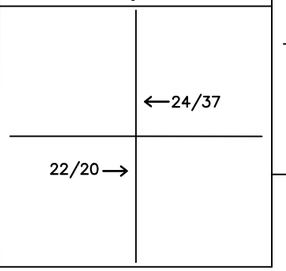
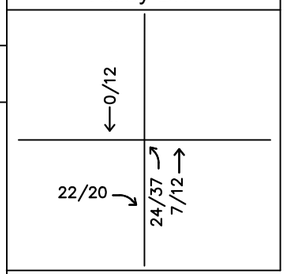


59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



Note: Volumes reflect PCE adjustments.

LEGEND:

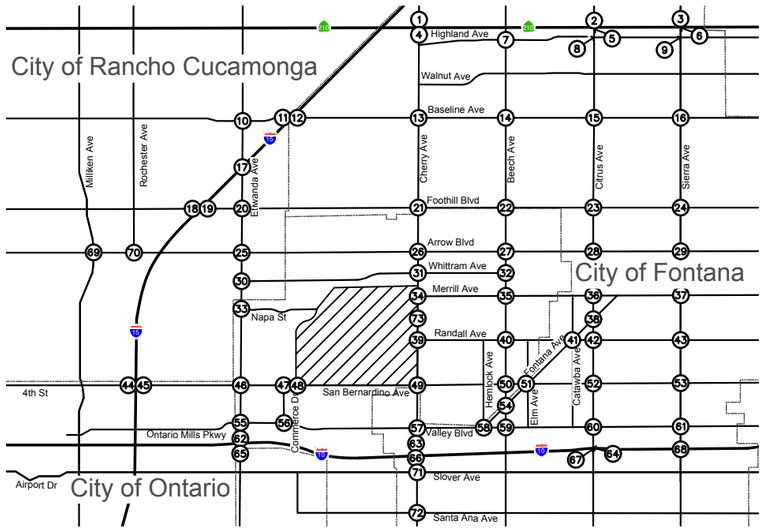
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 10C
PROJECT-RELATED TRAFFIC VOLUMES (PHASE 1)

Kimley»Horn



NOT TO SCALE

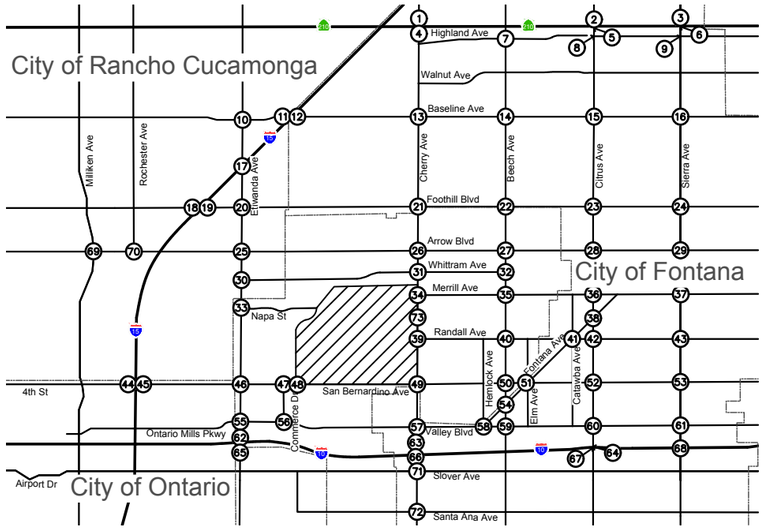
61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
←10/21, 0/12 ↖7/12	←101/85, 0/12	←16/85, 143/176 ↖120/202	←22/32 ↖24/37	←0/12
17/28→	7/12→	180/311→	7/12→	7/12→

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
←5/57, 138/119	←0/12, 22/20	←0/12, 10/9 ↖10/16	←7/12 ↖0/12, ←0/12, 0/12	←0/36	←0/12, 5/45	←0/12, 0/12, 5/21 ↖15/24	←357/627, 38/56
132/233→	7/12→	7/12→	7/12→ 7/12→	21/36→	7/12→ 29/48→	7/12→ 7/12→	189/534→, 211/409↘ 312/524→, 15/49→
36/60→							

Note: Volumes reflect PCE adjustments.

LEGEND:
= Project Site
= Study Intersection
XX/YY = AM/PM Volumes

FIGURE 10D
PROJECT-RELATED TRAFFIC VOLUMES (PHASE 1)



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
←9/12	←9/12	←9/12	←94/142	←18/24
←85/130	9/12→	5/7→		
34/56→ 0/12→	0/12→	0/12→	48/70↘	0/12→ 3/12→
			34/68→ 74/107→	

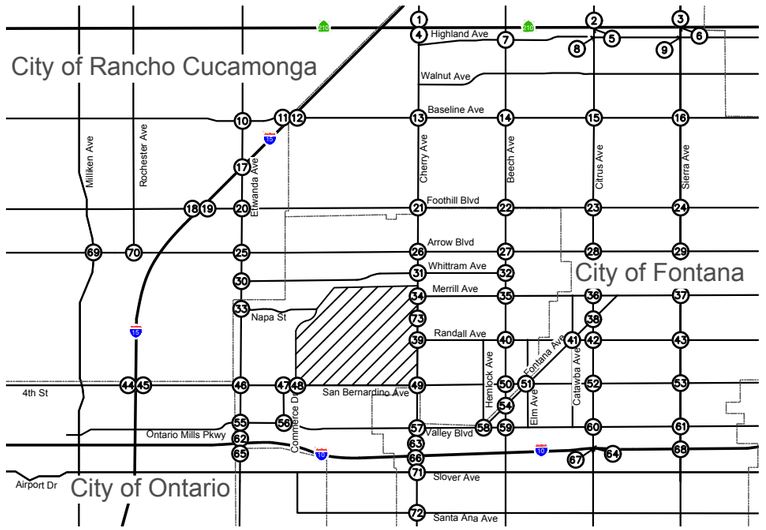
6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
←14/19		←18/24	←14/19	←9/12	←22/37	→34/34	←142/212
0/12→ 1/6→		3/24→	1/18→	9/12↘ 0/12→ 0/12→		22/37→	80/113→ 22/37↘ 34/34→ 108/175→ 8/111→

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
←63/85	←18/24 ←36/49 ←8/16	←18/25 ←5/6 ←9/12	←18/24	←94/137 ←10/41	→61/117 ←10/41	←19/26 ←1/2
3/82→	2/23→ 1/48→ 0/2→ 5/18→	1/25→ 0/12→ 0/5→	0/24→ 0/2→	27/40→	121/177→	121/177↘ 71/158→ 0/26→ 0/2→

Note: Volumes reflect PCE adjustments.

LEGEND:
- = Project Site
- = Study Intersection
- XX/YY = AM/PM Volumes

FIGURE 11A
PROJECT-RELATED TRAFFIC VOLUMES (PHASES 1 AND 2)



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
←1/2 ←259/387 ←43/57 0/2 → 156/345 → 5/57 →	←43/57 ←8/16 5/57 → 5/17 →	←8/16 ←34/45 5/45 → 5/20 →	←6/9 ←16/25 ←19/24 ←8/16 0/9 → 5/24 → 5/25 → 5/17 →	←141/205 27/36 → 0/36 → 71/186 →

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
←302/444 ←35/50 161/402 → 0/50 →	←8/16 ←35/50 ←3/3 0/50 → 5/17 → 0/3 →	←8/16 ←20/29 ←3/3 0/29 → 5/20 → 0/3 →	←24/41 ←6/9 ←3/3 0/9 → 10/42 → 0/3 →	←168/241 71/222 →	←337/494 161/452 →	←11/19 5/20 →	←168/241 ←71/222 ←111/134 110/172 →

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
←337/494 ←20/28 161/452 → 0/28 →	←11/19 ←20/28 0/28 → 5/20 →	←11/19 ←20/28 ←1/1 0/28 → 5/23 → 0/1 →	←31/51 ←5/5 ←9/12 10/52 → 0/12 → 0/7 → 5/7 → 0/5 →	←8/16 ←4/4 ←16/32 ←9/10 5/22 → 10/43 → 0/2 →	←41/66 ←117/185 ←0/69 ←54/69 ←143/224 13/52 → 36/235 → 110/238 → 154/236 → 157/218 →	←11/19 ←159/238 5/20 → 31/246 → 0/14 → 9/12 →

Note: Volumes reflect PCE adjustments.

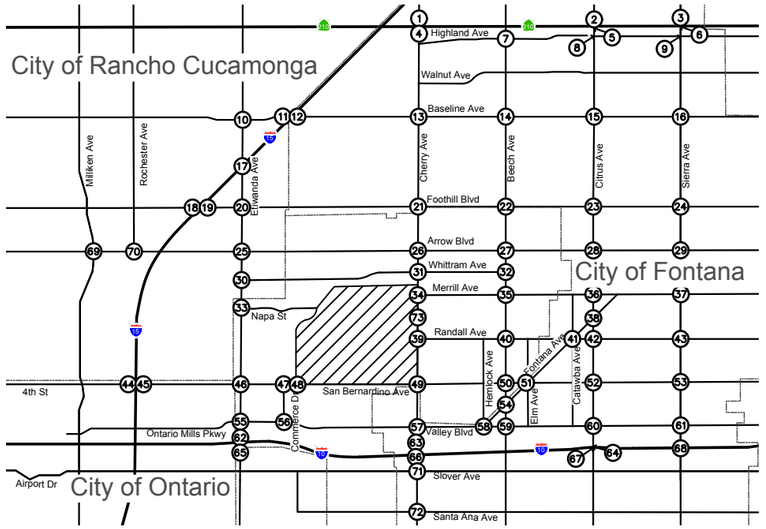
LEGEND:

= Project Site

= Study Intersection

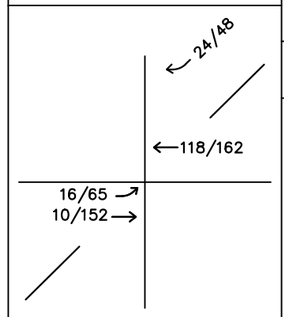
xx/yy = AM/PM Volumes

FIGURE 11B
PROJECT-RELATED TRAFFIC VOLUMES (PHASES 1 AND 2)

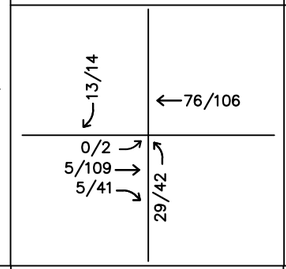


NOT TO SCALE

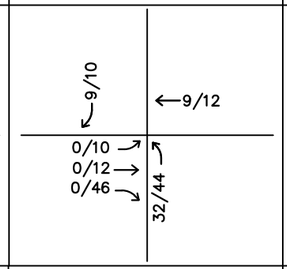
41. Fontana Ave/ Catawba Ave at Randall Ave



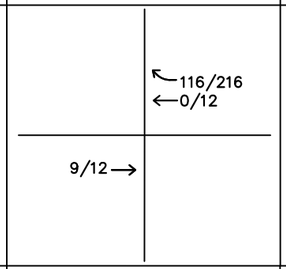
42. Citrus Ave at Randall Ave



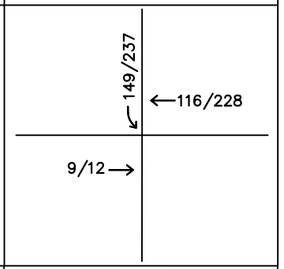
43. Sierra Ave at Randall Ave



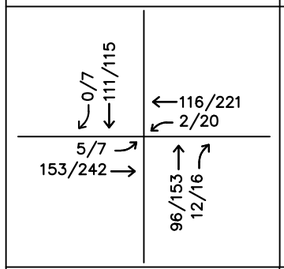
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



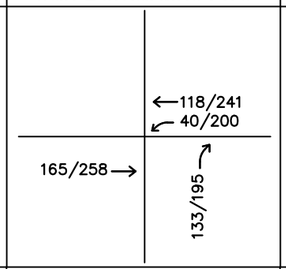
45. I-15 NB Ramps at Fourth St



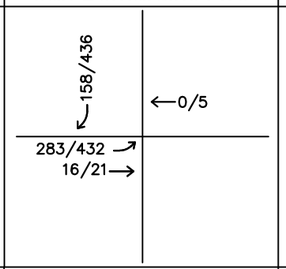
46. Etiwanda Ave at Fourth St/San Bernardino Ave



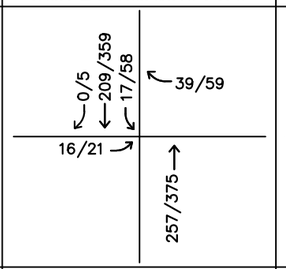
47. Commerce Dr at San Bernardino Ave



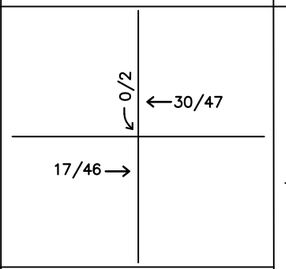
48. Vip Rd at San Bernardino Ave



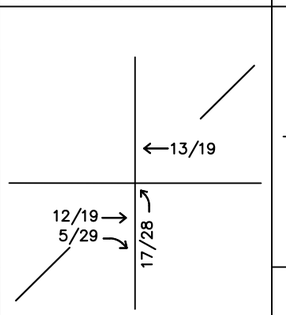
49. Cherry Ave at San Bernardino Ave



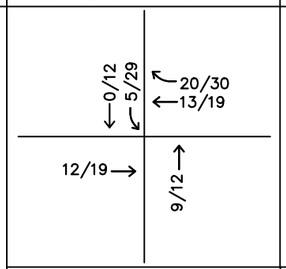
50. Beech Ave at San Bernardino Ave



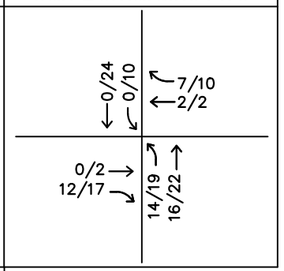
51. Fontana Ave/Elm St at San Bernardino Ave



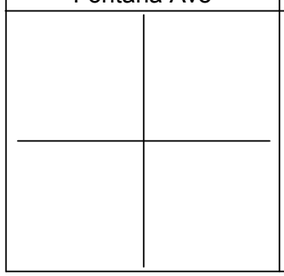
52. Citrus Ave at San Bernardino Ave



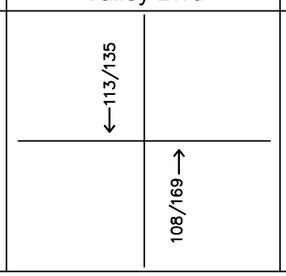
53. Sierra Ave at San Bernardino Ave



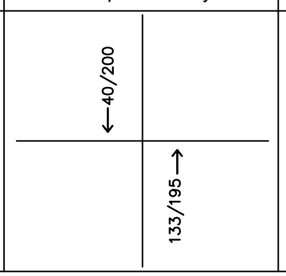
54. Beech Ave at Fontana Ave



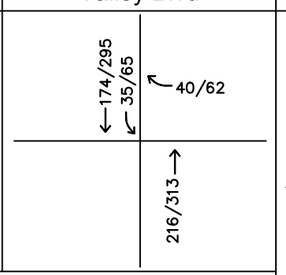
55. Etiwanda Ave at Valley Blvd



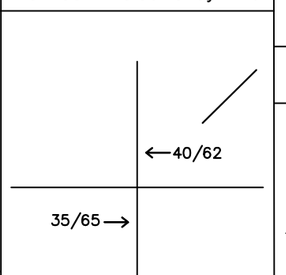
56. Commerce Dr/ I-15 Ramps at Valley Blvd



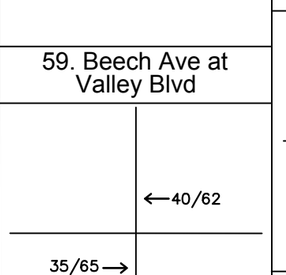
57. Cherry Ave at Valley Blvd



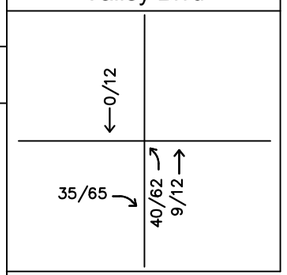
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



Note: Volumes reflect PCE adjustments.

LEGEND:

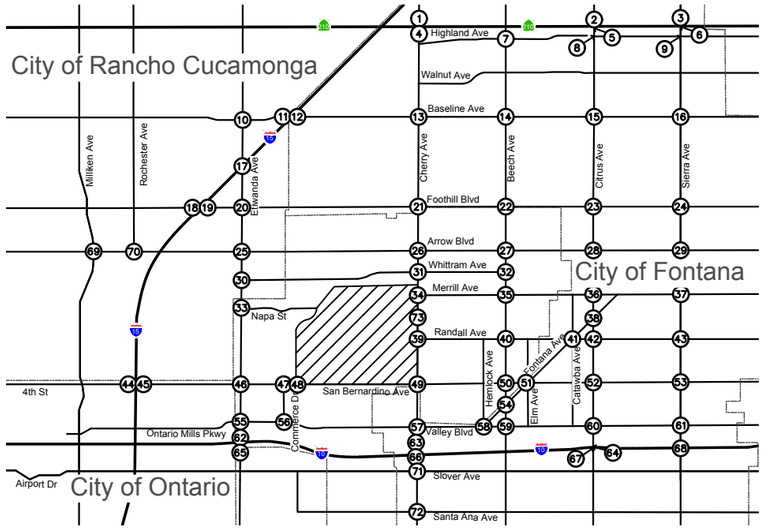
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 11C
PROJECT-RELATED TRAFFIC VOLUMES (PHASES 1 AND 2)

Kimley»Horn



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
←12/29, 0/12, ↖9/12	←113/123, 0/12	←2/12, ←172/282, ↖161/240	←35/77, ↖40/62	←0/12
21/29→	108/169→	55/72→	9/12→	99/157↗, 9/12→

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
←5/60, ←167/222	←0/12, ←35/65	←0/12, ←12/17, ↖12/17	←9/12, ←0/12, ←0/12, ←0/12	←0/36	←0/12, ←5/48	←0/12, ←0/12, ←5/24, ↖19/24	←317/456, ←41/66
8/10↗	9/12→	9/12→	9/12→, 9/12→	27/36→	9/12↗	9/12↗	148/428↗, 117/254↘
46/60→					37/48→	9/12→	211/287↗, 13/52→

Note: Volumes reflect PCE adjustments.

LEGEND:

= Project Site

(X) = Study Intersection

XX/YY = AM/PM Volumes

FIGURE 11D
PROJECT-RELATED TRAFFIC VOLUMES (PHASES 1 AND 2)

Kimley»Horn

OPENING YEAR 2024 PLUS PHASE 1 CONDITIONS

Phase 1 project-related traffic for the Speedway Commerce Center II project was added to the Opening Year 2024 traffic volumes, and the resulting "Plus Phase 1" traffic volumes are shown on Figure 12. The following roadway network connections to the site have been assumed in the Opening Year 2024 conditions:

- Connection to existing Napa Street is not assumed
- Connection to existing VIP Road is not assumed

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Opening Year 2024 Plus Phase 1 condition. The results are shown on Table 5. Copies of the intersection analysis worksheets are provided in *Appendix D*. Review of Table 5 indicates that, with the addition of Phase 1 project traffic, the following intersection(s) would operate at an unacceptable Level of Service under Opening Year 2024 Plus Phase 1 conditions:

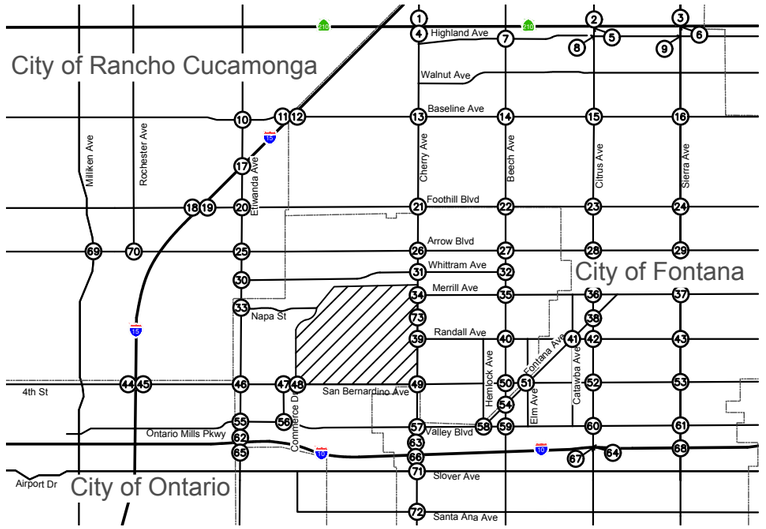
- #10 – Etiwanda Ave at Base Line Rd: AM – LOS E
- #22 – Beech Ave at Fontana Ave: AM – LOS F; PM – LOS F
- #26 – Cherry Ave at Arrow Rte: PM – LOS F
- #31 – Cherry Ave at Whittram Ave: PM – LOS F
- #32 – Beech Ave at Whittram Ave: AM – LOS E; PM – LOS E
- #34 – Cherry Ave at Merrill Ave: PM – LOS E
- #35 – Beech Ave at Merrill Ave: PM – LOS F
- #39 – Cherry Ave at Randall Ave: AM – LOS F; PM – LOS F
- #40 – Beech Ave at Randall Ave: AM – LOS F; PM – LOS F
- #41 – Fontana Ave/Catawba Ave at Randall Ave: AM – LOS E; PM – LOS F
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St: PM – LOS E
- #47 – Commerce Dr at San Bernardino Ave: PM – LOS F
- #49 – Cherry Ave at San Bernardino Ave: PM – LOS F
- #57 – Cherry Ave at Valley Blvd: PM – LOS E
- #59 – Beech Ave at Valley Boulevard: AM – LOS F; PM – LOS F
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F

Based on the significance thresholds presented earlier in this report, the Phase 1 project-related effect would be considered to have a cumulative effect at the following intersections under Opening Year 2024 Plus Phase 1 conditions:

- #22 – Beech Ave at Foothill Blvd
- #26 – Cherry Ave at Arrow Rte

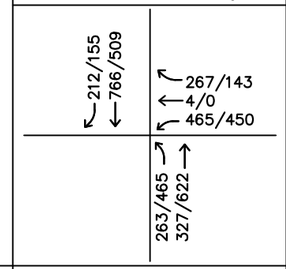
- #31 – Cherry Ave at Whittram Ave
- #34 – Cherry Ave at Merrill Ave
- #35 – Beech Ave at Merrill Ave
- #39 – Cherry Ave at Randall Ave
- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #44 – I-15 SB Ramps/Ontario Mills Dr at Randall Ave
- #47 – Commerce Dr at San Bernardino Ave
- #49 – Cherry Ave at San Bernardino Ave
- #57 – Cherry Ave at Valley Blvd
- #59 – Beech Ave at Valley Blvd
- #72 – Cherry Ave at Santa Ana Ave

Recommended improvements to address the project-related effects at study intersections are presented in the Recommended Improvements section of this report. Copies of intersection analysis worksheets are provided in *Appendix D*.

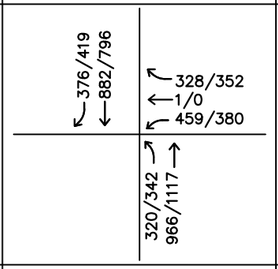


NOT TO SCALE

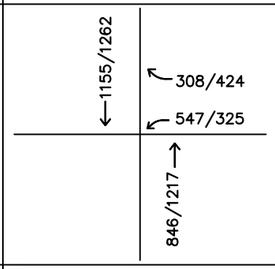
1. Cherry Ave at SR-210 WB Ramps



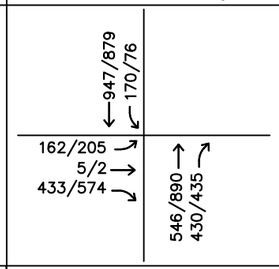
2. Citrus Ave at SR-210 WB Ramps



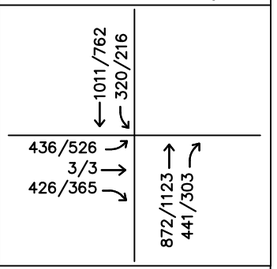
3. Sierra Ave at SR-210 WB Ramps



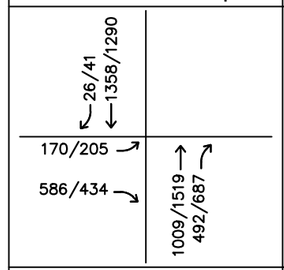
4. Cherry Ave at SR-210 EB Ramps



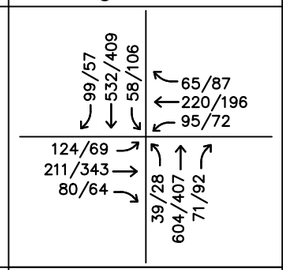
5. Citrus Ave at SR-210 EB Ramps



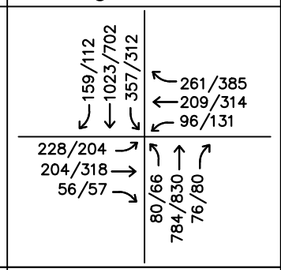
6. Sierra Ave at SR-210 EB Ramps



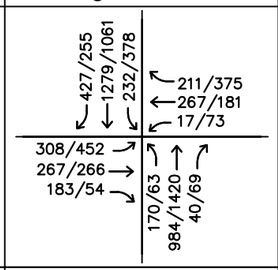
7. Beech Ave at Highland Ave



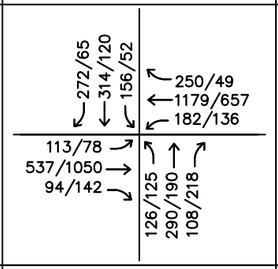
8. Citrus Ave at Highland Ave



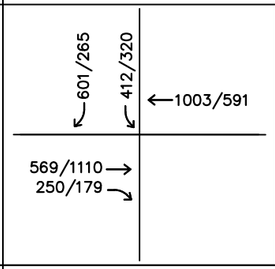
9. Sierra Ave at Highland Ave



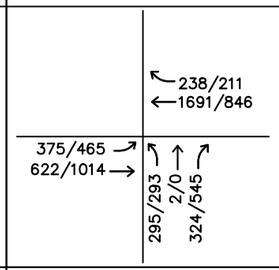
10. Etiwanda Ave at Base Line Rd



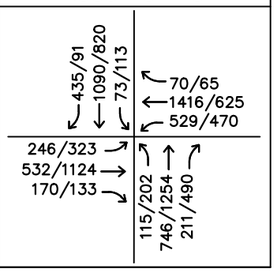
11. I-15 SB Ramps at Base Line Rd



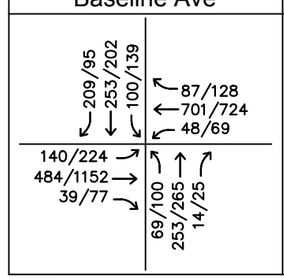
12. I-15 NB Ramps at Base Line Rd



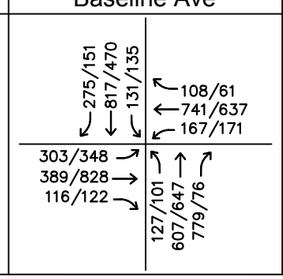
13. Cherry Ave at Baseline Ave



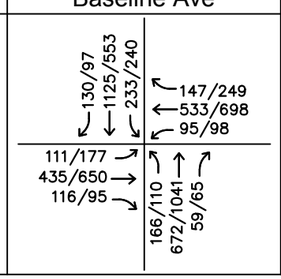
14. Beech Ave at Baseline Ave



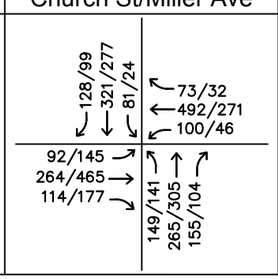
15. Citrus Ave at Baseline Ave



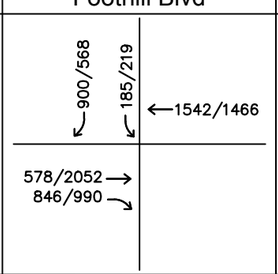
16. Sierra Ave at Baseline Ave



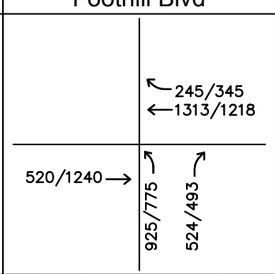
17. Etiwanda Ave at Church St/Miller Ave



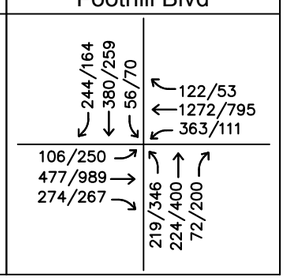
18. I-15 SB Ramps at Foothill Blvd



19. I-15 NB Ramps at Foothill Blvd



20. Etiwanda Ave at Foothill Blvd



Note: Volumes reflect PCE adjustments.

LEGEND:

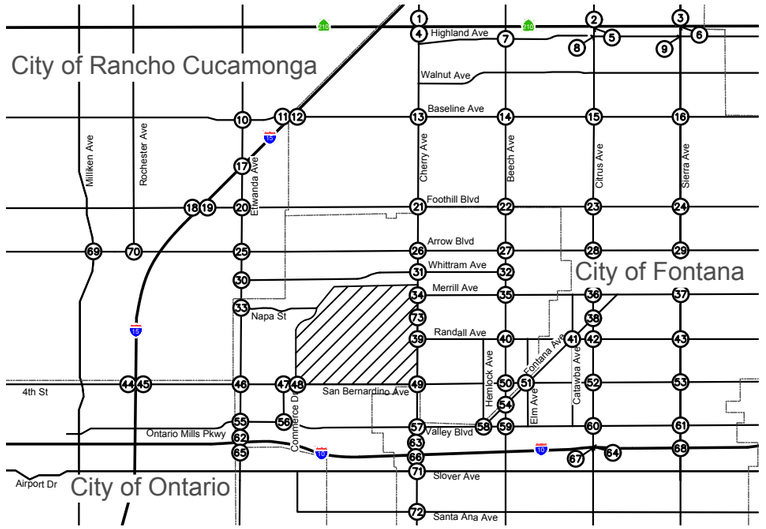
= Project Site

(X) = Study Intersection

XX/YY = AM/PM Volumes

FIGURE 12A
OPENING YEAR 2024 PLUS PHASE 1 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
215/208 ↖ 1180/1256 ← 174/298 ↖ 104/130 ← 1206/601 ← 354/236	← 1671/899 ← 212/111	172/75 ↖ 769/585 ↖ 140/139 ↖ 83/126 ← 887/659 ← 249/304	141/140 ↖ 877/536 ↖ 204/162 ↖ 133/172 ← 672/570 ← 163/213	416/121 ↖ 389/325 ↖ 151/177 ↖ 146/192 ← 741/411 ← 149/106
195/262 → 439/912 → 167/112 ↘ 227/298 ↑ 712/1338 ↑ 156/324	692/1486 → 38/57 ↘ 22/64 ↑ 109/126	158/271 → 482/950 → 121/188 ↘ 152/146 ↑ 550/720 ↑ 83/92	227/224 → 417/764 → 106/142 ↘ 84/109 ↑ 471/861 ↑ 86/146	99/370 → 281/695 → 169/434 ↘ 363/195 ↑ 237/613 ↑ 38/123

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
101/99 ↖ 1465/1507 ↖ 56/73 ↖ 63/63 ← 637/575 ← 204/203	89/23 ↖ 165/150 ↖ 15/19 ↖ 23/29 ← 675/535 ← 152/101	149/71 ↖ 840/774 ↖ 102/146 ↖ 139/98 ← 486/374 ← 244/159	73/82 ↖ 777/557 ↖ 61/114 ↖ 58/56 ← 566/344 ← 77/74	664/646 ↖ 69/208 ↖ 145/97 ← 248/213	94/59 ↖ 1615/1570 ↖ 37/40 ↖ 72/77 ← 144/71 ← 160/131	119/43 ↖ 282/338	1/0 ↖ 798/605 ↖ 110/201 ↖ 126/128 ← 193/211
74/89 → 413/642 → 144/182 ↘ 114/214 ↑ 1030/1678 ↑ 149/300	43/33 → 377/742 → 61/69 ↘ 88/102 ↑ 136/161 ↑ 124/236	77/83 → 281/638 → 111/178 ↘ 220/186 ↑ 658/920 ↑ 220/184	71/107 → 429/516 → 87/94 ↘ 92/90 ↑ 553/834 ↑ 40/64	527/784 ↑ 160/300	32/92 → 32/149 → 212/312 ↘ 197/156 ↑ 1197/2129 ↑ 140/119	60/85 → 70/175 ↘ 142/93 ↑ 311/430	0/5 → 2/32 ↘ 1/0 ↑ 584/965 ↑ 286/152

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
0/1 ↖ 1795/1734 ↖ 138/211 ↖ 268/218 ← 177/158	81/42 ↖ 159/187 ↖ 59/125 ↖ 162/137 ← 267/202 ← 71/34	98/106 ↖ 962/786 ↖ 65/83 ↖ 109/144 ← 241/252 ← 48/33	67/95 ↖ 940/748 ↖ 35/68 ↖ 46/49 ← 403/306 ← 142/118	131/113 ↖ 929/730 ↖ 24/36 ↖ 33/21 ← 88/90 ← 88/65	64/74 ↖ 1540/1352 ↖ 195/287 ↖ 177/254 ← 164/228 ← 227/175	92/38 ↖ 206/172 ↖ 6/36 ↖ 41/45 ← 370/406 ← 33/11
0/1 → ↘ 3/1 ↑ 1205/2230 ↑ 135/250	109/137 → 148/275 → 59/35 ↘ 54/32 ↑ 176/234 ↑ 61/51	156/147 → 176/303 → 51/56 ↘ 54/48 ↑ 724/989 ↑ 30/38	68/110 → 366/497 → 101/116 ↘ 65/131 ↑ 607/893 ↑ 96/174	115/154 → 107/207 → 12/10 ↘ 21/19 ↑ 686/924 ↑ 80/73	30/68 → 125/224 → 282/389 ↘ 358/555 ↑ 1199/2090 ↑ 110/173	62/72 → 252/460 → 27/43 ↘ 29/36 ↑ 205/226 ↑ 45/13

Note: Volumes reflect PCE adjustments.

LEGEND:

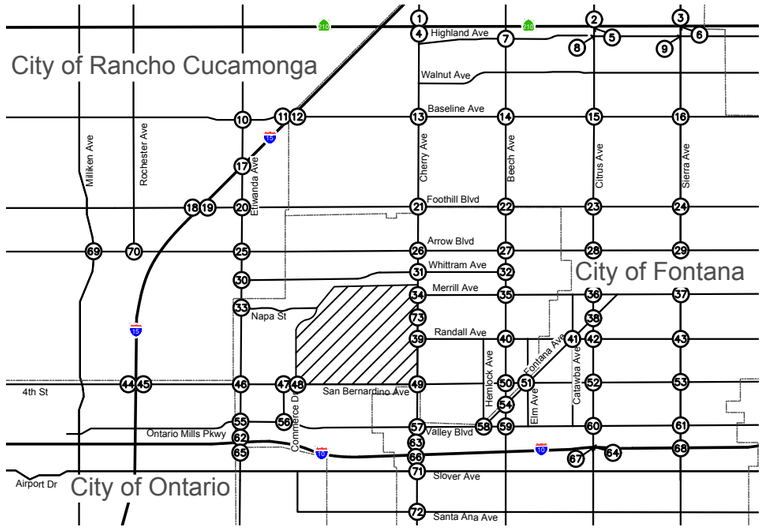
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

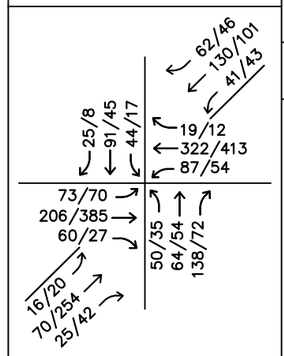
FIGURE 12B
OPENING YEAR 2024 PLUS PHASE 1 TRAFFIC VOLUMES

Kimley»Horn

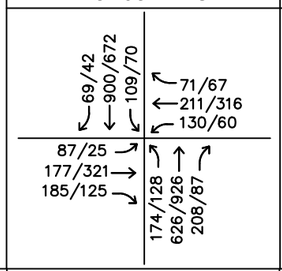


NOT TO SCALE

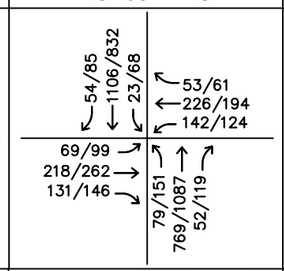
41. Fontana Ave/ Catawba Ave at Randall Ave



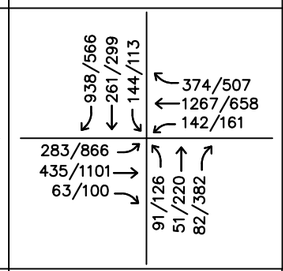
42. Citrus Ave at Randall Ave



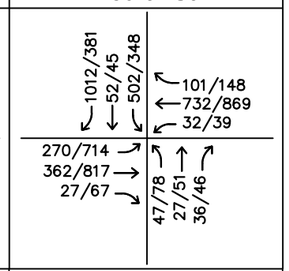
43. Sierra Ave at Randall Ave



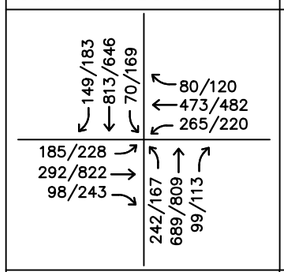
44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



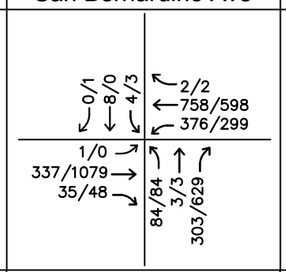
45. I-15 NB Ramps at Fourth St



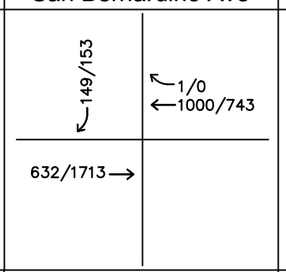
46. Etiwanda Ave at Fourth St/San Bernardino Ave



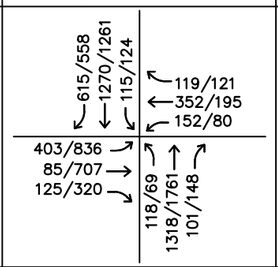
47. Commerce Dr at San Bernardino Ave



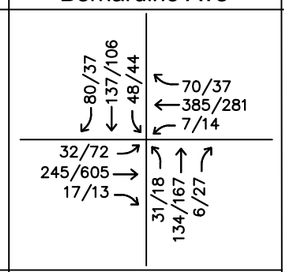
48. Vip Rd at San Bernardino Ave



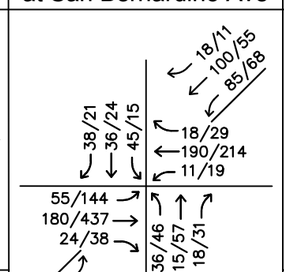
49. Cherry Ave at San Bernardino Ave



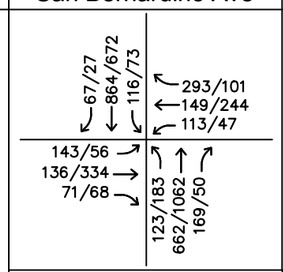
50. Beech Ave at San Bernardino Ave



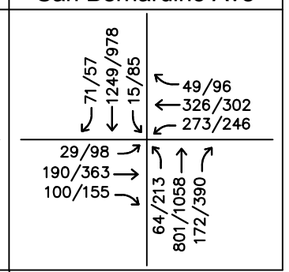
51. Fontana Ave/Elm St at San Bernardino Ave



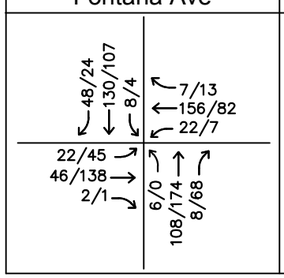
52. Citrus Ave at San Bernardino Ave



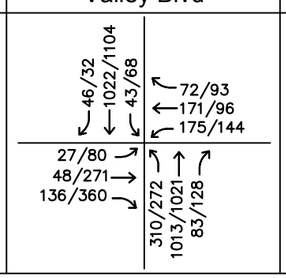
53. Sierra Ave at San Bernardino Ave



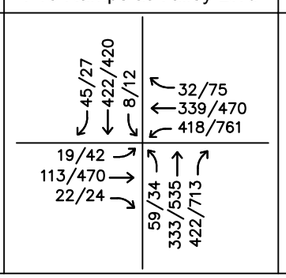
54. Beech Ave at Fontana Ave



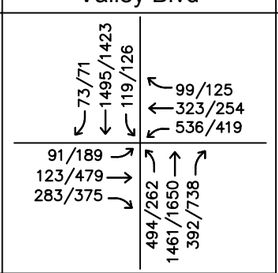
55. Etiwanda Ave at Valley Blvd



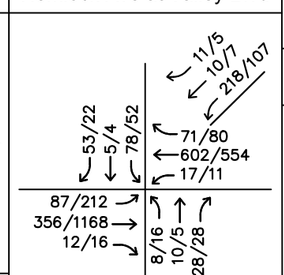
56. Commerce Dr/ I-15 Ramps at Valley Blvd



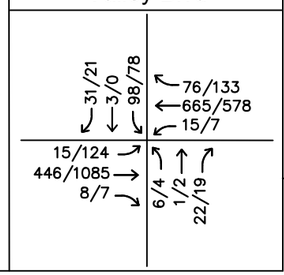
57. Cherry Ave at Valley Blvd



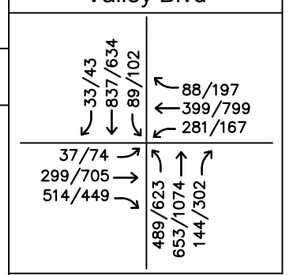
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



Note: Volumes reflect PCE adjustments.

LEGEND:

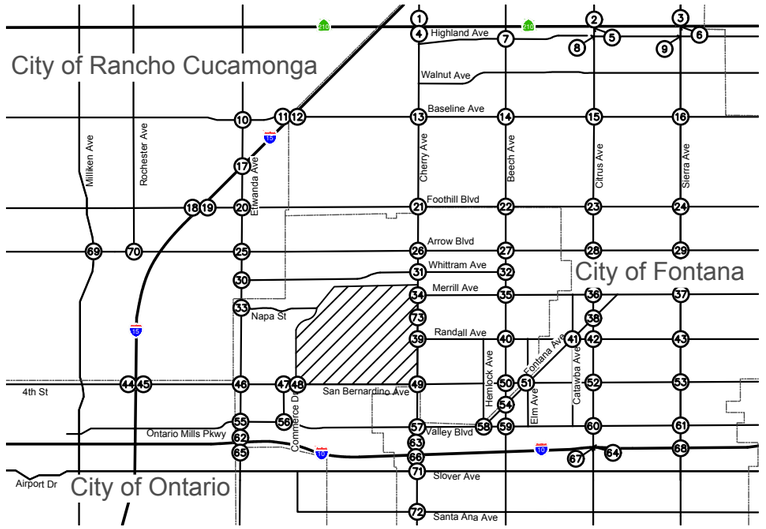
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 12C
OPENING YEAR 2024 PLUS PHASE 1 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
104/92 ↙ 1497/1312 ↓ 122/180 ↖ 111/132 ← 444/676 ← 579/671	540/538 ↙ 826/1112 ↓ ↖ 563/458 ← 519/368	16/85 ↙ 2120/2239 ↓ ↖ 857/806 ← 782/549	466/474 ↙ 1096/1028 ↓ ↖ 525/591 ← 385/254	238/394 ↙ 1030/1044 ↓
180/283 → 275/915 → 161/234 ↘ 192/254 ↑ 1317/1290 ↑ 716/771 ↑	824/1073 ↑ 445/622 ↑	1259/1777 ↑ 576/412 ↑	704/1160 ↑ 272/256 ↑	308/306 → 671/392 ↘ 1149/1384 ↑ 381/562 ↑

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
1614/1338 ↓ 718/786 ↓	908/703 ↓ 614/596 ↓	870/844 ↓ 791/930 ↓ 553/534 ↓ ↖ 600/627 ← 454/491	231/125 ↓ 747/551 ↓ 125/86 ↓ ↖ 115/125 ← 1174/590 ← 171/130	286/190 ↓ 413/232 ↓ 111/92 ↓ ↖ 142/183 ← 1092/570 ← 176/72	559/446 ↓ 1208/1110 ↓ 434/400 ↓ ↖ 372/386 ← 273/188 ← 56/64	357/155 ↓ 769/960 ↓ 140/105 ↓ ↖ 94/127 ← 22/22 ← 10/14	357/627 ↓ 38/56 ↓
562/780 → 6/46 → 654/581 ↘ 1365/1409 ↑ 512/444 ↑	322/478 → 8/7 → 453/225 ↘ 701/967 ↑ 352/540 ↑	906/969 → 531/484 ↘ 445/543 ↑ 772/1316 ↑ 378/495 ↑	82/251 → 445/1058 → 125/197 ↘ 187/184 ↑ 353/1556 ↑ 96/369 ↑	125/368 → 386/992 → 73/22 ↘ 52/58 ↑ 180/838 ↑ 70/272 ↑	442/486 → 233/712 → 45/89 ↘ 30/37 ↑ 1039/987 ↑ 58/70 ↑	271/278 → 41/52 → 85/32 ↘ 38/8 ↑ 819/657 ↑ 12/31 ↑	189/534 → 211/409 ↘ 312/524 ↑ 15/49 ↑

Note: Volumes reflect PCE adjustments.

LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 12D
OPENING YEAR 2024 PLUS PHASE 1 TRAFFIC VOLUMES

Kimley»Horn

TABLE 5
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 PLUS PHASE 1 CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
1	Cherry Ave at SR-210 WB Ramps	C	S	30.0	C	34.3	C	4.3	No	28.7	C	38.4	D	9.7	No
2	Citrus Ave at SR-210 WB Ramps	C	S	25.9	C	25.9	C	0.0	No	26.3	C	26.3	C	0.0	No
3	Sierra Ave at SR-210 WB Ramps	C	S	19.6	B	19.6	B	0.0	No	16.6	B	16.6	B	0.0	No
4	Cherry Ave at SR-210 EB Ramps	C	S	24.1	C	28.2	C	4.1	No	23.3	C	31.8	C	8.5	No
5	Citrus Ave at SR-210 EB Ramps	C	S	29.2	C	29.1	C	-0.1	No	29.9	C	30.0	C	0.1	No
6	Sierra Ave at SR-210 EB Ramps	C	S	17.6	B	17.5	B	-0.1	No	14.4	B	14.3	B	-0.1	No
7	Beech Ave at Highland Ave	F	S	31.7	C	31.7	C	0.0	No	34.7	C	34.7	C	0.0	No
8	Citrus Ave at Highland Ave	F	S	36.6	D	36.6	D	0.0	No	39.1	D	39.7	D	0.6	No
9	Sierra Ave at Highland Ave	F	S	32.0	C	32.0	C	0.0	No	46.1	D	46.6	D	0.5	No
10	Etiwanda Ave at Base Line Rd	RC	S	55.6	E	55.6	E	0.0	No	40.3	D	40.2	D	-0.1	No
11	I-15 SB Ramps at Base Line Rd	C	S	21.5	C	21.7	C	0.2	No	15.0	B	16.0	B	1.0	No
12	I-15 NB Ramps at Baseline Ave	C	S	30.3	C	30.2	C	-0.1	No	34.4	C	34.4	C	0.0	No
13	Cherry Ave at Baseline Ave	F	S	38.4	D	39.3	D	0.9	No	38.7	D	41.4	D	2.7	No
14	Beech Ave at Baseline Ave	F	S	39.9	D	39.9	D	0.0	No	43.3	D	42.9	D	-0.4	No
15	Citrus Ave at Baseline Ave	F	S	47.9	D	48.8	D	0.9	No	39.6	D	39.7	D	0.1	No
16	Sierra Ave at Baseline Ave	F	S	33.7	C	33.6	C	-0.1	No	35.4	D	35.6	D	0.2	No
17	Etiwanda Ave at Church St/Miller Ave	RC	S	47.4	D	47.3	D	-0.1	No	43.6	D	43.2	D	-0.4	No
18	I-15 SB Ramps at Foothill Blvd	C	S	32.8	C	32.7	C	-0.1	No	20.7	C	20.7	C	0.0	No
19	I-15 NB Ramps at Foothill Blvd	C	S	25.4	C	25.4	C	0.0	No	21.9	C	21.8	C	-0.1	No
20	Etiwanda Ave at Foothill Blvd	RC	S	42.6	D	43.1	D	0.5	No	42.8	D	43.4	D	0.6	No
21	Cherry Ave at Foothill Blvd	F/SB	S	40.5	D	41.2	D	0.7	No	43.5	D	45.1	D	1.6	No
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F	58.7	Yes	>180	F	>180	F	332.1	Yes
23	Citrus Ave at Foothill Blvd	F	S	47.5	D	47.7	D	0.2	No	51.4	D	52.4	D	1.0	No
24	Sierra Ave at Foothill Blvd	F	S	41.9	D	42.1	D	0.2	No	42.4	D	42.8	D	0.4	No
25	Etiwanda Ave at Arrow Rte	RC	S	42.2	D	42.6	D	0.4	No	39.9	D	41.2	D	1.3	No

TABLE 5
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 PLUS PHASE 1 CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
26	Cherry Ave at Arrow Rte	SB	S	42.4	D	47.8	D	5.4	No	53.7	D	92.5	F	38.8	Yes
27	Beech Ave at Arrow Rte	SB	S	26.0	C	26.9	C	0.9	No	25.2	C	24.4	C	-0.8	No
28	Citrus Ave at Arrow Rte	F	S	44.9	D	45.7	D	0.8	No	42.3	D	43.3	D	1.0	No
29	Sierra Ave at Arrow Rte	F	S	37.1	D	37.2	D	0.1	No	36.3	D	36.5	D	0.2	No
30	Etiwanda Ave at Whittram Ave	RC	S	24.6	C	24.6	C	0.0	No	26.8	C	26.9	C	0.1	No
31	Cherry Ave at Whittram Ave	SB	S	37.4	D	54.3	D	16.9	No	46.5	D	100.1	F	53.6	Yes
32	Beech Ave at Whittram Ave	SB	U	36.5	E	36.7	E	0.2	No	38.8	E	39.5	E	0.7	No
33	Etiwanda Ave at Napa St	SB	S	19.5	B	19.5	B	0.0	No	27.3	C	27.3	C	0.0	No
34	Cherry Ave at Merrill Ave	SB	S	24.5	C	27.9	C	3.4	No	29.3	C	63.2	E	33.9	Yes
35	Beech Ave at Merrill Ave	SB	U	29.0	D	31.4	D	2.4	No	40.9	E	47.4	E	6.5	Yes
36	Citrus Ave at Merrill Ave	F	S	29.4	C	29.8	C	0.4	No	30.3	C	31.0	C	0.7	No
37	Sierra Ave at Merrill Ave	F	S	39.8	D	40.0	D	0.2	No	42.5	D	43.0	D	0.5	No
38	Citrus Ave at Fontana Ave	F	S	20.7	C	20.8	C	0.1	No	23.1	C	23.8	C	0.7	No
39	Cherry Ave at Randall Ave	SB	S	36.4	D	88.2	F	51.8	Yes	37.4	D	178.6	F	141.2	Yes
40	Beech Ave at Randall Ave	SB	U	67.8	F	101.3	F	33.5	Yes	25.7	D	101.3	F	75.6	Yes
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	25.1	D	38.1	E	13.0	Yes	28.8	D	75.8	F	47.0	Yes
42	Citrus Ave at Randall Ave	F	S	33.2	C	34.1	C	0.9	No	27.7	C	31.1	C	3.4	No
43	Sierra Ave at Randall Ave	F	S	28.5	C	29.5	C	1.0	No	30.8	C	33.4	C	2.6	No
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	44.6	D	45.9	D	1.3	No	51.3	D	65.2	E	13.9	Yes
45	I-15 NB Ramps at Fourth St	C	S	51.8	D	50.9	D	-0.9	No	34.8	C	36.0	D	1.2	No
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	34.1	C	36.7	D	2.6	No	36.9	D	39.0	D	2.1	No
47	Commerce Dr at San Bernardino Ave	SB	S	34.7	C	34.4	C	-0.3	No	49.8	D	87.7	F	37.9	Yes
48	Vip Rd at San Bernardino Ave	SB	S	13.8	B	16.3	B	2.5	No	10.8	B	12.9	B	2.1	No
49	Cherry Ave at San Bernardino Ave	SB	S	34.8	C	46.0	D	11.2	No	44.4	D	95.0	F	50.6	Yes
50	Beech Ave at San Bernardino Ave	SB	S	33.0	C	33.0	C	0.0	No	35.2	D	35.1	D	-0.1	No

TABLE 5
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 PLUS PHASE 1 CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	32.3	C	32.1	C	-0.2	No	27.7	C	27.9	C	0.2	No
52	Citrus Ave at San Bernardino Ave	F	S	38.2	D	38.6	D	0.4	No	31.0	C	31.9	C	0.9	No
53	Sierra Ave at San Bernardino Ave	F	S	30.0	C	30.7	C	0.7	No	39.7	D	41.1	D	1.4	No
54	Beech Ave at Fontana Ave	F/SB	U	9.9	A	9.9	A	0.0	No	9.8	A	9.8	A	0.0	No
55	Etiwanda Ave at Valley Blvd	SB	S	26.8	C	26.6	C	-0.2	No	34.1	C	34.2	C	0.1	No
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	29.5	C	29.2	C	-0.3	No	51.8	D	51.4	D	-0.4	No
57	Cherry Ave at Valley Blvd	F/SB	S	43.3	D	44.2	D	0.9	No	44.8	D	55.9	E	11.1	Yes
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	27.8	C	27.6	C	-0.2	No	15.1	B	15.1	B	0.0	No
59	Beech Ave at Valley Blvd	F	U	67.0	F	77.9	F	10.9	Yes	>180	F	>180	F	-	Yes
60	Citrus Ave at Valley Blvd	F	S	51.6	D	55.0	D	3.4	No	45.2	D	46.0	D	0.8	No
61	Sierra Ave at Valley Blvd	F	S	34.2	C	34.2	C	0.0	No	51.6	D	52.6	D	1.0	No
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.7	C	23.6	C	-0.1	No	19.1	B	19.0	B	-0.1	No
63	Cherry Ave at I-10 WB Ramps	C	S	34.1	C	53.6	D	19.5	No	26.3	C	47.6	D	21.3	No
64	Citrus Ave at I-10 WB Ramps	C	S	21.2	C	21.4	C	0.2	No	18.7	B	19.2	B	0.5	No
65	Etiwanda Ave at I-10 EB Ramps	C	S	30.0	C	30.0	C	0.0	No	18.6	B	18.6	B	0.0	No
66	Cherry Ave at I-10 EB Ramps	C	S	35.2	D	44.0	D	8.8	No	35.3	D	48.4	D	13.1	No
67	Citrus Ave at I-10 EB Ramps	C	S	33.2	C	33.6	C	0.4	No	30.6	C	31.0	C	0.4	No
68	Sierra Ave at I-10 EB/WB Ramps	C	S	25.6	C	25.8	C	0.2	No	50.3	D	54.0	D	3.7	No
69	Milliken Ave at Arrow Rte	RC	S	38.3	D	38.3	D	0.0	No	39.7	D	40.8	D	1.1	No
70	Rochester Ave at Arrow Rte	RC	S	36.8	D	36.7	D	-0.1	No	39.1	D	39.4	D	0.3	No
71	Cherry Ave at Slover Ave	F	S	33.6	C	33.9	C	0.3	No	35.7	D	36.0	D	0.3	No
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F	-	Yes	>180	F	>180	F	-	Yes
73	Cherry Ave at Street A	SB	S	-	-	37.2	D	-	-	-	-	41.0	D	-	-

- Bold values indicate intersections operating at an unacceptable Level of Service

- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

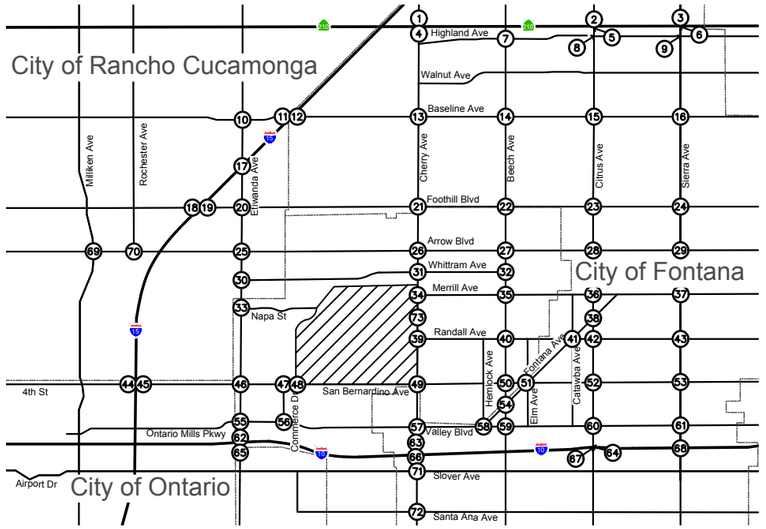
OPENING YEAR 2027 CONDITIONS

The project Opening Year for Phase 2 is anticipated to be Year 2027. Opening Year 2027 traffic forecasts have been developed by adding an ambient growth factor of 2.0 percent per year to Opening Year 2027 traffic volumes at the study intersections. Traffic volumes for Opening Year 2027 are shown on Figure 13.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for Opening Year 2027 conditions, and the results are shown on Table 6. Intersection analysis worksheets for this scenario are provided in *Appendix D*. Review of this table indicates that, with the addition of ambient growth and cumulative projects traffic, the following intersections would operate at an unacceptable Level of Service under Opening Year 2027 conditions:

- #9 – Sierra Ave at Highland Ave: PM – LOS E
- #10 – Etiwanda Ave at Base Line Rd: AM – LOS E
- #15 – Citrus Ave at Baseline Ave: AM – LOS E
- #22 – Beech Ave at Foothill Blvd: AM – LOS F; PM – LOS F
- #23 – Citrus Ave at Foothill Blvd: PM – LOS E
- #26 – Cherry Ave at Arrow Rte: PM – LOS E
- #32 – Beech Ave at Whittram Ave: AM – LOS E; PM – LOS F
- #35 – Beech Ave at Merrill Ave: AM – LOS E; PM – LOS F
- #40 – Beech Ave at Randall Ave: AM – LOS F
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St: PM – LOS E
- #45 – I-15 NB Ramps at Fourth St: AM – LOS E
- #47 – Commerce Dr at San Bernardino Ave: PM – LOS E
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd: PM – LOS E
- #59 – Beech Ave at Valley Blvd: AM – LOS F; PM – LOS F
- #60 – Citrus Ave at Valley Blvd: AM – LOS E
- #61 – Sierra Ave at Valley Blvd: PM – LOS E
- #68 – Sierra Ave at I-10EB/WB Ramps: PM – LOS E
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
224/164 ↙ 801/524 ↓ ; 282/151 ↖ ← 4/0 ← 420/347 ↖	398/442 ↙ 925/828 ↓ ; 346/372 ↖ ← 1/0 ← 477/389 ↖	1212/1321 ← ; 326/448 ↖ 573/337 ↖	923/788 ↙ 179/81 ↙	1052/779 ↙ 338/228 ↙
200/353 ↑ 345/645 ↑	338/362 ↑ 1021/1168 ↑	893/1273 ↑	171/216 ↗ 6/2 → 344/418 ↘ ; 498/789 ↑ 379/366 ↑	460/556 ↗ 3/3 → 450/385 ↘ ; 921/1173 ↑ 464/308 ↑

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
26/0 ↙ 1423/1344 ← ; 179/216 ↗ 619/458 ↘ ; 1066/1592 ↑ 519/720 ↑	104/60 ↙ 562/432 ↓ 62/112 ↙ ; 68/92 ↖ ← 233/207 ← 101/76 ↖ ; 131/73 ↗ 223/363 → 84/67 ↘ ; 41/29 ↑ 638/430 ↑ 75/97 ↑	168/119 ↙ 1064/715 ↓ 377/329 ↙ ; 276/407 ↖ ← 221/332 ← 102/139 ↖ ; 241/215 ↗ 215/336 → 59/60 ↘ ; 84/69 ↑ 825/852 ↑ 81/84 ↑	451/270 ↙ 1340/1102 ↓ 245/400 ↙ ; 223/396 ↖ ← 282/192 ← 18/77 ↖ ; 326/477 ↗ 282/281 → 194/57 ↘ ; 179/66 ↑ 1038/1482 ↑ 43/73 ↑	288/68 ↙ 324/113 ↓ 165/55 ↙ ; 264/52 ↖ ← 1245/694 ← 193/143 ↖ ; 120/83 ↗ 568/1110 → 91/137 ↘ ; 133/119 ↑ 306/188 ↑ 114/231 ↑	635/280 ↙ 411/289 ↙ ; 1060/625 ← ; 601/1173 → 264/189 ↘	200/181 ↖ ← 1786/894 ↖ ; 396/492 ↗ 633/1021 → ; 311/309 ↑ 2/0 ↑ 343/576 ↑	459/96 ↙ 959/537 ↓ 77/120 ↙ ; 74/68 ↖ ← 1496/661 ← 497/390 ↖ ; 260/342 ↗ 562/1187 → 156/91 ↘ ; 71/172 ↑ 634/1079 ↑ 219/418 ↑

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
221/101 ↙ 268/214 ↓ 105/147 ↙ ; 92/136 ↖ ← 687/672 ← 50/73 ↖ ; 148/236 ↗ 507/1129 → 41/82 ↘ ; 73/105 ↑ 268/280 ↑ 15/27 ↑	274/134 ↙ 864/496 ↓ 139/142 ↙ ; 114/65 ↖ ← 752/619 ← 177/180 ↖ ; 318/345 ↗ 409/824 → 122/129 ↘ ; 134/106 ↑ 642/682 ↑ 823/79 ↑	122/76 ↙ 1184/577 ↓ 246/253 ↙ ; 156/263 ↖ ← 555/725 ← 101/103 ↖ ; 115/161 ↗ 460/674 → 122/101 ↘ ; 176/116 ↑ 709/1095 ↑ 63/68 ↑	136/104 ↙ 324/267 ↓ 85/26 ↙ ; 77/34 ↖ ← 520/287 ← 105/48 ↖ ; 97/153 ↗ 279/492 → 121/187 ↘ ; 158/149 ↑ 280/297 ↑ 163/110 ↑	951/600 ↙ 194/229 ↙ ; 1623/1526 ← ; 594/2142 → 894/1046 ↘	257/362 ↖ ← 1381/1264 ↖ ; 532/1281 → ; 978/819 ↑ 553/521 ↑	258/174 ↙ 390/251 ↓ 56/69 ↙ ; 129/53 ↖ ← 1344/838 ← 383/117 ↖ ; 112/264 ↗ 502/1043 → 273/255 ↘ ; 223/342 ↑ 236/400 ↑ 76/212 ↑

Note: Volumes reflect PCE adjustments.

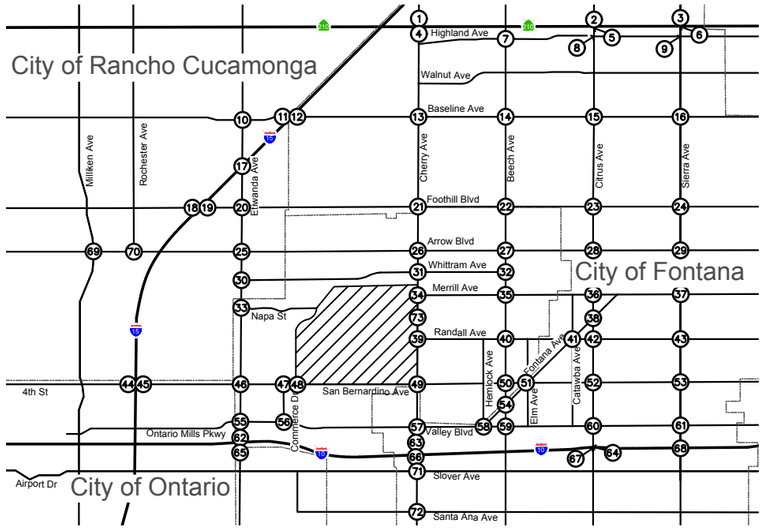
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 13A
OPENING YEAR 2027 TRAFFIC VOLUMES



NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
227/219 ↖ 960/830 ← 184/315 ↖ 206/277 ↗ 464/963 → 171/112 ↘ 240/309 ↑ 543/1014 ↑ 158/284 ↑ 110/138 ↖ 1275/635 ← 337/187 ↖	1728/887 ← 224/117 ↖ 725/1511 → 40/60 ↘ 24/67 ↑ 115/133 ↑	181/80 ↖ 813/618 ← 148/147 ↖ 167/287 ↗ 502/958 → 128/198 ↘ 160/155 ↑ 581/758 ↑ 87/97 ↑ 87/133 ↖ 908/647 ← 263/321 ↖	143/138 ↖ 920/557 ← 215/171 ↖ 239/227 ↗ 434/785 → 112/150 ↘ 88/115 ↑ 497/901 ↑ 90/154 ↑ 140/181 ↖ 693/576 ← 172/225 ↖	439/128 ↖ 409/339 ← 134/142 ↖ 104/391 ↗ 274/697 → 178/457 ↘ 382/198 ↑ 246/643 ↑ 40/130 ↑ 149/161 ↖ 783/403 ← 158/112 ↖

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
106/104 ↖ 1220/1026 ← 59/77 ↖ 78/94 ↗ 437/679 → 104/110 ↘ 115/155 ↑ 873/1310 ↑ 157/263 ↑ 66/66 ↖ 673/607 ← 185/160 ↖	94/25 ↖ 174/159 ← 16/20 ↖ 46/35 ↗ 397/730 → 65/73 ↘ 93/108 ↑ 143/170 ↑ 131/246 ↑ 25/30 ↖ 683/510 ← 159/104 ↖	158/75 ↖ 888/817 ← 108/155 ↖ 82/87 ↗ 297/643 → 118/188 ↘ 233/196 ↑ 695/968 ↑ 233/191 ↑ 147/103 ↖ 496/363 ← 255/164 ↖	77/86 ↖ 814/579 ← 65/121 ↖ 75/113 ↗ 453/535 → 92/100 ↘ 97/95 ↑ 583/872 ↑ 42/65 ↑ 62/59 ↖ 592/353 ← 79/75 ↖	699/677 ↖ 73/220 ↖ 552/820 ↑ 169/317 ↑ 153/99 ↖ 262/225 ↖	100/63 ↖ 1300/957 ← 39/43 ↖ 34/97 ↗ 34/158 → 224/329 ↘ 208/160 ↑ 1043/1661 ↑ 148/125 ↑ 76/82 ↖ 152/75 ← 169/139 ↖	125/46 ↖ 295/354 ↖ 64/90 ↗ 74/185 ↘ 150/99 ↑ 329/451 ↑	1/0 ↖ 843/640 ← 113/206 ↖ 0/6 ↗ 2/34 ↘ 1/0 ↑ 617/1016 ↑ 298/155 ↑ 129/131 ↖ 204/223 ↖

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
0/1 ↖ 1490/1130 ← 146/223 ↖ 0/1 → 3/1 ↑ 1051/1764 ↑ 142/234 ↑ 283/231 ↖ 169/137 ↖	85/45 ↖ 165/195 ← 63/132 ↖ 115/144 ↗ 155/261 → 63/37 ↘ 57/34 ↑ 185/244 ↑ 65/54 ↑ 171/144 ↖ 265/183 ← 75/36 ↖	103/112 ↖ 1014/827 ← 68/87 ↖ 165/156 ↗ 186/290 → 54/59 ↘ 57/50 ↑ 764/1039 ↑ 31/39 ↑ 115/152 ↖ 238/235 ← 49/33 ↖	59/80 ↖ 987/785 ← 37/72 ↖ 71/96 ↗ 387/512 → 106/115 ↘ 65/131 ↑ 641/938 ↑ 102/184 ↑ 48/52 ↖ 418/310 ← 150/124 ↖	139/120 ↖ 979/767 ← 26/38 ↖ 121/157 ↗ 113/208 → 12/10 ↘ 22/20 ↑ 724/974 ↑ 84/77 ↑ 35/22 ↖ 92/95 ← 88/57 ↖	26/18 ↖ 1402/1065 ← 205/227 ↖ 15/20 ↗ 124/108 → 96/99 ↘ 128/162 ↑ 979/1722 ↑ 116/183 ↑ 142/193 ↖ 97/116 ← 240/185 ↖	95/37 ↖ 217/181 ← 7/38 ↖ 66/72 ↗ 258/327 → 28/31 ↘ 23/25 ↑ 216/239 ↑ 47/13 ↑ 44/47 ↖ 296/271 ← 35/11 ↖

Note: Volumes reflect PCE adjustments.

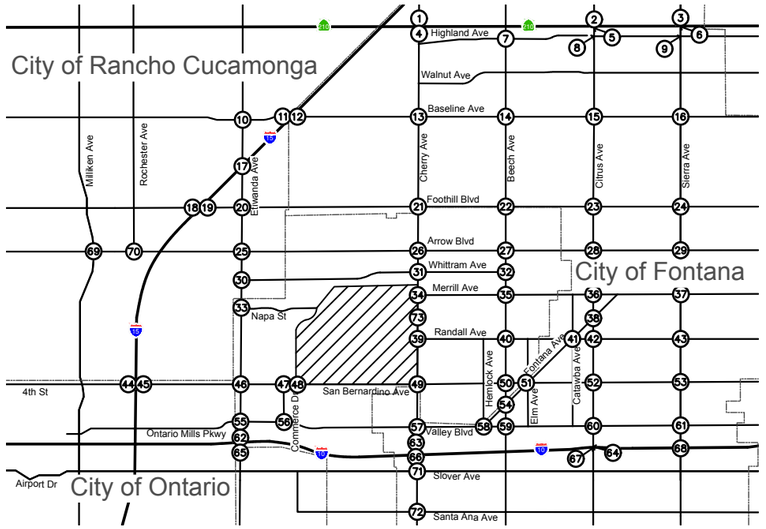
LEGEND:

= Project Site

= Study Intersection

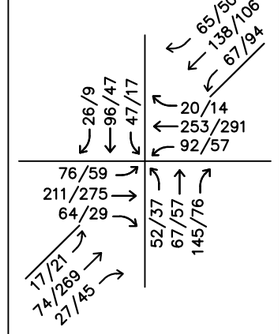
XX/YY = AM/PM Volumes

FIGURE 13B
OPENING YEAR 2027 TRAFFIC VOLUMES

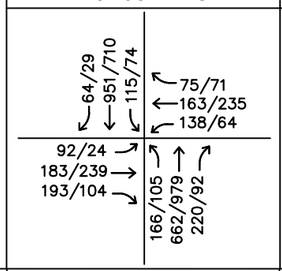


NOT TO SCALE

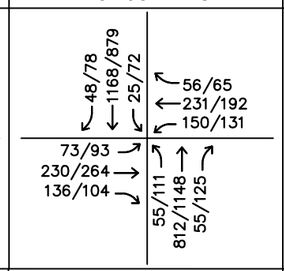
41. Fontana Ave/ Catawba Ave at Randall Ave



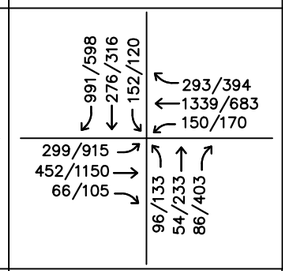
42. Citrus Ave at Randall Ave



43. Sierra Ave at Randall Ave



44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St



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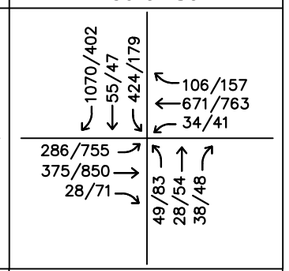
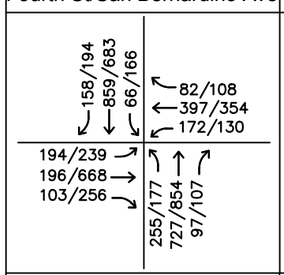
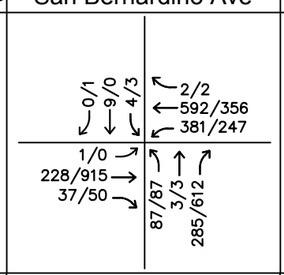


46. Etiwanda Ave at Fourth St/San Bernardino Ave



47. Commerce Dr at San Bernardino Ave



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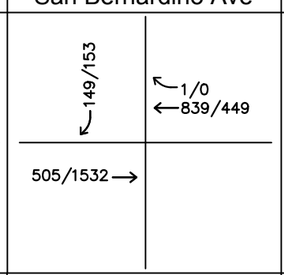
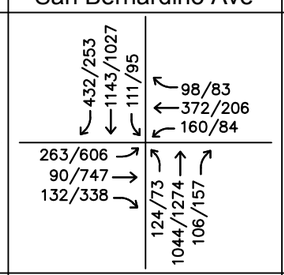
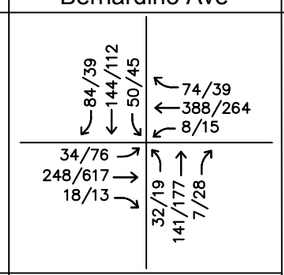


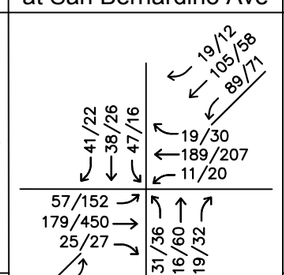
49. Cherry Ave at San Bernardino Ave



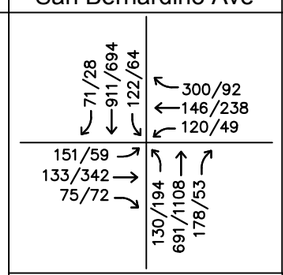
50. Beech Ave at San Bernardino Ave



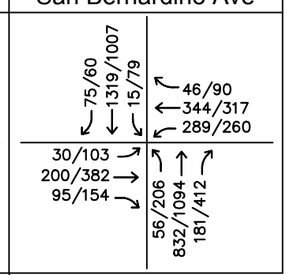
51. Fontana Ave/Elm St at San Bernardino Ave



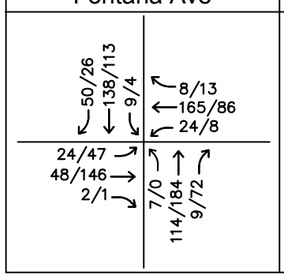
52. Citrus Ave at San Bernardino Ave



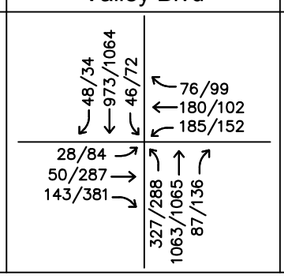
53. Sierra Ave at San Bernardino Ave



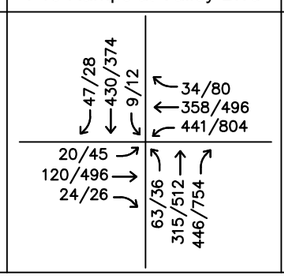
54. Beech Ave at Fontana Ave



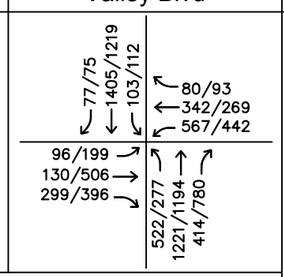
55. Etiwanda Ave at Valley Blvd



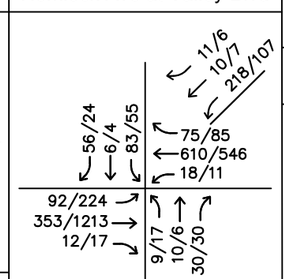
56. Commerce Dr/ I-15 Ramps at Valley Blvd



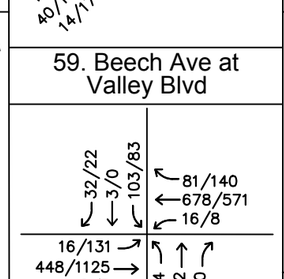
57. Cherry Ave at Valley Blvd



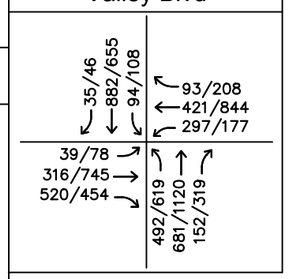
58. Fontana Ave/ Hemlock Ave at Valley Blvd



59. Beech Ave at Valley Blvd



60. Citrus Ave at Valley Blvd



Note: Volumes reflect PCE adjustments.

LEGEND:

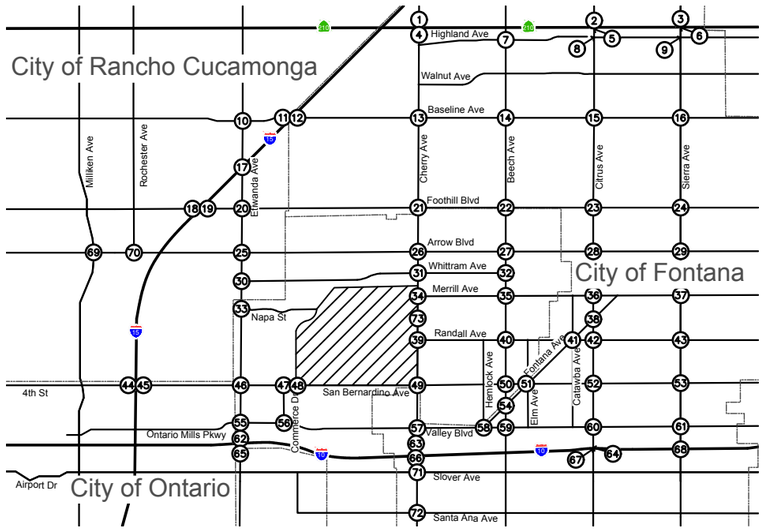
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 13C
OPENING YEAR 2027 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
110/97 ↙ 1570/1363 ↓ 128/177 ↖ 109/127 ← 469/715 ← 612/709	464/479 ↙ 873/1162 ↓ ↖ 595/484 ← 549/389	2082/2172 ↙ ↖ 775/633 ← 827/580	466/474 ↙ 1133/1049 ↓ ↖ 528/584 ← 407/269	238/394 ↙ 1088/1090 ↓
190/299 → 290/967 → 170/247 ↘ 203/268 → 1373/1332 ↑ 756/814 ↑	862/1120 ↑ 445/622 ↑	1138/1547 ↑ 608/436 ↑	736/1212 ↑ 272/256 ↑	308/342 → 671/439 ↘ 1207/1449 ↑ 381/562 ↑

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
1699/1352 ↙ 607/698 ↓	959/730 ↙ 624/606 ↓	920/892 ↙ 836/969 ↓ 573/554 ↙ 623/645 ← 479/519	244/132 ↙ 790/582 ↓ 125/77 ↙ 121/119 ← 1240/611 ← 181/125	302/200 ↙ 437/245 ↓ 118/97 ↙ 150/194 ← 1153/564 ← 186/76	591/459 ↙ 1269/1124 ↓ 458/422 ↙ 393/408 ← 289/198 ← 59/67	377/151 ↙ 812/1002 ↓ 142/88 ↙ 83/108 ← 24/24 ← 10/15	FUTURE INTERSECTION
454/577 → 7/48 → 691/614 ↘ 1403/1423 ↑ 541/469 ↑	340/505 → 9/8 → 478/237 ↘ 733/1008 → 372/570 ↑	958/1024 → 561/512 ↘ 470/573 ↑ 808/1378 ↑ 400/523 ↑	86/265 → 462/1104 → 132/208 ↘ 197/195 ↑ 373/1644 ↑ 94/376 ↑	132/389 → 385/1008 → 77/24 ↘ 55/62 ↑ 190/886 ↑ 74/288 ↑	460/501 → 246/753 → 47/94 ↘ 31/39 ↑ 1066/991 ↑ 62/74 ↑	278/280 → 44/55 → 90/34 ↘ 40/9 ↑ 857/681 ↑ 12/32 ↑	

Note: Volumes reflect PCE adjustments.

LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 13D
OPENING YEAR 2027 TRAFFIC VOLUMES

Kimley»Horn

TABLE 6
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2027 CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Cherry Ave at SR-210 WB Ramps	C	S	30.6	C	31.1	C
2	Citrus Ave at SR-210 WB Ramps	C	S	26.7	C	27.3	C
3	Sierra Ave at SR-210 WB Ramps	C	S	19.9	B	16.9	B
4	Cherry Ave at SR-210 EB Ramps	C	S	24.3	C	24.1	C
5	Citrus Ave at SR-210 EB Ramps	C	S	31.7	C	31.5	C
6	Sierra Ave at SR-210 EB Ramps	C	S	18.0	B	14.7	B
7	Beech Ave at Highland Ave	F	S	32.1	C	34.9	C
8	Citrus Ave at Highland Ave	F	S	38.1	D	40.4	D
9	Sierra Ave at Highland Ave	F	S	33.1	C	55.1	E
10	Etiwanda Ave at Base Line Rd	RC	S	61.2	E	40.1	D
11	I-15 SB Ramps at Base Line Rd	C	S	21.7	C	15.1	B
12	I-15 NB Ramps at Baseline Ave	C	S	28.0	C	34.1	C
13	Cherry Ave at Baseline Ave	F	S	39.9	D	39.6	D
14	Beech Ave at Baseline Ave	F	S	39.9	D	43.2	D
15	Citrus Ave at Baseline Ave	F	S	55.3	E	40.0	D
16	Sierra Ave at Baseline Ave	F	S	34.2	C	35.7	D
17	Etiwanda Ave at Church St/Miller Ave	RC	S	49.8	D	44.7	D
18	I-15 SB Ramps at Foothill Blvd	C	S	44.1	D	34.6	C
19	I-15 NB Ramps at Foothill Blvd	C	S	27.7	C	22.8	C
20	Etiwanda Ave at Foothill Blvd	RC	S	47.9	D	44.4	D
21	Cherry Ave at Foothill Blvd	F/SB	S	41.5	D	47.0	D
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F
23	Citrus Ave at Foothill Blvd	F	S	51.5	D	57.3	E
24	Sierra Ave at Foothill Blvd	F	S	43.5	D	44.2	D
25	Etiwanda Ave at Arrow Rte	RC	S	43.7	D	40.5	D
26	Cherry Ave at Arrow Rte	SB	S	45.5	D	62.1	E
27	Beech Ave at Arrow Rte	SB	S	26.9	C	23.9	C
28	Citrus Ave at Arrow Rte	F	S	49.0	D	45.0	D
29	Sierra Ave at Arrow Rte	F	S	38.0	D	37.2	D
30	Etiwanda Ave at Whittram Ave	RC	S	25.8	C	28.8	C

TABLE 6
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2027 CONDITIONS

31	Cherry Ave at Whittram Ave	SB	S	42.0	D	54.4	D
32	Beech Ave at Whittram Ave	SB	U	43.5	E	48.5	E
33	Etiwanda Ave at Napa St	SB	S	19.9	B	28.4	C
34	Cherry Ave at Merrill Ave	SB	S	26.0	C	36.0	D
35	Beech Ave at Merrill Ave	SB	U	37.4	E	50.3	F
36	Citrus Ave at Merrill Ave	F	S	30.4	C	31.3	C
37	Sierra Ave at Merrill Ave	F	S	40.4	D	43.1	D
38	Citrus Ave at Fontana Ave	F	S	21.2	C	23.6	C
39	Cherry Ave at Randall Ave	SB	S	37.8	D	40.0	D
40	Beech Ave at Randall Ave	SB	U	85.3	F	32.9	D
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	30.1	D	34.8	D
42	Citrus Ave at Randall Ave	F	S	34.2	C	28.1	C
43	Sierra Ave at Randall Ave	F	S	29.5	C	31.9	C
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	48.3	D	58.2	E
45	I-15 NB Ramps at Fourth St	C	S	61.4	E	35.6	D
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	34.5	C	37.3	D
47	Commerce Dr at San Bernardino Ave	SB	S	35.7	D	62.0	E
48	Vip Rd at San Bernardino Ave	SB	U	14.3	B	10.9	B
49	Cherry Ave at San Bernardino Ave	SB	S	36.3	D	48.4	D
50	Beech Ave at San Bernardino Ave	SB	S	32.8	C	34.9	C
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	32.4	C	28.2	C
52	Citrus Ave at San Bernardino Ave	F	S	40.5	D	31.6	C
53	Sierra Ave at San Bernardino Ave	F	S	31.5	C	42.4	D
54	Beech Ave at Fontana Ave	F/SB	U	10.2	B	10.2	B
55	Etiwanda Ave at Valley Blvd	SB	S	27.4	C	35.6	D
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	29.8	C	61.8	E
57	Cherry Ave at Valley Blvd	F/SB	S	49.5	D	53.2	D
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	28.7	C	16.0	B
59	Beech Ave at Valley Blvd	F	U	91.8	F	>180	F
60	Citrus Ave at Valley Blvd	F	S	58.4	E	48.1	D
61	Sierra Ave at Valley Blvd	F	S	36.4	D	60.3	E
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.9	C	19.3	B

TABLE 6
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2027 CONDITIONS

63	Cherry Ave at I-10 WB Ramps	C	S	40.4	D	28.2	C
64	Citrus Ave at I-10 WB Ramps	C	S	21.5	C	19.1	B
65	Etiwanda Ave at I-10 EB Ramps	C	S	30.8	C	18.6	B
66	Cherry Ave at I-10 EB Ramps	C	S	38.9	D	39.6	D
67	Citrus Ave at I-10 EB Ramps	C	S	35.6	D	32.1	C
68	Sierra Ave at I-10 EB/WB Ramps	C	S	28.5	C	69.7	E
69	Milliken Ave at Arrow Rte	RC	S	39.5	D	42.6	D
70	Rochester Ave at Arrow Rte	RC	S	37.5	D	40.5	D
71	Cherry Ave at Slover Ave	F	S	36.8	D	37.8	D
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

OPENING YEAR 2027 PLUS PROJECT (PHASES 1 AND 2) CONDITIONS

Phases 1 and 2 project-related traffic were added to the Opening Year 2027 traffic volumes, and the resulting "Plus Phases 1 and 2" traffic volumes are shown on Figure 14. The following roadway network connections to the site have been assumed in the Opening Year 2027 conditions:

- Connection to existing Napa Street is assumed with 2 lanes westbound and 2 lanes eastbound
- Connection to existing VIP Road is assumed with 2 lanes southbound and 1 lane northbound. Truck access will be restricted on VIP Road

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Opening Year 2027 Plus Project (Phases 1 and 2) condition. The results are shown on Table 7. Copies of the intersection analysis worksheets are provided in *Appendix D*. Review of Table 7 indicates that, with the addition of Phases 1 and 2 project traffic, the following intersections would operate at an unacceptable Level of Service under Opening Year 2027 Plus Project (Phases 1 and 2) conditions:

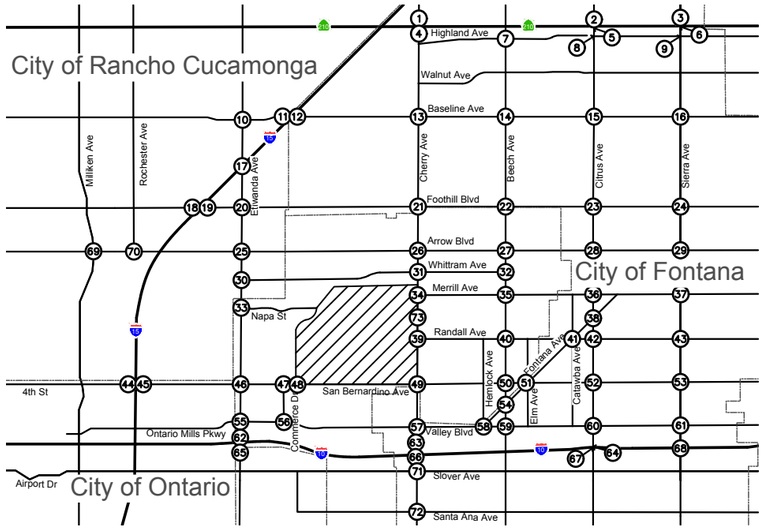
- #9 – Sierra Ave at Highland Ave: PM – LOS E
- #10 – Etiwanda Ave at Base Line Rd: AM – LOS E
- #15 – Citrus Ave at Baseline Ave: AM – LOS E
- #20 – Etiwanda Ave at Foothill Blvd AM – LOS E; PM – LOS E
- #22 – Beech Ave at Foothill Blvd: AM – LOS F; PM – LOS F
- #23 – Citrus Ave at Foothill Blvd: PM – LOS E
- #26 – Cherry Ave at Arrow Rte: PM – LOS F
- #31 – Cherry Ave at Whittram Ave: AM – LOS E; PM – LOS F
- #32 – Beech Ave at Whittram Ave: AM – LOS E; PM – LOS F
- #33 – Etiwanda Ave at Napa St: PM – LOS F
- #34 – Cherry Ave at Merrill Ave: PM – LOS E
- #35 – Beech Ave at Merrill Ave: AM – LOS E; PM – LOS F
- #39 – Cherry Ave at Randall Ave: AM – LOS F; PM – LOS F
- #40 – Beech Ave at Randall Ave: AM – LOS F; PM – LOS F
- #41 – Fontana Ave/Catawba Ave at Randall Ave: AM – LOS F; PM – LOS F
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St: PM – LOS F
- #45 – I-15 NB Ramps at Fourth St: AM – LOS E
- #47 – Commerce Dr at San Bernardino Ave: PM – LOS F
- #49 – Cherry Ave at San Bernardino Ave: PM – LOS F
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd: PM – LOS E
- #57 – Cherry Ave at Valley Blvd: PM – LOS E

- #59 – Beech Ave at Valley Blvd: AM – LOS F; PM – LOS F
- #60 – Citrus Ave at Valley Blvd: AM – LOS E
- #61 – Sierra Ave at Valley Blvd: PM – LOS E
- #63 – Cherry Ave at I-10 WB Ramps: AM – LOS E; PM – LOS E
- #68 – Sierra Ave at I-10EB/WB Ramps: PM – LOS E
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F

Based on the County standards presented earlier in this report, the Phases 1 and 2 project-related effect would be considered to have a cumulative effect at the following intersections under Opening Year 2027 Plus Project (Phases 1 and 2) conditions:

- #20 – Etiwanda Ave at Foothill Blvd
- #22 – Beech Ave at Foothill Blvd
- #23 – Citrus Ave at Foothill Blvd
- #26 – Cherry Ave at Arrow Rte
- #31 – Cherry Ave at Whittram Ave
- #33 – Etiwanda Ave at Napa St
- #34 – Cherry Ave at Merrill Ave
- #35 – Beech Ave at Merrill Ave
- #39 – Cherry Ave at Randall Ave
- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
- #47 – Commerce Dr at San Bernardino Ave
- #49 – Cherry Ave at San Bernardino Ave
- #57 – Cherry Ave at Valley Blvd
- #59 – Beech Ave at Valley Blvd
- #60 – Citrus Ave at Valley Blvd
- #63 – Cherry Ave at I-10 WB Ramps
- #68 – Sierra Ave at I-10 EB/WB Ramps
- #72 – Cherry Ave at Santa Ana Ave

Recommended improvements to address the project-related effects are presented in the Recommended Improvements section of this report. Copies of intersection analysis worksheets are provided in *Appendix D*.



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
224/164 810/536 282/151 4/0 505/477 234/409 345/657	398/442 934/840 346/372 1/0 486/401 338/362 1021/1180	1221/1333 326/448 578/344 893/1285	1017/930 179/81 171/216 6/2 392/488 532/857 453/473	1070/803 338/228 460/556 3/3 450/385 921/1185 467/320

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
26/41 1437/1363 179/216 619/458 1066/1604 520/726	104/60 562/432 62/112 68/92 233/207 101/76 131/73 223/363 84/67 41/29 638/430 75/97	168/119 1082/739 377/329 276/407 221/332 102/139 241/215 215/336 59/60 84/69 828/876 81/84	451/270 1354/1121 245/400 223/396 282/192 18/77 326/477 282/281 194/57 179/66 1039/1500 43/73	288/68 333/125 165/55 264/52 1245/694 193/143 120/83 568/1110 100/149 133/131 306/200 114/231	635/280 433/326 1060/625 601/1173 264/189	234/215 1786/894 396/492 655/1058 311/309 2/0 343/576	459/96 1101/749 77/120 74/68 1496/661 577/503 260/342 562/1187 178/128 105/206 742/1254 227/529

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
221/101 268/214 105/147 92/136 750/757 50/73 148/236 510/1211 41/82 73/105 268/280 15/27	292/158 864/496 139/142 114/65 788/668 185/196 320/368 410/872 122/129 134/106 642/684 828/97	140/101 1189/583 246/253 156/263 564/737 101/103 116/186 460/686 122/101 176/116 709/1100 63/68	136/104 342/291 85/26 77/34 520/287 106/50 97/153 279/492 121/187 158/149 280/321 163/112	951/600 288/366 1633/1567 621/2182 894/1046	318/479 1391/1305 653/1458 978/819 553/521	258/174 409/277 56/69 129/53 1344/838 384/119 112/264 502/1043 394/432 294/500 236/426 76/214

Note: Volumes reflect PCE adjustments.

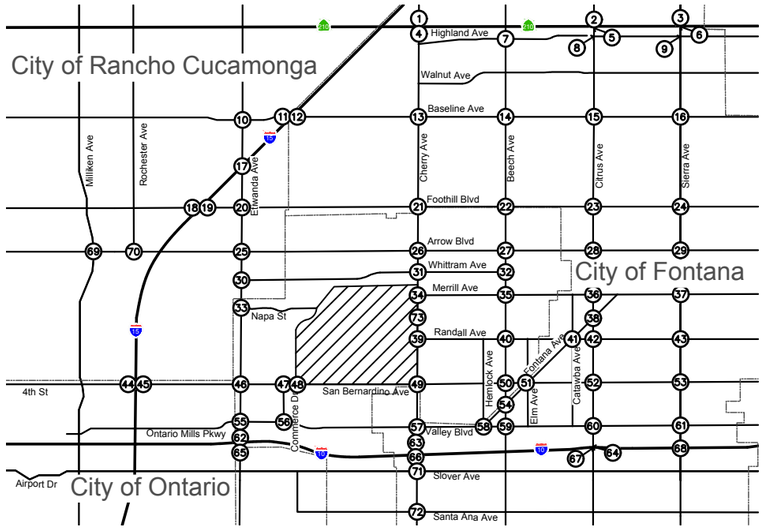
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 14A
OPENING YEAR 2027 PLUS PHASES 1 AND 2 TRAFFIC VOLUMES



NOT TO SCALE

21. Cherry Ave at Foothill Blvd

206/279 → 464/963 → 171/112 ↘	228/221 ← 1219/1217 ← 184/315 ↖	110/138 ← 1275/635 ← 380/244 ↖
	240/309 ↑ 699/1359 ↑ 163/341 ↑	

22. Beech Ave at Foothill Blvd

730/1568 → 40/60 ↘		← 1771/944 ← 232/133 ↖
	24/67 ↑	120/150 ↑

23. Citrus Ave at Foothill Blvd

167/287 → 507/1003 → 128/198 ↘	181/80 ← 821/634 ← 148/147 ↖	87/133 ← 942/692 ← 263/321 ↖
	160/155 ↑ 586/778 ↑ 87/97 ↑	

24. Sierra Ave at Foothill Blvd

239/236 → 439/809 → 112/150 ↘	149/147 ← 936/582 ← 215/171 ↖	140/181 ← 712/600 ← 180/241 ↖
	88/115 ↑ 502/926 ↑ 95/171 ↑	

25. Etiwanda Ave at Arrow Rte

104/391 → 274/697 → 205/493 ↘	439/128 ← 550/544 ← 134/142 ↖	149/161 ← 783/403 ← 158/112 ↖
	382/234 ↑ 317/829 ↑ 40/130 ↑	

26. Cherry Ave at Arrow Rte

78/94 → 437/679 → 104/110 ↘	106/104 ← 1522/1470 ← 59/77 ↖	66/66 ← 673/607 ← 220/210 ↖
	115/155 ↑ 1034/1712 ↑ 157/313 ↑	

27. Beech Ave at Arrow Rte

46/35 → 397/780 → 65/73 ↘	94/25 ← 182/175 ← 16/20 ↖	25/30 ← 718/560 ← 162/107 ↖
	93/108 ↑ 148/187 ↑ 131/249 ↑	

28. Citrus Ave at Arrow Rte

82/87 → 297/672 → 118/188 ↘	158/75 ← 896/833 ← 108/155 ↖	147/103 ← 516/392 ← 258/167 ↖
	233/196 ↑ 700/988 ↑ 233/194 ↑	

29. Sierra Ave at Arrow Rte

75/113 → 453/544 → 92/100 ↘	77/86 ← 838/620 ← 65/121 ↖	62/59 ← 598/362 ← 82/78 ↖
	97/95 ↑ 593/914 ↑ 42/68 ↑	

30. Etiwanda Ave at Whittram Ave

	← 867/918 ← 73/220 ↖	153/99 ← 262/225 ↖
	623/1042 ↑ 169/317 ↑	

31. Cherry Ave at Whittram Ave

34/97 → 34/158 → 224/329 ↘	100/63 ← 1637/1451 ← 39/43 ↖	76/82 ← 152/75 ← 169/139 ↖
	208/160 ↑ 1204/2113 ↑ 148/125 ↑	

32. Beech Ave at Whittram Ave

64/90 → 74/185 ↘	125/46 ← 306/373 ↖	
	150/99 ↑ 334/471 ↑	

33. Etiwanda Ave at Napa St

0/6 → 2/34 ↘	1/0 ← 843/640 ← 281/447 ↖	200/353 ← 315/357 ↖
	1/0 ↑ 617/1016 ↑ 408/327 ↑	

34. Cherry Ave at Merrill Ave

0/1 →	0/1 ← 1827/1624 ← 146/223 ↖	283/231 ← 189/165 ↖
	3/1 ↑ 1212/2216 ↑ 142/262 ↑	

35. Beech Ave at Merrill Ave

115/144 → 155/289 → 63/37 ↘	85/45 ← 176/214 ← 63/132 ↖	171/144 ← 285/211 ← 75/36 ↖
	57/34 ↑ 190/264 ↑ 65/54 ↑	

36. Citrus Ave at Merrill Ave

165/156 → 186/318 → 54/59 ↘	103/112 ← 1025/846 ← 68/87 ↖	115/152 ← 258/263 ← 50/34 ↖
	57/50 ↑ 769/1062 ↑ 31/40 ↑	

37. Sierra Ave at Merrill Ave

81/148 → 387/524 → 106/122 ↘	90/131 ← 992/790 ← 37/72 ↖	48/52 ← 427/322 ← 150/124 ↖
	70/138 ↑ 641/943 ↑ 102/184 ↑	

38. Citrus Ave at Fontana Ave

126/179 → 123/251 → 12/10 ↘	147/136 ← 983/771 ← 26/38 ↖	35/22 ← 108/127 ← 97/67 ↖
	22/20 ↑ 724/976 ↑ 84/77 ↑	

39. Cherry Ave at Randall Ave

13/57 → 160/343 → 252/383 ↘	50/68 ← 1368/1111 ← 156/229 ↖	163/193 ← 240/340 ← 240/185 ↖
	318/457 ↑ 1030/1736 ↑ 116/183 ↑	

40. Beech Ave at Randall Ave

71/92 → 289/573 → 28/45 ↘	106/56 ← 217/181 ← 7/38 ↖	44/47 ← 455/509 ← 35/11 ↖
	32/37 ↑ 216/239 ↑ 47/13 ↑	

Note: Volumes reflect PCE adjustments.

LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 14B
OPENING YEAR 2027 PLUS PHASES 1 AND 2 TRAFFIC VOLUMES

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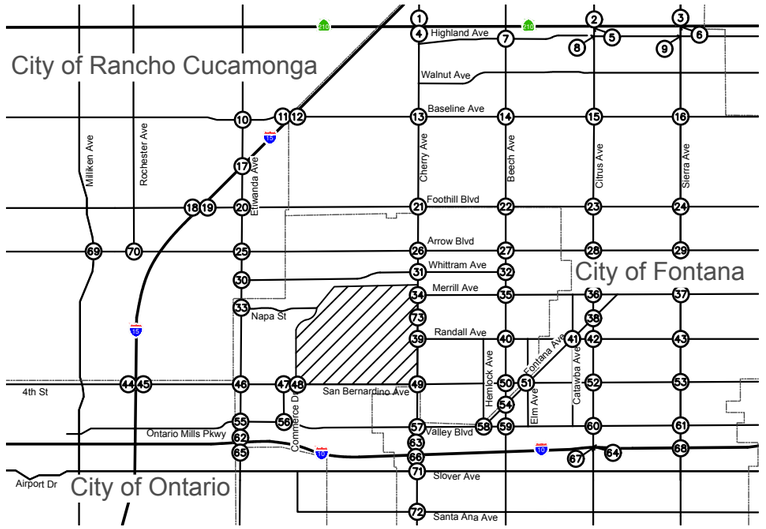


NOT TO SCALE

41. Fontana Ave/ Catawba Ave at Randall Ave

26/9 ← 96/47 ← 47/17 ← 65/50 ← 138/106 ← 43/46
92/124 → 20/14 ←
221/427 → 371/453 ←
64/29 → 92/57 ←
17/21 ↗ 52/37 ↑ 67/57 ↑ 145/76 ↑
74/269 ↗
27/45 ↗

42. Citrus Ave at Randall Ave

77/43 ← 951/710 ← 115/74 ← 75/71 ← 239/341 ← 138/64
92/26 → 195/147 ↑ 662/979 ↑ 220/92 ↑
188/348 →
198/145 ↘

43. Sierra Ave at Randall Ave

57/88 ← 1168/879 ← 25/72 ← 56/65 ← 240/204 ← 150/131
73/103 → 87/155 ↑ 812/1148 ↑ 55/125 ↑
230/276 →
136/150 ↘

44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St

991/598 ← 276/316 ← 152/120 ← 409/610 ← 1339/695 ← 150/170
299/915 → 96/133 ↑ 54/233 ↑ 86/403 ↑
461/1162 →
66/105 ↘

45. I-15 NB Ramps at Fourth St

1070/402 ← 55/47 ← 573/416 ← 106/157 ← 787/991 ← 34/41
286/755 → 49/83 ↑ 28/54 ↑ 38/48 ↑
384/862 →
28/71 ↘

46. Etiwanda Ave at Fourth St/San Bernardino Ave

158/201 ← 970/798 ← 66/166 ← 82/108 ← 513/575 ← 174/150
199/246 → 255/177 ↑ 823/1007 ↑ 109/123 ↑
349/910 →
103/256 ↘

47. Commerce Dr at San Bernardino Ave

0/1 ← 9/0 ← 4/3 ← 2/2 ← 710/597 ← 421/447
1/0 → 87/87 ↑ 3/3 ↑ 418/807 ↑
393/1173 →
37/50 ↘

48. Vip Rd at San Bernardino Ave

217/499 ← 1/0 ← 929/544
212/316 →
592/1669 →

49. Cherry Ave at San Bernardino Ave

522/348 ← 1352/1386 ← 128/153 ← 137/142 ← 372/206 ← 160/84
350/743 → 124/73 ↑ 1301/1649 ↑ 106/157 ↑
90/747 →
132/338 ↘

50. Beech Ave at San Bernardino Ave

84/39 ← 144/112 ← 50/47 ← 74/39 ← 418/311 ← 8/15
34/76 → 32/19 ↑ 141/177 ↑ 7/28 ↑
265/663 →
18/13 ↘

51. Fontana Ave/Elm St at San Bernardino Ave

41/22 ← 38/26 ← 47/16 ← 19/12 ← 105/58 ← 89/71 ← 19/30 ← 202/226 ← 11/20
57/152 → 48/64 ↑ 16/60 ↑ 19/32 ↑
191/469 →
30/56 ↘
11/26 ↗
40/170 ↑
14/17 ↗

52. Citrus Ave at San Bernardino Ave

71/28 ← 911/706 ← 127/93 ← 320/122 ← 159/257 ← 120/49
151/59 → 130/194 ↑ 700/1120 ↑ 178/53 ↑
145/361 →
75/72 ↘

53. Sierra Ave at San Bernardino Ave

75/60 ← 1319/1031 ← 15/89 ← 53/100 ← 346/319 ← 289/260
30/103 → 70/225 ↑ 848/1116 ↑ 181/412 ↑
200/384 →
107/171 ↘

54. Beech Ave at Fontana Ave

50/26 ← 138/113 ← 9/4 ← 8/13 ← 165/86 ← 24/8
24/47 → 7/0 ↑ 114/184 ↑ 9/72 ↑
48/146 →
2/1 ↘

55. Etiwanda Ave at Valley Blvd

48/34 ← 1086/1199 ← 46/72 ← 76/99 ← 180/102 ← 185/152
28/84 → 327/288 ↑ 1171/1234 ↑ 87/136 ↑
50/287 →
143/381 ↘

56. Commerce Dr/ I-15 Ramps at Valley Blvd

47/28 ← 470/574 ← 9/12 ← 34/80 ← 358/496 ← 441/804
20/45 → 63/36 ↑ 448/707 ↑ 446/754 ↑
120/496 →
24/26 ↘

57. Cherry Ave at Valley Blvd

77/75 ← 1579/1514 ← 138/177 ← 120/155 ← 342/269 ← 567/442
96/199 → 522/277 ↑ 1437/1507 ↑ 414/780 ↑
130/506 →
299/396 ↘

58. Fontana Ave/ Hemlock Ave at Valley Blvd

11/6 ↙ 10/7 ↙ 218/107 ↙
56/24 ← 6/4 ← 83/55 ← 75/85 ← 650/608 ← 18/11
92/224 → 9/17 ↑ 10/6 ↑ 30/30 ↑
388/1278 →
12/17 ↘

59. Beech Ave at Valley Blvd

32/22 ← 3/0 ← 103/83 ← 81/140 ← 718/633 ← 16/8
16/131 → 7/4 ↑ 1/2 ↑ 24/20 ↑
483/1190 →
9/8 ↘

60. Citrus Ave at Valley Blvd

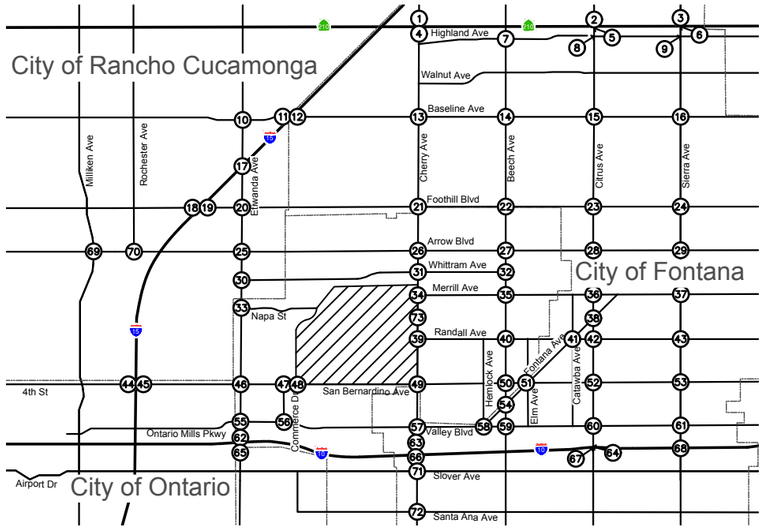
35/46 ← 882/667 ← 94/108 ← 93/208 ← 421/844 ← 297/177
39/78 → 532/681 ↑ 690/1132 ↑ 152/319 ↑
316/745 →
555/519 ↘

Note: Volumes reflect PCE adjustments.

LEGEND:
= Project Site
= Study Intersection
XX/YY = AM/PM Volumes

FIGURE 14C
OPENING YEAR 2027 PLUS PHASES 1 AND 2 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
110/97 ↙ 1582/1392 ↓ 128/189 ↖ 118/139 ← 469/715 ← 612/709	577/602 ↙ 873/1174 ↓ ↖ 595/484 ← 549/389	2/12 ↙ 2254/2454 ↓ ↖ 936/873 ← 827/580	466/474 ↙ 1168/1126 ↓ ↖ 568/646 ← 407/269	238/394 ↙ 1088/1102 ↓
190/299 → 290/967 → 170/247 ↘ 203/268 ↑ 1394/1361 ↑ 756/814 ↑	970/1289 ↑ 445/622 ↑	1193/1619 ↑ 608/436 ↑	745/1224 ↑ 272/256 ↑	407/463 → 671/392 ↘ 1216/1461 ↑ 381/562 ↑

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
1704/1412 ↙ 774/920 ↓	959/742 ↙ 659/671 ↓	920/892 ↙ 836/981 ↓ 585/571 ↘ 635/662 ← 479/519	244/132 ↙ 790/582 ↓ 134/89 ↘ 121/131 ← 1240/623 ← 181/137	302/200 ↙ 437/245 ↓ 118/97 ↘ 150/194 ← 1153/600 ← 186/76	591/471 ↙ 1274/1172 ↓ 458/422 ↘ 393/408 ← 289/198 ← 59/67	377/163 ↙ 812/1014 ↓ 147/112 ↘ 102/132 ← 24/24 ← 10/15	317/456 ↙ 41/66 ↓
462/587 → 7/48 → 691/614 ↘ 1449/1483 ↑ 541/469 ↑	340/505 → 9/8 → 478/237 ↘ 742/1020 ↑ 372/570 ↑	958/1024 → 561/512 ↘ 470/573 ↑ 817/1390 ↑ 400/523 ↑	86/265 → 471/1116 → 132/208 ↘ 197/195 ↑ 373/1644 ↑ 103/388 ↑	132/389 → 412/1044 → 77/24 ↘ 55/62 ↑ 190/886 ↑ 74/288 ↑	469/513 → 246/753 → 47/94 ↘ 31/39 ↑ 1103/1039 ↑ 62/74 ↑	287/292 → 44/55 → 90/34 ↘ 40/9 ↑ 866/693 ↑ 12/32 ↑	148/428 → 161/298 ↘ 246/344 ↑ 13/52 ↑

Note: Volumes reflect PCE adjustments.

LEGEND:
= Project Site
(X) = Study Intersection
XX/YY = AM/PM Volumes

FIGURE 14D
OPENING YEAR 2027 PLUS PHASES 1 AND 2 TRAFFIC VOLUMES

Kimley»Horn

TABLE 7
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2027 PLUS PHASES **1** AND **2** CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
1	Cherry Ave at SR-210 WB Ramps	C	S	30.6	C	34.7	C	4.1	No	31.1	C	36.7	D	5.6	No
2	Citrus Ave at SR-210 WB Ramps	C	S	26.7	C	26.7	C	0.0	No	27.3	C	27.4	C	0.1	No
3	Sierra Ave at SR-210 WB Ramps	C	S	19.9	B	20.0	B	0.1	No	16.9	B	16.9	B	0.0	No
4	Cherry Ave at SR-210 EB Ramps	C	S	24.3	C	27.6	C	3.3	No	24.1	C	28.1	C	4.0	No
5	Citrus Ave at SR-210 EB Ramps	C	S	31.7	C	31.7	C	0.0	No	31.5	C	31.7	C	0.2	No
6	Sierra Ave at SR-210 EB Ramps	C	S	18.0	B	17.9	B	-0.1	No	14.7	B	14.6	B	-0.1	No
7	Beech Ave at Highland Ave	F	S	32.1	C	32.1	C	0.0	No	34.9	C	34.9	C	0.0	No
8	Citrus Ave at Highland Ave	F	S	38.1	D	38.1	D	0.0	No	40.4	D	40.5	D	0.1	No
9	Sierra Ave at Highland Ave	F	S	33.1	C	33.1	C	0.0	No	55.1	E	56.2	E	1.1	No
10	Etiwanda Ave at Base Line Rd	RC	S	61.2	E	61.1	E	-0.1	No	40.1	D	40.0	D	-0.1	No
11	I-15 SB Ramps at Base Line Rd	C	S	21.7	C	21.8	C	0.1	No	15.1	B	15.8	B	0.7	No
12	I-15 NB Ramps at Baseline Ave	C	S	28.0	C	27.9	C	-0.1	No	34.1	C	34.2	C	0.1	No
13	Cherry Ave at Baseline Ave	F	S	39.9	D	41.2	D	1.3	No	39.6	D	43.8	D	4.2	No
14	Beech Ave at Baseline Ave	F	S	39.9	D	39.9	D	0.0	No	43.2	D	43.0	D	-0.2	No
15	Citrus Ave at Baseline Ave	F	S	55.3	E	56.8	E	1.5	No	40.0	D	40.3	D	0.3	No
16	Sierra Ave at Baseline Ave	F	S	34.2	C	34.2	C	0.0	No	35.7	D	35.9	D	0.2	No
17	Etiwanda Ave at Church St/Miller Ave	RC	S	49.8	D	49.8	D	0.0	No	44.7	D	44.4	D	-0.3	No
18	I-15 SB Ramps at Foothill Blvd	C	S	44.1	D	38.9	D	-5.2	No	34.6	C	27.7	C	-6.9	No
19	I-15 NB Ramps at Foothill Blvd	C	S	27.7	C	27.5	C	-0.2	No	22.8	C	22.8	C	0.0	No
20	Etiwanda Ave at Foothill Blvd	RC	S	47.9	D	62.6	E	14.7	Yes	44.4	D	71.3	E	26.9	Yes
21	Cherry Ave at Foothill Blvd	F/SB	S	41.5	D	43.1	D	1.6	No	47.0	D	48.4	D	1.4	No
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F	192.2	Yes	>180	F	>180	F	828.3	Yes
23	Citrus Ave at Foothill Blvd	F	S	51.5	D	52.9	D	1.4	No	57.3	E	60.0	E	2.7	Yes
24	Sierra Ave at Foothill Blvd	F	S	43.5	D	44.0	D	0.5	No	44.2	D	45.9	D	1.7	No
25	Etiwanda Ave at Arrow Rte	RC	S	43.7	D	43.1	D	-0.6	No	40.5	D	42.8	D	2.3	No

TABLE 7
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2027 PLUS PHASES **1** AND **2** CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
26	Cherry Ave at Arrow Rte	SB	S	45.5	D	54.5	D	9.0	No	62.1	E	93.9	F	31.8	Yes
27	Beech Ave at Arrow Rte	SB	S	26.9	C	29.4	C	2.5	No	23.9	C	24.1	C	0.2	No
28	Citrus Ave at Arrow Rte	F	S	49.0	D	50.9	D	1.9	No	45.0	D	46.6	D	1.6	No
29	Sierra Ave at Arrow Rte	F	S	38.0	D	38.2	D	0.2	No	37.2	D	37.1	D	-0.1	No
30	Etiwanda Ave at Whittram Ave	RC	S	25.8	C	28.3	C	2.5	No	28.8	C	43.3	D	14.5	No
31	Cherry Ave at Whittram Ave	SB	S	42.0	D	64.1	E	22.1	Yes	54.4	D	96.1	F	41.7	Yes
32	Beech Ave at Whittram Ave	SB	U	43.5	E	45.6	E	2.1	No	48.5	E	54.9	F	6.4	No
33	Etiwanda Ave at Napa St	SB	S	19.9	B	32.1	C	12.2	No	28.4	C	88.9	F	60.5	Yes
34	Cherry Ave at Merrill Ave	SB	S	26.0	C	30.4	C	4.4	No	36.0	D	73.3	E	37.3	Yes
35	Beech Ave at Merrill Ave	SB	U	37.4	E	42.7	E	5.3	Yes	50.3	F	63.1	F	12.8	Yes
36	Citrus Ave at Merrill Ave	F	S	30.4	C	30.8	C	0.4	No	31.3	C	32.0	C	0.7	No
37	Sierra Ave at Merrill Ave	F	S	40.4	D	41.0	D	0.6	No	43.1	D	45.1	D	2.0	No
38	Citrus Ave at Fontana Ave	F	S	21.2	C	22.4	C	1.2	No	23.6	C	26.4	C	2.8	No
39	Cherry Ave at Randall Ave	SB	S	37.8	D	92.3	F	54.5	Yes	40.0	D	135.9	F	95.9	Yes
40	Beech Ave at Randall Ave	SB	U	85.3	F	177.9	F	92.6	Yes	32.9	D	>180	F	170.6	Yes
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	30.1	D	57.1	F	27.0	Yes	34.8	D	125.2	F	90.4	Yes
42	Citrus Ave at Randall Ave	F	S	34.2	C	35.8	D	1.6	No	28.1	C	32.5	C	4.4	No
43	Sierra Ave at Randall Ave	F	S	29.5	C	30.7	C	1.2	No	31.9	C	34.6	C	2.7	No
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	48.3	D	50.4	D	2.1	No	58.2	E	87.5	F	29.3	Yes
45	I-15 NB Ramps at Fourth St	C	S	61.4	E	59.7	E	-1.7	No	35.6	D	37.9	D	2.4	No
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	34.5	C	36.3	D	1.8	No	37.3	D	39.3	D	2.0	No
47	Commerce Dr at San Bernardino Ave	SB	S	35.7	D	41.6	D	5.9	No	62.0	E	179.1	F	117.1	Yes
48	Vip Rd at San Bernardino Ave	SB	S	14.3	B	18.1	B	3.8	No	10.9	B	22.5	C	11.6	No
49	Cherry Ave at San Bernardino Ave	SB	S	36.3	D	45.4	D	9.1	No	48.4	D	85.8	F	37.4	Yes
50	Beech Ave at San Bernardino Ave	SB	S	32.8	C	32.9	C	0.1	No	34.9	C	35.1	D	0.2	No

TABLE 7
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2027 PLUS PHASES **1** AND **2** CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	32.4	C	32.2	C	-0.2	No	28.2	C	29.2	C	1.0	No
52	Citrus Ave at San Bernardino Ave	F	S	40.5	D	41.7	D	1.2	No	31.6	C	33.5	C	1.9	No
53	Sierra Ave at San Bernardino Ave	F	S	31.5	C	33.1	C	1.6	No	42.4	D	45.0	D	2.6	No
54	Beech Ave at Fontana Ave	F/SB	U	10.2	B	10.2	B	0.0	No	10.2	B	10.2	B	0.0	No
55	Etiwanda Ave at Valley Blvd	SB	S	27.4	C	27.0	C	-0.4	No	35.6	D	36.0	D	0.4	No
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	29.8	C	28.7	C	-1.1	No	61.8	E	61.3	E	-0.5	No
57	Cherry Ave at Valley Blvd	F/SB	S	49.5	D	50.3	D	0.8	No	53.2	D	63.1	E	9.9	Yes
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	28.7	C	28.5	C	-0.2	No	16.0	B	16.2	B	0.2	No
59	Beech Ave at Valley Blvd	F	U	91.8	F	120.8	F	29.0	Yes	>180	F	>180	F	-	Yes
60	Citrus Ave at Valley Blvd	F	S	58.4	E	65.4	E	7.0	Yes	48.1	D	52.8	D	4.7	No
61	Sierra Ave at Valley Blvd	F	S	36.4	D	36.5	D	0.1	No	60.3	E	62.0	E	1.7	No
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.9	C	23.7	C	-0.2	No	19.3	B	19.1	B	-0.2	No
63	Cherry Ave at I-10 WB Ramps	C	S	40.4	D	70.5	E	30.1	Yes	28.2	C	59.3	E	31.1	Yes
64	Citrus Ave at I-10 WB Ramps	C	S	21.5	C	21.9	C	0.4	No	19.1	B	20.1	C	1.0	No
65	Etiwanda Ave at I-10 EB Ramps	C	S	30.8	C	30.5	C	-0.3	No	18.6	B	19.6	B	1.0	No
66	Cherry Ave at I-10 EB Ramps	C	S	38.9	D	46.4	D	7.5	No	39.6	D	50.7	D	11.1	No
67	Citrus Ave at I-10 EB Ramps	C	S	35.6	D	35.9	D	0.3	No	32.1	C	33.5	C	1.4	No
68	Sierra Ave at I-10 EB/WB Ramps	C	S	28.5	C	28.7	C	0.2	No	69.7	E	75.2	E	5.5	Yes
69	Milliken Ave at Arrow Rte	RC	S	39.5	D	39.6	D	0.1	No	42.6	D	44.1	D	1.5	No
70	Rochester Ave at Arrow Rte	RC	S	37.5	D	37.4	D	-0.1	No	40.5	D	41.0	D	0.5	No
71	Cherry Ave at Slover Ave	F	S	36.8	D	37.5	D	0.7	No	37.8	D	38.2	D	0.4	No
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F	-	Yes	>180	F	>180	F	-	Yes
73	Cherry Ave at Street A	SB	S	-	-	36.1	D	-	-	-	-	37.1	D	-	-

- Bold values indicate intersections operating at an unacceptable Level of Service

- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

HORIZON YEAR 2040 CONDITIONS

To derive the Horizon Year 2040 intersection turning movement forecasts, the San Bernardino Transportation Analysis Model (SBTAM) Base Year 2012 and Build-out Year 2040 future traffic projections were used. The raw volumes obtained from the model output were post- processed by determining the annual growth between the base model year (2012) and the future model year (2040) and applying the growth increment to existing count volumes. This was accomplished using the B- Turns methodology, developed by the Federal Highway Administration (FHWA). As a conservative approach, if a turning movement volume produced by this process was less than the Opening Year 2027 forecast volume for that movement, manual adjustments were made to assure that all forecast build-out year volumes would not be less than the Opening Year 2027 forecast volumes. The SBTAM Model plots and B-Turns worksheets are provided in *Appendix E.* The resulting traffic volumes for Horizon Year 2040 condition are shown on Figure 15.

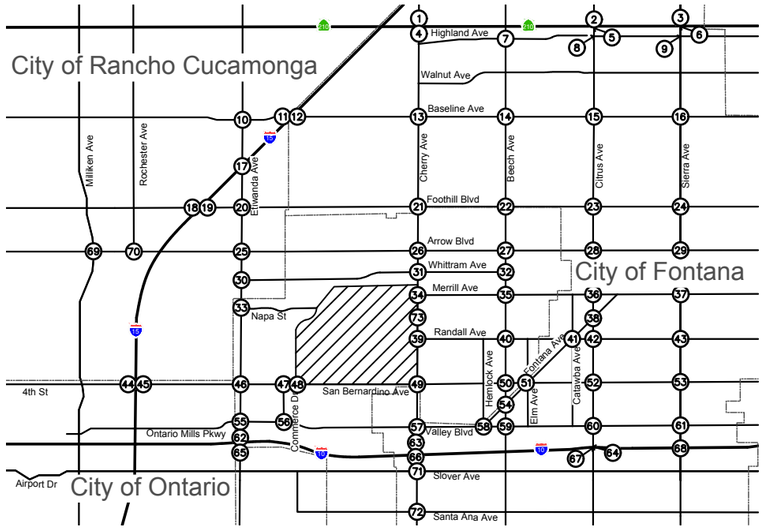
Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Horizon Year 2040 condition. The results are shown on Table 8. Copies of intersection analysis worksheets are provided in *Appendix D*.

Review of this table indicates that, under Horizon Year 2040 conditions, the following intersections would operate at an unacceptable Level of Service:

- #10 – Etiwanda Ave at Base Line Rd: AM – LOS E
- #21 – Cherry Ave at Foothill Blvd: PM – LOS E
- #22 – Beech Ave at Foothill Blvd: AM – LOS F; PM – LOS F
- #23 – Citrus Ave at Foothill Blvd: PM – LOS F
- #24 – Sierra Ave at Foothill Blvd: PM – LOS E
- #25 – Etiwanda Ave at Arrow Rte: AM – LOS E; PM – LOS F
- #26 – Cherry Ave at Arrow Rte: PM – LOS E
- #28 – Citrus Ave at Arrow Rte: AM – LOS E
- #31 – Cherry Ave at Whittram Ave: PM – LOS E
- #32 – Beech Ave at Whittram Ave: AM – LOS F; PM – LOS F
- #34 – Cherry Ave at Merrill Ave: PM – LOS E
- #35 – Beech Ave at Merrill Ave: AM – LOS F; PM – LOS F
- #40 – Beech Ave at Randall Ave: AM – LOS F; PM – LOS F
- #41 – Fontana Ave/Catawba Ave at Randall Ave: AM – LOS F; PM – LOS F
- #47 – Commerce Dr at San Bernardino Ave: PM – LOS E
- #54 – Beech Ave at Fontana Ave: AM – LOS F; PM – LOS F
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd: PM – LOS E
- #57 – Cherry Ave at Valley Blvd: PM – LOS E
- #59 – Beech Ave at Valley Blvd: AM – LOS F; PM – LOS F
- #60 – Citrus Ave at Valley Blvd: AM – LOS E

- #68 – Sierra Ave at I-10EB/WB Ramps: PM – LOS E
- #70 – Rochester Ave at Arrow Rte: AM – LOS F; PM – LOS F
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
224/253 917/680 331/204 4/0 420/347 200/353 489/822	398/460 925/857 439/372 1/0 477/389 338/362 1029/1187	1212/1404 373/448 580/337 1006/1273	981/819 228/121 253/288 7/3 344/418 533/854 379/366	1052/779 338/287 460/578 450/385 921/1173 464/308

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
26/0 1454/1465 299/333 619/458 1066/1592 899/1202	110/60 632/524 62/112 68/92 323/275 149/133 131/73 237/432 118/146 74/66 727/588 109/161	189/119 1064/715 428/329 294/441 315/435 114/177 241/245 269/480 59/81 102/73 825/852 99/92	492/318 1340/1207 245/400 223/396 395/347 23/132 326/551 362/526 270/162 339/172 1082/1482 67/118	288/71 344/113 165/55 266/58 1377/787 291/169 120/104 649/1286 113/170 133/122 306/193 134/231	1297/633 411/289 1060/625 1088/1642 264/189	219/269 1954/1061 396/627 652/1074 363/445 3/0 427/853	492/113 959/537 77/120 74/68 1527/687 497/390 260/394 562/1263 183/141 107/232 661/1079 219/418

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
221/101 434/413 114/179 120/150 695/672 105/150 148/236 507/1129 61/129 95/170 432/542 25/61	281/134 864/496 139/188 114/77 1060/625 177/202 318/345 1048/1701 122/129 144/106 642/682 823/97	122/76 1228/814 250/335 218/263 640/791 141/139 115/161 460/804 122/131 192/151 923/1259 81/100	142/108 444/315 85/39 77/38 520/287 130/53 97/153 279/500 149/187 158/149 280/321 163/146	951/600 194/229 1774/1526 693/2163 894/1046	257/362 1480/1401 640/1415 978/819 553/521	296/174 419/251 57/69 129/53 1399/957 383/140 118/266 558/1164 282/287 223/382 236/400 76/224

Note: Volumes reflect PCE adjustments.

LEGEND:

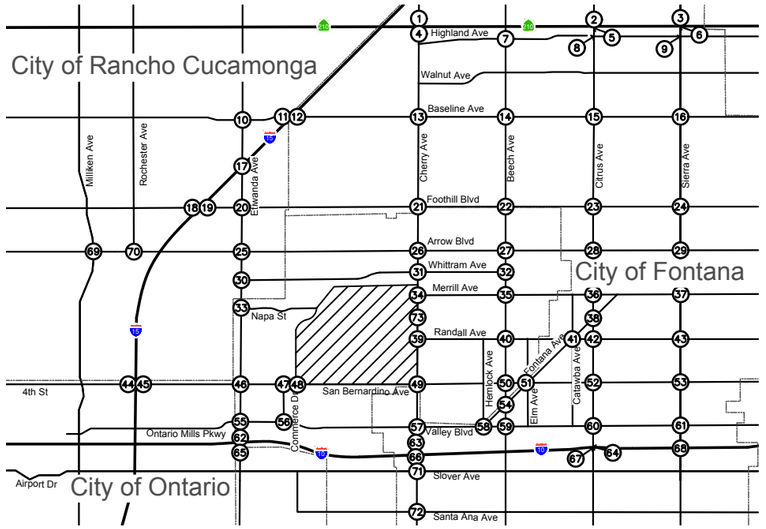
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 15A
HORIZON YEAR 2040 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

21. Cherry Ave at Foothill Blvd

227/219 ↖ 960/855 ← 184/315 ↗		110/138 ↑ 1306/635 ← 337/200 ↖
206/288 ↗ 468/1137 → 204/236 ↘	380/461 ↑ 575/1014 ↑ 172/285 ↑	

22. Beech Ave at Foothill Blvd

		1728/887 ← 282/195 ↖
725/1511 → 123/226 ↘	108/214 ↑	202/211 ↑

23. Citrus Ave at Foothill Blvd

181/80 ↖ 813/618 ← 151/189 ↖		107/154 ↑ 998/647 ← 365/444 ↖
167/287 ↗ 502/1101 → 128/198 ↘	160/155 ↑ 586/758 ↑ 120/152 ↑	

24. Sierra Ave at Foothill Blvd

143/156 ↖ 996/750 ← 216/220 ↖		169/181 ↑ 811/615 ← 233/287 ↖
239/227 ↗ 434/958 → 125/199 ↘	129/160 ↑ 722/1095 ↑ 138/230 ↑	

25. Etiwanda Ave at Arrow Rte

439/128 ↖ 519/353 ← 163/192 ↖		167/180 ↑ 1753/973 ← 277/177 ↖
104/391 ↗ 848/1737 → 209/457 ↘	398/216 ↑ 246/751 ↑ 65/240 ↑	

26. Cherry Ave at Arrow Rte

106/115 ↖ 1220/1160 ← 59/103 ↖		87/67 ↑ 763/607 ← 221/160 ↖
81/95 ↗ 437/758 → 104/123 ↘	136/162 ↑ 1033/1374 ↑ 168/310 ↑	

27. Beech Ave at Arrow Rte

137/42 ↖ 260/368 ← 24/34 ↖		45/56 ↑ 780/510 ← 189/142 ↖
68/73 ↗ 397/830 → 65/117 ↘	107/124 ↑ 260/345 ↑ 156/276 ↑	

28. Citrus Ave at Arrow Rte

178/90 ↖ 888/817 ← 108/155 ↖		160/103 ↑ 596/390 ← 262/164 ↖
90/111 ↗ 297/779 → 123/237 ↘	268/222 ↑ 714/968 ↑ 233/191 ↑	

29. Sierra Ave at Arrow Rte

94/141 ↖ 988/824 ← 76/121 ↖		72/59 ↑ 592/353 ← 79/75 ↖
94/183 ↗ 453/535 → 92/142 ↘	112/125 ↑ 837/1135 ↑ 43/65 ↑	

30. Etiwanda Ave at Whittram Ave

941/769 ↖ 89/220 ↖		153/107 ↑ 262/225 ↖
	572/1053 ↑ 171/317 ↑	

31. Cherry Ave at Whittram Ave

103/69 ↖ 1300/1113 ← 39/43 ↖		76/82 ↑ 152/75 ← 169/139 ↖
34/105 ↗ 34/158 → 224/379 ↘	251/160 ↑ 1239/1769 ↑ 148/125 ↑	

32. Beech Ave at Whittram Ave

125/46 ↖ 421/642 ↖		
64/90 ↗ 74/185 ↘	150/99 ↑ 487/681 ↑	

33. Etiwanda Ave at Napa St

1/0 ↖ 1074/939 ← 113/206 ↖		129/131 ↑ 204/223 ↖
0/6 ↗ 2/34 ↘	1/0 ↑ 849/1216 ↑ 298/155 ↑	

34. Cherry Ave at Merrill Ave

0/1 ↖ 1490/1168 ← 146/372 ↖		419/258 ↑ 169/137 ↖
0/1 →	3/1 ↑ 1155/1809 ↑ 142/234 ↑	

35. Beech Ave at Merrill Ave

132/92 ↖ 241/346 ← 65/223 ↖		210/159 ↑ 397/296 ← 84/36 ↖
159/235 ↗ 143/278 → 79/51 ↘	75/49 ↑ 251/360 ↑ 65/65 ↑	

36. Citrus Ave at Merrill Ave

117/112 ↖ 1077/896 ← 68/87 ↖		115/152 ↑ 265/235 ← 52/40 ↖
165/156 ↗ 186/331 → 54/78 ↘	74/62 ↑ 835/1046 ↑ 32/50 ↑	

37. Sierra Ave at Merrill Ave

64/94 ↖ 1141/935 ← 51/82 ↖		58/55 ↑ 418/310 ← 150/124 ↖
71/124 ↗ 387/512 → 106/115 ↘	65/131 ↑ 794/1197 ↑ 102/184 ↑	

38. Citrus Ave at Fontana Ave

361/297 ↖ 979/767 ← 26/41 ↖		40/24 ↑ 220/188 ← 88/57 ↖
230/352 ↗ 168/370 → 17/16 ↘	47/32 ↑ 724/974 ↑ 84/77 ↑	

39. Cherry Ave at Randall Ave

26/18 ↖ 1402/1140 ← 205/227 ↖		152/193 ↑ 97/116 ← 248/185 ↖
15/20 ↗ 124/108 → 96/99 ↘	128/162 ↑ 1123/1824 ↑ 116/183 ↑	

40. Beech Ave at Randall Ave

110/43 ↖ 302/336 ← 7/45 ↖		44/47 ↑ 296/271 ← 44/19 ↖
66/77 ↗ 258/327 → 28/48 ↘	28/31 ↑ 290/376 ↑ 58/24 ↑	

Note: Volumes reflect PCE adjustments.

LEGEND:

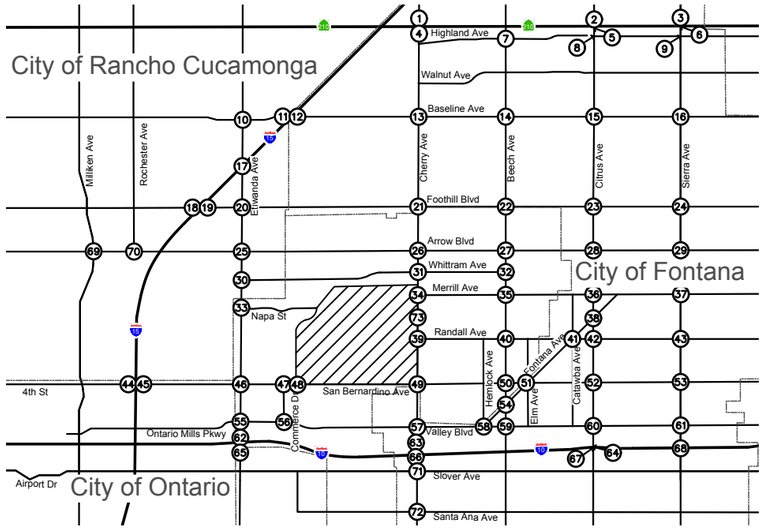
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 15B
HORIZON YEAR 2040 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

41. Fontana Ave/ Catawba Ave at Randall Ave

42/23 436/320 76/38 | 65/50 138/106 43/46
76/59 211/275 104/53 | 31/28 253/291 122/81
17/21 74/269 27/45 | 71/65 242/444 154/109

42. Citrus Ave at Randall Ave

64/29 951/710 117/96 | 95/71 163/235 140/64
92/24 183/239 193/104 | 166/105 662/979 220/130

43. Sierra Ave at Randall Ave

48/78 1276/923 30/118 | 75/96 253/203 195/153
73/93 247/302 136/104 | 55/111 876/1336 64/182

44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St

991/598 276/316 166/131 | 330/394 1395/683 150/170
336/915 452/1261 66/105 | 96/133 58/233 86/434

45. I-15 NB Ramps at Fourth St

1070/402 55/47 424/179 | 106/165 372/381 34/41
286/755 468/367 28/71 | 49/83 28/54 38/51

46. Etiwanda Ave at Fourth St/San Bernardino Ave

196/223 1010/893 69/185 | 82/108 502/354 217/138
194/257 196/767 103/358 | 298/199 894/967 97/109

47. Commerce Dr at San Bernardino Ave

0/1 9/0 12/4 | 5/4 808/378 381/247
1/0 260/1147 37/50 | 87/87 3/3 285/612

48. Vip Rd at San Bernardino Ave

149/153 | 1/0 1059/511
505/1569 |

49. Cherry Ave at San Bernardino Ave

432/253 1143/1027 111/100 | 110/88 457/206 237/108
263/606 90/874 158/361 | 141/73 1096/1312 122/187

50. Beech Ave at San Bernardino Ave

88/80 285/276 50/45 | 74/39 456/298 18/21
67/87 248/703 90/47 | 67/97 217/357 7/57

51. Fontana Ave/Elm St at San Bernardino Ave

94/45 439/296 127/52 | 19/12 105/58 89/71 | 37/48 189/207 33/43
93/301 179/450 34/60 | 88/70 157/410 40/85
11/26 40/170 14/17

52. Citrus Ave at San Bernardino Ave

71/28 911/694 122/68 | 318/92 172/246 157/86
151/59 134/392 75/72 | 130/194 691/1108 192/111

53. Sierra Ave at San Bernardino Ave

116/70 1414/1007 15/79 | 46/94 344/317 289/260
42/156 212/382 95/154 | 57/206 866/1262 181/412

54. Beech Ave at Fontana Ave

50/26 381/363 24/4 | 25/50 263/86 386/244
24/55 138/337 7/11 | 7/0 221/426 86/330

55. Etiwanda Ave at Valley Blvd

48/34 1182/1319 56/138 | 128/122 251/281 320/198
28/84 360/523 143/381 | 327/288 1213/1211 103/252

56. Commerce Dr/ I-15 Ramps at Valley Blvd

47/73 430/855 9/12 | 34/80 478/496 503/804
20/143 120/496 46/334 | 133/245 315/803 446/754

57. Cherry Ave at Valley Blvd

87/75 1405/1219 118/112 | 96/166 375/407 567/638
96/199 130/506 299/396 | 522/277 1233/1194 425/889

58. Fontana Ave/ Hemlock Ave at Valley Blvd

11/6 10/7 218/107 | 75/174 610/559 18/11
202/21 10/4 150/49 | 9/15 10/9 30/30
163/460 390/1196 13/16

59. Beech Ave at Valley Blvd

146/219 442/0 162/360 | 130/167 678/571 238/265
59/325 448/1125 321/551 | 187/211 96/275 229/422

60. Citrus Ave at Valley Blvd

35/46 882/655 94/108 | 99/208 421/844 465/177
39/78 316/1189 520/454 | 492/619 681/1120 161/319

Note: Volumes reflect PCE adjustments.

LEGEND:

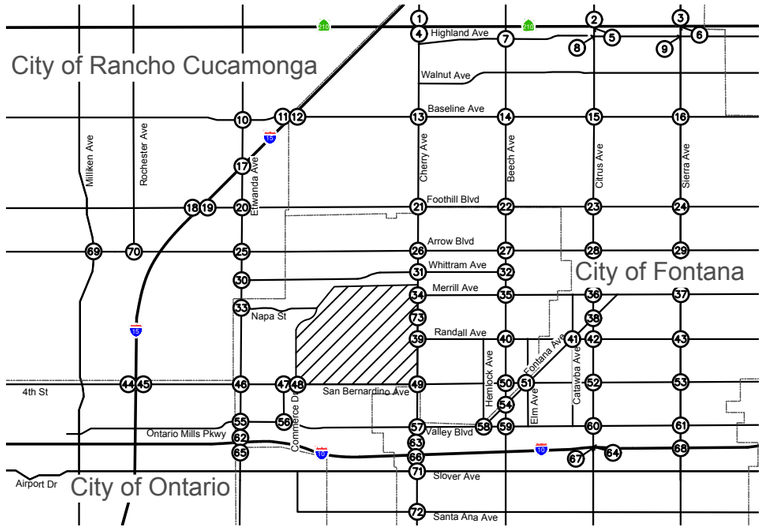
= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 15C
HORIZON YEAR 2040 TRAFFIC VOLUMES

Kimley»Horn



NOT TO SCALE

61. Sierra Ave at Valley Blvd	62. Etiwanda Ave at I-10 WB Off-Ramps	63. Cherry Ave at I-10 WB Ramps	64. Citrus Ave at I-10 WB Ramps	65. Etiwanda Ave at I-10 EB Ramps
132/102 ↙ 1600/1363 ↓ 128/177 ↖ 109/127 ← 469/715 ← 612/709	655/819 ↙ 1012/1210 ↓ ↖ 595/484 ← 637/585	2082/2172 ↙ ↖ 808/633 ← 949/581	466/474 ↙ 1133/1049 ↓ ↖ 529/584 ← 407/269	238/394 ↙ 1366/1344 ↓ 308/344 ↗ 671/439 ↘
203/333 ↗ 290/967 → 191/247 ↘ 222/288 ↑ 1373/1361 ↑ 756/814 ↑	1092/1505 ↑ 445/622 ↑	1164/1679 ↑ 608/436 ↑	736/1212 ↑ 272/256 ↑	1329/1713 ↑ 381/562 ↑

66. Cherry Ave at I-10 EB Ramps	67. Citrus Ave at I-10 EB Ramps	68. Sierra Ave at I-10 EB/WB Ramps	69. Milliken Ave at Arrow Rte	70. Rochester Ave at Arrow Rte	71. Cherry Ave at Slover Ave	72. Cherry Ave at Santa Ana Ave	73. Cherry Ave at Street A
1701/1352 ↙ 609/759 ↓	959/730 ↙ 624/606 ↓	920/892 ↙ 984/969 ↓ 610/554 ↘ 665/706 ← 493/540	254/132 ↙ 920/598 ↓ 132/77 ↘ 121/119 ← 1240/611 ← 181/125	302/200 ↙ 437/245 ↓ 444/344 ↘ 326/509 ← 1498/762 ← 310/117	613/459 ↙ 1531/1277 ↓ 458/422 ↘ 393/408 ← 289/198 ← 68/71	377/151 ↙ 812/1002 ↓ 142/107 ↘ 144/127 ← 70/50 ← 31/36	FUTURE INTERSECTION
543/741 ↗ 8/75 → 691/630 ↘ 1403/1423 ↑ 541/533 ↑	340/505 ↗ 9/8 → 478/237 ↘ 733/1008 ↑ 372/570 ↑	958/1024 ↗ 561/512 ↘ 470/573 ↑ 808/1426 ↑ 400/523 ↑	86/265 ↗ 462/1104 → 132/208 ↘ 197/195 ↑ 373/1644 ↑ 94/376 ↑	132/389 ↗ 757/1463 → 77/24 ↘ 55/62 ↑ 190/886 ↑ 187/503 ↑	460/540 ↗ 246/753 → 52/117 ↘ 37/50 ↑ 1144/1279 ↑ 67/86 ↑	278/280 ↗ 62/122 → 106/45 ↘ 54/12 ↑ 857/681 ↑ 20/87 ↑	

Note: Volumes reflect PCE adjustments.

LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 15D
HORIZON YEAR 2040 TRAFFIC VOLUMES

Kimley»Horn

TABLE 8
SUMMARY OF INTERSECTION OPERATION
HORIZON YEAR 2040 CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Cherry Ave at SR-210 WB Ramps	C	S	29.1	C	29.2	C
2	Citrus Ave at SR-210 WB Ramps	C	S	28.3	C	26.2	C
3	Sierra Ave at SR-210 WB Ramps	C	S	19.4	B	16.3	B
4	Cherry Ave at SR-210 EB Ramps	C	S	25.2	C	24.9	C
5	Citrus Ave at SR-210 EB Ramps	C	S	29.0	C	31.3	C
6	Sierra Ave at SR-210 EB Ramps	C	S	18.6	B	15.7	B
7	Beech Ave at Highland Ave	F	S	33.6	C	36.1	D
8	Citrus Ave at Highland Ave	F	S	37.9	D	41.3	D
9	Sierra Ave at Highland Ave	F	S	35.2	D	50.5	D
10	Etiwanda Ave at Base Line Rd	RC	S	60.2	E	40.1	D
11	I-15 SB Ramps at Base Line Rd	C	S	26.7	C	19.2	B
12	I-15 NB Ramps at Baseline Ave	C	S	27.7	C	33.8	C
13	Cherry Ave at Baseline Ave	F	S	38.5	D	39.5	D
14	Beech Ave at Baseline Ave	F	S	39.0	D	42.8	D
15	Citrus Ave at Baseline Ave	F	S	54.0	D	41.3	D
16	Sierra Ave at Baseline Ave	F	S	33.6	C	36.6	D
17	Etiwanda Ave at Church St/Miller Ave	RC	S	45.9	D	43.2	D
18	I-15 SB Ramps at Foothill Blvd	C	S	31.4	C	20.5	C
19	I-15 NB Ramps at Foothill Blvd	C	S	24.4	C	22.1	C
20	Etiwanda Ave at Foothill Blvd	RC	S	42.6	D	49.7	D
21	Cherry Ave at Foothill Blvd	F/SB	S	49.7	D	61.6	E
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F
23	Citrus Ave at Foothill Blvd	F	S	48.3	D	80.3	F
24	Sierra Ave at Foothill Blvd	F	S	44.0	D	58.9	E
25	Etiwanda Ave at Arrow Rte	RC	S	72.4	E	161.2	F
26	Cherry Ave at Arrow Rte	SB	S	48.3	D	68.8	E
27	Beech Ave at Arrow Rte	SB	S	25.4	C	28.4	C
28	Citrus Ave at Arrow Rte	F	S	57.6	E	45.5	D
29	Sierra Ave at Arrow Rte	F	S	35.7	D	38.0	D
30	Etiwanda Ave at Whittram Ave	RC	S	24.7	C	37.5	D

TABLE 8
SUMMARY OF INTERSECTION OPERATION
HORIZON YEAR 2040 CONDITIONS

31	Cherry Ave at Whittram Ave	SB	S	37.6	D	59.4	E
32	Beech Ave at Whittram Ave	SB	U	90.2	F	>180	F
33	Etiwanda Ave at Napa St	SB	S	18.5	B	26.4	C
34	Cherry Ave at Merrill Ave	SB	S	30.9	C	60.3	E
35	Beech Ave at Merrill Ave	SB	U	93.4	F	>180	F
36	Citrus Ave at Merrill Ave	F	S	30.4	C	30.7	C
37	Sierra Ave at Merrill Ave	F	S	40.1	D	42.8	D
38	Citrus Ave at Fontana Ave	F	S	31.7	C	34.2	C
39	Cherry Ave at Randall Ave	SB	S	34.8	C	38.1	D
40	Beech Ave at Randall Ave	SB	U	95.9	F	123.8	F
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	150.1	F	156.5	F
42	Citrus Ave at Randall Ave	F	S	34.0	C	27.9	C
43	Sierra Ave at Randall Ave	F	S	30.9	C	35.5	D
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	43.9	D	53.0	D
45	I-15 NB Ramps at Fourth St	C	S	49.3	D	38.6	D
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	35.2	D	37.4	D
47	Commerce Dr at San Bernardino Ave	SB	S	30.5	C	61.6	E
48	Vip Rd at San Bernardino Ave	SB	U	16.2	C	11.3	B
49	Cherry Ave at San Bernardino Ave	SB	S	36.3	D	45.0	D
50	Beech Ave at San Bernardino Ave	SB	S	32.5	C	37.4	D
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	40.2	D	49.5	D
52	Citrus Ave at San Bernardino Ave	F	S	38.6	D	32.5	C
53	Sierra Ave at San Bernardino Ave	F	S	30.8	C	40.9	D
54	Beech Ave at Fontana Ave	F/SB	U	147.2	F	>180	F
55	Etiwanda Ave at Valley Blvd	SB	S	31.3	C	37.7	D
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	32.5	C	71.3	E
57	Cherry Ave at Valley Blvd	F/SB	S	43.8	D	70.0	E
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	37.3	D	15.5	B
59	Beech Ave at Valley Blvd	F	U	>180	F	>180	F
60	Citrus Ave at Valley Blvd	F	S	61.3	E	45.6	D
61	Sierra Ave at Valley Blvd	F	S	34.9	C	52.3	D
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.2	C	22.0	C

TABLE 8
SUMMARY OF INTERSECTION OPERATION
HORIZON YEAR 2040 CONDITIONS

63	Cherry Ave at I-10 WB Ramps	C	S	32.5	C	26.5	C
64	Citrus Ave at I-10 WB Ramps	C	S	21.1	C	18.6	B
65	Etiwanda Ave at I-10 EB Ramps	C	S	30.9	C	20.4	C
66	Cherry Ave at I-10 EB Ramps	C	S	34.3	C	44.7	D
67	Citrus Ave at I-10 EB Ramps	C	S	33.5	C	30.4	C
68	Sierra Ave at I-10 EB/WB Ramps	C	S	28.9	C	69.8	E
69	Milliken Ave at Arrow Rte	RC	S	37.1	D	39.5	D
70	Rochester Ave at Arrow Rte	RC	S	88.7	F	87.2	F
71	Cherry Ave at Slover Ave	F	S	32.0	C	36.9	D
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

HORIZON YEAR 2040 PLUS PROJECT CONDITIONS

Project-related traffic was added to the Horizon Year 2040 traffic volumes. Horizon Year 2040 Plus Project traffic volumes at the study intersections are shown on Figure 16.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Horizon Year 2040 Plus Project condition. The results are shown on Table 9. Copies of intersection analysis worksheets are provided in *Appendix D*.

Review of this table indicates that, with the addition of project traffic, the following intersection(s) would operate at an unacceptable Level of Service:

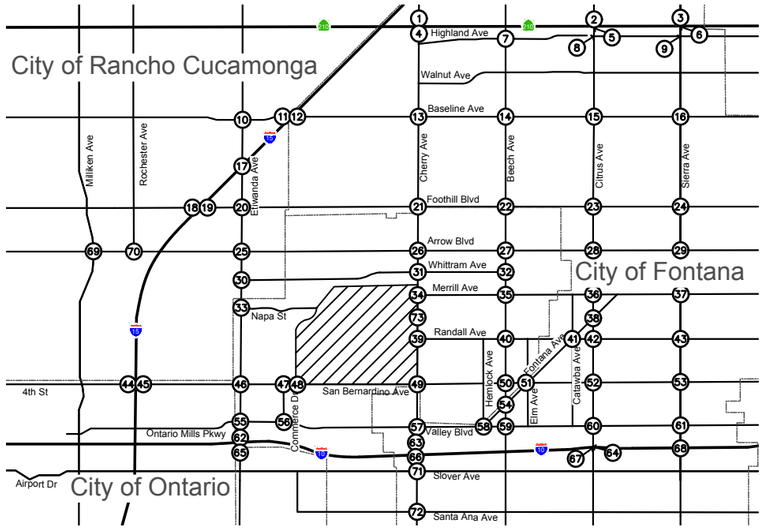
- #10 – Etiwanda Ave at Base Line Rd: AM – LOS E
- #15 – Citrus Ave at Baseline Ave: AM – LOS E
- #20 – Etiwanda Ave at Foothill Blvd: PM – LOS F
- #21 – Cherry Ave at Foothill Blvd: PM – LOS E
- #22 – Beech Ave at Foothill Blvd: AM – LOS F; PM – LOS F
- #23 – Citrus Ave at Foothill Blvd: PM – LOS F
- #24 – Sierra Ave at Foothill Blvd: PM – LOS E
- #25 – Etiwanda Ave at Arrow Rte: AM – LOS E; PM – LOS F
- #26 – Cherry Ave at Arrow Rte: AM – LOS E; PM – LOS F
- #28 – Citrus Ave at Arrow Rte: AM – LOS E
- #30 – Etiwanda Ave at Whittram Ave: PM – LOS E
- #31 – Cherry Ave at Whittram Ave: PM – LOS F
- #32 – Beech Ave at Whittram Ave: AM – LOS F; PM – LOS F
- #33 – Etiwanda Ave at Napa St: PM – LOS F
- #34 – Cherry Ave at Merrill Ave: PM – LOS F
- #35 – Beech Ave at Merrill Ave: AM – LOS F; PM – LOS F
- #39 – Cherry Ave at Randall Ave: PM – LOS F
- #40 – Beech Ave at Randall Ave: AM – LOS F; PM – LOS F
- #41 – Fontana Ave/Catawba Ave at Randall Ave: AM – LOS F; PM – LOS F
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St: PM – LOS E
- #47 – Commerce Dr at San Bernardino Ave: PM – LOS F
- #49 – Cherry Ave at San Bernardino Ave: PM – LOS E
- #51 – Fontana Ave/Elm Ave at San Bernardino Ave: PM – LOS E
- #54 – Beech Ave at Fontana Ave: AM – LOS F; PM – LOS F
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd: PM – LOS F
- #57 – Cherry Ave at Valley Blvd: PM – LOS E
- #59 – Beech Ave at Valley Blvd: AM – LOS F; PM – LOS F
- #60 – Citrus Ave at Valley Blvd: AM – LOS E
- #66 – Cherry Ave at I-10 EB Ramps: PM – LOS E

- #68 – Sierra Ave at I-10EB/WB Ramps: PM – LOS E
- #70 – Rochester Ave at Arrow Rte: AM – LOS F; PM – LOS F
- #72 – Cherry Ave at Santa Ana Ave: AM – LOS F; PM – LOS F

Based on the County standards presented earlier in this report, the Phases 1 and 2 project-related effect would be considered to have a cumulative effect at the following intersections under Horizon Year 2040 Plus Project conditions:

- #15 – Citrus Ave at Baseline Ave
- #20 – Etiwanda Ave at Foothill Blvd
- #23 – Citrus Ave at Foothill Blvd
- #24 – Sierra Ave at Foothill Blvd
- #25 – Etiwanda Ave at Arrow Rte
- #26 – Cherry Ave at Arrow Rte
- #30 – Etiwanda Ave at Whittram Ave
- #31 – Cherry Ave at Whittram Ave
- #32 – Beech Ave at Whittram Ave
- #33 – Etiwanda Ave at Napa St
- #34 – Cherry Ave at Merrill Ave
- #35 – Beech Ave at Merrill Ave
- #39 – Cherry Ave at Randall Ave
- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
- #47 – Commerce Dr at San Bernardino Ave
- #49 – Cherry Ave at San Bernardino Ave
- #51 – Fontana Ave/Elm Ave at San Bernardino Ave
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd
- #57 – Cherry Ave at Valley Blvd
- #60 – Citrus Ave at Valley Blvd
- #66 – Cherry Ave at I-10 EB Ramps
- #68 – Sierra Ave at I-10 EB/WB Ramps
- #70 – Rochester Ave at Arrow Rte
- #72 – Cherry Ave at Santa Ana Ave

Recommended improvements to address the project-related effects are presented in the Recommended Improvements section of this report. Copies of intersection analysis worksheets are provided in *Appendix D*.



NOT TO SCALE

1. Cherry Ave at SR-210 WB Ramps	2. Citrus Ave at SR-210 WB Ramps	3. Sierra Ave at SR-210 WB Ramps	4. Cherry Ave at SR-210 EB Ramps	5. Citrus Ave at SR-210 EB Ramps
224/253 ↙ 926/692 ↓ 331/204 ↖ 4/0 ← 505/477 ↖ 234/409 ↑ 489/834 ↑	398/460 ↙ 934/869 ↓ 439/372 ↖ 1/0 ← 486/401 ↖ 338/362 ↑ 1029/1199 ↑	1221/1416 ← 373/448 ↖ 585/344 ↖ 1006/1285 ↑	1075/961 ↙ 228/121 ↙ 253/288 ↗ 7/3 → 392/488 ↘ 567/922 ↑ 453/473 ↑	1070/803 ↙ 338/287 ↙ 460/578 ↗ 450/385 ↘ 921/1185 ↑ 467/320 ↑

6. Sierra Ave at SR-210 EB Ramps	7. Beech Ave at Highland Ave	8. Citrus Ave at Highland Ave	9. Sierra Ave at Highland Ave	10. Etiwanda Ave at Base Line Rd	11. I-15 SB Ramps at Base Line Rd	12. I-15 NB Ramps at Base Line Rd	13. Cherry Ave at Baseline Ave
26/41 ↙ 1468/1484 ↓ 299/333 ↗ 619/458 ↘ 1066/1604 ↑ 900/1208 ↑	110/60 ↙ 632/524 ↓ 62/112 ↙ 68/92 ↖ 323/275 ← 149/133 ↖ 131/73 ↗ 237/432 → 118/146 ↘ 74/66 ↑ 727/588 ↑ 109/161 ↑	189/119 ↙ 1082/739 ↓ 428/329 ↙ 294/441 ↖ 315/435 ← 114/177 ↖ 241/245 ↗ 269/480 → 59/81 ↘ 102/73 ↑ 828/876 ↑ 99/92 ↑	492/318 ↙ 1354/1226 ↓ 245/400 ↙ 223/396 ↖ 395/347 ← 23/132 ↖ 326/551 ↗ 362/526 → 270/162 ↘ 339/172 ↑ 1083/1500 ↑ 67/118 ↑	288/71 ↙ 353/125 ↓ 165/55 ↙ 266/58 ↖ 1377/787 ← 291/169 ↖ 120/104 ↗ 649/1286 → 122/182 ↘ 133/134 ↑ 306/205 ↑ 134/231 ↑	1297/633 ↙ 433/326 ↓ 1060/625 ← 1088/1642 → 264/189 ↘	253/303 ↖ 1954/1061 ← 396/627 ↗ 674/1111 → 363/445 ↑ 3/0 ↑ 427/853 ↑	492/113 ↙ 1101/749 ↓ 77/120 ↙ 74/68 ↖ 1527/687 ← 577/503 ↖ 260/394 ↗ 562/1263 → 205/178 ↘ 141/266 ↑ 769/1254 ↑ 227/529 ↑

14. Beech Ave at Baseline Ave	15. Citrus Ave at Baseline Ave	16. Sierra Ave at Baseline Ave	17. Etiwanda Ave at Church St/Miller Ave	18. I-15 SB Ramps at Foothill Blvd	19. I-15 NB Ramps at Foothill Blvd	20. Etiwanda Ave at Foothill Blvd
221/101 ↙ 434/413 ↓ 114/179 ↙ 120/150 ↖ 758/757 ← 105/150 ↖ 148/236 ↗ 510/1211 → 61/129 ↘ 95/170 ↑ 432/542 ↑ 25/61 ↑	299/158 ↙ 864/496 ↓ 139/188 ↙ 114/77 ↖ 1096/674 ← 185/218 ↖ 320/368 ↗ 1049/1749 → 122/129 ↘ 144/106 ↑ 642/684 ↑ 828/115 ↑	140/101 ↙ 1233/820 ↓ 250/335 ↙ 218/263 ↖ 649/803 ← 141/139 ↖ 116/186 ↗ 460/816 → 122/131 ↘ 192/151 ↑ 923/1264 ↑ 81/100 ↑	142/108 ↙ 462/339 ↓ 85/39 ↙ 77/38 ↖ 520/287 ← 131/55 ↖ 97/153 ↗ 279/500 → 149/187 ↘ 158/149 ↑ 280/345 ↑ 163/148 ↑	951/600 ↙ 288/366 ↓ 1784/1567 ← 720/2203 → 894/1046 ↘	318/479 ↖ 1490/1442 ← 761/1592 → 978/819 ↑ 553/521 ↑	296/174 ↙ 438/277 ↓ 57/69 ↙ 129/53 ↖ 1399/957 ← 384/142 ↖ 118/266 ↗ 558/1164 → 403/464 ↘ 294/540 ↑ 236/426 ↑ 76/226 ↑

Note: Volumes reflect PCE adjustments.

LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 16A
HORIZON YEAR 2040 PLUS PROJECT TRAFFIC VOLUMES

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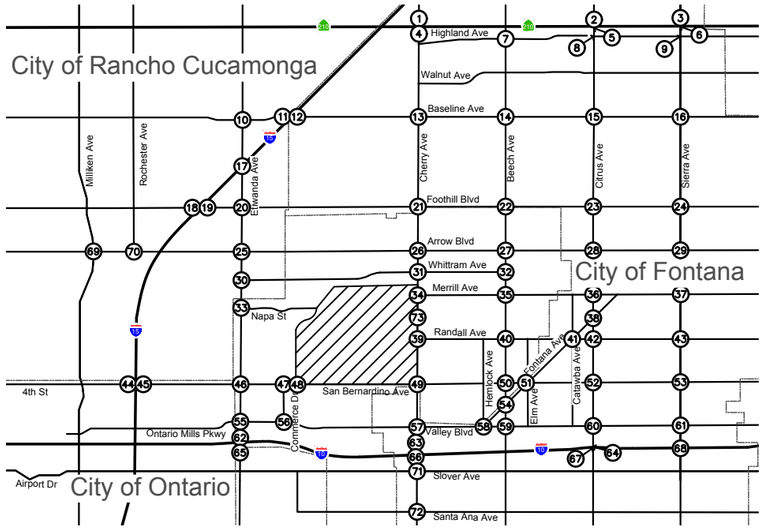


NOT TO SCALE

21. Cherry Ave at Foothill Blvd	22. Beech Ave at Foothill Blvd	23. Citrus Ave at Foothill Blvd	24. Sierra Ave at Foothill Blvd	25. Etiwanda Ave at Arrow Rte
228/221 ↙ 1219/1242 ← 184/315 ↖ 206/290 ↗ 468/1137 → 204/236 ↘ 380/461 ↑ 731/1359 ↑ 177/342 ↑ 110/138 ↖ 1306/635 ← 380/257 ↖	1771/944 ← 290/211 ↖ 730/1568 → 123/226 ↘ 108/214 ↑ 207/228 ↑	181/80 ↙ 821/634 ← 151/189 ↖ 167/287 ↗ 507/1146 → 128/198 ↘ 160/155 ↑ 591/778 ↑ 120/152 ↑ 107/154 ↖ 1032/692 ← 365/444 ↖	149/165 ↙ 1012/775 ← 216/220 ↖ 239/236 ↗ 439/982 → 125/199 ↘ 129/160 ↑ 727/1120 ↑ 143/247 ↑ 169/181 ↖ 830/639 ← 241/303 ↖	439/128 ↙ 660/558 ← 163/192 ↖ 104/391 ↗ 848/1737 → 236/493 ↘ 398/252 ↑ 317/937 ↑ 65/240 ↑ 167/180 ↖ 1753/973 ← 277/177 ↖

26. Cherry Ave at Arrow Rte	27. Beech Ave at Arrow Rte	28. Citrus Ave at Arrow Rte	29. Sierra Ave at Arrow Rte	30. Etiwanda Ave at Whittram Ave	31. Cherry Ave at Whittram Ave	32. Beech Ave at Whittram Ave	33. Etiwanda Ave at Napa St
106/115 ↙ 1522/1604 ↓ 59/103 ↘ 81/95 ↗ 437/758 → 104/123 ↘ 136/162 ↑ 1194/1776 ↑ 168/360 ↑ 87/67 ↖ 763/607 ← 256/210 ↖	137/42 ↙ 268/384 ↓ 24/34 ↘ 68/73 ↗ 397/880 → 65/117 ↘ 107/124 ↑ 265/362 ↑ 156/279 ↑ 45/56 ↖ 815/560 ← 192/145 ↖	178/90 ↙ 896/833 ↓ 108/155 ↘ 90/111 ↗ 297/808 → 123/237 ↘ 268/222 ↑ 719/988 ↑ 233/194 ↑ 160/103 ↖ 616/419 ← 265/167 ↖	94/141 ↙ 1012/865 ↓ 76/121 ↘ 94/183 ↗ 453/544 → 92/142 ↘ 112/125 ↑ 847/1177 ↑ 43/68 ↑ 72/59 ↖ 598/362 ← 82/78 ↖	1109/1010 ↙ 89/220 ↘ 643/1275 ↑ 171/317 ↑ 153/107 ↖ 262/225 ↖	103/69 ↙ 1637/1607 ↓ 39/43 ↘ 34/105 ↗ 34/158 → 224/379 ↘ 251/160 ↑ 1400/2221 ↑ 148/125 ↑ 76/82 ↖ 152/75 ← 169/139 ↖	125/46 ↙ 432/661 ↓ 64/90 ↗ 74/185 ↘ 150/99 ↑ 492/701 ↑	1/0 ↙ 1074/939 ↓ 281/447 ↘ 0/6 ↗ 2/34 ↘ 1/0 ↑ 849/1216 ↑ 408/327 ↑ 200/353 ↖ 315/357 ↖

34. Cherry Ave at Merrill Ave	35. Beech Ave at Merrill Ave	36. Citrus Ave at Merrill Ave	37. Sierra Ave at Merrill Ave	38. Citrus Ave at Fontana Ave	39. Cherry Ave at Randall Ave	40. Beech Ave at Randall Ave
0/1 ↙ 1827/1662 ← 146/372 ↖ 0/1 → 3/1 ↑ 1316/2261 ↑ 142/262 ↑ 419/258 ↖ 189/165 ↖	132/92 ↙ 252/365 ↓ 65/223 ↘ 159/235 ↗ 143/306 → 79/51 ↘ 75/49 ↑ 256/380 ↑ 65/65 ↑ 210/159 ↖ 417/324 ← 84/36 ↖	117/112 ↙ 1088/915 ← 68/87 ↖ 165/156 ↗ 186/359 → 54/78 ↘ 74/62 ↑ 840/1069 ↑ 32/51 ↑ 115/152 ↖ 285/263 ← 53/41 ↖	95/145 ↙ 1146/940 ↓ 51/82 ↘ 81/176 ↗ 387/524 → 106/122 ↘ 70/138 ↑ 794/1202 ↑ 102/184 ↑ 58/55 ↖ 427/322 ← 150/124 ↖	369/313 ↙ 983/771 ↓ 26/41 ↘ 235/374 ↗ 178/413 → 17/16 ↘ 47/32 ↑ 724/976 ↑ 84/77 ↑ 40/24 ↖ 236/220 ← 97/67 ↖	67/84 ↙ 1519/1325 ↓ 205/296 ↘ 28/72 ↗ 160/343 → 206/337 ↘ 282/398 ↑ 1280/2042 ↑ 116/183 ↑ 206/262 ↖ 240/340 ← 248/185 ↖	121/62 ↙ 302/336 ↓ 7/45 ↘ 71/97 ↗ 289/573 → 28/62 ↘ 37/43 ↑ 290/376 ↑ 58/24 ↑ 44/47 ↖ 455/509 ← 44/19 ↖

Note: Volumes reflect PCE adjustments.

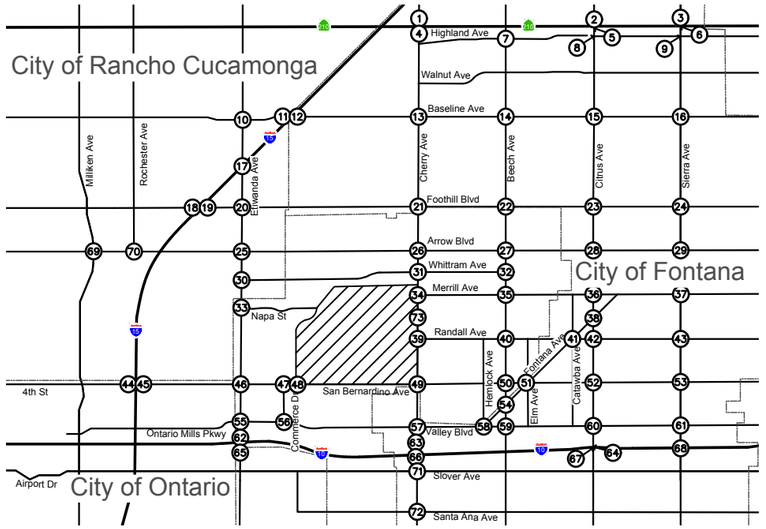
LEGEND:

= Project Site

= Study Intersection

XX/YY = AM/PM Volumes

FIGURE 16B
HORIZON YEAR 2040 PLUS PROJECT TRAFFIC VOLUMES



NOT TO SCALE

41. Fontana Ave/ Catawba Ave at Randall Ave

42/23 436/320 76/38 | 65/50 138/106 67/94
92/124 221/427 104/53 | 31/28 371/453 122/81
17/21 74/269 27/45 | 71/65 242/444 154/109

42. Citrus Ave at Randall Ave

77/43 951/710 117/96 | 95/71 239/341 140/64
92/26 188/348 198/145 | 195/147 662/979 220/130

43. Sierra Ave at Randall Ave

57/88 1276/923 30/118 | 75/96 262/215 195/153
73/103 247/314 136/150 | 87/155 876/1336 64/182

44. I-15 SB Ramps/ Ontario Mills Dr at Fourth St

991/598 276/316 166/131 | 446/610 1395/695 150/170
336/915 461/1273 66/105 | 96/133 58/233 86/434

45. I-15 NB Ramps at Fourth St

1070/402 55/47 573/416 | 106/165 488/609 34/41
286/755 477/379 28/71 | 49/83 28/54 38/51

46. Etiwanda Ave at Fourth St/San Bernardino Ave

196/230 1121/1008 69/185 | 82/108 618/575 219/158
199/264 349/1009 103/358 | 298/199 990/1120 109/125

47. Commerce Dr at San Bernardino Ave

0/1 9/0 12/4 | 5/4 926/619 421/447
1/0 425/1405 37/50 | 87/87 3/3 418/807

48. Vip Rd at San Bernardino Ave

307/589 | 1/0 1059/516
283/432 521/1590 |

49. Cherry Ave at San Bernardino Ave

432/258 1352/1386 128/158 | 149/147 457/206 237/108
279/627 90/874 158/361 | 141/73 1353/1687 122/187

50. Beech Ave at San Bernardino Ave

88/80 285/276 50/47 | 74/39 486/345 18/21
67/87 265/749 90/47 | 67/97 217/357 7/57

51. Fontana Ave/Elm St at San Bernardino Ave

94/45 439/296 127/52 | 19/12 105/58 89/71 | 37/48 202/226 33/43
93/301 191/469 39/89 | 105/98 157/410 40/85

52. Citrus Ave at San Bernardino Ave

71/28 911/706 127/97 | 338/122 185/265 157/86
151/59 146/411 75/72 | 130/194 700/1120 192/111

53. Sierra Ave at San Bernardino Ave

116/70 1414/1031 15/89 | 53/104 346/319 289/260
42/156 212/384 107/171 | 71/225 882/1284 181/412

54. Beech Ave at Fontana Ave

50/26 381/363 24/4 | 25/50 263/86 386/244
24/55 138/337 7/11 | 7/0 221/426 86/330

55. Etiwanda Ave at Valley Blvd

48/34 1295/1454 56/138 | 128/122 251/281 320/198
28/84 360/523 143/381 | 327/288 1321/1380 103/252

56. Commerce Dr/ I-15 Ramps at Valley Blvd

47/73 470/1055 9/12 | 34/80 478/496 503/804
20/143 120/496 46/334 | 133/245 448/998 446/754

57. Cherry Ave at Valley Blvd

87/75 1579/1514 153/177 | 136/228 375/407 567/638
96/199 130/506 299/396 | 522/277 1449/1507 425/889

58. Fontana Ave/ Hemlock Ave at Valley Blvd

202/21 10/4 150/49 | 11/6 10/7 218/107 | 75/174 650/621 18/11
163/460 425/1261 13/16 | 9/15 10/9 30/30

59. Beech Ave at Valley Blvd

146/219 442/0 162/360 | 130/167 718/633 238/265
59/325 483/1190 321/551 | 187/211 96/275 229/422

60. Citrus Ave at Valley Blvd

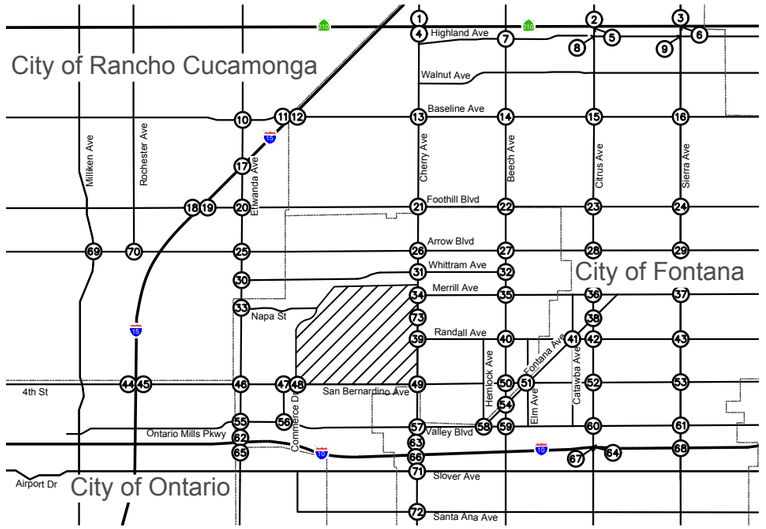
35/46 882/667 94/108 | 99/208 421/844 465/177
39/78 316/1189 555/519 | 532/681 690/1132 161/319

Note: Volumes reflect PCE adjustments.

LEGEND:
= Project Site
= Study Intersection
XX/YY = AM/PM Volumes

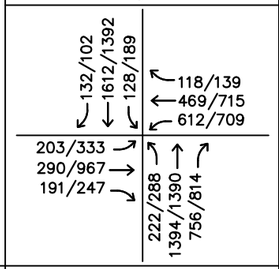
FIGURE 16C
HORIZON YEAR 2040 PLUS PROJECT TRAFFIC VOLUMES

Kimley»Horn

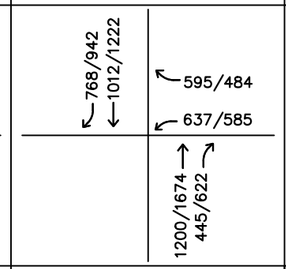


NOT TO SCALE

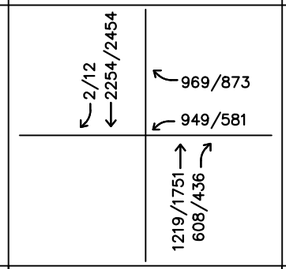
61. Sierra Ave at Valley Blvd



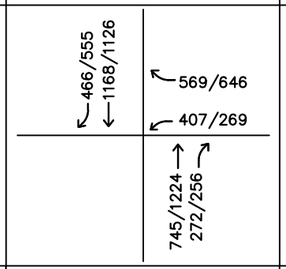
62. Etiwanda Ave at I-10 WB Off-Ramps



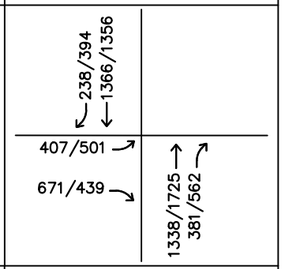
63. Cherry Ave at I-10 WB Ramps



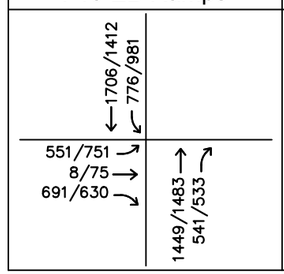
64. Citrus Ave at I-10 WB Ramps



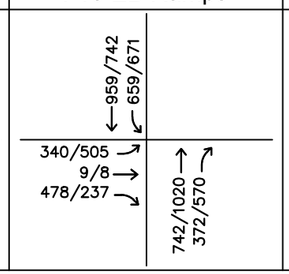
65. Etiwanda Ave at I-10 EB Ramps



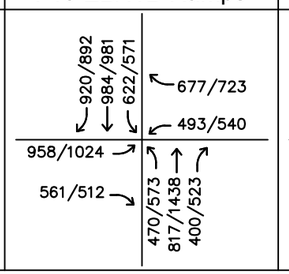
66. Cherry Ave at I-10 EB Ramps



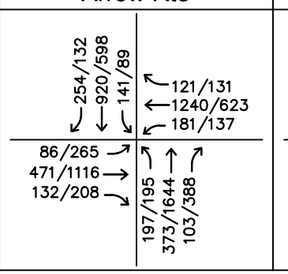
67. Citrus Ave at I-10 EB Ramps



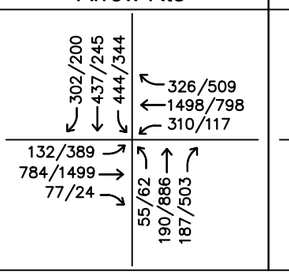
68. Sierra Ave at I-10 EB/WB Ramps



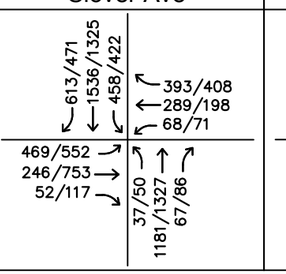
69. Milliken Ave at Arrow Rte



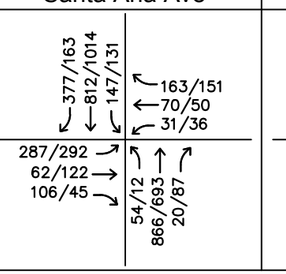
70. Rochester Ave at Arrow Rte



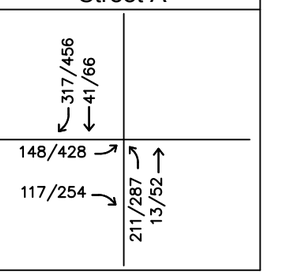
71. Cherry Ave at Slover Ave



72. Cherry Ave at Santa Ana Ave



73. Cherry Ave at Street A



Note: Volumes reflect PCE adjustments.

LEGEND:
= Project Site
(X) = Study Intersection
XX/YY = AM/PM Volumes

FIGURE 16D
HORIZON YEAR 2040 PLUS PROJECT TRAFFIC VOLUMES

Kimley»Horn

TABLE 9
SUMMARY OF INTERSECTION OPERATION
HORIZON YEAR 2040 PLUS PHASES **1** AND **2** CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
1	Cherry Ave at SR-210 WB Ramps	C	S	29.1	C	32.5	C	3.4	No	29.2	C	35.7	D	6.5	No
2	Citrus Ave at SR-210 WB Ramps	C	S	28.3	C	28.4	C	0.1	No	26.2	C	26.3	C	0.1	No
3	Sierra Ave at SR-210 WB Ramps	C	S	19.4	B	19.5	B	0.1	No	16.3	B	16.4	B	0.1	No
4	Cherry Ave at SR-210 EB Ramps	C	S	25.2	C	26.5	C	1.3	No	24.9	C	28.2	C	3.3	No
5	Citrus Ave at SR-210 EB Ramps	C	S	29.0	C	28.9	C	-0.1	No	31.3	C	31.4	C	0.1	No
6	Sierra Ave at SR-210 EB Ramps	C	S	18.6	B	18.5	B	-0.1	No	15.7	B	15.7	B	0.0	No
7	Beech Ave at Highland Ave	F	S	33.6	C	33.6	C	0.0	No	36.1	D	36.1	D	0.0	No
8	Citrus Ave at Highland Ave	F	S	37.9	D	37.6	D	-0.3	No	41.3	D	41.0	D	-0.3	No
9	Sierra Ave at Highland Ave	F	S	35.2	D	35.2	D	0.0	No	50.5	D	51.4	D	0.9	No
10	Etiwanda Ave at Base Line Rd	RC	S	60.2	E	60.1	E	-0.1	No	40.1	D	39.9	D	-0.2	No
11	I-15 SB Ramps at Base Line Rd	C	S	26.7	C	26.6	C	-0.1	No	19.2	B	19.4	B	0.2	No
12	I-15 NB Ramps at Baseline Ave	C	S	27.7	C	27.6	C	-0.1	No	33.8	C	33.8	C	0.0	No
13	Cherry Ave at Baseline Ave	F	S	38.5	D	39.6	D	1.1	No	39.5	D	42.4	D	2.9	No
14	Beech Ave at Baseline Ave	F	S	39.0	D	39.2	D	0.2	No	42.8	D	42.8	D	0.0	No
15	Citrus Ave at Baseline Ave	F	S	54.0	D	56.4	E	2.4	Yes	41.3	D	42.1	D	0.8	No
16	Sierra Ave at Baseline Ave	F	S	33.6	C	33.5	C	-0.1	No	36.6	D	36.8	D	0.2	No
17	Etiwanda Ave at Church St/Miller Ave	RC	S	45.9	D	44.5	D	-1.4	No	43.2	D	43.0	D	-0.2	No
18	I-15 SB Ramps at Foothill Blvd	C	S	31.4	C	33.4	C	2.0	No	20.5	C	23.1	C	2.6	No
19	I-15 NB Ramps at Foothill Blvd	C	S	24.4	C	24.1	C	-0.3	No	22.1	C	22.1	C	0.0	No
20	Etiwanda Ave at Foothill Blvd	RC	S	42.6	D	51.3	D	8.7	No	49.7	D	80.9	F	31.2	Yes
21	Cherry Ave at Foothill Blvd	F/SB	S	49.7	D	51.0	D	1.3	No	61.6	E	62.1	E	0.5	No
22	Beech Ave at Foothill Blvd	F/SB	U	>180	F	>180	F	384.2	Yes	>180	F	>180	F	0.0	No
23	Citrus Ave at Foothill Blvd	F	S	48.3	D	48.9	D	0.6	No	80.3	F	84.1	F	3.8	Yes
24	Sierra Ave at Foothill Blvd	F	S	44.0	D	44.4	D	0.4	No	58.9	E	63.7	E	4.8	Yes
25	Etiwanda Ave at Arrow Rte	RC	S	72.4	E	72.5	E	0.1	No	161.2	F	170.1	F	8.9	Yes

TABLE 9
SUMMARY OF INTERSECTION OPERATION
HORIZON YEAR 2040 PLUS PHASES **1** AND **2** CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
26	Cherry Ave at Arrow Rte	SB	S	48.3	D	57.5	E	9.2	Yes	68.8	E	102.1	F	33.3	Yes
27	Beech Ave at Arrow Rte	SB	S	25.4	C	25.9	C	0.5	No	28.4	C	29.9	C	1.5	No
28	Citrus Ave at Arrow Rte	F	S	57.6	E	59.6	E	2.0	No	45.5	D	46.8	D	1.3	No
29	Sierra Ave at Arrow Rte	F	S	35.7	D	35.8	D	0.1	No	38.0	D	38.5	D	0.5	No
30	Etiwanda Ave at Whittram Ave	RC	S	24.7	C	27.1	C	2.4	No	37.5	D	65.6	E	28.1	Yes
31	Cherry Ave at Whittram Ave	SB	S	37.6	D	48.8	D	11.2	No	59.4	E	96.8	F	37.4	Yes
32	Beech Ave at Whittram Ave	SB	U	90.2	F	95.7	F	5.5	No	>180	F	>180	F	53.9	Yes
33	Etiwanda Ave at Napa St	SB	S	18.5	B	32.1	C	13.6	No	26.4	C	85.9	F	59.5	Yes
34	Cherry Ave at Merrill Ave	SB	S	30.9	C	36.6	D	5.7	No	60.3	E	98.1	F	37.8	Yes
35	Beech Ave at Merrill Ave	SB	U	93.4	F	103.6	F	10.2	Yes	>180	F	>180	F	29.2	Yes
36	Citrus Ave at Merrill Ave	F	S	30.4	C	30.8	C	0.4	No	30.7	C	31.3	C	0.6	No
37	Sierra Ave at Merrill Ave	F	S	40.1	D	40.1	D	0.0	No	42.8	D	44.9	D	2.1	No
38	Citrus Ave at Fontana Ave	F	S	31.7	C	32.9	C	1.2	No	34.2	C	36.8	D	2.6	No
39	Cherry Ave at Randall Ave	SB	S	34.8	C	54.5	D	19.7	No	38.1	D	140.4	F	102.3	Yes
40	Beech Ave at Randall Ave	SB	U	95.9	F	160.6	F	64.7	Yes	123.8	F	>180	F	185.4	Yes
41	Fontana Ave/Catawba Ave at Randall Ave	F	U	150.1	F	>180	F	-	Yes	156.5	F	>180	F	-	Yes
42	Citrus Ave at Randall Ave	F	S	34.0	C	35.5	D	1.5	No	27.9	C	32.1	C	4.2	No
43	Sierra Ave at Randall Ave	F	S	30.9	C	32.2	C	1.3	No	35.5	D	37.8	D	2.3	No
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	C	S	43.9	D	45.6	D	1.7	No	53.0	D	77.4	E	24.4	Yes
45	I-15 NB Ramps at Fourth St	C	S	49.3	D	48.1	D	-1.2	No	38.6	D	39.7	D	1.1	No
46	Etiwanda Ave at Fourth St/San Bernardino A	RC/SB	S	35.2	D	37.4	D	2.2	No	37.4	D	40.1	D	2.7	No
47	Commerce Dr at San Bernardino Ave	SB	S	30.5	C	36.0	D	5.5	No	61.6	E	>180	F	125.9	Yes
48	Vip Rd at San Bernardino Ave	SB	S	16.2	C	26.8	C	10.6	No	11.3	B	30.8	C	19.5	No
49	Cherry Ave at San Bernardino Ave	SB	S	36.3	D	39.8	D	3.5	No	45.0	D	69.8	E	24.8	Yes
50	Beech Ave at San Bernardino Ave	SB	S	32.5	C	32.7	C	0.2	No	37.4	D	39.7	D	2.3	No

TABLE 9
SUMMARY OF INTERSECTION OPERATION
HORIZON YEAR 2040 PLUS PHASES **1** AND **2** CONDITIONS

Int. #	Intersection	Jurisdiction	Traffic Control	AM Peak Hour						PM Peak Hour					
				Without Project		With Project		Change Delay	Project-Related Effect?	Without Project		With Project		Change Delay	Project-Related Effect?
				Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
51	Fontana Ave/Elm Ave at San Bernardino Ave	F/SB	S	40.2	D	40.8	D	0.6	No	49.5	D	61.0	E	11.5	Yes
52	Citrus Ave at San Bernardino Ave	F	S	38.6	D	39.7	D	1.1	No	32.5	C	34.0	C	1.5	No
53	Sierra Ave at San Bernardino Ave	F	S	30.8	C	31.7	C	0.9	No	40.9	D	42.4	D	1.5	No
54	Beech Ave at Fontana Ave	F/SB	U	147.2	F	147.2	F	0.0	No	>180	F	>180	F	0.0	No
55	Etiwanda Ave at Valley Blvd	SB	S	31.3	C	31.0	C	-0.3	No	37.7	D	38.6	D	0.9	No
56	Commerce Dr/I-10 Ramps at Valley Blvd	C	S	32.5	C	31.4	C	-1.1	No	71.3	E	84.7	F	13.4	Yes
57	Cherry Ave at Valley Blvd	F/SB	S	43.8	D	44.7	D	0.9	No	70.0	E	75.0	E	5.0	Yes
58	Fontana Ave/Hemlock Ave at Valley Blvd	F/SB	S	37.3	D	37.2	D	-0.1	No	15.5	B	15.9	B	0.4	No
59	Beech Ave at Valley Blvd	F	U	>180	F	>180	F	-	No	>180	F	>180	F	-	No
60	Citrus Ave at Valley Blvd	F	S	61.3	E	68.4	E	7.1	Yes	45.6	D	48.6	D	3.0	No
61	Sierra Ave at Valley Blvd	F	S	34.9	C	34.9	C	0.0	No	52.3	D	53.5	D	1.2	No
62	Etiwanda Ave at I-10 WB Off-Ramps	C	S	23.2	C	24.1	C	0.9	No	22.0	C	22.3	C	0.3	No
63	Cherry Ave at I-10 WB Ramps	C	S	32.5	C	51.5	D	19.0	No	26.5	C	49.5	D	23.0	No
64	Citrus Ave at I-10 WB Ramps	C	S	21.1	C	21.5	C	0.4	No	18.6	B	19.5	B	0.9	No
65	Etiwanda Ave at I-10 EB Ramps	C	S	30.9	C	30.7	C	-0.2	No	20.4	C	21.1	C	0.7	No
66	Cherry Ave at I-10 EB Ramps	C	S	34.3	C	39.6	D	5.3	No	44.7	D	57.1	E	12.4	Yes
67	Citrus Ave at I-10 EB Ramps	C	S	33.5	C	34.1	C	0.6	No	30.4	C	31.5	C	1.1	No
68	Sierra Ave at I-10 EB/WB Ramps	C	S	28.9	C	28.8	C	-0.1	No	69.8	E	72.8	E	3.0	Yes
69	Milliken Ave at Arrow Rte	RC	S	37.1	D	37.2	D	0.1	No	39.5	D	40.6	D	1.1	No
70	Rochester Ave at Arrow Rte	RC	S	88.7	F	88.7	F	0.0	No	87.2	F	92.6	F	5.4	Yes
71	Cherry Ave at Slover Ave	F	S	32.0	C	32.2	C	0.2	No	36.9	D	37.3	D	0.4	No
72	Cherry Ave at Santa Ana Ave	F	S	>180	F	>180	F	-	Yes	>180	F	>180	F	-	Yes
73	Cherry Ave at Street A	SB	S	-	-	34.7	C	-	-	-	-	35.6	D	-	-

- Bold values indicate intersections operating at an unacceptable Level of Service

- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

F = Fontana; SB = San Bernardino County; RC = Rancho Cucamonga; C = Caltrans

TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic signal warrant analyses were conducted for the following unsignalized intersections:

- #22 – Beech Ave at Foothill Blvd
- #35 – Beech Ave at Merrill Ave
- #40 – Beech Ave at Randall Ave
- #41 – Catawba Ave at Randall Ave
- #59 – Beech Ave at Valley Blvd

Signal warrants were based on the 2014 California Manual on Uniform Traffic Control Devices (CA MUTCD). The warrants were conducted using Warrant 3 (Peak Hour Warrant) for the following scenarios:

- Existing Conditions
- Horizon Year 2040
- Horizon Year 2040 Plus Project

Traffic Signal Warrant Analysis worksheets are provided in *Appendix F*. Based on the signal warrant analysis, Warrant 3 was met during the following scenarios:

- Existing Conditions
    - #22 – Beech Ave at Foothill Blvd: AM & PM
- Horizon Year 2040
    - #35 – Beech Ave at Merrill Ave: AM & PM
    - #40 – Beech Ave at Randall Ave: AM & PM
    - #41 – Catawba Ave at Randall Ave: AM & PM
    - #59 – Beech Ave at Valley Blvd: AM & PM

The CA MUTCD specifically states that, "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." The reference document goes on to state a number of other factors to take into account when considering a signal for a specific location, including whether or not a signal would improve the overall safety of the intersection, whether it would benefit or disrupt progressive traffic flow, and consideration of site-specific characteristics such as queuing, signal spacing, and overall delay to the main street through movements.

The decision to install a traffic signal should be based on engineering judgement, and not solely upon satisfying a single peak hour warrant. It is recommended that a decision about signalization at the intersection should be made based on future observations as well as engineering judgement, based on the factors listed above.

RECOMMENDED IMPROVEMENTS

Based on the respective jurisdictional LOS standards and criteria noted earlier in the report, under the Horizon Year 2040 Plus Project Conditions, the project-related effect would be considered significant at the following intersections:

- #15 – Citrus Ave at Baseline Ave
- #20 – Etiwanda Ave at Foothill Blvd
- #22 – Beech Ave at Foothill Blvd
- #23 – Citrus Ave at Foothill Blvd
- #24 – Sierra Ave at Foothill Blvd
- #25 – Etiwanda Ave at Arrow Rte
- #26 – Cherry Ave at Arrow Rte
- #30 – Etiwanda Ave at Whittram Ave
- #31 – Cherry Ave at Whittram Ave
- #32 – Beech Ave at Whittram Ave
- #33 – Etiwanda Ave at Napa St
- #34 – Cherry Ave at Merrill Ave
- #35 – Beech Ave at Merrill Ave
- #39 – Cherry Ave at Randall Ave
- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
- #49 – Cherry Ave at San Bernardino Ave
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd
- #57 – Cherry Ave at Valley Blvd
- #60 – Citrus Ave at Valley Blvd
- #63 – Cherry Ave at I-10 WB Ramps
- #66 – Cherry Ave at I-10 EB Ramps
- #67 – Citrus Ave at I-10 EB Ramps
- #68 – Sierra Ave at I-10 EB/WB Ramps
- #70 – Rochester Ave at Arrow Rte
- #72 – Cherry Ave at Santa Ana Ave

Implementation of the following improvements under applicable Opening Year 2024, Opening Year 2027, and Horizon Year 2040 scenarios are recommended to address the project's effect at the study intersections:

<u>#15 – Citrus Ave at Baseline Ave</u>

- Add a dedicated northbound right-turn lane with overlap phasing

#20 – Etiwanda Ave at Foothill Blvd

- Widen all approaches by 1 through lane
- Add southbound right-turn overlap phasing (Programmed Improvement; Rancho Cucamonga CIP)

#22 – Beech Ave at Foothill Blvd

- Traffic Signal recommended (Programmed Improvement; Fontana CIP)

#23 – Citrus Ave at Foothill Blvd

- Widen north, south, and eastbound approaches by 1 through lane (Programmed Improvement; SBCTA Arterial Projects)
- Add a 2nd westbound left-turn lane

#24 – Sierra Ave at Foothill Blvd

- Restripe southbound approach to provide dual left-turn lanes

#25 – Etiwanda Ave at Arrow Rte

- Add 2nd eastbound through lane (Programmed Improvement; Rancho Cucamonga CIP)

#26 – Cherry Ave at Arrow Rte

- Widen all approaches by 1 through lane

#30 – Etiwanda Ave at Whittram Ave

- Widen north and southbound approaches by 1 through lane (Programmed Improvement; SBCTA Arterial Projects)

#31 – Cherry Ave at Whittram Ave

- Add eastbound right-turn overlap phasing

#32 – Beech Ave at Whittram Ave

- Traffic Signal recommended under Horizon Year 2040 conditions

#33 – Etiwanda Ave at Napa St

- Widen north and southbound approaches by 1 through lane (Programmed Improvement; SBCTA Arterial Projects)
- Add northbound right-turn lane with overlap phasing
- Add westbound right-turn overlap phasing

#34 – Cherry Ave at Merrill Ave

- Widen north and southbound approaches by 1 through lane (Programmed Improvement; SBCTA Arterial Projects)

#35 – Beech Ave at Merrill Ave

- Traffic Signal recommended under Horizon Year 2040 conditions (Programmed Improvement; SBCTA Arterial Projects)
- Add a southbound left-turn lane

#39 – Cherry Ave at Randall Ave

- Add east and westbound right-turn overlap phasing
- Add a 2nd northbound left-turn lane
- Modified eastbound approach – 1 left, 1 through, and 2 rights
- Modified westbound approach – 1 left, 2 through, 1 right

#40 – Beech Ave at Randall Ave

- Traffic Signal recommended under Horizon Year 2040 conditions (Programmed Improvement; SBCTA Arterial Projects)

#41 – Fontana Ave/Catawba Ave at Randall Ave

- Traffic Signal recommended under Horizon Year 2040 conditions

#44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St

- Add westbound right-turn overlap phasing
- Add eastbound right-turn overlap phasing

#49 – Cherry Ave at San Bernardino Ave

- Widen westbound approach by 1 through lane (Programmed Improvement; SB County CIP)
- Restripe northbound approach to provide a dedicated right-turn lane

#51 – Fontana Ave/Elm St at San Bernardino Ave

- Widen eastbound approach by 1 through lane (Programmed Improvement; SB County CIP)

#56 – Commerce Dr/I-10 Ramps at Valley Blvd

- Modify the northbound approach to be 1 dedicated left, 2 throughs, and 1 free right
- Add eastbound right-turn overlap phasing

#57 – Cherry Ave at Valley Blvd

- Add northbound right-turn overlap phasing

#59 – Beech Ave at Valley Blvd

- Traffic Signal recommended under Horizon Year 2040 conditions
- Widen all approaches by 1 through lane (Programmed Improvement; SBCTA Arterial Projects)

#60 – Citrus Ave at Valley Blvd

- Add eastbound right-turn overlap phasing

#63 – Cherry Ave at I-10 WB Ramps

- Restripe westbound approach to provide 1 left and 2 right-turn lanes

#66 – Cherry Ave at I-10 EB Ramps

- Restripe eastbound approach to provide 1 left, 1 shared through-right, and 1 right
- Add 2nd left-turn lane

#67 – Citrus Ave at I-10 EB Ramps

- Add 2nd southbound left-turn lane

#68 – Sierra Ave at I-10 EB/WB Ramps

- Add 3rd eastbound left-turn lane

#70 – Rochester Ave at Arrow Rte

- Add northbound right-turn overlap phasing

#72 – Cherry Ave at Santa Ana Ave

- Restripe eastbound approach to provide a dedicated left and a shared through-right lane

A summary of the intersection operation before and after implementation of the recommended improvements is provided on Table 10. Recommended improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair-share contribution toward future improvements, or a combination of these approaches. The project fair share proportion for non-programmed improvements at deficient study intersections under Horizon Year 2040 conditions is shown on Table 11. For programmed improvements, the developer will pay into the regional transportation fee program.

TABLE 10
SUMMARY OF INTERSECTION OPERATION
RECOMMENDED IMPROVEMENTS

Int. #	Intersection	Improvements	Peak Hour	Traffic Control	Opening Year 2024						Opening Year 2027						Horizon Year 2040					
					Without Project		With Phase 1		With Improvements		Without Project		With Phases **1** & 2		With Improvements		Without Project		With Phases **1** & 2		With Improvements	
					Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
15	Citrus Ave at Baseline Ave	- Add NBR lane with overlap phasing	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	54.0	D	56.4	E	41.5	D
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	Etiwanda Ave at Foothill Blvd	- Widen all approaches by 1 lane - SBR overlap phasing (Programmed Improvement; Rancho Cucamonga CIP)	AM	S	--	--	--	--	--	--	47.9	D	62.6	E	40.7	D	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	44.4	D	71.3	E	44.1	D	49.7	D	80.9	F	49.0	D
22	Beech Ave at Foothill Blvd	- Install Signal (Programmed Improvement; Fontana CIP)	AM	U	>180	F	>180	F	9.1	A	>180	F	>180	F	10.6	B	>180	F	>180	F	17.5	C
			PM	U	>180	F	>180	F	10.1	B	>180	F	>180	F	12.6	B	--	--	--	--	--	--
23	Citrus Ave at Foothill Blvd	- Widen NB/SB/EB approaches by 1 lane (Programmed Improvement; SBCTA Arterial Projects) - Add 2nd WBL turn lane	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	57.3	E	60.0	E	42.7	D	80.3	F	84.1	F	43.8	D
24	Sierra Ave at Foothill Blvd	- Restripe SB approach to provide dual SBL	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	58.9	E	63.7	E	52.8	D
25	Etiwanda Ave at Arrow Rte	- 2nd EBT Lane (Programmed Improvement; Rancho Cucamonga CIP)	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	161.2	F	170.1	F	65.3	E
26	Cherry Ave at Arrow Rte	- Widen all approaches by 1 lane	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	48.3	D	57.5	E	34.6	C
			PM	S	53.7	D	92.5	F	40.6	D	62.1	E	93.9	F	39.8	D	68.8	E	102.1	F	40.7	D
30	Etiwanda Ave at Whittram Ave	- Widen NB/SB approaches by 1 lane (Programmed Improvement; SBCTA Arterial Projects)	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	37.5	D	65.6	E	21.5	C
31	Cherry Ave at Whittram Ave	- EBR overlap phasing	AM	S	--	--	--	--	--	--	42.0	D	64.1	E	37.8	D	--	--	--	--	--	--
			PM	S	46.5	D	100.1	F	49.2	D	54.4	D	96.1	F	51.3	D	59.4	E	96.8	F	50.8	D
32	Beech Ave at Whittram Ave	- Install Signal	AM	U	--	--	--	--	--	--	--	--	--	--	--	--	90.2	F	95.7	F	9.0	A
			PM	U	--	--	--	--	--	--	48.5	E	54.9	F	16.1	C	>180	F	>180	F	15.0	B
33	Etiwanda Ave at Napa St	- Widen NB/SB approaches by 1 lane (Programmed Improvement; SBCTA Arterial Projects) - NBR turn lane with overlap phasing - WBR overlap phasing	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	28.4	C	88.9	F	44.4	D	26.4	C	85.9	F	45.2	D
34	Cherry Ave at Merrill Ave	- Widen NB/SB approaches by 1 lane (Programmed Improvement; SBCTA Arterial Projects)	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	29.3	C	63.2	E	23.9	C	36.0	D	73.3	E	26.1	C	60.3	E	98.1	F	38.0	D
35	Beech Ave at Merrill Ave	- Install Signal (Programmed Improvement; SBCTA Arterial Projects) - Add SBL turn lane	AM	S	--	--	--	--	--	--	37.4	E	42.7	E	34.5	C	93.4	F	103.6	F	46.4	D
			PM	S	40.9	E	47.4	E	22.3	C	50.3	F	63.1	F	24.2	C	>180	F	>180	F	137.1	F
39	Cherry Ave at Randall Ave	- EBR and WBR overlap phasing - 2nd NBL turn lane - EB approach = 1 Left, 1 Through, 2 Right - WB approach = 1 Left, 2 Through, 1 Right	AM	S	36.4	D	88.2	F	34.4	C	37.8	D	92.3	F	34.3	C	--	--	--	--	--	--
			PM	S	37.4	D	178.6	F	52.8	D	40.0	D	135.9	F	48.8	D	38.1	D	140.4	F	47.1	D
40	Beech Ave at Randall Ave	- Install Signal (Programmed Improvement; SBCTA Arterial Projects)	AM	S	67.8	F	101.3	F	26.1	C	85.3	F	177.9	F	26.7	C	95.9	F	160.6	F	28.2	C
			PM	S	25.7	D	101.3	F	21.8	C	32.9	D	>180	F	24.0	C	123.8	F	>180	F	30.9	C

41	Fontana Ave/Catawba Ave at Randall Ave	- Install Singal	AM	U	25.1	D	38.1	E	22.4	C	30.1	D	57.1	F	22.2	C	150.1	F	>180	F	21.3	C
			PM	U	28.8	D	75.8	F	22.0	C	34.8	D	125.2	F	21.3	C	156.5	F	>180	F	20.8	C
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	- WBR overlap and NBR overlap	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	51.3	D	65.2	E	43.0	D	58.2	E	87.5	F	45.7	D	53.0	D	77.4	E	43.8	D
47	Commerce Dr at San Bernardino Ave	- Analyze as a cluster intersection with INT 48 - Modify NB approach to 1 left, 1 shared throug-right, and 1 right	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	49.8	D	87.7	F	29.5	C	62.0	E	179.1	F	45.5	D	61.6	E	>180	F	40.5	D
49	Cherry Ave at San Bernardino Ave	- Widen WB approach by 1 lane (Programmed Improvement; SB County CIP) - Restripe NB approach to provide a dedicated right-turn lane	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	44.4	D	95.0	F	54.0	D	48.4	D	85.8	F	50.6	D	45.0	D	69.8	E	54.2	D
51	Fontana Ave/Elm Ave at San Bernardino Ave	- Widen EB approach by 1 lane (Programmed Improvement; SB County CIP)	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	49.5	D	61.0	E	50.5	D
56	Commerce Dr/I-10 Ramps at Valley Blvd	- Modify NB approach to be 1 dedicated left, 2 throughs, and 1 free right - Add EBR overlap phasing	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	71.3	E	84.7	F	66.5	E
57	Cherry Ave at Valley Blvd	- NBR Overlap	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	44.8	D	55.9	E	48.8	D	53.2	D	63.1	E	51.7	D	70.0	E	75.0	E	55.6	E
59	Beech Ave at Valley Blvd	- Install Signal - Widen all approaches by 1 lane (Programmed Improvement; SBCTA Arterial Projects)	AM	S	67.0	F	77.9	F	6.8	A	91.8	F	120.8	F	8.3	A	>180	F	>180	F	20.8	C
			PM	S	>180	F	>180	F	4.5	A	>180	F	>180	F	11.3	B	>180	F	>180	F	77.6	E
60	Citrus Ave at Valley Blvd	- EBR overlap phasing	AM	S	--	--	--	--	--	--	58.4	E	65.4	E	40.1	D	61.3	E	68.4	E	42.1	D
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63	Cherry Ave at I-10 WB Ramps	- Restripe WB approach to provide 1 left and 2 right-turn lanes	AM	S	--	--	--	--	--	--	40.4	D	70.5	E	40.2	D	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	28.2	C	59.3	E	25.9	C	--	--	--	--	--	--
66	Cherry Ave at I-10 EB Ramps	- Add 2nd EB left-turn lane and retripe to be shared through right & dedicated right	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	44.7	D	57.1	E	41.8	D
68	Sierra Ave at I-10 EB/WB Ramps	- Tripe EBL turn lanes	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	69.7	E	75.2	E	51.4	D	69.8	E	72.8	E	51.3	D
70	Rochester Ave at Arrow Rte	- Northbound right-turn overlap phasing	AM	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			PM	S	--	--	--	--	--	--	--	--	--	--	--	--	87.2	F	92.6	F	78.0	E
72	Cherry Ave at Santa Ana Ave	- Restripe EB approach to provide dedicated left and a shared through-right	AM	S	>180	F	>180	F	27.9	C	>180	F	>180	F	29.3	C	>180	F	>180	F	30.1	C
			PM	S	>180	F	>180	F	23.6	C	>180	F	>180	F	24.81	C	>180	F	>180	F	28.0	C

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

TABLE 11

SUMMARY OF PROJECT FAIR SHARE - HORIZON YEAR 2040

Int. #	Intersection	AM Peak Hour					PM Peak Hour				
		Total Volume		Total	Project		Total Volume		Total	Project	
		2021	2040	Growth	Trips	%-age	2021	2040	Growth	Trips	%-age
15	Citrus Ave at Baseline Ave	4,202	5,802	1,600	70	4.4%	3,325	4,962	1,637	180	11.0%
20	Etiwanda Ave at Foothill Blvd [1]	3,455	4,388	933	212	22.7%	3,465	4,758	1,293	391	30.2%
23	Citrus Ave at Foothill Blvd [1]	3,555	4,330	775	52	6.7%	3,880	4,909	1,029	126	12.2%
24	Sierra Ave at Foothill Blvd	3,299	4,419	1,120	64	5.7%	3,682	5,227	1,545	149	9.6%
26	Cherry Ave at Arrow Rte	3,419	4,913	1,494	498	33.3%	3,870	5,980	2,110	946	44.8%
31	Cherry Ave at Whittram Ave	2,930	4,267	1,337	498	37.2%	3,187	5,163	1,976	946	47.9%
32	Beech Ave at Whittram Ave [2]	919	1,337	418	16	1.2%	1,086	1,782	696	39	2.2%
33	Etiwanda Ave at Napa St [1]	1,772	3,131	1,359	460	33.8%	1,908	3,679	1,771	769	43.4%
35	Beech Ave at Merrill Ave [1]	1,286	1,937	651	36	5.5%	1,318	2,285	967	95	9.8%
39	Cherry Ave at Randall Ave	2,648	4,557	1,909	825	43.2%	2,985	5,867	2,882	1,592	55.2%
41	Fontana Ave/Catawba Ave at Randall Ave	686	1,793	1,107	144	13.0%	548	2,071	1,523	379	24.9%
44	I-15 SB Ramps/Ontario Mills Dr at Fourth St	3,748	4,527	779	125	16.0%	4,604	5,613	1,009	240	23.8%
49	Cherry Ave at San Bernardino Ave [1]	3,368	4,898	1,530	538	35.2%	4,056	6,072	2,016	877	43.5%
56	Commerce Dr/I-10 Ramps at Valley Blvd	1,916	2,754	838	173	20.6%	3,104	5,490	2,386	395	16.6%
57	Cherry Ave at Valley Blvd	4,497	5,818	1,321	465	35.2%	4,708	6,813	2,105	735	34.9%
59	Beech Ave at Valley Blvd [1,2]	1,264	3,211	1,947	75	2.3%	1,886	4,618	2,732	127	2.8%
60	Citrus Ave at Valley Blvd	3,533	4,289	756	84	11.1%	4,717	5,968	1,251	151	12.1%
63	Cherry Ave at I-10 WB Ramps	4,659	6,001	1,342	390	29.1%	4,543	6,107	1,564	606	38.7%
66	Cherry Ave at I-10 EB Ramps	4,689	5,722	1,033	226	21.9%	4,450	5,865	1,415	352	24.9%
67	Citrus Ave at I-10 EB Ramps	3,107	3,559	452	44	9.7%	3,220	3,753	533	89	16.7%
68	Sierra Ave at I-10 EB/WB Ramps	5,891	6,902	1,011	33	3.3%	6,739	7,777	1,038	58	5.6%
70	Rochester Ave at Arrow Rte	2,883	4,742	1,859	27	1.5%	3,566	5,576	2,010	72	3.6%
72	Cherry Ave at Santa Ana Ave [2]	2,434	2,995	561	42	1.4%	2,164	2,796	632	96	3.4%

Notes:

- [1] Fair Share percentage is to be applied to non-programmed improvements
- [2] Fair Share for intersections failing under existing conditions was calculated using the total 2040 volume

FINDINGS AND CONCLUSIONS

- The Project proposes conceptual land uses that include, but are not limited to, approximately 6.6 million square feet (SF) of high cube warehouse and e-commerce uses with approximately 12 acres (261,000 SF) of accessory commercial uses.

- Under Existing Conditions, the following study intersections currently operate at an unacceptable Level of Service (LOS):

    - #22 – Beech Ave at Foothill Blvd
    - #32 – Beech Ave at Whittram Ave
    - #59 – Beech Ave at Valley Blvd
    - #72 – Cherry Ave at Santa Ana Ave

- The Opening Year for Phase 1 of the project is anticipated to be Year 2024. The Opening Year 2024 scenario includes a 2% ambient annual growth rate and the addition of Cumulative Project traffic. Under Opening Year 2024 conditions, the following additional study intersections would operate at an unacceptable Level of Service:

    - #10 – Etiwanda Ave at Base Line Rd
    - #22 – Beech Ave at Foothill Blvd
    - #32 – Beech Ave at Whittram Ave
    - #35 – Beech Ave at Merrill Ave
    - #40 – Beech Ave at Randall Ave
    - #59 – Beech Ave at Valley Blvd
    - #72 – Cherry Ave at Santa Ana Ave

- Phase 1 of the proposed project is estimated to generate 32,477 PCE trips daily, with 1,643 PCE trips in the morning peak hour and 3,099 PCE trips in the evening peak hour.

- The entire proposed project (Phases 1 and 2) is estimated to generate 47,352 PCE trips daily, with 2,188 PCE trips in the morning peak hour and 4,114 PCE trips in the evening peak hour.

- Phase 1 project traffic was added to Opening Year 2024 traffic volumes to establish Opening Year 2024 Plus Phase 1 conditions. Under this scenario, the following additional study intersection would operate an acceptable Level of Service:

    - #10 – Etiwanda Ave at Base Line Rd
    - #22 – Beech Ave at Fontana Ave
    - #26 – Cherry Ave at Arrow Rte
    - #31 – Cherry Ave at Whittram Ave
    - #32 – Beech Ave at Whittram Ave

- #34 – Cherry Ave at Merrill Ave
- #35 – Beech Ave at Merrill Ave
- #39 – Cherry Ave at Randall Ave
- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
- #47 – Commerce Dr at San Bernardino Ave
- #49 – Cherry Ave at San Bernardino Ave
- #57 – Cherry Ave at Valley Blvd
- #59 – Beech Ave at Valley Boulevard
- #72 – Cherry Ave at Santa Ana Ave

- The Opening Year for Phase 2 of the project is anticipated to be Year 2027. The Opening Year 2027 scenario includes a 2% ambient annual growth rate and the addition of Cumulative Project traffic. Compared to Opening Year 2024 conditions, the following additional study intersections would operate at an unacceptable Level of Service under Opening Year 2027 conditions:

    - #9 – Sierra Ave at Highland Ave
    - #10 – Etiwanda Ave at Base Line Rd
    - #15 – Citrus Ave at Baseline Ave
    - #22 – Beech Ave at Foothill Blvd
    - #26 – Cherry Ave at Arrow Rte
    - #32 – Beech Ave at Whittram Ave
    - #35 – Beech Ave at Merrill Ave
    - #40 – Beech Ave at Randall Ave
    - #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
    - #45 – I-15 NB Ramps at Fourth St
    - #47 – Commerce Dr at San Bernardino Ave
    - #56 – Commerce Dr/I-10 Ramps at Valley Blvd
    - #59 – Beech Ave at Valley Blvd
    - #60 – Citrus Ave at Valley Blvd
    - #61 – Sierra Ave at Valley Blvd
    - #68 – Sierra Ave at I-10EB/WB Ramps
    - #72 – Cherry Ave at Santa Ana Ave

- Project traffic (Phases 1 and 2) was added to Opening Year 2027 traffic volumes to establish Opening Year 2027 Plus Phases 1 and 2 conditions. With the addition of project traffic, the following additional study intersections would operate at an unacceptable Level of Service under Opening Year 2027 Plus Project (Phases 1 and 2) conditions:

    - #9 – Sierra Ave at Highland Ave

- #10 – Etiwanda Ave at Base Line Rd
- #15 – Citrus Ave at Baseline Ave
- #20 – Etiwanda Ave at Foothill Blvd
- #22 – Beech Ave at Foothill Blvd
- #23 – Citrus Ave at Foothill Blvd
- #26 – Cherry Ave at Arrow Rte
- #31 – Cherry Ave at Whittram Ave
- #33 – Etiwanda Ave at Napa St
- #34 – Cherry Ave at Merrill Ave
- #35 – Beech Ave at Whittram Ave
- #39 – Cherry Ave at Randall Ave
- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
- #45 – I-15 NB Ramps at Fourth St
- #47 – Commerce Dr at San Bernardino Ave
- #49 – Cherry Ave at San Bernardino Ave
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd
- #57 – Cherry Ave at Valley Blvd
- #59 – Beech Ave at Valley Blvd
- #60 – Citrus Ave at Valley Blvd
- #61 – Sierra Ave at Valley Blvd
- #63 – Cherry Ave at I-10 WB Ramps
- #68 – Sierra Ave at I-10 EB/WB Ramps
- #72 – Cherry Ave at Santa Ana Ave

- The San Bernardino Transportation Analysis Model (SBTAM) was used to develop forecast volumes for Horizon Year 2040 conditions. Compared to Opening Year 2027 conditions, the following additional study intersections would operate at an unacceptable Level of Service under Horizon Year 2040 conditions:

  - #10 – Etiwanda Ave at Base Line Rd
  - #21 – Cherry Ave at Foothill Blvd
  - #23 – Citrus Ave at Foothill Blvd
  - #24 – Sierra Ave at Foothill Blvd
  - #25 – Etiwanda Ave at Arrow Rte
  - #26 – Cherry Ave at Arrow Rte
  - #28 – Citrus Ave at Arrow Rte
  - #31 – Cherry Ave at Whittram Ave
  - #32 – Beech Ave at Whittram Ave
  - #34 – Cherry Ave at Merrill Ave
  - #35 – Beech Ave at Merrill Ave

- #40 – Beech Ave at Randall Ave
- #41 – Fontana Ave/Catawba Ave at Randall Ave
- #47 – Commerce Dr at San Bernardino Ave
- #54 – Beech Ave at Fontana Ave
- #56 – Commerce Dr/I-10 Ramps at Valley Blvd
- #57 – Cherry Ave at Valley Blvd
- #59 – Beech Ave at Valley Blvd
- #60 – Citrus Ave at Valley Blvd
- #68 – Sierra Ave at I-10 EB/WB Ramps
- #70 – Rochester Ave at Arrow Rte
- #72 – Cherry Ave at Santa Ana Ave

- Project traffic (Phases 1 and 2) was added to Horizon Year 2040 traffic volumes to establish the conditions for Opening Year 2027 Plus Phases 1 and 2 conditions. With the addition of project traffic, the following additional study intersections would operate at an unacceptable Level of Service under Horizon Year 2040 Plus Project (Phases 1 and 2) conditions:

  - #10 – Etiwanda Ave at Base Line Rd
  - #15 – Citrus Ave at Baseline Ave
  - #20 – Etiwanda Ave at Foothill Blvd
  - #21 – Cherry Ave at Foothill Blvd
  - #22 – Beech Ave at Foothill Blvd
  - #23 – Citrus Ave at Foothill Blvd
  - #24 – Sierra Ave at Foothill Blvd
  - #25 – Etiwanda Ave at Arrow Rte
  - #26 – Cherry Ave at Arrow Rte
  - #28 – Citrus Ave at Arrow Rte
  - #30 – Etiwanda Ave at Whittram Ave
  - #31 – Cherry Ave at Whittram Ave
  - #32 – Beech Ave at Whittram Ave
  - #33 – Etiwanda Ave at Napa St
  - #34 – Cherry Ave at Merrill Ave
  - #35 – Beech Ave at Merrill Ave
  - #39 – Cherry Ave at Randall Ave
  - #40 – Beech Ave at Randall Ave
  - #41 – Fontana Ave/Catawba Ave at Randall Ave
  - #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
  - #47 – Commerce Dr at San Bernardino Ave
  - #49 – Cherry Ave at San Bernardino Ave
  - #51 – Fontana Ave/Elm Ave at San Bernardino Ave
  - #54 – Beech Ave at Fontana Ave

- #56 – Commerce Dr/I-10 Ramps at Valley Blvd
- #57 – Cherry Ave at Valley Blvd
- #59 – Beech Ave at Valley Blvd
- #60 – Citrus Ave at Valley Blvd
- #66 – Cherry Ave at I-10 EB Ramps
- #68 – Sierra Ave at I-10 EB/WB Ramps
- #70 – Rochester Ave at Arrow Rte
- #72 – Cherry Ave at Santa Ana Ave

- Based on the respective jurisdictional LOS standards and criteria noted earlier in the report, under the Horizon Year 2040 Plus Project Conditions, the project-related effect would be considered significant at the following intersections:

  - #15 – Citrus Ave at Baseline Ave
  - #20 – Etiwanda Ave at Foothill Blvd
  - #23 – Citrus Ave at Foothill Blvd
  - #24 – Sierra Ave at Foothill Blvd
  - #25 – Etiwanda Ave at Arrow Rte
  - #26 – Cherry Ave at Arrow Rte
  - #30 – Etiwanda Ave at Whittram Ave
  - #31 – Cherry Ave at Whittram Ave
  - #32 – Beech Ave at Whittram Ave
  - #33 – Etiwanda Ave at Napa St
  - #34 – Cherry Ave at Merrill Ave
  - #35 – Beech Ave at Merrill Ave
  - #39 – Cherry Ave at Randall Ave
  - #40 – Beech Ave at Randall Ave
  - #41 – Fontana Ave/Catawba Ave at Randall Ave
  - #44 – I-15 SB Ramps/Ontario Mills Dr at Fourth St
  - #47 – Commerce Dr at San Bernardino Ave
  - #49 – Cherry Ave at San Bernardino Ave
  - #51 – Fontana Ave/Elm Ave at San Bernardino Ave
  - #56 – Commerce Dr/I-10 Ramps at Valley Blvd
  - #57 – Cherry Ave at Valley Blvd
  - #60 – Citrus Ave at Valley Blvd
  - #66 – Cherry Ave at I-10 EB Ramps
  - #68 – Sierra Ave at I-10 EB/WB Ramps
  - #70 – Rochester Ave at Arrow Rte
  - #72 – Cherry Ave at Santa Ana Ave

- Recommended improvements under applicable Opening Year 2024, Opening Year 2027, and Horizon Year 2040 conditions were provided to address the project's effect at the study intersections

- Recommended improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair-share contribution toward future improvements, or a combination of these approaches.

APPENDIX A

APPROVED SCOPE OF STUDY FORM

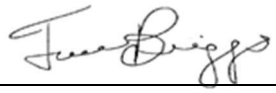
SCOPE FOR TRAFFIC STUDY

Project Name:	Speedway Commerce Center II

This Scope for Traffic Study acknowledges San Bernardino County Department of Public Works, Traffic Division requirements of traffic impact analysis for the project and is subject to change:

Project Address:	9300 Cherry Ave, Fontana, CA 92335		
Project Description:	Industrial Uses – See Attachment A – Site Plan		
City:	County of San Bernardino		
Project Buildout Year:	2027	**Ambient Growth Rate per Year:**	2%
Closest Intersection (Xtn) to the Project			
Xtn N/S Street Name:	Cherry Avenue		
Xtn E/W Street Name:	Randall Avenue		
Thomas Guide Pg+Grid:		**County Supervisorial District:**	2

	Engineer	**Developer**
Company:	Kimley-Horn and Associates, Inc.	Hillwood Enterprises, L.P.
Name:	Trevor Briggs	Ned Sciortino
Address:	1100 Town and Country Road, Suite 700	901 Via Piemonte
City, State, Zip Code:	Orange, CA, 92868	Ontario, CA 91764
Phone #:	714-939-1030	909-382-0033
Fax #:		
Email:	trevor.briggs@kimley-horn.com	Ned.Sciortino@hillwood.com

By: 

Print Name: Trevor Briggs, P.E.

Consultant/Developer's Representative **Date 8/12/21**

Reviewed By:

Print Name:

Traffic Division Representative **Date**

SCOPE FOR TRAFFIC STUDY

Project Name:	Speedway Commerce Center II

1. Traffic Distribution: See Attachment C (Study Area)

2. Trip Credit: Exact amount of credit subject to approval by Traffic Division.

Transportation Demand Management (TDM)	No	
Existing Active Land Use	No	
Previous Land Use	No	
Internal Trip Reduction	No	
Pass-by Trip Reduction	Yes	See Attachment B6

3. Related Projects: Consultant should check with Planning in the San Bernardino County Department of Land Use Services and planning departments of adjoining Cities. Documentation of the consultation from these agencies shall be included in the traffic study. Related projects list shall be submitted to Traffic Division for our review and approval before being incorporated in the study.

4. Freeway Analysis: The potential traffic impact on the following Freeway(s) must be considered.

No longer required based on new Caltrans guidelines.

The applicant shall consult with the State of California Department of Transportation (Caltrans) to determine the California Environmental Quality Act levels of significance with regard to traffic impacts on Caltrans' freeway facilities. This consultation shall also include a determination of Caltrans requirements for the study of traffic impacts to its facilities and the mitigation of any such impacts. This analysis must follow the most current Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) and can be obtained from http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tiguide.pdf. If Caltrans finds that the project has a significant impact on the freeway, Caltrans shall be requested to include the basis for this finding in their response. If fees are proposed to mitigate the freeway impact, Caltrans shall be requested to identify the specific project to which the fees will apply. These written comments from Caltrans shall be included with the traffic study and submitted to Public Works for review and approval. If a documented good faith effort is made to consult with Caltrans and written comments cannot be obtained from within a reasonable amount of time, an analysis of the freeway impact shall be made using HCM procedures. Appendix A of the SANBAG CMP outlines allowable modifications to these procedures. The SANBAG CMP can be viewed online at: http://www.sanbag.ca.gov/planning/subr_congestion.html

SCOPE FOR TRAFFIC STUDY

Project Name:	Speedway Commerce Center II

5. Trip Generation – See **Attachments B1 through B6** for a Detailed Breakdown of Trip Generation.

Trip Generation Rate(s) Source: ITE Trip Generation			**I – Institute of Transportation Engineers; S – San Diego Traffic Generators; C – County; O – Other: Based on information provided by the Applicant**							**Edition:**	10th
Land Use Code	**Land Use**	**Rate Based on**	**Qty**	***AVTE vs**	**ADT**	Weekday a.m. peak		Weekday p.m. peak		Weekend peak hour	
						In	Out	In	Out	In	Out
N/A	E-Commerce (Could include Cold Storage)	**O[1]**	2,773.050	KSF	15,950 PCE	838 PCE	246 PCE	1,153 PCE	1,121 PCE	N/A	N/A
N/A	Truck Storage	**O[2]**	98	Acres	16,527 PCE	203 PCE	356 PCE	547 PCE	278 PCE	N/A	N/A
154	High-Cube Short-Term Storage	**I**	2,141.000	KSF	3,724 PCE	166 PCE	49 PCE	73 PCE	191 PCE	N/A	N/A
157	High-Cube Cold Storage	**I**	500.000	KSF	1,624 PCE	66 PCE	19 PCE	29 PCE	65 PCE	N/A	N/A
820	General Commercial	**I**	261.360	KSF	9,527	152	93	316	342	N/A	N/A
Total Proposed Project Trips			**-**	**-**	**47,352 PCE**	**1,425 PCE**	**763 PCE**	**2,118 PCE**	**1,997 PCE**	**N/A**	**N/A**

* - Average Vehicle Trip Ends.
For ITE Land Uses provide number and name of Land Use. e.g. LU 814 - Variety Store
[1] Trip Generation Rates for E-Commerce are based on actual counts with a blended rate of 10 months non-peak and 2 months peak season.
[2] Trip Generation Rates for Truck Storage are based on information provided by the City of San Bernardino based on data from similar facilities.
Note: PCE = Passenger Car Equivalent-

SCOPE FOR TRAFFIC STUDY

Project Name:	Speedway Commerce Center II

6. Study Intersections: At minimum, the study shall include the following intersections. The list is subject to change after related projects, trip generation and distribution are determined. Consultant should check with adjoining Cities regarding their requirements in addition to the following County/City intersections. Documentation of the consultation from these agencies shall be included in the traffic study.

Xtn #	% County	Thomas Guide Page+Grid	N/S-E/W Street Name	City	Signalized	CMP
1	0%	N/A	Cherry Ave at SR-210 WB Ramps	Fontana	Yes	Yes
2	0%	N/A	Citrus Ave at SR-210 WB Ramps	Fontana	Yes	Yes
3	0%	N/A	Sierra Ave at SR-210 WB Ramps	Fontana	Yes	Yes
4	0%	N/A	Cherry Ave at SR-210 EB Ramps	Fontana	Yes	Yes
5	0%	N/A	Citrus Ave at SR-210 EB Ramps	Fontana	Yes	Yes
6	0%	N/A	Sierra Ave at SR-210 EB Ramps	Fontana	Yes	Yes
7	0%	N/A	Beech Ave at Highland Ave	Fontana	Yes	No
8	0%	N/A	Citrus Ave at Highland Ave	Fontana	Yes	Yes
9	0%	N/A	Sierra Ave at Highland Ave	Fontana	Yes	Yes
10	0%	N/A	Etiwanda Ave at Base Line Rd	Rancho Cucamonga	Yes	No
11	0%	N/A	I-15 SB Ramps at Base Line Rd	Rancho Cucamonga	Yes	Yes
12	0%	N/A	I-15 NB Ramps at Baseline Ave	Fontana	Yes	Yes
13	0%	N/A	Cherry Ave at Baseline Ave	Fontana	Yes	Yes

14	0%	N/A	Beech Ave at Baseline Ave	Fontana	Yes	No
15	0%	N/A	Citrus Ave at Baseline Ave	Fontana	Yes	Yes
16	0%	N/A	Sierra Ave at Baseline Ave	Fontana	Yes	Yes
17	0%	N/A	Etiwanda Ave at Church St/Miller Ave	Rancho Cucamonga	Yes	No
18	0%	N/A	I-15 SB Ramps at Foothill Blvd	Rancho Cucamonga	Yes	Yes
19	0%	N/A	I-15 NB Ramps at Foothill Blvd	Rancho Cucamonga	Yes	Yes
20	0%	N/A	Etiwanda Ave at Foothill Blvd	Rancho Cucamonga	Yes	No
21	50%	N/A	Cherry Ave at Foothill Blvd	Fontana/SB County	Yes	Yes
22	50%	N/A	Beech Ave at Foothill Blvd	Fontana/SB County	Yes	No
23	0%	N/A	Citrus Ave at Foothill Blvd	Fontana	Yes	Yes
24	0%	N/A	Sierra Ave at Foothill Blvd	Fontana	Yes	Yes
25	0%	N/A	Etiwanda Ave at Arrow Rte	Rancho Cucamonga	Yes	No
26	100%	N/A	Cherry Ave at Arrow Blvd	SB County	Yes	No
27	100%	N/A	Beech Ave at Arrow Blvd	SB County	Yes	No
28	0%	N/A	Citrus Ave at Arrow Blvd	Fontana	Yes	No
29	0%	N/A	Sierra Ave at Arrow Blvd	Fontana	Yes	No
30	0%	N/A	Etiwanda Ave at Whittram Ave	Rancho Cucamonga	Yes	No

31	100%	N/A	Cherry Ave at Whittram Ave	SB County	Yes	No
32	100%	N/A	Beech Ave at Whittram Ave	SB County	Yes	No
33	100%	N/A	Etiwanda Ave at Napa St	SB County	Yes	No
34	100%	N/A	Cherry Ave at Merrill Ave	SB County	Yes	No
35	100%	N/A	Beech Ave at Merrill Ave	SB County	Yes	No
36	0%	N/A	Citrus Ave at Merrill Ave	Fontana	Yes	No
37	0%	N/A	Sierra Ave at Merrill Ave	Fontana	Yes	No
38	0%	N/A	Citrus Ave at Fontana Ave	Fontana	Yes	No
39	100%	N/A	Cherry Ave at Randall Ave	SB County	Yes	No
40	100%	N/A	Beech Ave at Randall Ave	SB County	Yes	No
41	0%	N/A	Fontana Ave/Catawba Ave at Randall Ave	Fontana	No	No
42	0%	N/A	Citrus Ave at Randall Ave	Fontana	Yes	No
43	0%	N/A	Sierra Ave at Randall Ave	Fontana	Yes	No
44	50%	N/A	I-15 SB Ramps/Ontario Mills Dr at Fourth St	Rancho Cucamonga/ SB County	Yes	Yes
45	50%	N/A	I-15 NB Ramps at Fourth St	Rancho Cucamonga/ SB County	Yes	Yes
46	50%	N/A	Etiwanda Ave at Fourth St/San Bernardino	Rancho Cucamonga/ SB County	Yes	Yes
47	100%	N/A	Commerce Dr at San Bernardino Ave	SB County	Yes	No

48	100%	N/A	Vip Rd at San Bernardino Ave	SB County	No	No
49	100%	N/A	Cherry Ave at San Bernardino Ave	SB County	Yes	No
50	100%	N/A	Beech Ave at San Bernardino Ave	SB County	Yes	No
51	50%	N/A	Fontana Ave/Elm Ave at San Bernardino Ave	Fontana/SB County	Yes	No
52	0%	N/A	Citrus Ave at San Bernardino Ave	Fontana	Yes	No
53	0%	N/A	Sierra Ave at San Bernardino Ave	Fontana	Yes	No
54	50%	N/A	Beech Ave at Fontana Ave	Fontana/SB County	No	No
55	100%	N/A	Etiwanda Ave at Valley Blvd	SB County	Yes	No
56	100%	N/A	Commerce Dr/I-10 Ramps at Valley Blvd	SB County	Yes	No
57	50%	N/A	Cherry Ave at Valley Blvd	Fontana/SB County	Yes	No
58	50%	N/A	Fontana Ave/Hemlock Ave at Valley Blvd	Fontana/SB County	Yes	No
59	0%	N/A	Beech Ave at Valley Blvd	Fontana	Yes	No
60	0%	N/A	Citrus Ave at Valley Blvd	Fontana	Yes	No
61	0%	N/A	Sierra Ave at Valley Blvd	Fontana	Yes	No
62	100%	N/A	Etiwanda Ave at I-10 WB Off-Ramp	SB County	Yes	Yes
63	0%	N/A	Cherry Ave at I-10 WB Ramps	Fontana	Yes	Yes
64	0%	N/A	Citrus Ave at I-10 WB Ramps	Fontana	Yes	Yes

SCOPE FOR TRAFFIC STUDY

Project Name:	Speedway Commerce Center II

65	0%	N/A	Sierra Ave at I-10 WB Ramps	Fontana	Yes	Yes
66	50%	N/A	Etiwanda Ave at I-10 EB Ramps	Fontana/SB County	Yes	Yes
67	0%	N/A	Cherry Ave at I-10 EB Ramps	Fontana	Yes	Yes
68	0%	N/A	Citrus Ave at I-10 EB Ramps	Fontana	Yes	Yes
69	0%	N/A	Sierra Ave at I-10 EB Ramps	Fontana	Yes	Yes

Cities to be consulted: Fontana, Rancho Cucamonga

Project Name:	Speedway Commerce Center II

7. Other:

Per discussion with County staff, new counts will be conducted at the study locations.
Traffic counts should include the following parameters:
• Must be taken on Tuesdays, Wednesdays, or Thursdays.
• Must exclude holidays, and the first weekdays before and after the holiday.
• Must be taken on days when local schools or colleges are in session.
• Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
For all proposed mitigation measures, a conceptual plan for the improvements shall be submitted to our Traffic Studies section for review and approval prior to the approval of the Traffic Impact Analysis. All proposed improvements shall be within the right-of-way.
For all cumulative mitigation measures, a cost estimate for the improvement shall be submitted.
This study will be analyzed under the following scenarios:
• Existing Conditions
• Opening Year 2024
• Opening Year 2024 Plus Phase 1
• Opening Year 2027
• Opening Year 2027 Plus Project (Phases 1 and 2)
• Horizon Year 2040
• Horizon Year 2040 Plus Project
A VMT analysis will be performed using the SBTAM model based on VMT per employee for home-based work trip purpose (attractions) consistent with the San Bernardino County *Transportation Impact Study Guidelines* (July 2019)

This analysis must follow the most current Traffic Impact Study Guidelines for the County as stated in the County's Road Planning and Design Standards.

Project Name:	Speedway Commerce Center II

8. Fees

The County charges on an actual cost basis for review of traffic studies. An initial deposit of $1082 is required at the time that a land use application is filed with the Department of Land Use Services If the review costs exceed the initial deposit, the applicant will be expected to provide additional funds and the review will be suspended until the additional funds are deposited.

9. Contact Information:

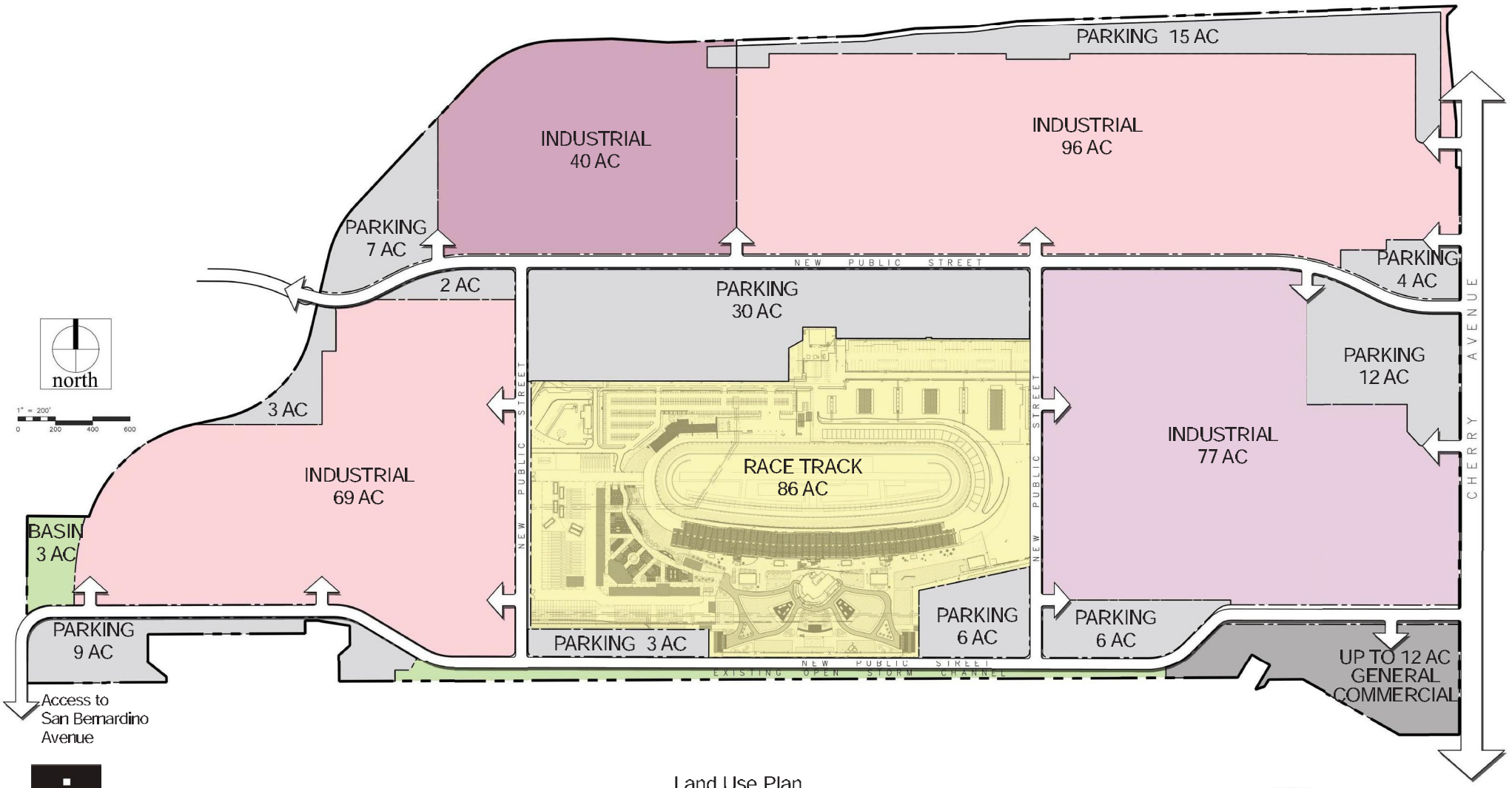
Please submit a signed copy of this scope for approval by the Traffic Division. Draft scopes may be sent electronically. Final scope with signature should be submitted in person or by US Mail to:

County of San Bernardino
Dept. of Public Works, Traffic Division
825 E. 3rd Street, Rm 115
San Bernardino, CA 92415-0835

Phone: 909-387-8186
Fax: 909-387-7809
Email: Anthony.Pham@dpw.sbcounty.gov

Attachment A - Site Plan

Kimley»Horn



HPA architecture

Land Use Plan

Speedway Commerce Center II

HILLWOOD
A PEROT COMPANY

18831 Bardeen Ave., Ste #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

County of San Bernardino, CA

August 12, 2021 / Job #19316

Preliminary Landscape Concept

ATTACHMENT B1
SUMMARY OF PROJECT TRIP GENERATION
TOTAL TRIP GENERATION

Vehicle Type	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Phase 1 Project Trips									
E-Commerce (Could include Cold Storage) - 2,773,050 SF									
Passenger Vehicles	11,845	1.0	11,845	765	162	927	1,089	1,017	2,106
2-Axle Trucks	337	1.5	506	4	4	8	1	4	5
3-Axle Trucks	292	2.0	584	13	15	28	7	12	19
4+ Axle Trucks	1,005	3.0	3,015	56	65	121	56	88	144
Truck Storage - 98 Acres									
Passenger Vehicles	1,103	1.0	1,103	13	22	35	75	38	113
2-Axle Trucks	712	1.5	1,068	13	23	36	33	17	50
3-Axle Trucks	1,460	2.0	2,920	36	63	99	89	45	134
4+ Axle Trucks	3,812	3.0	11,436	141	248	389	350	178	528
Phase 1 Total Passenger Vehicle Trips			12,948	778	184	962	1,164	1,055	2,219
Phase 1 Total Truck PCE Trips			19,529	263	418	681	536	344	880
Phase 1 Total Proposed Project PCE Trips			32,477	1,041	602	1,643	1,700	1,399	3,099
Phase 2 Project Trips									
High-Cube Short-Term Storage - 2,141,000 SF									
Passenger Vehicles	2,517	1.0	2,517	112	33	145	50	129	179
2-Axle Trucks	81	1.5	122	5	2	7	2	6	8
3-Axle Trucks	109	2.0	218	10	3	13	4	11	15
4+ Axle Trucks	289	3.0	867	39	11	50	17	45	62
High-Cube Cold Storage - 500,000 SF									
Passenger Vehicles	689	1.0	689	28	8	36	12	27	39
2-Axle Trucks	63	1.5	95	4	1	5	2	4	6
3-Axle Trucks	84	2.0	168	7	2	9	3	7	10
4+ Axle Trucks	224	3.0	672	27	8	35	12	27	39
General Commercial - 261,360 SF									
Passenger Vehicles	9,866	1.0	9,527	152	93	245	316	342	657
Total Passenger Vehicle Trips (Phases 1 and 2)			25,681	1,070	318	1,388	1,542	1,553	3,094
Total Truck PCE Trips (Phases 1 and 2)			21,671	355	445	800	576	444	1,020
Total Proposed Project PCE Trips (Phases 1 and 2)			47,352	1,425	763	2,188	2,118	1,997	4,114

PCE = Passenger Car Equivalent

ATTACHMENT B2

SUMMARY OF PROJECT TRIP GENERATION

SPEEDWAY COMMERCE CENTER II PROJECT - E-COMMERCE (COULD INCLUDE COLD STORAGE) COMPONENT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
All Vehicles	-	KSF	4.8607	0.2857	0.0697	0.3596	0.4009	0.3805	0.7815
Passenger Vehicles	-	KSF	4.2716	0.2757	0.0583	0.3340	0.3928	0.3669	0.7597
2-Axle Trucks	-	KSF	0.1216	0.0009	0.0009	0.0017	0.0002	0.0009	0.0010
3-Axle Trucks	-	KSF	0.1052	0.0024	0.0028	0.0052	0.0012	0.0022	0.0035
4-Axle Trucks	-	KSF	0.3623	0.0067	0.0078	0.0187	0.0067	0.0105	0.0173

PROJECT TRIP GENERATION

Project Land Use	Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
E-Commerce (Could include Cold Storage)	2,773.050	KSF	13,479	792	193	985	1,112	1,055	2,167

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	87.88%	11,845	1.0	11,845	765	162	927	1,089	1,017	2,106
2-Axle Trucks	2.50%	337	1.5	506	4	4	8	1	4	5
3-Axle Trucks	2.16%	292	2.0	584	13	15	28	7	12	19
4+ Axle Trucks	7.45%	1,005	3.0	3,015	56	65	121	56	88	144
Total Truck PCE Trips				4,105	73	84	157	64	104	168
Total Proposed Project PCE Trips				15,950	838	246	1,084	1,153	1,121	2,274

[1] Source: Trip Generation data provided by Applicant with a blended rate of 10 months off-peak and 2 months peak season project trips

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

ATTACHMENT B3

SUMMARY OF PROJECT TRIP GENERATION

SPEEDWAY COMMERCE CENTER II PROJECT - TRUCK STORAGE COMPONENT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Truck Storage - Employee Vehicles	-	Acre	11.260	0.130	0.220	0.350	0.770	0.390	1.160
Truck Storage - Trucks	-	Acre	61.060	0.760	1.330	2.090	1.870	0.950	2.820

PROJECT TRIP GENERATION

Project Land Use	Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Truck Storage Lot	98.000	Acre							
Employee Vehicles			1,103	13	22	35	75	38	113
Trucks			5,984	74	130	204	183	93	276

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles		1,103	1.0	1,103	13	22	35	75	38	113
2-Axle Trucks	11.90%	712	1.5	1,068	13	23	36	33	17	50
3-Axle Trucks	24.40%	1,460	2.0	2,920	36	63	99	89	45	134
4+ Axle Trucks	63.70%	3,812	3.0	11,436	141	248	389	350	178	528
Total Truck PCE Trips				15,424	190	334	524	472	240	712
Total Proposed Project PCE Trips				16,527	203	356	559	547	278	825

[1] Source: Truck storage trip rates provided by the City of San Bernardino staff based on data from similar facilities

[2] Truck Terminal truck mix based on *Truck Trip Generation Study - City of Fontana* (August 2003)

PCE = Passenger Car Equivalent

ATTACHMENT B4

SUMMARY OF PROJECT TRIP GENERATION

SPEEDWAY COMMERCE CENTER II PROJECT - HIGH-CUBE SHORT-TERM STORAGE COMPONENT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
High-Cube Short-Term Storage	154	KSF	1.400	0.062	0.018	0.080	0.028	0.072	0.100

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
High-Cube Short-Term Storage		2,141.000	KSF	2,997	133	39	172	60	154	214
Passenger Vehicles	84.00%			2,517	112	33	145	50	129	179
Trucks	16.00%			480	21	6	27	10	25	35

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [1]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	84.00%	2,517	1.0	2,517	112	33	145	50	129	179
2-Axle Trucks	2.71%	81	1.5	122	5	2	7	2	6	8
3-Axle Trucks	3.63%	109	2.0	218	10	3	13	4	11	15
4+ Axle Trucks	9.66%	289	3.0	867	39	11	50	17	45	62
Total Truck PCE Trips				1,207	54	16	70	23	62	85
Total Proposed Project PCE Trips				3,724	166	49	215	73	191	264

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

ATTACHMENT B5

SUMMARY OF PROJECT TRIP GENERATION

SPEEDWAY COMMERCE CENTER II PROJECT - HIGH-CUBE COLD STORAGE COMPONENT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
High-Cube Cold Storage Warehouse	157	KSF	2.120	0.085	0.025	0.110	0.037	0.083	0.120

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
High-Cube Cold Storage Warehouse		500.000	KSF	1,060	43	13	56	19	42	61
Passenger Vehicles	65.00%			689	28	8	36	12	27	39
Trucks	35.00%			371	15	5	20	7	15	22

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [1]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	65.00%	689	1.0	689	28	8	36	12	27	39
2-Axle Trucks	5.93%	63	1.5	95	4	1	5	2	4	6
3-Axle Trucks	7.95%	84	2.0	168	7	2	9	3	7	10
4+ Axle Trucks	21.12%	224	3.0	672	27	8	35	12	27	39
Total Truck PCE Trips				935	38	11	49	17	38	55
Total Proposed Project PCE Trips				1,624	66	19	85	29	65	94

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

ATTACHMENT B6

SUMMARY OF PROJECT TRIP GENERATION

SPEEDWAY COMMERCE CENTER II PROJECT - GENERAL COMMERCIAL

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Shopping Center	820	KSF	37.750	0.583	0.357	0.940	1.829	1.981	3.810

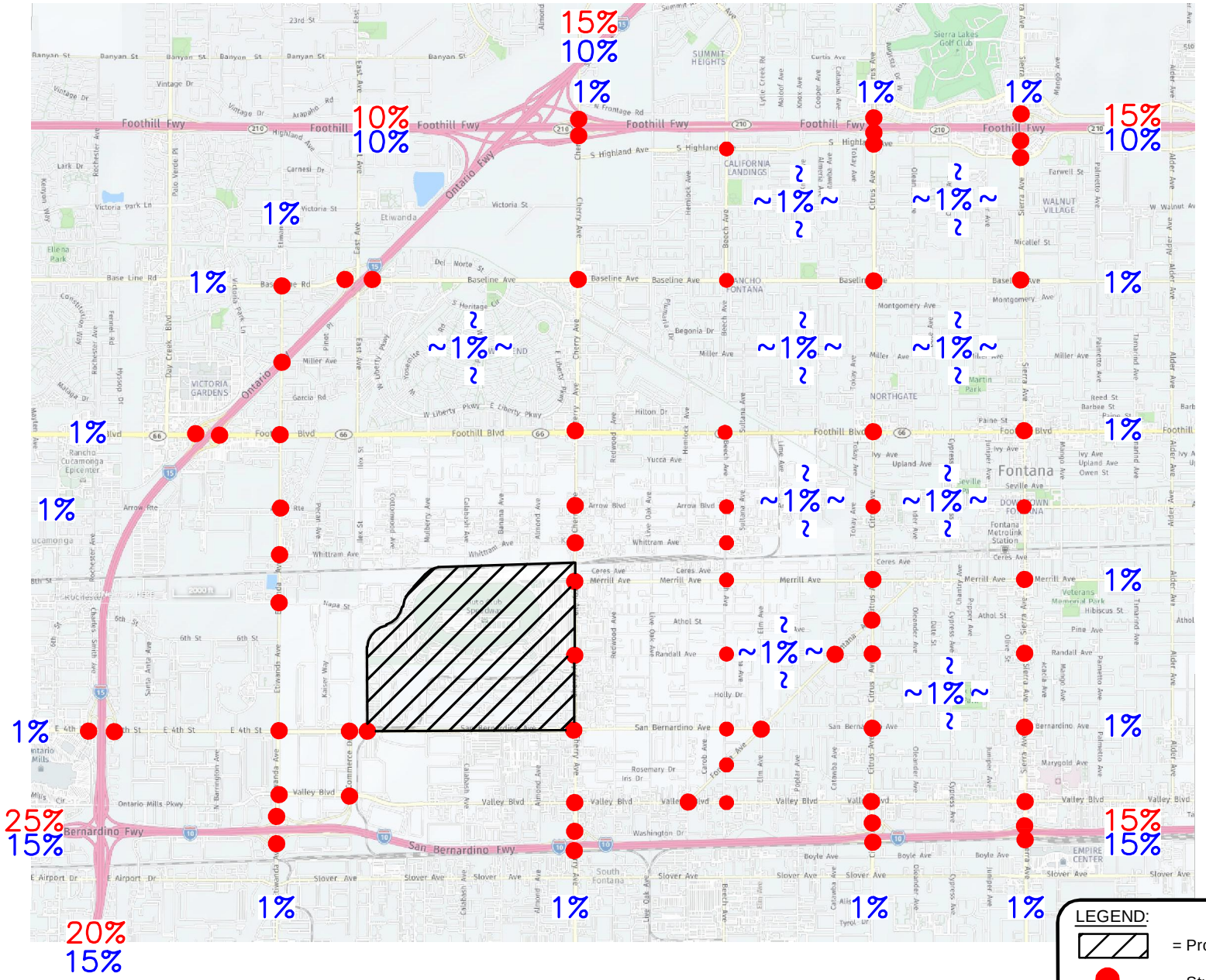
PROJECT TRIP GENERATION

Project Land Use	Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Shopping Center	261.360	KSF	9,866	152	93	245	478	518	996
Pass-By Reduction for Shopping Center (34% PM)[2]			-339	0	0	0	-163	-176	-339
Total Net New Project Trips			9,527	152	93	245	316	342	657

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition

[2] Source: Institute of Transportation Engineers (ITE) Trip Generation Handbook, 3rd Edition. The daily pass-by trips shown are the sum of the AM and the PM pass-by trips.

KSF = Thousand Square Feet



NOT TO SCALE

LEGEND:

= Project Site

= Study Intersection

XX%/YY% = Passenger Car /Truck Distribution

ATTACHMENT C
PROJECT STUDY AREA AND TRIP DISTRIBUTION

Kimley»Horn

APPENDIX B

TRAFFIC COUNT DATA SHEETS

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-001
Date: 9/8/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	26	48	0	0	0	123	41	0	0	0	0	0	56	1	51	0	346
7:15 AM	34	33	0	0	0	206	56	0	0	0	0	0	71	3	58	0	461
7:30 AM	36	49	0	0	0	197	58	0	0	0	0	0	68	1	61	0	470
7:45 AM	45	63	0	0	0	198	39	0	0	0	0	0	61	0	66	0	472
8:00 AM	41	70	0	0	0	137	42	0	0	0	0	0	88	2	64	0	444
8:15 AM	35	102	0	0	0	135	59	0	0	0	0	0	107	1	56	0	495
8:30 AM	52	88	0	0	0	113	41	0	0	0	0	0	104	1	21	0	420
8:45 AM	60	92	0	0	0	117	32	0	0	0	0	0	81	0	16	0	398
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	329	545	0	0	0	1226	368	0	0	0	0	0	636	9	393	0	3506
APPROACH %'s :	37.64%	62.36%	0.00%	0.00%	0.00%	76.91%	23.09%	0.00%					61.27%	0.87%	37.86%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	157	284	0	0	0	667	198	0	0	0	0	0	324	4	247	0	1881
PEAK HR FACTOR :	0.872	0.696	0.000	0.000	0.000	0.842	0.839	0.000	0.000	0.000	0.000	0.000	0.757	0.500	0.936	0.000	0.950
	0.805				0.848								0.877				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	66	129	0	0	0	97	46	0	0	0	0	0	64	0	39	0	441
4:15 PM	70	128	0	0	0	99	35	0	0	0	0	0	72	0	38	0	442
4:30 PM	75	123	0	0	0	119	35	0	0	0	0	0	76	0	33	0	461
4:45 PM	68	125	0	0	0	131	40	0	0	0	0	0	56	0	27	0	447
5:00 PM	78	163	0	0	0	86	33	0	0	0	0	0	70	0	32	0	462
5:15 PM	67	162	0	0	0	82	28	0	0	0	0	0	36	1	20	0	396
5:30 PM	88	157	0	0	0	61	37	0	0	0	0	0	34	1	17	0	395
5:45 PM	50	182	0	0	0	70	46	0	0	0	0	0	22	0	26	0	396
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	562	1169	0	0	0	745	300	0	0	0	0	0	430	2	232	0	3440
APPROACH %'s :	32.47%	67.53%	0.00%	0.00%	0.00%	71.29%	28.71%	0.00%					64.76%	0.30%	34.94%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	291	539	0	0	0	435	143	0	0	0	0	0	274	0	130	0	1812
PEAK HR FACTOR :	0.933	0.827	0.000	0.000	0.000	0.830	0.894	0.000	0.000	0.000	0.000	0.000	0.901	0.000	0.855	0.000	0.981
	0.861				0.845								0.918				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-001
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	25	45	0	0	0	113	40	0	0	0	0	0	50	1	50	0	324
7:15 AM	32	31	0	0	0	199	56	0	0	0	0	0	68	3	55	0	444
7:30 AM	35	45	0	0	0	189	57	0	0	0	0	0	65	1	58	0	450
7:45 AM	45	62	0	0	0	185	39	0	0	0	0	0	55	0	64	0	450
8:00 AM	37	65	0	0	0	135	42	0	0	0	0	0	81	2	62	0	424
8:15 AM	33	93	0	0	0	123	59	0	0	0	0	0	98	1	54	0	461
8:30 AM	49	81	0	0	0	109	40	0	0	0	0	0	95	1	20	0	395
8:45 AM	54	88	0	0	0	112	32	0	0	0	0	0	74	0	13	0	373
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	310	510	0	0	0	1165	365	0	0	0	0	0	586	9	376	0	3321
APPROACH %'s :	37.80%	62.20%	0.00%	0.00%	0.00%	76.14%	23.86%	0.00%					60.35%	0.93%	38.72%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	150	265	0	0	0	632	197	0	0	0	0	0	299	4	238	0	1785
PEAK HR FACTOR :	0.833	0.712	0.000	0.000	0.000	0.836	0.835	0.000	0.000	0.000	0.000	0.000	0.763	0.500	0.930	0.000	0.968
	0.823				0.842								0.884				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	63	122	0	0	0	92	46	0	0	0	0	0	63	0	38	0	424
4:15 PM	69	124	0	0	0	96	34	0	0	0	0	0	70	0	35	0	428
4:30 PM	74	117	0	0	0	114	35	0	0	0	0	0	73	0	33	0	446
4:45 PM	66	121	0	0	0	126	39	0	0	0	0	0	55	0	26	0	433
5:00 PM	76	153	0	0	0	80	33	0	0	0	0	0	65	0	30	0	437
5:15 PM	66	161	0	0	0	80	28	0	0	0	0	0	32	0	20	0	387
5:30 PM	83	152	0	0	0	59	35	0	0	0	0	0	32	1	16	0	378
5:45 PM	47	182	0	0	0	66	45	0	0	0	0	0	20	0	26	0	386
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	544	1132	0	0	0	713	295	0	0	0	0	0	410	1	224	0	3319
APPROACH %'s :	32.46%	67.54%	0.00%	0.00%	0.00%	70.73%	29.27%	0.00%					64.57%	0.16%	35.28%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	285	515	0	0	0	416	141	0	0	0	0	0	263	0	124	0	1744
PEAK HR FACTOR :	0.938	0.842	0.000	0.000	0.000	0.825	0.904	0.000	0.000	0.000	0.000	0.000	0.901	0.000	0.886	0.000	0.978
	0.873				0.844								0.913				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-001
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	2	0	1	0	7
7:15 AM	1	0	0	0	0	3	0	0	0	0	0	0	1	0	2	0	7
7:30 AM	1	2	0	0	0	3	0	0	0	0	0	0	2	0	3	0	11
7:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	0	1	0	5
8:00 AM	1	3	0	0	0	1	0	0	0	0	0	0	1	0	2	0	8
8:15 AM	0	5	0	0	0	5	0	0	0	0	0	0	2	0	2	0	14
8:30 AM	1	4	0	0	0	3	0	0	0	0	0	0	3	0	1	0	12
8:45 AM	2	1	0	0	0	0	0	0	0	0	0	0	3	0	2	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	15	0	0	0	22	0	0	0	0	0	0	15	0	14	0	72
APPROACH %'s :	28.57%	71.43%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					51.72%	0.00%	48.28%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	10	0	0	0	12	0	0	0	0	0	0	6	0	8	0	38
PEAK HR FACTOR :	0.500	0.500	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.667	0.000	0.679
	0.600				0.600								0.700				

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 WB Ramps				SR-210 WB Ramps				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	4	0	0	0	2	0	0	0	0	0	0	0	0	1	0	9
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0	4
4:30 PM	1	4	0	0	0	0	0	0	0	0	0	0	2	0	0	0	7
4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	3	0	0	0	1	0	0	0	0	0	0	1	0	2	0	7
5:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	2	1	0	0	5
5:30 PM	1	1	0	0	0	0	2	0	0	0	0	0	1	0	1	0	6
5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	13	0	0	0	6	2	0	0	0	0	0	8	1	6	0	42
APPROACH %'s :	31.58%	68.42%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%					53.33%	6.67%	40.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	8	0	0	0	3	0	0	0	0	0	0	4	0	4	0	20
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.714
	0.450				0.750								0.667				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-001
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	2	1	0	0	0	0	0	2	0	0	0	5
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	1	0	1	0	7
8:00 AM	1	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	5
8:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5
8:30 AM	2	3	0	0	0	1	1	0	0	0	0	0	1	0	0	0	8
8:45 AM	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	8	0	0	0	12	2	0	0	0	0	0	9	0	1	0	38
APPROACH %'s :	42.86%	57.14%	0.00%	0.00%	0.00%	85.71%	14.29%	0.00%					90.00%	0.00%	10.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	4	0	0	0	7	0	0	0	0	0	0	5	0	1	0	19
PEAK HR FACTOR :	0.500	0.500	0.000	0.000	0.000	0.350	0.000	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.250	0.000	0.679
	0.500				0.350								0.500				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
4:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	1	0	0	0	5
4:45 PM	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3
5:00 PM	0	2	0	0	0	3	0	0	0	0	0	0	2	0	0	0	7
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
5:30 PM	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3
5:45 PM	1	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	5	0	0	0	12	1	0	0	0	0	0	7	0	1	0	28
APPROACH %'s :	28.57%	71.43%	0.00%	0.00%	0.00%	92.31%	7.69%	0.00%					87.50%	0.00%	12.50%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	4	0	0	0	8	1	0	0	0	0	0	3	0	1	0	17
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.667	0.250	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.250	0.000	0.607
	0.500				0.750								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-001
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	3	0	0	0	4	0	0	0	0	0	0	2	0	0	0	10
7:15 AM	1	2	0	0	0	2	0	0	0	0	0	0	2	0	1	0	8
7:30 AM	0	1	0	0	0	4	1	0	0	0	0	0	1	0	0	0	7
7:45 AM	0	1	0	0	0	5	0	0	0	0	0	0	4	0	0	0	10
8:00 AM	2	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	7
8:15 AM	1	3	0	0	0	7	0	0	0	0	0	0	4	0	0	0	15
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
8:45 AM	2	2	0	0	0	5	0	0	0	0	0	0	3	0	1	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	12	0	0	0	27	1	0	0	0	0	0	26	0	2	0	75
APPROACH %'s :	36.84%	63.16%	0.00%	0.00%	0.00%	96.43%	3.57%	0.00%					92.86%	0.00%	7.14%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	5	0	0	0	16	1	0	0	0	0	0	14	0	0	0	39
PEAK HR FACTOR :	0.375	0.417	0.000	0.000	0.000	0.571	0.250	0.000	0.000	0.000	0.000	0.000	0.700	0.000	0.000	0.000	0.650
	0.500				0.607								0.700				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	3	0	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
4:15 PM	1	4	0	0	0	1	1	0	0	0	0	0	1	0	0	0	8
4:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	2	2	0	0	0	3	0	0	0	0	0	0	1	0	1	0	9
5:00 PM	2	5	0	0	0	2	0	0	0	0	0	0	2	0	0	0	11
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:30 PM	3	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	8
5:45 PM	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	19	0	0	0	14	2	0	0	0	0	0	5	0	1	0	51
APPROACH %'s :	34.48%	65.52%	0.00%	0.00%	0.00%	87.50%	12.50%	0.00%					83.33%	0.00%	16.67%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	5	12	0	0	0	8	1	0	0	0	0	0	4	0	1	0	31
PEAK HR FACTOR :	0.625	0.600	0.000	0.000	0.000	0.667	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.705
	0.607				0.750								0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-002
Date: 9/8/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	75	127	0	0	0	145	99	0	0	0	0	0	123	0	39	0	608
7:15 AM	71	132	0	0	0	195	115	0	0	0	0	0	108	1	50	0	672
7:30 AM	73	178	0	0	0	216	100	0	0	0	0	0	122	1	60	0	750
7:45 AM	61	261	0	0	0	184	81	0	0	0	0	0	109	0	87	0	783
8:00 AM	81	221	0	0	0	199	84	0	0	0	0	0	98	0	83	0	766
8:15 AM	75	226	0	0	0	204	82	0	0	0	0	0	66	0	68	0	721
8:30 AM	73	209	0	0	0	163	88	0	0	0	0	0	67	0	69	0	669
8:45 AM	59	175	0	0	0	138	73	0	0	0	0	0	76	0	49	0	570
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	568	1529	0	0	0	1444	722	0	0	0	0	0	769	2	505	0	5539
APPROACH %'s :	27.09%	72.91%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%					60.27%	0.16%	39.58%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	290	886	0	0	0	803	347	0	0	0	0	0	395	1	298	0	3020
PEAK HR FACTOR :	0.895	0.849	0.000	0.000	0.000	0.929	0.868	0.000	0.000	0.000	0.000	0.000	0.809	0.250	0.856	0.000	0.964
	0.913				0.910								0.885				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	81	269	0	0	0	191	91	0	0	0	0	0	92	0	93	0	817
4:15 PM	71	234	0	0	0	196	94	0	0	0	0	0	83	0	84	0	762
4:30 PM	87	280	0	0	0	169	98	0	0	0	0	0	92	0	89	0	815
4:45 PM	77	250	0	0	0	165	105	0	0	0	0	0	65	0	65	0	727
5:00 PM	85	277	0	0	0	179	101	0	0	0	0	0	31	0	37	0	710
5:15 PM	93	286	0	0	0	163	83	0	0	0	0	0	39	0	42	0	706
5:30 PM	90	302	0	0	0	219	77	0	0	0	0	0	41	0	35	0	764
5:45 PM	78	299	0	0	0	274	89	0	0	0	0	0	52	0	33	0	825
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	662	2197	0	0	0	1556	738	0	0	0	0	0	495	0	478	0	6126
APPROACH %'s :	23.15%	76.85%	0.00%	0.00%	0.00%	67.83%	32.17%	0.00%					50.87%	0.00%	49.13%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	316	1033	0	0	0	721	388	0	0	0	0	0	332	0	331	0	3121
PEAK HR FACTOR :	0.908	0.922	0.000	0.000	0.000	0.920	0.924	0.000	0.000	0.000	0.000	0.000	0.902	0.000	0.890	0.000	0.955
	0.919				0.956								0.896				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-002
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	72	123	0	0	0	136	98	0	0	0	0	0	118	0	39	0	586
7:15 AM	65	124	0	0	0	192	110	0	0	0	0	0	102	1	50	0	644
7:30 AM	70	176	0	0	0	210	99	0	0	0	0	0	119	1	58	0	733
7:45 AM	58	254	0	0	0	179	79	0	0	0	0	0	106	0	85	0	761
8:00 AM	79	214	0	0	0	197	83	0	0	0	0	0	90	0	81	0	744
8:15 AM	69	221	0	0	0	203	79	0	0	0	0	0	62	0	67	0	701
8:30 AM	68	205	0	0	0	159	83	0	0	0	0	0	63	0	66	0	644
8:45 AM	52	170	0	0	0	133	73	0	0	0	0	0	69	0	49	0	546
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	533	1487	0	0	0	1409	704	0	0	0	0	0	729	2	495	0	5359
APPROACH %'s :	26.39%	73.61%	0.00%	0.00%	0.00%	66.68%	33.32%	0.00%					59.46%	0.16%	40.38%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	276	865	0	0	0	789	340	0	0	0	0	0	377	1	291	0	2939
PEAK HR FACTOR :	0.873	0.851	0.000	0.000	0.000	0.939	0.859	0.000	0.000	0.000	0.000	0.000	0.792	0.250	0.856	0.000	0.966
	0.914				0.913								0.876				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	80	268	0	0	0	187	89	0	0	0	0	0	90	0	92	0	806
4:15 PM	70	233	0	0	0	193	91	0	0	0	0	0	80	0	84	0	751
4:30 PM	85	279	0	0	0	164	95	0	0	0	0	0	89	0	88	0	800
4:45 PM	76	248	0	0	0	164	105	0	0	0	0	0	65	0	65	0	723
5:00 PM	85	275	0	0	0	179	101	0	0	0	0	0	31	0	37	0	708
5:15 PM	93	286	0	0	0	160	82	0	0	0	0	0	38	0	42	0	701
5:30 PM	90	300	0	0	0	217	77	0	0	0	0	0	40	0	35	0	759
5:45 PM	78	297	0	0	0	272	89	0	0	0	0	0	52	0	33	0	821
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	657	2186	0	0	0	1536	729	0	0	0	0	0	485	0	476	0	6069
APPROACH %'s :	23.11%	76.89%	0.00%	0.00%	0.00%	67.81%	32.19%	0.00%					50.47%	0.00%	49.53%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	311	1028	0	0	0	708	380	0	0	0	0	0	324	0	329	0	3080
PEAK HR FACTOR :	0.915	0.921	0.000	0.000	0.000	0.917	0.905	0.000	0.000	0.000	0.000	0.000	0.900	0.000	0.894	0.000	0.955
	0.920				0.958								0.897				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-002
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	2	0	0	0	7	1	0	0	0	0	0	1	0	0	0	14
7:15 AM	1	6	0	0	0	2	3	0	0	0	0	0	1	0	0	0	13
7:30 AM	1	1	0	0	0	2	0	0	0	0	0	0	1	0	1	0	6
7:45 AM	1	3	0	0	0	2	1	0	0	0	0	0	1	0	0	0	8
8:00 AM	1	5	0	0	0	1	1	0	0	0	0	0	2	0	1	0	11
8:15 AM	2	4	0	0	0	0	2	0	0	0	0	0	3	0	0	0	11
8:30 AM	3	2	0	0	0	2	2	0	0	0	0	0	2	0	1	0	12
8:45 AM	3	3	0	0	0	4	0	0	0	0	0	0	3	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	15	26	0	0	0	20	10	0	0	0	0	0	14	0	3	0	88
APPROACH %'s :	36.59%	63.41%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%					82.35%	0.00%	17.65%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	5	13	0	0	0	5	4	0	0	0	0	0	7	0	2	0	36
PEAK HR FACTOR :	0.625	0.650	0.000	0.000	0.000	0.625	0.500	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.500	0.000	0.818
	0.750				0.750								0.750				

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	2	2	0	0	0	0	0	1	0	1	0	7
4:15 PM	0	1	0	0	0	2	2	0	0	0	0	0	1	0	0	0	6
4:30 PM	0	1	0	0	0	3	2	0	0	0	0	0	1	0	1	0	8
4:45 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	5	0	0	0	10	6	0	0	0	0	0	3	0	2	0	28
APPROACH %'s :	28.57%	71.43%	0.00%	0.00%	0.00%	62.50%	37.50%	0.00%					60.00%	0.00%	40.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	2	0	0	0	8	6	0	0	0	0	0	3	0	2	0	23
PEAK HR FACTOR :	0.500	0.500	0.000	0.000	0.000	0.667	0.750	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.500	0.000	0.719
	1.000				0.700								0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-002
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	7	0	0	0	3	0	0	0	0	0	0	6	0	0	0	16
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
	0.750				0.500												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	3	1	0	0	0	0	0	5	0	0	0	11
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	3	0	0	0	0	0	0	3	0	0	0	8
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	1.000
	0.250				0.750								0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-002
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	2	0	0	0	5
7:15 AM	5	2	0	0	0	1	2	0	0	0	0	0	3	0	0	0	13
7:30 AM	2	0	0	0	0	3	1	0	0	0	0	0	2	0	1	0	9
7:45 AM	2	3	0	0	0	3	1	0	0	0	0	0	2	0	2	0	13
8:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	6	0	1	0	9
8:15 AM	4	1	0	0	0	1	1	0	0	0	0	0	1	0	1	0	9
8:30 AM	2	0	0	0	0	1	3	0	0	0	0	0	1	0	2	0	9
8:45 AM	4	1	0	0	0	1	0	0	0	0	0	0	3	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	9	0	0	0	12	8	0	0	0	0	0	20	0	7	0	76
APPROACH %'s :	68.97%	31.03%	0.00%	0.00%	0.00%	60.00%	40.00%	0.00%					74.07%	0.00%	25.93%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	5	0	0	0	7	3	0	0	0	0	0	11	0	5	0	40
PEAK HR FACTOR :	0.563	0.417	0.000	0.000	0.000	0.583	0.750	0.000	0.000	0.000	0.000	0.000	0.458	0.000	0.625	0.000	0.769
	0.700				0.625								0.571				

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 WB Ramps				SR-210 WB Ramps				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	0	2	1	0	0	0	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	3
4:30 PM	2	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	4	0	0	0	7	2	0	0	0	0	0	2	0	0	0	18
APPROACH %'s :	42.86%	57.14%	0.00%	0.00%	0.00%	77.78%	22.22%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	3	1	0	0	0	2	2	0	0	0	0	0	2	0	0	0	10
PEAK HR FACTOR :	0.375	0.250	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500
	0.500				0.500								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-003
Date: 9/8/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	115	0	0	0	235	0	0	0	0	0	0	95	0	69	0	514
7:15 AM	0	114	0	0	0	220	0	0	0	0	0	0	131	0	52	0	517
7:30 AM	0	162	0	0	0	278	0	0	0	0	0	0	147	0	65	0	652
7:45 AM	0	251	0	0	0	260	0	0	0	0	0	0	150	0	83	0	744
8:00 AM	0	177	0	0	0	281	0	0	0	0	0	0	114	0	71	0	643
8:15 AM	0	166	0	0	0	230	0	0	0	0	0	0	84	0	66	0	546
8:30 AM	0	149	0	0	0	247	0	0	0	0	0	0	79	0	74	0	549
8:45 AM	0	166	0	0	0	234	0	0	0	0	0	0	102	0	82	0	584
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1300	0	0	0	1985	0	0	0	0	0	0	902	0	562	0	4749
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					61.61%	0.00%	38.39%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	756	0	0	0	1049	0	0	0	0	0	0	495	0	285	0	2585
PEAK HR FACTOR :	0.000	0.753	0.000	0.000	0.000	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.825	0.000	0.858	0.000	0.869
	0.753				0.933								0.837				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	253	0	0	0	299	0	0	0	0	0	0	105	0	118	0	775
4:15 PM	0	285	0	0	0	289	0	0	0	0	0	0	78	0	121	0	773
4:30 PM	0	275	0	0	0	298	0	0	0	0	0	0	67	0	113	0	753
4:45 PM	0	280	0	0	0	274	0	0	0	0	0	0	40	0	45	0	639
5:00 PM	0	308	0	0	0	286	0	0	0	0	0	0	23	0	21	0	638
5:15 PM	0	292	0	0	0	292	0	0	0	0	0	0	10	0	20	0	614
5:30 PM	0	295	0	0	0	289	0	0	0	0	0	0	28	0	21	0	633
5:45 PM	0	283	0	0	0	265	0	0	0	0	0	0	64	0	117	0	729
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2271	0	0	0	2292	0	0	0	0	0	0	415	0	576	0	5554
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					41.88%	0.00%	58.12%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1093	0	0	0	1160	0	0	0	0	0	0	290	0	397	0	2940
PEAK HR FACTOR :	0.000	0.959	0.000	0.000	0.000	0.970	0.000	0.000	0.000	0.000	0.000	0.000	0.690	0.000	0.820	0.000	0.948
	0.959				0.970								0.770				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-003
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	101	0	0	0	228	0	0	0	0	0	0	94	0	68	0	491
7:15 AM	0	107	0	0	0	215	0	0	0	0	0	0	130	0	50	0	502
7:30 AM	0	158	0	0	0	269	0	0	0	0	0	0	143	0	62	0	632
7:45 AM	0	242	0	0	0	252	0	0	0	0	0	0	146	0	82	0	722
8:00 AM	0	167	0	0	0	274	0	0	0	0	0	0	114	0	69	0	624
8:15 AM	0	159	0	0	0	227	0	0	0	0	0	0	82	0	65	0	533
8:30 AM	0	144	0	0	0	235	0	0	0	0	0	0	76	0	69	0	524
8:45 AM	0	156	0	0	0	229	0	0	0	0	0	0	101	0	80	0	566
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1234	0	0	0	1929	0	0	0	0	0	0	886	0	545	0	4594
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					61.91%	0.00%	38.09%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	726	0	0	0	1022	0	0	0	0	0	0	485	0	278	0	2511
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.932	0.000	0.000	0.000	0.000	0.000	0.000	0.830	0.000	0.848	0.000	0.869
	0.750				0.932								0.837				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	247	0	0	0	296	0	0	0	0	0	0	104	0	117	0	764
4:15 PM	0	281	0	0	0	286	0	0	0	0	0	0	75	0	120	0	762
4:30 PM	0	265	0	0	0	293	0	0	0	0	0	0	65	0	112	0	735
4:45 PM	0	274	0	0	0	272	0	0	0	0	0	0	40	0	44	0	630
5:00 PM	0	303	0	0	0	282	0	0	0	0	0	0	22	0	21	0	628
5:15 PM	0	284	0	0	0	289	0	0	0	0	0	0	10	0	18	0	601
5:30 PM	0	286	0	0	0	287	0	0	0	0	0	0	28	0	21	0	622
5:45 PM	0	275	0	0	0	263	0	0	0	0	0	0	64	0	117	0	719
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2215	0	0	0	2268	0	0	0	0	0	0	408	0	570	0	5461
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					41.72%	0.00%	58.28%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1067	0	0	0	1147	0	0	0	0	0	0	284	0	393	0	2891
PEAK HR FACTOR :	0.000	0.949	0.000	0.000	0.000	0.969	0.000	0.000	0.000	0.000	0.000	0.000	0.683	0.000	0.819	0.000	0.946
	0.949				0.969								0.766				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-003
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	0	3	0	0	0	0	0	0	1	0	0	0	8
7:15 AM	0	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	5
7:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	1	0	1	0	7
7:45 AM	0	5	0	0	0	2	0	0	0	0	0	0	2	0	0	0	9
8:00 AM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	2	0	12
8:15 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	1	0	6
8:30 AM	0	1	0	0	0	4	0	0	0	0	0	0	1	0	1	0	7
8:45 AM	0	1	0	0	0	4	0	0	0	0	0	0	1	0	1	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	21	0	0	0	27	0	0	0	0	0	0	7	0	6	0	61
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					53.85%	0.00%	46.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	12	0	0	0	15	0	0	0	0	0	0	3	0	4	0	34
PEAK HR FACTOR :	0.000	0.600	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.500	0.000	0.708
	0.600				0.750								0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	5
4:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	1	0	1	0	5
4:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	1	0	1	0	6
4:45 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1	0	5
5:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4
5:15 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	1	0	6
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	18	0	0	0	10	0	0	0	0	0	0	4	0	4	0	36
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					50.00%	0.00%	50.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	7	0	0	0	8	0	0	0	0	0	0	3	0	3	0	21
PEAK HR FACTOR :	0.000	0.583	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.750	0.000	0.875
	0.583				0.667								0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-003
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
7:15 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	1	0	5
7:30 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
7:45 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	4
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	0	0	0	7	0	0	0	0	0	0	1	0	5	0	27
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					16.67%	0.00%	83.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	6	0	0	0	2	0	0	0	0	0	0	1	0	2	0	11
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.688
	0.750				0.500								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	3
4:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	0	0	0	3	0	0	0	0	0	0	1	0	2	0	14
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					33.33%	0.00%	66.67%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	2	0	0	0	0	0	0	1	0	1	0	7
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.583
	0.375				0.500								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 WB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-003
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	1	0	10
7:15 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	1	0	5
7:30 AM	0	2	0	0	0	3	0	0	0	0	0	0	3	0	1	0	9
7:45 AM	0	2	0	0	0	5	0	0	0	0	0	0	2	0	0	0	9
8:00 AM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
8:15 AM	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5
8:30 AM	0	4	0	0	0	6	0	0	0	0	0	0	2	0	2	0	14
8:45 AM	0	7	0	0	0	1	0	0	0	0	0	0	0	0	1	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	31	0	0	0	22	0	0	0	0	0	0	8	0	6	0	67
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					57.14%	0.00%	42.86%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	12	0	0	0	10	0	0	0	0	0	0	6	0	1	0	29
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.806
	0.750				0.500								0.438				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3
4:30 PM	0	7	0	0	0	1	0	0	0	0	0	0	1	0	0	0	9
4:45 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	7	0	0	0	2	0	0	0	0	0	0	0	0	0	0	9
5:45 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	30	0	0	0	11	0	0	0	0	0	0	2	0	0	0	43
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	16	0	0	0	3	0	0	0	0	0	0	2	0	0	0	21
PEAK HR FACTOR :	0.000	0.571	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.583
	0.571				0.750								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-004
Date: 9/8/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	63	70	0	31	150	0	0	13	0	40	0	0	0	0	0	367
7:15 AM	0	51	71	0	26	248	0	0	16	0	57	0	0	0	0	0	469
7:30 AM	0	73	73	0	43	226	0	0	16	1	66	0	0	0	0	0	498
7:45 AM	0	76	67	0	33	217	0	0	29	1	58	0	0	0	0	0	481
8:00 AM	0	80	84	0	40	191	0	0	34	1	56	0	0	0	0	0	486
8:15 AM	0	100	56	0	45	186	0	0	34	1	57	0	0	0	0	0	479
8:30 AM	0	105	70	0	43	188	0	0	41	2	72	0	0	0	0	0	521
8:45 AM	0	103	84	0	29	166	0	0	42	1	74	0	0	0	0	0	499
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	651	575	0	290	1572	0	0	225	7	480	0	0	0	0	0	3800
APPROACH %'s :	0.00%	53.10%	46.90%	0.00%	15.57%	84.43%	0.00%	0.00%	31.60%	0.98%	67.42%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	388	294	0	157	731	0	0	151	5	259	0	0	0	0	0	1985
PEAK HR FACTOR :	0.000	0.924	0.875	0.000	0.872	0.957	0.000	0.000	0.899	0.625	0.875	0.000	0.000	0.000	0.000	0.000	0.952
	0.912				0.961				0.887								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	147	85	0	14	142	0	0	51	0	83	0	0	0	0	0	522
4:15 PM	0	152	64	0	23	152	0	0	46	0	94	0	0	0	0	0	531
4:30 PM	0	158	66	0	20	171	0	0	44	1	80	0	0	0	0	0	540
4:45 PM	0	137	77	0	13	177	0	0	53	1	79	0	0	0	0	0	537
5:00 PM	0	199	81	0	16	136	0	0	48	0	81	0	0	0	0	0	561
5:15 PM	0	170	89	0	11	109	0	0	53	0	78	0	0	0	0	0	510
5:30 PM	0	180	64	0	10	81	0	0	64	0	90	0	0	0	0	0	489
5:45 PM	0	177	57	0	11	84	0	0	55	0	110	0	0	0	0	0	494
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1320	583	0	118	1052	0	0	414	2	695	0	0	0	0	0	4184
APPROACH %'s :	0.00%	69.36%	30.64%	0.00%	10.09%	89.91%	0.00%	0.00%	37.26%	0.18%	62.56%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	646	288	0	72	636	0	0	191	2	334	0	0	0	0	0	2169
PEAK HR FACTOR :	0.000	0.812	0.889	0.000	0.783	0.898	0.000	0.000	0.901	0.500	0.888	0.000	0.000	0.000	0.000	0.000	0.967
	0.834				0.927				0.941								

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-004
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	58	66	0	31	135	0	0	13	0	35	0	0	0	0	0	338
7:15 AM	0	49	62	0	26	239	0	0	13	0	52	0	0	0	0	0	441
7:30 AM	0	69	70	0	43	213	0	0	16	1	63	0	0	0	0	0	475
7:45 AM	0	74	65	0	33	201	0	0	29	1	54	0	0	0	0	0	457
8:00 AM	0	72	80	0	39	181	0	0	34	1	51	0	0	0	0	0	458
8:15 AM	0	89	51	0	45	172	0	0	32	1	53	0	0	0	0	0	443
8:30 AM	0	96	62	0	42	168	0	0	40	2	64	0	0	0	0	0	474
8:45 AM	0	95	79	0	28	157	0	0	42	1	64	0	0	0	0	0	466
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	602	535	0	287	1466	0	0	219	7	436	0	0	0	0	0	3552
APPROACH %'s :	0.00%	52.95%	47.05%	0.00%	16.37%	83.63%	0.00%	0.00%	33.08%	1.06%	65.86%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	352	272	0	154	678	0	0	148	5	232	0	0	0	0	0	1841
PEAK HR FACTOR :	0.000	0.917	0.850	0.000	0.856	0.936	0.000	0.000	0.881	0.625	0.906	0.000	0.000	0.000	0.000	0.000	0.971
		0.897				0.945				0.900							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	137	80	0	14	139	0	0	51	0	82	0	0	0	0	0	503
4:15 PM	0	146	61	0	23	145	0	0	45	0	87	0	0	0	0	0	507
4:30 PM	0	153	64	0	20	163	0	0	43	1	72	0	0	0	0	0	516
4:45 PM	0	131	71	0	13	171	0	0	52	1	77	0	0	0	0	0	516
5:00 PM	0	190	78	0	16	127	0	0	47	0	80	0	0	0	0	0	538
5:15 PM	0	165	84	0	11	103	0	0	53	0	74	0	0	0	0	0	490
5:30 PM	0	174	61	0	10	75	0	0	63	0	89	0	0	0	0	0	472
5:45 PM	0	173	56	0	11	80	0	0	54	0	109	0	0	0	0	0	483
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1269	555	0	118	1003	0	0	408	2	670	0	0	0	0	0	4025
APPROACH %'s :	0.00%	69.57%	30.43%	0.00%	10.53%	89.47%	0.00%	0.00%	37.78%	0.19%	62.04%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	620	274	0	72	606	0	0	187	2	316	0	0	0	0	0	2077
PEAK HR FACTOR :	0.000	0.816	0.878	0.000	0.783	0.886	0.000	0.000	0.899	0.500	0.908	0.000	0.000	0.000	0.000	0.000	0.965
		0.834				0.921				0.956							

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-004
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	6
7:15 AM	0	0	3	0	0	5	0	0	3	0	1	0	0	0	0	0	12
7:30 AM	0	1	1	0	0	5	0	0	0	0	0	0	0	0	0	0	7
7:45 AM	0	1	0	0	0	3	0	0	0	0	2	0	0	0	0	0	6
8:00 AM	0	3	3	0	1	2	0	0	0	0	2	0	0	0	0	0	11
8:15 AM	0	6	2	0	0	6	0	0	2	0	2	0	0	0	0	0	18
8:30 AM	0	2	2	0	1	6	0	0	0	0	2	0	0	0	0	0	13
8:45 AM	0	4	3	0	0	2	0	0	0	0	4	0	0	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	17	15	0	2	34	0	0	5	0	13	0	0	0	0	0	86
APPROACH %'s :	0.00%	53.13%	46.88%	0.00%	5.56%	94.44%	0.00%	0.00%	27.78%	0.00%	72.22%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	15	10	0	2	16	0	0	2	0	10	0	0	0	0	0	55
PEAK HR FACTOR :	0.000	0.625	0.833	0.000	0.500	0.667	0.000	0.000	0.250	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.764
	0.781				0.643				0.750								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	6	4	0	0	0	0	0	0	0	1	0	0	0	0	0	11
4:15 PM	0	0	2	0	0	4	0	0	1	0	2	0	0	0	0	0	9
4:30 PM	0	3	1	0	0	2	0	0	1	0	4	0	0	0	0	0	11
4:45 PM	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	4
5:00 PM	0	1	0	0	0	3	0	0	1	0	0	0	0	0	0	0	5
5:15 PM	0	1	1	0	0	1	0	0	0	0	3	0	0	0	0	0	6
5:30 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	10	0	0	13	0	0	5	0	10	0	0	0	0	0	53
APPROACH %'s :	0.00%	60.00%	40.00%	0.00%	0.00%	100.00%	0.00%	0.00%	33.33%	0.00%	66.67%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	5	5	0	0	9	0	0	4	0	6	0	0	0	0	0	29
PEAK HR FACTOR :	0.000	0.417	0.625	0.000	0.000	0.563	0.000	0.000	1.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.659
	0.625				0.563				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-004
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	2	0	0	4	0	0	0	0	1	0	0	0	0	0	7
7:15 AM	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	4
7:30 AM	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
7:45 AM	0	1	1	0	0	6	0	0	0	0	0	0	0	0	0	0	8
8:00 AM	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
8:15 AM	0	2	1	0	0	2	0	0	0	0	0	0	0	0	0	0	5
8:30 AM	0	6	2	0	0	4	0	0	1	0	2	0	0	0	0	0	15
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	13	11	0	0	21	0	0	1	0	4	0	0	0	0	0	50
APPROACH %'s :	0.00%	54.17%	45.83%	0.00%	0.00%	100.00%	0.00%	0.00%	20.00%	0.00%	80.00%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	11	4	0	0	8	0	0	1	0	2	0	0	0	0	0	26
PEAK HR FACTOR :	0.000	0.458	0.500	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.433
	0.469				0.500				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4
4:45 PM	0	2	1	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	0	1	1	0	0	3	0	0	0	0	1	0	0	0	0	0	6
5:15 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	2	1	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	7	5	0	0	17	0	0	0	0	2	0	0	0	0	0	31
APPROACH %'s :	0.00%	58.33%	41.67%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	4	2	0	0	10	0	0	0	0	2	0	0	0	0	0	18
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.000	0.833	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.750
	0.500				0.833				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-004
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	1	0	0	6	0	0	0	0	4	0	0	0	0	0	16
7:15 AM	0	2	4	0	0	3	0	0	0	0	3	0	0	0	0	0	12
7:30 AM	0	2	0	0	0	6	0	0	0	0	3	0	0	0	0	0	11
7:45 AM	0	0	1	0	0	7	0	0	0	0	2	0	0	0	0	0	10
8:00 AM	0	3	0	0	0	7	0	0	0	0	3	0	0	0	0	0	13
8:15 AM	0	3	2	0	0	6	0	0	0	0	2	0	0	0	0	0	13
8:30 AM	0	1	4	0	0	10	0	0	0	0	4	0	0	0	0	0	19
8:45 AM	0	3	2	0	1	6	0	0	0	0	6	0	0	0	0	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	19	14	0	1	51	0	0	0	0	27	0	0	0	0	0	112
APPROACH %'s :	0.00%	57.58%	42.42%	0.00%	1.92%	98.08%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	10	8	0	1	29	0	0	0	0	15	0	0	0	0	0	63
PEAK HR FACTOR :	0.000	0.833	0.500	0.000	0.250	0.725	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.829
	0.900				0.750				0.625								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	1	0	0	2	0	0	0	0	0	0	0	0	0	0	7
4:15 PM	0	5	1	0	0	1	0	0	0	0	5	0	0	0	0	0	12
4:30 PM	0	2	1	0	0	3	0	0	0	0	3	0	0	0	0	0	9
4:45 PM	0	3	3	0	0	4	0	0	0	0	2	0	0	0	0	0	12
5:00 PM	0	7	2	0	0	3	0	0	0	0	0	0	0	0	0	0	12
5:15 PM	0	4	3	0	0	2	0	0	0	0	1	0	0	0	0	0	10
5:30 PM	0	2	2	0	0	1	0	0	1	0	1	0	0	0	0	0	7
5:45 PM	0	2	0	0	0	3	0	0	0	0	1	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	29	13	0	0	19	0	0	1	0	13	0	0	0	0	0	75
APPROACH %'s :	0.00%	69.05%	30.95%	0.00%	0.00%	100.00%	0.00%	0.00%	7.14%	0.00%	92.86%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	17	7	0	0	11	0	0	0	0	10	0	0	0	0	0	45
PEAK HR FACTOR :	0.000	0.607	0.583	0.000	0.000	0.688	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.938
	0.667				0.688				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-005
Date: 9/8/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	142	115	0	68	188	0	0	70	0	110	0	0	0	0	0	693
7:15 AM	0	145	100	0	61	252	0	0	48	2	100	0	0	0	0	0	708
7:30 AM	0	169	111	0	71	260	0	0	92	1	113	0	0	0	0	0	817
7:45 AM	0	231	93	0	65	234	0	0	80	0	112	0	0	0	0	0	815
8:00 AM	0	201	84	0	80	215	0	0	112	2	87	0	0	0	0	0	781
8:15 AM	0	183	105	0	80	185	0	0	118	0	74	0	0	0	0	0	745
8:30 AM	0	189	90	0	47	191	0	0	87	0	82	0	0	0	0	0	686
8:45 AM	0	161	59	0	35	176	0	0	74	0	61	0	0	0	0	0	566
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1421	757	0	507	1701	0	0	681	5	739	0	0	0	0	0	5811
APPROACH %'s :	0.00%	65.24%	34.76%	0.00%	22.96%	77.04%	0.00%	0.00%	47.79%	0.35%	51.86%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	784	393	0	296	894	0	0	402	3	386	0	0	0	0	0	3158
PEAK HR FACTOR :	0.000	0.848	0.885	0.000	0.925	0.860	0.000	0.000	0.852	0.375	0.854	0.000	0.000	0.000	0.000	0.000	0.966
		0.908				0.899				0.960							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	235	77	0	68	199	0	0	121	0	69	0	0	0	0	0	769
4:15 PM	0	181	95	0	70	199	0	0	117	0	75	0	0	0	0	0	737
4:30 PM	0	226	78	0	74	200	0	0	121	1	78	0	0	0	0	0	778
4:45 PM	0	220	94	0	58	179	0	0	103	0	62	0	0	0	0	0	716
5:00 PM	0	256	58	0	40	142	0	1	114	0	92	0	0	0	0	0	703
5:15 PM	0	272	61	0	49	149	0	0	112	2	94	0	0	0	0	0	739
5:30 PM	0	253	69	0	49	162	0	0	128	0	83	0	0	0	0	0	744
5:45 PM	0	251	76	0	64	219	0	0	141	1	70	0	0	0	0	0	822
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1894	608	0	472	1449	0	1	957	4	623	0	0	0	0	0	6008
APPROACH %'s :	0.00%	75.70%	24.30%	0.00%	24.56%	75.39%	0.00%	0.05%	60.42%	0.25%	39.33%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1032	264	0	202	672	0	1	495	3	339	0	0	0	0	0	3008
PEAK HR FACTOR :	0.000	0.949	0.868	0.000	0.789	0.767	0.000	0.250	0.878	0.375	0.902	0.000	0.000	0.000	0.000	0.000	0.915
		0.973				0.773				0.987							

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-005
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	133	109	0	67	179	0	0	67	0	109	0	0	0	0	0	664
7:15 AM	0	137	96	0	61	240	0	0	47	2	97	0	0	0	0	0	680
7:30 AM	0	161	109	0	68	253	0	0	90	1	110	0	0	0	0	0	792
7:45 AM	0	227	91	0	64	228	0	0	79	0	112	0	0	0	0	0	801
8:00 AM	0	189	82	0	78	207	0	0	110	2	83	0	0	0	0	0	751
8:15 AM	0	177	98	0	80	180	0	0	117	0	69	0	0	0	0	0	721
8:30 AM	0	180	83	0	46	185	0	0	84	0	75	0	0	0	0	0	653
8:45 AM	0	155	53	0	33	166	0	0	69	0	57	0	0	0	0	0	533
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1359	721	0	497	1638	0	0	663	5	712	0	0	0	0	0	5595
APPROACH %'s :	0.00%	65.34%	34.66%	0.00%	23.28%	76.72%	0.00%	0.00%	48.04%	0.36%	51.59%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	754	380	0	290	868	0	0	396	3	374	0	0	0	0	0	3065
PEAK HR FACTOR :	0.000	0.830	0.872	0.000	0.906	0.858	0.000	0.000	0.846	0.375	0.835	0.000	0.000	0.000	0.000	0.000	0.957
	0.892				0.902				0.961								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	232	73	0	66	192	0	0	121	0	69	0	0	0	0	0	753
4:15 PM	0	180	92	0	69	195	0	0	115	0	75	0	0	0	0	0	726
4:30 PM	0	224	72	0	72	193	0	0	121	1	77	0	0	0	0	0	760
4:45 PM	0	217	91	0	58	175	0	0	102	0	61	0	0	0	0	0	704
5:00 PM	0	251	56	0	39	142	0	1	113	0	89	0	0	0	0	0	691
5:15 PM	0	271	61	0	49	145	0	0	111	2	92	0	0	0	0	0	731
5:30 PM	0	251	67	0	49	161	0	0	128	0	83	0	0	0	0	0	739
5:45 PM	0	248	76	0	63	218	0	0	141	1	68	0	0	0	0	0	815
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1874	588	0	465	1421	0	1	952	4	614	0	0	0	0	0	5919
APPROACH %'s :	0.00%	76.12%	23.88%	0.00%	24.64%	75.30%	0.00%	0.05%	60.64%	0.25%	39.11%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1021	260	0	200	666	0	1	493	3	332	0	0	0	0	0	2976
PEAK HR FACTOR :	0.000	0.942	0.855	0.000	0.794	0.764	0.000	0.250	0.874	0.375	0.902	0.000	0.000	0.000	0.000	0.000	0.913
	0.965				0.771				0.981								

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-005
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	1	0	1	4	0	0	1	0	0	0	0	0	0	0	12
7:15 AM	0	5	1	0	0	5	0	0	1	0	0	0	0	0	0	0	12
7:30 AM	0	4	0	0	1	3	0	0	0	0	3	0	0	0	0	0	11
7:45 AM	0	2	2	0	1	1	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	7	0	0	2	2	0	0	1	0	0	0	0	0	0	0	12
8:15 AM	0	4	3	0	0	3	0	0	0	0	1	0	0	0	0	0	11
8:30 AM	0	6	3	0	1	2	0	0	0	0	3	0	0	0	0	0	15
8:45 AM	0	3	1	0	2	6	0	0	2	0	2	0	0	0	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	36	11	0	8	26	0	0	5	0	9	0	0	0	0	0	95
APPROACH %'s :	0.00%	76.60%	23.40%	0.00%	23.53%	76.47%	0.00%	0.00%	35.71%	0.00%	64.29%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	17	5	0	4	9	0	0	1	0	4	0	0	0	0	0	40
PEAK HR FACTOR :	0.000	0.607	0.417	0.000	0.500	0.750	0.000	0.000	0.250	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.833
	0.786				0.813				0.417								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	2	0	2	4	0	0	0	0	0	0	0	0	0	0	10
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	1	3	0	2	4	0	0	0	0	0	0	0	0	0	0	10
4:45 PM	0	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	0	4	0	0	1	0	0	0	1	0	3	0	0	0	0	0	9
5:15 PM	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	4
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	7	0	6	13	0	0	2	0	5	0	0	0	0	0	45
APPROACH %'s :	0.00%	63.16%	36.84%	0.00%	31.58%	68.42%	0.00%	0.00%	28.57%	0.00%	71.43%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	7	1	0	2	1	0	0	2	0	5	0	0	0	0	0	18
PEAK HR FACTOR :	0.000	0.438	0.250	0.000	0.500	0.250	0.000	0.000	0.500	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.500
	0.500				0.750				0.438								

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-005
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	4
8:15 AM	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	4
8:30 AM	0	1	3	0	0	1	0	0	0	0	1	0	0	0	0	0	6
8:45 AM	0	1	0	0	0	2	0	0	2	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	8	0	0	9	0	0	4	0	3	0	0	0	0	0	29
APPROACH %'s :	0.00%	38.46%	61.54%	0.00%	0.00%	100.00%	0.00%	0.00%	57.14%	0.00%	42.86%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	4	0	0	2	0	0	2	0	2	0	0	0	0	0	12
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.750
	0.750				0.500				0.500								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:45 PM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	8	0	0	7	0	0	0	0	3	0	0	0	0	0	21
APPROACH %'s :	0.00%	27.27%	72.73%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	2	0	0	1	0	0	0	0	2	0	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.250	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.750
	0.750				0.250				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-005
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	5	0	0	3	0	0	2	0	1	0	0	0	0	0	14
7:15 AM	0	3	2	0	0	5	0	0	0	0	3	0	0	0	0	0	13
7:30 AM	0	3	1	0	2	3	0	0	1	0	0	0	0	0	0	0	10
7:45 AM	0	2	0	0	0	5	0	0	1	0	0	0	0	0	0	0	8
8:00 AM	0	4	1	0	0	6	0	0	1	0	2	0	0	0	0	0	14
8:15 AM	0	2	2	0	0	1	0	0	0	0	4	0	0	0	0	0	9
8:30 AM	0	2	1	0	0	3	0	0	3	0	3	0	0	0	0	0	12
8:45 AM	0	2	5	0	0	2	0	0	1	0	2	0	0	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	21	17	0	2	28	0	0	9	0	15	0	0	0	0	0	92
APPROACH %'s :	0.00%	55.26%	44.74%	0.00%	6.67%	93.33%	0.00%	0.00%	37.50%	0.00%	62.50%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	11	4	0	2	15	0	0	3	0	6	0	0	0	0	0	41
PEAK HR FACTOR :	0.000	0.688	0.500	0.000	0.250	0.625	0.000	0.000	0.750	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.732
	0.750				0.708				0.563								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	2	2	0	0	1.3	0.3	1.3	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	1	0	1	1	0	0	2	0	0	0	0	0	0	0	5
4:30 PM	0	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	4
4:45 PM	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	4
5:00 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	5	0	1	8	0	0	3	0	1	0	0	0	0	0	23
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	11.11%	88.89%	0.00%	0.00%	75.00%	0.00%	25.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0	8
PEAK HR FACTOR :	0.000	0.375	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667
	0.500				0.500												

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-006
Date: 9/15/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	82	27	0	0	114	1	0	13	0	46	0	0	0	0	0	283
7:15 AM	0	221	88	0	0	286	3	0	32	0	99	0	0	0	0	0	729
7:30 AM	0	225	119	0	0	321	3	0	21	0	115	0	0	0	0	0	804
7:45 AM	0	236	129	0	0	334	5	0	38	0	128	0	0	0	0	0	870
8:00 AM	0	251	100	0	0	331	4	0	42	0	148	0	0	0	0	0	876
8:15 AM	0	206	111	0	0	257	2	0	34	0	140	0	0	0	0	0	750
8:30 AM	0	184	95	0	0	251	4	0	39	0	94	0	0	0	0	0	667
8:45 AM	0	191	70	0	0	227	3	0	41	0	104	0	0	0	0	0	636
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1596	739	0	0	2121	25	0	260	0	874	0	0	0	0	0	5615
APPROACH %'s :	0.00%	68.35%	31.65%	0.00%	0.00%	98.84%	1.16%	0.00%	22.93%	0.00%	77.07%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	918	459	0	0	1243	14	0	135	0	531	0	0	0	0	0	3300
PEAK HR FACTOR :	0.000	0.914	0.890	0.000	0.000	0.930	0.700	0.000	0.804	0.000	0.897	0.000	0.000	0.000	0.000	0.000	0.942
	0.943				0.927				0.876								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	315	150	0	0	287	4	0	51	0	115	0	0	0	0	0	922
4:15 PM	0	389	156	0	0	294	6	0	39	0	108	0	0	0	0	0	992
4:30 PM	0	332	171	0	0	294	6	0	45	0	83	0	0	0	0	0	931
4:45 PM	0	356	163	0	0	298	2	0	40	0	99	0	0	0	0	0	958
5:00 PM	0	338	159	0	0	270	0	0	43	0	101	0	0	0	0	0	911
5:15 PM	0	406	143	0	0	295	1	0	40	0	98	0	0	0	0	0	983
5:30 PM	0	345	162	0	0	276	1	0	40	0	91	0	0	0	0	0	915
5:45 PM	0	360	140	0	0	298	1	0	38	0	83	0	0	0	0	0	920
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2841	1244	0	0	2312	21	0	336	0	778	0	0	0	0	0	7532
APPROACH %'s :	0.00%	69.55%	30.45%	0.00%	0.00%	99.10%	0.90%	0.00%	30.16%	0.00%	69.84%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1392	640	0	0	1173	18	0	175	0	405	0	0	0	0	0	3803
PEAK HR FACTOR :	0.000	0.895	0.936	0.000	0.000	0.984	0.750	0.000	0.858	0.000	0.880	0.000	0.000	0.000	0.000	0.000	0.958
	0.932				0.993				0.873								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-006
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	81	26	0	0	111	0	0	8	0	43	0	0	0	0	0	269
7:15 AM	0	212	88	0	0	281	0	0	28	0	93	0	0	0	0	0	702
7:30 AM	0	218	117	0	0	315	0	0	17	0	111	0	0	0	0	0	778
7:45 AM	0	229	127	0	0	327	0	0	36	0	125	0	0	0	0	0	844
8:00 AM	0	243	99	0	0	323	0	0	35	0	142	0	0	0	0	0	842
8:15 AM	0	204	110	0	0	253	0	0	30	0	133	0	0	0	0	0	730
8:30 AM	0	176	94	0	0	244	0	0	36	0	91	0	0	0	0	0	641
8:45 AM	0	185	69	0	0	215	0	0	37	0	99	0	0	0	0	0	605
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1548	730	0	0	2069	0	0	227	0	837	0	0	0	0	0	5411
APPROACH %'s :	0.00%	67.95%	32.05%	0.00%	0.00%	100.00%	0.00%	0.00%	21.33%	0.00%	78.67%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	894	453	0	0	1218	0	0	118	0	511	0	0	0	0	0	3194
PEAK HR FACTOR :	0.000	0.920	0.892	0.000	0.000	0.931	0.000	0.000	0.819	0.000	0.900	0.000	0.000	0.000	0.000	0.000	0.946
	0.946				0.931				0.888								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	309	150	0	0	284	0	0	48	0	113	0	0	0	0	0	904
4:15 PM	0	385	155	0	0	293	0	0	36	0	105	0	0	0	0	0	974
4:30 PM	0	330	168	0	0	287	0	0	40	0	81	0	0	0	0	0	906
4:45 PM	0	346	162	0	0	293	0	0	39	0	99	0	0	0	0	0	939
5:00 PM	0	332	159	0	0	266	0	0	40	0	98	0	0	0	0	0	895
5:15 PM	0	401	142	0	0	292	0	0	37	0	98	0	0	0	0	0	970
5:30 PM	0	341	161	0	0	275	0	0	32	0	90	0	0	0	0	0	899
5:45 PM	0	357	137	0	0	295	0	0	34	0	82	0	0	0	0	0	905
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2801	1234	0	0	2285	0	0	306	0	766	0	0	0	0	0	7392
APPROACH %'s :	0.00%	69.42%	30.58%	0.00%	0.00%	100.00%	0.00%	0.00%	28.54%	0.00%	71.46%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1370	635	0	0	1157	0	0	163	0	398	0	0	0	0	0	3723
PEAK HR FACTOR :	0.000	0.890	0.945	0.000	0.000	0.987	0.000	0.000	0.849	0.000	0.881	0.000	0.000	0.000	0.000	0.000	0.956
	0.928				0.987				0.871								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-006
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	1	0	2	0	3	0	0	0	0	0	7
7:15 AM	0	8	0	0	0	3	2	0	1	0	4	0	0	0	0	0	18
7:30 AM	0	3	1	0	0	4	2	0	2	0	2	0	0	0	0	0	14
7:45 AM	0	1	2	0	0	5	4	0	0	0	2	0	0	0	0	0	14
8:00 AM	0	5	1	0	0	4	2	0	2	0	3	0	0	0	0	0	17
8:15 AM	0	2	1	0	0	2	0	0	0	0	4	0	0	0	0	0	9
8:30 AM	0	4	1	0	0	5	1	0	1	0	2	0	0	0	0	0	14
8:45 AM	0	2	1	0	0	6	2	0	1	0	3	0	0	0	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	26	7	0	0	29	14	0	9	0	23	0	0	0	0	0	108
APPROACH %'s :	0.00%	78.79%	21.21%	0.00%	0.00%	67.44%	32.56%	0.00%	28.13%	0.00%	71.88%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	11	5	0	0	15	8	0	4	0	11	0	0	0	0	0	54
PEAK HR FACTOR :	0.000	0.550	0.625	0.000	0.000	0.750	0.500	0.000	0.500	0.000	0.688	0.000	0.000	0.000	0.000	0.000	0.794
	0.667				0.639				0.750								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	2	2	0	0	0	2	0	0	0	0	0	9
4:15 PM	0	4	1	0	0	0	3	0	0	0	2	0	0	0	0	0	10
4:30 PM	0	0	3	0	0	5	2	0	1	0	2	0	0	0	0	0	13
4:45 PM	0	4	1	0	0	3	1	0	1	0	0	0	0	0	0	0	10
5:00 PM	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	0	5
5:15 PM	0	3	1	0	0	2	0	0	2	0	0	0	0	0	0	0	8
5:30 PM	0	3	1	0	0	0	0	0	2	0	0	0	0	0	0	0	6
5:45 PM	0	0	2	0	0	3	1	0	0	0	1	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	19	9	0	0	17	9	0	6	0	8	0	0	0	0	0	68
APPROACH %'s :	0.00%	67.86%	32.14%	0.00%	0.00%	65.38%	34.62%	0.00%	42.86%	0.00%	57.14%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	11	5	0	0	10	8	0	2	0	6	0	0	0	0	0	42
PEAK HR FACTOR :	0.000	0.688	0.417	0.000	0.000	0.500	0.667	0.000	0.500	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.808
	0.800				0.643				0.667								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-006
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
7:30 AM	0	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	4
7:45 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	1	0	0	0	3	1	0	2	0	1	0	0	0	0	0	8
8:15 AM	0	0	0	0	0	2	2	0	0	0	1	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	3	0	0	0	3	0	0	1	0	0	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	1	0	0	12	4	0	6	0	2	0	0	0	0	0	33
APPROACH %'s :	0.00%	88.89%	11.11%	0.00%	0.00%	75.00%	25.00%	0.00%	75.00%	0.00%	25.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	4	1	0	0	6	4	0	3	0	2	0	0	0	0	0	20
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.000	0.500	0.500	0.000	0.375	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.625
	0.625				0.625				0.417								

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 EB Ramps				SR-210 EB Ramps				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	0	0	0	1	1	0	8	0	1	0	0	0	0	0	17
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	88.89%	0.00%	11.11%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	1	1	0	3	0	1	0	0	0	0	0	9
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.250	0.250	0.000	0.750	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.750
	0.375				0.500				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & SR-210 EB Ramps
City: Fontana
Control: Signalized

Project ID: 21-030070-006
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	1	0	0	3	0	0	0	0	0	0	0	5
7:15 AM	0	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	6
7:30 AM	0	3	0	0	0	1	1	0	1	0	2	0	0	0	0	0	8
7:45 AM	0	4	0	0	0	2	0	0	2	0	1	0	0	0	0	0	9
8:00 AM	0	2	0	0	0	1	1	0	3	0	2	0	0	0	0	0	9
8:15 AM	0	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	6
8:30 AM	0	4	0	0	0	2	3	0	1	0	1	0	0	0	0	0	11
8:45 AM	0	1	0	0	0	3	1	0	2	0	2	0	0	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	1	0	0	11	7	0	18	0	12	0	0	0	0	0	63
APPROACH %'s :	0.00%	93.33%	6.67%	0.00%	0.00%	61.11%	38.89%	0.00%	60.00%	0.00%	40.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	9	0	0	0	4	2	0	10	0	7	0	0	0	0	0	32
PEAK HR FACTOR :	0.000	0.563	0.000	0.000	0.000	0.500	0.500	0.000	0.625	0.000	0.875	0.000	0.000	0.000	0.000	0.000	0.889
	0.563				0.750				0.708								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	0	0	1.5	0	1.5	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	1	1	0	2	0	0	0	0	0	0	0	6
4:15 PM	0	0	0	0	0	1	3	0	2	0	0	0	0	0	0	0	6
4:30 PM	0	2	0	0	0	1	4	0	3	0	0	0	0	0	0	0	10
4:45 PM	0	4	0	0	0	2	1	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	4	0	0	0	2	0	0	1	0	2	0	0	0	0	0	9
5:15 PM	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	1	0	4	0	1	0	0	0	0	0	7
5:45 PM	0	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	1	0	0	9	11	0	16	0	3	0	0	0	0	0	55
APPROACH %'s :	0.00%	93.75%	6.25%	0.00%	0.00%	45.00%	55.00%	0.00%	84.21%	0.00%	15.79%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	8	0	0	0	5	9	0	7	0	0	0	0	0	0	0	29
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.625	0.563	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.725
	0.500				0.700				0.583								

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-007
Date: 9/8/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	58	15	0	5	41	20	0	7	28	4	0	12	62	16	0	276
7:15 AM	10	97	10	0	2	87	30	0	15	27	8	0	27	47	14	0	374
7:30 AM	12	113	17	0	5	115	35	0	23	29	8	0	24	68	19	0	468
7:45 AM	9	186	13	0	15	111	29	0	31	50	18	0	36	58	15	0	571
8:00 AM	8	149	20	0	15	142	14	0	41	70	35	0	19	43	20	0	576
8:15 AM	7	119	16	0	19	132	12	0	22	48	14	0	10	32	6	0	437
8:30 AM	7	58	10	0	10	77	13	0	9	21	8	0	4	25	3	0	245
8:45 AM	2	53	5	0	10	38	6	0	8	24	7	0	13	29	14	0	209
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	63	833	106	0	81	743	159	0	156	297	102	0	145	364	107	0	3156
APPROACH %'s :	6.29%	83.13%	10.58%	0.00%	8.24%	75.58%	16.17%	0.00%	28.11%	53.51%	18.38%	0.00%	23.54%	59.09%	17.37%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	36	567	66	0	54	500	90	0	117	197	75	0	89	201	60	0	2052
PEAK HR FACTOR :	0.750	0.762	0.825	0.000	0.711	0.880	0.643	0.000	0.713	0.704	0.536	0.000	0.618	0.739	0.750	0.000	0.891
	0.804				0.942				0.666				0.788				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	83	19	0	19	84	17	0	20	88	7	0	15	32	9	0	401
4:15 PM	5	71	16	0	15	87	13	0	20	71	11	0	13	32	7	0	361
4:30 PM	8	100	23	0	22	88	15	0	19	90	14	0	14	32	12	0	437
4:45 PM	10	101	22	0	22	81	19	0	17	62	10	0	15	34	14	0	407
5:00 PM	9	81	15	0	16	78	12	0	18	69	8	0	11	27	17	0	361
5:15 PM	5	87	12	0	27	99	12	0	12	75	22	0	15	54	24	0	444
5:30 PM	5	109	31	0	24	110	15	0	21	88	12	0	18	41	22	0	496
5:45 PM	7	107	28	0	32	98	14	0	14	91	18	0	24	61	19	0	513
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	57	739	166	0	177	725	117	0	141	634	102	0	125	313	124	0	3420
APPROACH %'s :	5.93%	76.82%	17.26%	0.00%	17.37%	71.15%	11.48%	0.00%	16.08%	72.29%	11.63%	0.00%	22.24%	55.69%	22.06%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	26	384	86	0	99	385	53	0	65	323	60	0	68	183	82	0	1814
PEAK HR FACTOR :	0.722	0.881	0.694	0.000	0.773	0.875	0.883	0.000	0.774	0.887	0.682	0.000	0.708	0.750	0.854	0.000	0.884
	0.855				0.901				0.911				0.800				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-007
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	55	14	0	5	40	20	0	7	26	4	0	11	60	14	0	264
7:15 AM	10	97	10	0	2	86	29	0	15	27	8	0	27	47	14	0	372
7:30 AM	11	111	16	0	5	115	35	0	23	29	8	0	24	66	19	0	462
7:45 AM	9	184	13	0	14	110	27	0	31	50	18	0	35	57	14	0	562
8:00 AM	8	147	20	0	15	141	13	0	41	70	35	0	19	42	20	0	571
8:15 AM	6	119	16	0	19	131	12	0	22	44	14	0	10	31	6	0	430
8:30 AM	7	58	10	0	10	77	12	0	9	20	8	0	4	24	3	0	242
8:45 AM	2	53	5	0	10	37	6	0	8	23	7	0	13	28	14	0	206
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	61	824	104	0	80	737	154	0	156	289	102	0	143	355	104	0	3109
APPROACH %'s :	6.17%	83.32%	10.52%	0.00%	8.24%	75.90%	15.86%	0.00%	28.52%	52.83%	18.65%	0.00%	23.75%	58.97%	17.28%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	34	561	65	0	53	497	87	0	117	193	75	0	88	196	59	0	2025
PEAK HR FACTOR :	0.773	0.762	0.813	0.000	0.697	0.881	0.621	0.000	0.713	0.689	0.536	0.000	0.629	0.742	0.738	0.000	0.887
	0.801				0.942				0.659				0.787				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	83	18	0	19	83	17	0	20	85	6	0	15	31	9	0	394
4:15 PM	5	69	16	0	15	85	13	0	20	71	11	0	13	32	6	0	356
4:30 PM	8	100	23	0	21	88	15	0	19	87	14	0	14	31	12	0	432
4:45 PM	9	101	22	0	22	81	19	0	17	62	10	0	15	32	14	0	404
5:00 PM	9	81	15	0	15	78	12	0	18	69	8	0	11	27	17	0	360
5:15 PM	5	87	12	0	27	99	11	0	12	75	22	0	15	53	24	0	442
5:30 PM	5	109	31	0	24	109	15	0	21	87	12	0	18	41	22	0	494
5:45 PM	7	107	27	0	32	97	14	0	14	91	18	0	24	60	19	0	510
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	56	737	164	0	175	720	116	0	141	627	101	0	125	307	123	0	3392
APPROACH %'s :	5.85%	77.01%	17.14%	0.00%	17.31%	71.22%	11.47%	0.00%	16.23%	72.15%	11.62%	0.00%	22.52%	55.32%	22.16%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	26	384	85	0	98	383	52	0	65	322	60	0	68	181	82	0	1806
PEAK HR FACTOR :	0.722	0.881	0.685	0.000	0.766	0.878	0.867	0.000	0.774	0.885	0.682	0.000	0.708	0.754	0.854	0.000	0.885
	0.853				0.900				0.909				0.803				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-007
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	1	0	0	0	0	0	0	1	0	0	1	1	1	0	8
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
7:30 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
7:45 AM	0	2	0	0	1	1	2	0	0	0	0	0	1	1	1	0	9
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	1	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	9	1	0	1	4	4	0	0	5	0	0	2	4	2	0	34
APPROACH %'s :	16.67%	75.00%	8.33%	0.00%	11.11%	44.44%	44.44%	0.00%	0.00%	100.00%	0.00%	0.00%	25.00%	50.00%	25.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	6	0	0	1	2	2	0	0	4	0	0	1	2	1	0	21
PEAK HR FACTOR :	0.500	0.750	0.000	0.000	0.250	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.250	0.000	0.583
	0.667				0.313				0.250				0.333				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	2	1	0	0	1	0	0	5
4:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	4
4:30 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
5:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	1	0	2	5	1	0	0	4	1	0	0	5	1	0	22
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	25.00%	62.50%	12.50%	0.00%	0.00%	80.00%	20.00%	0.00%	0.00%	83.33%	16.67%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	1	0	1	2	1	0	0	1	0	0	0	1	0	0	7
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.250	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.875
	0.250				1.000				0.250				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-007
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	2	0	0	0	3	0	0	0	1	0	0	7
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.250				0.250												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	1	0	0	0	0	0	0	2	0	0	0	1	0	0	5
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250
													0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-007
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	0	0	0	0	4	1	0	6
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%					0.00%	80.00%	20.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.500
					0.250								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-008
Date: 9/8/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	17	169	9	0	41	221	35	0	55	24	10	0	4	26	34	3	648
7:15 AM	14	162	17	0	63	254	30	0	44	40	10	0	6	25	47	4	716
7:30 AM	25	163	28	0	105	240	32	0	56	60	10	0	25	59	50	0	853
7:45 AM	23	193	11	0	92	206	49	0	54	45	17	0	21	65	83	7	866
8:00 AM	13	167	15	0	73	190	36	0	59	47	14	0	20	46	61	4	745
8:15 AM	19	180	21	0	60	181	22	0	57	39	17	0	26	20	42	7	691
8:30 AM	11	208	13	0	52	190	25	0	33	25	11	0	16	15	47	2	648
8:45 AM	9	141	12	0	59	163	20	0	30	23	8	0	4	23	44	1	537
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	131	1383	126	0	545	1645	249	0	388	303	97	0	122	279	408	28	5704
APPROACH %'s :	7.99%	84.33%	7.68%	0.00%	22.35%	67.45%	10.21%	0.00%	49.24%	38.45%	12.31%	0.00%	14.58%	33.33%	48.75%	3.35%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	75	685	71	0	333	890	147	0	213	192	51	0	72	195	241	15	3180
PEAK HR FACTOR :	0.750	0.887	0.634	0.000	0.793	0.876	0.750	0.000	0.903	0.800	0.750	0.000	0.720	0.750	0.726	0.536	0.918
	0.915				0.908				0.905				0.743				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	186	23	0	52	180	28	0	55	60	17	0	13	32	65	4	731
4:15 PM	7	184	19	0	54	194	31	0	44	69	9	0	15	28	57	2	713
4:30 PM	7	192	13	0	55	181	34	0	53	65	11	0	11	50	49	8	729
4:45 PM	6	199	20	0	55	163	34	0	54	52	12	0	11	39	69	1	715
5:00 PM	21	185	15	0	63	145	13	0	52	56	10	0	23	50	79	9	721
5:15 PM	7	193	16	0	85	144	23	0	44	78	9	0	14	82	86	5	786
5:30 PM	18	177	22	0	83	130	24	0	52	89	14	0	27	86	97	6	825
5:45 PM	14	185	21	0	61	196	46	0	44	75	21	0	27	77	96	9	872
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	96	1501	149	0	508	1333	233	0	398	544	103	0	141	444	598	44	6092
APPROACH %'s :	5.50%	85.97%	8.53%	0.00%	24.49%	64.27%	11.23%	0.00%	38.09%	52.06%	9.86%	0.00%	11.49%	36.19%	48.74%	3.59%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	60	740	74	0	292	615	106	0	192	298	54	0	91	295	358	29	3204
PEAK HR FACTOR :	0.714	0.959	0.841	0.000	0.859	0.784	0.576	0.000	0.923	0.837	0.643	0.000	0.843	0.858	0.923	0.806	0.919
	0.989				0.836				0.877				0.895				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-008
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	17	157	8	0	38	216	32	0	55	24	10	0	2	26	32	3	620
7:15 AM	14	151	16	0	61	244	29	0	43	40	9	0	5	25	44	3	684
7:30 AM	25	159	28	0	105	231	32	0	55	60	10	0	25	59	49	0	838
7:45 AM	23	184	11	0	92	198	48	0	54	45	17	0	21	64	83	7	847
8:00 AM	13	156	14	0	71	181	36	0	59	47	14	0	18	46	61	4	720
8:15 AM	18	170	21	0	58	174	21	0	55	38	17	0	26	19	41	7	665
8:30 AM	10	193	12	0	52	179	24	0	31	25	11	0	15	14	46	2	614
8:45 AM	9	130	12	0	57	152	18	0	30	23	8	0	3	22	43	1	508
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	129	1300	122	0	534	1575	240	0	382	302	96	0	115	275	399	27	5496
APPROACH %'s :	8.32%	83.82%	7.87%	0.00%	22.73%	67.05%	10.22%	0.00%	48.97%	38.72%	12.31%	0.00%	14.09%	33.70%	48.90%	3.31%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	75	650	69	0	329	854	145	0	211	192	50	0	69	194	237	14	3089
PEAK HR FACTOR :	0.750	0.883	0.616	0.000	0.783	0.875	0.755	0.000	0.894	0.800	0.735	0.000	0.690	0.758	0.714	0.500	0.912
	0.911				0.902				0.906				0.734				

NS/EW Streets:	Citrus Ave				Citrus Ave				Highland Ave				Highland Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	182	22	0	51	175	28	0	54	59	17	0	11	32	64	4	715
4:15 PM	7	179	18	0	53	191	31	0	44	67	9	0	15	28	57	2	701
4:30 PM	7	187	13	0	54	178	33	0	52	63	11	0	11	50	49	8	716
4:45 PM	6	191	20	0	54	157	33	0	54	51	12	0	10	38	69	1	696
5:00 PM	20	181	14	0	63	145	13	0	52	55	10	0	22	50	78	9	712
5:15 PM	7	192	16	0	84	141	23	0	44	78	9	0	14	82	85	5	780
5:30 PM	18	175	22	0	81	126	24	0	52	88	14	0	27	86	96	6	815
5:45 PM	14	181	21	0	61	195	46	0	44	74	21	0	25	76	96	8	862
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	95	1468	146	0	501	1308	231	0	396	535	103	0	135	442	594	43	5997
APPROACH %'s :	5.56%	85.90%	8.54%	0.00%	24.56%	64.12%	11.32%	0.00%	38.30%	51.74%	9.96%	0.00%	11.12%	36.41%	48.93%	3.54%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	59	729	73	0	289	607	106	0	192	295	54	0	88	294	355	28	3169
PEAK HR FACTOR :	0.738	0.949	0.830	0.000	0.860	0.778	0.576	0.000	0.923	0.838	0.643	0.000	0.815	0.855	0.924	0.778	0.919
	0.997				0.829				0.878				0.890				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-008
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	1	0	2	1	2	0	0	0	0	0	0	0	1	0	11
7:15 AM	0	6	1	0	1	3	0	0	1	0	0	0	1	0	1	1	15
7:30 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	1	0	6
7:45 AM	0	5	0	0	0	3	1	0	0	0	0	0	0	0	0	0	9
8:00 AM	0	6	1	0	1	1	0	0	0	0	0	0	1	0	0	0	10
8:15 AM	1	5	0	0	1	2	0	0	1	1	0	0	0	0	1	0	12
8:30 AM	1	9	0	0	0	5	1	0	1	0	0	0	0	0	0	0	17
8:45 AM	0	3	0	0	2	4	1	0	0	0	0	0	1	1	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	39	3	0	7	23	5	0	3	1	0	0	3	1	4	1	92
APPROACH %'s :	4.55%	88.64%	6.82%	0.00%	20.00%	65.71%	14.29%	0.00%	75.00%	25.00%	0.00%	0.00%	33.33%	11.11%	44.44%	11.11%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	18	2	0	2	11	1	0	1	0	0	0	2	0	2	1	40
PEAK HR FACTOR :	0.000	0.750	0.500	0.000	0.500	0.688	0.250	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.500	0.250	0.667
	0.714				0.875				0.250				0.417				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	1	0	1	3	0	0	0	0	0	0	2	0	1	0	10
4:15 PM	0	3	0	0	1	0	0	0	0	2	0	0	0	0	0	0	6
4:30 PM	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	6
4:45 PM	0	3	0	0	1	2	0	0	0	1	0	0	0	1	0	0	8
5:00 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	4
5:15 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	4
5:45 PM	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	1	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	1	0	6	10	1	0	1	6	0	0	3	1	2	1	47
APPROACH %'s :	0.00%	93.75%	6.25%	0.00%	35.29%	58.82%	5.88%	0.00%	14.29%	85.71%	0.00%	0.00%	42.86%	14.29%	28.57%	14.29%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	6	0	0	2	3	0	0	0	3	0	0	1	0	1	1	17
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.500	0.375	0.000	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.250	0.850
	0.750				0.417				0.750				0.375				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-008
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	5
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
8:30 AM	0	3	1	0	0	2	0	0	1	0	0	0	0	1	0	0	8
8:45 AM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	1	0	1	11	0	0	3	0	0	0	1	1	0	0	30
APPROACH %'s :	0.00%	92.31%	7.69%	0.00%	8.33%	91.67%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	3	0	0	1	4	0	0	1	0	0	0	0	0	0	0	9
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.250	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.750				0.625				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4
4:15 PM	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	2	0	0	0	1	0	0	0	2	0	0	0	0	0	0	5
4:45 PM	0	2	0	0	0	1	1	0	0	0	0	0	1	0	0	0	5
5:00 PM	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	10	2	0	1	7	1	0	1	2	0	0	2	1	0	0	27
APPROACH %'s :	0.00%	83.33%	16.67%	0.00%	11.11%	77.78%	11.11%	0.00%	33.33%	66.67%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	1	0	1	2	0	0	0	0	0	0	1	1	0	0	9
PEAK HR FACTOR :	0.000	0.750	0.250	0.000	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.750
	0.500				0.750								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-008
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	0	0	1	2	1	0	0	0	0	0	1	0	1	0	12
7:15 AM	0	5	0	0	1	5	1	0	0	0	1	0	0	0	2	0	15
7:30 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
7:45 AM	0	3	0	0	0	5	0	0	0	0	0	0	0	1	0	0	9
8:00 AM	0	4	0	0	0	7	0	0	0	0	0	0	1	0	0	0	12
8:15 AM	0	4	0	0	1	4	1	0	0	0	0	0	0	1	0	0	11
8:30 AM	0	3	0	0	0	4	0	0	0	0	0	0	1	0	1	0	9
8:45 AM	0	5	0	0	0	5	1	0	0	0	0	0	0	0	1	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	32	0	0	3	36	4	0	0	0	1	0	3	2	5	0	86
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	6.98%	83.72%	9.30%	0.00%	0.00%	0.00%	100.00%	0.00%	30.00%	20.00%	50.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	14	0	0	1	21	1	0	0	0	1	0	1	1	2	0	42
PEAK HR FACTOR :	0.000	0.700	0.000	0.000	0.250	0.750	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.250	0.250	0.000	0.700
	0.700				0.821				0.250				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	2	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
5:00 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	4
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	8	0	0	0	8	0	0	0	1	0	0	1	0	2	0	21
APPROACH %'s :	11.11%	88.89%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	33.33%	0.00%	66.67%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	2	0	0	0	3	0	0	0	0	0	0	1	0	2	0	9
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.563
	0.375				0.250								0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-009
Date: 9/15/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	77	1	0	13	107	33	0	29	8	5	0	3	14	13	0	308
7:15 AM	23	194	3	0	35	267	88	0	47	22	12	0	4	26	59	0	780
7:30 AM	27	212	6	0	32	280	116	1	66	29	57	0	3	49	70	0	948
7:45 AM	49	250	11	0	36	304	128	1	72	71	50	0	3	60	39	0	1074
8:00 AM	52	240	7	0	77	295	99	0	69	65	27	0	3	73	46	0	1053
8:15 AM	31	196	13	0	56	290	57	0	81	85	36	0	7	68	35	0	955
8:30 AM	16	183	11	0	45	248	52	1	41	54	13	0	2	21	57	0	744
8:45 AM	8	163	5	0	48	213	67	1	46	28	13	0	6	24	49	0	671
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	211	1515	57	0	342	2004	640	4	451	362	213	0	31	335	368	0	6533
APPROACH %'s :	11.83%	84.97%	3.20%	0.00%	11.44%	67.02%	21.40%	0.13%	43.96%	35.28%	20.76%	0.00%	4.22%	45.64%	50.14%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	159	898	37	0	201	1169	400	2	288	250	170	0	16	250	190	0	4030
PEAK HR FACTOR :	0.764	0.898	0.712	0.000	0.653	0.961	0.781	0.500	0.889	0.735	0.746	0.000	0.571	0.856	0.679	0.000	0.938
	0.882				0.941				0.876				0.934				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	18	265	9	0	101	232	58	0	119	76	17	0	21	36	88	0	1040
4:15 PM	16	363	16	0	84	269	59	0	93	52	13	0	24	37	84	0	1110
4:30 PM	14	310	16	0	81	219	67	2	106	70	15	0	17	43	93	0	1053
4:45 PM	13	325	15	0	97	251	56	1	97	53	13	0	13	25	88	0	1047
5:00 PM	16	296	17	0	86	217	57	0	123	75	9	0	14	64	87	0	1061
5:15 PM	19	329	16	0	88	246	67	1	100	66	20	0	6	37	111	0	1106
5:30 PM	17	312	20	0	83	213	61	0	97	66	15	0	12	52	101	0	1049
5:45 PM	13	315	23	0	105	225	61	0	80	59	16	0	10	40	101	0	1048
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	126	2515	132	0	725	1872	486	4	815	517	118	0	117	334	753	0	8514
APPROACH %'s :	4.54%	90.70%	4.76%	0.00%	23.49%	60.64%	15.74%	0.13%	56.21%	35.66%	8.14%	0.00%	9.72%	27.74%	62.54%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	59	1294	64	0	348	956	239	3	419	250	50	0	68	169	352	0	4271
PEAK HR FACTOR :	0.922	0.891	0.941	0.000	0.897	0.888	0.892	0.375	0.852	0.833	0.833	0.000	0.708	0.660	0.946	0.000	0.962
	0.897				0.938				0.868				0.892				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-009
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	72	1	0	13	104	32	0	29	8	5	0	3	14	12	0	298
7:15 AM	23	189	3	0	31	259	88	0	47	22	12	0	4	26	58	0	762
7:30 AM	27	206	5	0	30	274	115	1	64	28	57	0	3	49	69	0	928
7:45 AM	48	242	11	0	33	297	126	1	72	71	49	0	3	60	37	0	1050
8:00 AM	52	235	7	0	77	289	97	0	68	64	27	0	3	73	45	0	1037
8:15 AM	30	192	13	0	50	282	57	0	81	85	35	0	7	67	34	0	933
8:30 AM	16	178	10	0	43	238	51	1	41	54	13	0	2	20	54	0	721
8:45 AM	8	158	5	0	46	203	66	1	46	28	13	0	6	24	46	0	650
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	209	1472	55	0	323	1946	632	4	448	360	211	0	31	333	355	0	6379
APPROACH %'s :	12.04%	84.79%	3.17%	0.00%	11.12%	66.99%	21.76%	0.14%	43.96%	35.33%	20.71%	0.00%	4.31%	46.31%	49.37%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	157	875	36	0	190	1142	395	2	285	248	168	0	16	249	185	0	3948
PEAK HR FACTOR :	0.755	0.904	0.692	0.000	0.617	0.961	0.784	0.500	0.880	0.729	0.737	0.000	0.571	0.853	0.670	0.000	0.940
	0.887				0.934				0.872				0.930				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	18	259	8	0	100	231	58	0	118	75	17	0	21	34	88	0	1027
4:15 PM	16	359	15	0	83	265	57	0	93	52	11	0	23	36	84	0	1094
4:30 PM	14	304	16	0	81	212	67	2	104	69	15	0	16	42	93	0	1035
4:45 PM	13	320	15	0	95	246	56	1	94	53	13	0	13	25	87	0	1031
5:00 PM	16	292	17	0	86	213	56	0	121	75	9	0	14	63	87	0	1049
5:15 PM	19	325	16	0	87	243	67	1	99	65	19	0	6	37	110	0	1094
5:30 PM	17	307	19	0	82	211	61	0	97	66	15	0	11	51	100	0	1037
5:45 PM	13	311	22	0	105	222	61	0	79	58	16	0	10	40	101	0	1038
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	126	2477	128	0	719	1843	483	4	805	513	115	0	114	328	750	0	8405
APPROACH %'s :	4.61%	90.70%	4.69%	0.00%	23.58%	60.45%	15.84%	0.13%	56.18%	35.80%	8.03%	0.00%	9.56%	27.52%	62.92%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	59	1275	63	0	345	936	236	3	412	249	48	0	66	166	351	0	4209
PEAK HR FACTOR :	0.922	0.888	0.926	0.000	0.908	0.883	0.881	0.375	0.851	0.830	0.800	0.000	0.717	0.659	0.944	0.000	0.962
	0.896				0.938				0.865				0.889				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-009
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	2	1	0	0	0	0	0	0	0	1	0	6
7:15 AM	0	5	0	0	1	5	0	0	0	0	0	0	0	0	1	0	12
7:30 AM	0	2	1	0	0	6	1	0	2	1	0	0	0	0	0	0	13
7:45 AM	1	5	0	0	0	6	1	0	0	0	1	0	0	0	0	0	14
8:00 AM	0	4	0	0	0	1	2	0	0	0	0	0	0	0	0	0	7
8:15 AM	1	4	0	0	4	6	0	0	0	0	0	0	0	0	0	0	15
8:30 AM	0	2	0	0	0	6	1	0	0	0	0	0	0	0	2	0	11
8:45 AM	0	3	0	0	1	6	1	0	0	0	0	0	0	0	1	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	27	1	0	6	38	7	0	2	1	1	0	0	0	5	0	90
APPROACH %'s :	6.67%	90.00%	3.33%	0.00%	11.76%	74.51%	13.73%	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	15	1	0	4	19	4	0	2	1	1	0	0	0	0	0	49
PEAK HR FACTOR :	0.500	0.750	0.250	0.000	0.250	0.792	0.500	0.000	0.250	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.817
	0.750				0.675				0.333								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	1	1	0	0	1	0	0	0	0	1	0	0	7
4:15 PM	0	4	0	0	0	2	2	0	0	0	2	0	1	1	0	0	12
4:30 PM	0	2	0	0	0	7	0	0	1	1	0	0	1	0	0	0	12
4:45 PM	0	3	0	0	0	3	0	0	3	0	0	0	0	0	0	0	9
5:00 PM	0	0	0	0	0	2	1	0	1	0	0	0	0	1	0	0	5
5:15 PM	0	4	0	0	0	1	0	0	1	0	1	0	0	0	0	0	7
5:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
5:45 PM	0	2	0	0	0	3	0	0	1	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	20	0	0	1	20	3	0	8	1	3	0	2	3	1	0	62
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	4.17%	83.33%	12.50%	0.00%	66.67%	8.33%	25.00%	0.00%	33.33%	50.00%	16.67%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	9	0	0	0	14	3	0	5	1	2	0	2	2	0	0	38
PEAK HR FACTOR :	0.000	0.563	0.000	0.000	0.000	0.500	0.375	0.000	0.417	0.250	0.250	0.000	0.500	0.500	0.000	0.000	0.792
	0.563				0.607				0.667				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-009
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	4	0	0	0	1	0	0	0	0	1	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	1	0	0	3	0	0	0	0	0	0	0	1	0	0	6
8:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	7	1	0	0	12	1	0	0	1	0	0	0	1	2	0	25
APPROACH %'s :	0.00%	87.50%	12.50%	0.00%	0.00%	92.31%	7.69%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	3	0	0	0	4	1	0	0	1	0	0	0	0	1	0	10
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.417
	0.375				0.313				0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	4
4:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	2	0	0	2	0	0	0	2	0	0	0	2	0	0	14
APPROACH %'s :	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	3	1	0	0	2	0	0	0	0	0	0	0	1	0	0	7
PEAK HR FACTOR :	0.000	0.750	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.875
	1.000				0.500								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Highland Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-009
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Highland Ave				Highland Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	1	0	6
7:45 AM	0	1	0	0	3	1	0	0	0	0	0	0	0	0	2	0	7
8:00 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	2	2	0	0	0	0	1	0	0	1	1	0	7
8:30 AM	0	2	0	0	2	1	0	0	0	0	0	0	0	0	1	0	6
8:45 AM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	9	0	0	13	8	0	0	1	0	1	0	0	1	6	0	39
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	61.90%	38.10%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	14.29%	85.71%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	5	0	0	7	4	0	0	1	0	1	0	0	1	4	0	23
PEAK HR FACTOR :	0.000	0.417	0.000	0.000	0.583	0.500	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.500	0.000	0.821
	0.417				0.688				0.500				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
4:45 PM	0	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	5
5:00 PM	0	3	0	0	0	2	0	0	1	0	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	4
5:30 PM	0	1	1	0	1	1	0	0	0	0	0	0	1	1	0	0	6
5:45 PM	0	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	2	0	5	7	0	0	2	1	0	0	1	1	2	0	33
APPROACH %'s :	0.00%	85.71%	14.29%	0.00%	41.67%	58.33%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	25.00%	25.00%	50.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	7	0	0	3	4	0	0	2	0	0	0	0	0	1	0	17
PEAK HR FACTOR :	0.000	0.583	0.000	0.000	0.375	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.708
	0.583				0.583				0.500				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Base Line Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-010
Date: 9/8/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	32	20	14	0	17	14	27	0	11	92	13	0	52	304	7	0	603
7:15 AM	15	58	26	0	24	43	25	0	44	99	11	1	41	295	45	0	727
7:30 AM	24	119	20	0	32	66	70	0	41	84	13	1	41	235	77	0	823
7:45 AM	26	69	29	0	35	67	94	0	30	95	14	5	42	267	82	0	855
8:00 AM	40	55	35	0	42	84	60	0	18	159	25	3	38	284	51	0	894
8:15 AM	19	24	17	0	37	69	33	0	8	161	25	1	49	308	24	0	775
8:30 AM	20	15	18	0	19	34	19	0	9	104	26	0	35	232	14	0	545
8:45 AM	14	10	19	0	8	23	8	0	9	85	21	0	62	249	8	0	516
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	190	370	178	0	214	400	336	0	170	879	148	11	360	2174	308	0	5738
APPROACH %'s :	25.75%	50.14%	24.12%	0.00%	22.53%	42.11%	35.37%	0.00%	14.07%	72.76%	12.25%	0.91%	12.67%	76.50%	10.84%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	109	267	101	0	146	286	257	0	97	499	77	10	170	1094	234	0	3347
PEAK HR FACTOR :	0.681	0.561	0.721	0.000	0.869	0.851	0.684	0.000	0.591	0.775	0.770	0.500	0.867	0.888	0.713	0.000	0.936
	0.732				0.879				0.833				0.958				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	42	41	0	14	20	25	0	21	209	30	1	45	148	16	0	631
4:15 PM	18	38	46	0	11	31	14	0	18	245	25	4	39	151	9	0	649
4:30 PM	29	53	54	0	14	28	17	0	17	229	31	0	29	129	7	0	637
4:45 PM	26	36	60	0	12	28	20	0	11	241	27	0	38	137	9	0	645
5:00 PM	28	41	54	0	13	22	11	0	14	223	32	1	31	142	12	0	624
5:15 PM	22	44	42	0	9	19	17	0	23	255	25	1	27	159	8	0	651
5:30 PM	26	41	47	0	13	18	12	0	24	261	26	0	31	180	16	0	695
5:45 PM	18	35	36	0	13	28	12	0	19	213	28	0	39	155	7	0	603
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	186	330	380	0	99	194	128	0	147	1876	224	7	279	1201	84	0	5135
APPROACH %'s :	20.76%	36.83%	42.41%	0.00%	23.52%	46.08%	30.40%	0.00%	6.52%	83.23%	9.94%	0.31%	17.84%	76.79%	5.37%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	102	162	203	0	47	87	60	0	72	980	110	2	127	618	45	0	2615
PEAK HR FACTOR :	0.911	0.920	0.846	0.000	0.904	0.777	0.750	0.000	0.750	0.939	0.859	0.500	0.836	0.858	0.703	0.000	0.941
	0.949				0.808				0.936				0.870				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Base Line Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-010
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	28	18	14	0	16	10	25	0	11	90	12	0	49	301	7	0	581
7:15 AM	15	58	25	0	23	42	25	0	44	98	11	1	39	290	45	0	716
7:30 AM	23	119	19	0	32	66	70	0	41	83	13	1	41	234	76	0	818
7:45 AM	26	69	29	0	35	67	94	0	30	95	14	5	42	261	82	0	849
8:00 AM	39	54	35	0	41	84	60	0	18	158	24	3	37	280	51	0	884
8:15 AM	17	24	16	0	36	69	33	0	8	156	25	1	49	301	23	0	758
8:30 AM	20	15	18	0	19	34	19	0	9	103	26	0	34	227	13	0	537
8:45 AM	12	10	19	0	8	22	8	0	9	81	20	0	60	244	8	0	501
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	180	367	175	0	210	394	334	0	170	864	145	11	351	2138	305	0	5644
APPROACH %'s :	24.93%	50.83%	24.24%	0.00%	22.39%	42.00%	35.61%	0.00%	14.29%	72.61%	12.18%	0.92%	12.56%	76.52%	10.92%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	105	266	99	0	144	286	257	0	97	492	76	10	169	1076	232	0	3309
PEAK HR FACTOR :	0.673	0.559	0.707	0.000	0.878	0.851	0.684	0.000	0.591	0.778	0.760	0.500	0.862	0.894	0.707	0.000	0.936
	0.730				0.876				0.831				0.959				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	18	40	41	0	14	20	25	0	21	209	28	1	44	145	16	0	622
4:15 PM	18	38	46	0	11	28	14	0	18	240	22	4	39	149	9	0	636
4:30 PM	28	51	54	0	13	25	16	0	17	229	26	0	29	128	7	0	623
4:45 PM	26	36	60	0	12	23	19	0	11	240	25	0	38	137	8	0	635
5:00 PM	28	41	54	0	11	22	11	0	14	223	30	1	31	142	12	0	620
5:15 PM	22	44	41	0	9	18	17	0	23	249	25	1	26	157	8	0	640
5:30 PM	26	40	46	0	13	18	12	0	24	259	25	0	31	178	16	0	688
5:45 PM	18	35	35	0	13	28	12	0	19	212	28	0	39	155	7	0	601
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	184	325	377	0	96	182	126	0	147	1861	209	7	277	1191	83	0	5065
APPROACH %'s :	20.77%	36.68%	42.55%	0.00%	23.76%	45.05%	31.19%	0.00%	6.61%	83.68%	9.40%	0.31%	17.86%	76.79%	5.35%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	102	161	201	0	45	81	59	0	72	971	105	2	126	614	44	0	2583
PEAK HR FACTOR :	0.911	0.915	0.838	0.000	0.865	0.880	0.776	0.000	0.750	0.937	0.875	0.500	0.829	0.862	0.688	0.000	0.939
	0.943				0.856				0.933				0.871				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Base Line Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-010
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	1	3	1	0	0	2	0	0	2	2	0	0	13
7:15 AM	0	0	1	0	0	1	0	0	0	1	0	0	0	5	0	0	8
7:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	3
8:15 AM	0	0	1	0	1	0	0	0	0	2	0	0	0	5	1	0	10
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	4	1	0	7
8:45 AM	2	0	0	0	0	1	0	0	0	3	0	0	0	2	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	1	3	0	3	5	1	0	0	9	0	0	3	23	2	0	54
APPROACH %'s :	50.00%	12.50%	37.50%	0.00%	33.33%	55.56%	11.11%	0.00%	0.00%	100.00%	0.00%	0.00%	10.71%	82.14%	7.14%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	0	2	0	2	0	0	0	0	2	0	0	0	10	1	0	18
PEAK HR FACTOR :	0.250	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.450
	0.375				0.500				0.250				0.458				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	0	0	1	0	1	2	0	0	6
4:15 PM	0	0	0	0	0	1	0	0	0	4	0	0	0	2	0	0	7
4:30 PM	1	1	0	0	1	0	1	0	0	0	0	0	0	1	0	0	5
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	1	0	0	0	0	0	0	3	0	0	1	2	0	0	7
5:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	1	0	2	1	2	0	0	9	1	0	2	9	0	0	32
APPROACH %'s :	16.67%	66.67%	16.67%	0.00%	40.00%	20.00%	40.00%	0.00%	0.00%	90.00%	10.00%	0.00%	18.18%	81.82%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	1	0	1	0	1	0	0	5	0	0	1	4	0	0	14
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.250	0.000	0.250	0.000	0.000	0.417	0.000	0.000	0.250	0.500	0.000	0.000	0.500
	0.500				0.500				0.417				0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Base Line Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-010
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	1	0	0	0	1	1	0	0	0	1	0	1	0	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	1	0	0	0	0	0	0	0	0	1	0	0	2	0	0	5
8:15 AM	2	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	2	0	0	0	1	1	0	0	3	3	0	2	4	1	0	22
APPROACH %'s :	71.43%	28.57%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	50.00%	50.00%	0.00%	28.57%	57.14%	14.29%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	1	0	0	0	0	0	0	0	3	1	0	0	3	1	0	12
PEAK HR FACTOR :	0.375	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.250	0.000	0.000	0.375	0.250	0.000	0.600
	0.500				0.500				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	2	0	0	0	1	3	0	0	0	0	0	6
4:30 PM	0	0	0	0	0	3	0	0	0	0	5	0	0	0	0	0	8
4:45 PM	0	0	0	0	0	4	0	0	0	0	2	0	0	0	1	0	7
5:00 PM	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	1	10	0	0	0	1	14	0	0	0	1	0	28
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	9.09%	90.91%	0.00%	0.00%	0.00%	6.67%	93.33%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	5	0	0	0	0	5	0	0	0	1	0	12
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.313	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.250	0.000	0.429
					0.375				0.625				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Base Line Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-010
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	1	0	0	0	0	3	0	0	4	9	0	0	18
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	30.77%	69.23%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	1	5	0	0	8
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.313	0.000	0.000	0.500
									0.500				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	2	0	0	1	3	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
5:30 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	1	0	0	1	0	0	0	5	0	0	0	1	0	0	10
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	1	0	0	0	4	0	0	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.500
		0.250				0.250				0.333							

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps & Baseline Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-011
Date: 9/8/2021

Data - Total

NS/EW Streets:	I-15 SB Ramps				I-15 SB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	65	0	157	0	0	75	60	0	0	204	0	0	561
7:15 AM	0	0	0	0	71	0	136	0	0	87	65	0	0	220	0	0	579
7:30 AM	0	0	0	0	87	0	160	0	0	103	53	0	0	227	0	0	630
7:45 AM	0	0	0	0	105	0	133	0	0	117	42	0	0	243	0	0	640
8:00 AM	0	0	0	0	99	0	141	0	0	157	72	0	0	250	0	0	719
8:15 AM	0	0	0	0	67	0	124	0	0	153	67	0	0	212	0	0	623
8:30 AM	0	0	0	0	52	0	125	0	0	119	67	0	0	177	0	0	540
8:45 AM	0	0	0	0	52	0	157	0	0	97	36	0	0	145	0	0	487
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	598	0	1133	0	0	908	462	0	0	1678	0	0	4779
APPROACH %'s :					34.55%	0.00%	65.45%	0.00%	0.00%	66.28%	33.72%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	358	0	558	0	0	530	234	0	0	932	0	0	2612
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.852	0.000	0.872	0.000	0.000	0.844	0.813	0.000	0.000	0.932	0.000	0.000	0.908
					0.927				0.834				0.932				

NS/EW Streets:	I-15 SB Ramps				I-15 SB Ramps				Baseline Rd				Baseline Rd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	69	0	76	0	0	215	40	0	0	118	0	0	518
4:15 PM	0	0	0	0	78	0	77	0	0	248	50	0	0	128	0	0	581
4:30 PM	0	0	0	0	71	0	69	0	0	227	51	0	0	108	0	0	526
4:45 PM	0	0	0	0	78	0	67	0	0	255	47	0	0	120	0	0	567
5:00 PM	0	0	0	0	64	0	61	0	0	249	38	0	0	132	0	0	544
5:15 PM	0	0	0	0	48	0	62	0	0	270	44	0	0	141	0	0	565
5:30 PM	0	0	0	0	61	0	60	0	0	261	39	0	0	160	0	0	581
5:45 PM	0	0	0	0	74	0	65	0	0	255	35	0	0	133	0	0	562
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	543	0	537	0	0	1980	344	0	0	1040	0	0	4444
APPROACH %'s :					50.28%	0.00%	49.72%	0.00%	0.00%	85.20%	14.80%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	251	0	250	0	0	1035	168	0	0	553	0	0	2257
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.804	0.000	0.933	0.000	0.000	0.958	0.894	0.000	0.000	0.864	0.000	0.000	0.971
					0.864				0.958				0.864				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps & Baseline Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-011
Date: 9/8/2021

Data - Cars

NS/EW Streets:	I-15 SB Ramps				I-15 SB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	64	0	155	0	0	72	59	0	0	198	0	0	548
7:15 AM	0	0	0	0	69	0	135	0	0	85	64	0	0	212	0	0	565
7:30 AM	0	0	0	0	86	0	159	0	0	103	53	0	0	223	0	0	624
7:45 AM	0	0	0	0	103	0	130	0	0	116	41	0	0	240	0	0	630
8:00 AM	0	0	0	0	98	0	139	0	0	156	71	0	0	246	0	0	710
8:15 AM	0	0	0	0	66	0	123	0	0	149	66	0	0	207	0	0	611
8:30 AM	0	0	0	0	49	0	122	0	0	118	65	0	0	168	0	0	522
8:45 AM	0	0	0	0	49	0	152	0	0	94	35	0	0	142	0	0	472
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	584	0	1115	0	0	893	454	0	0	1636	0	0	4682
APPROACH %'s :					34.37%	0.00%	65.63%	0.00%	0.00%	66.30%	33.70%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	353	0	551	0	0	524	231	0	0	916	0	0	2575
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.857	0.000	0.866	0.000	0.000	0.840	0.813	0.000	0.000	0.931	0.000	0.000	0.907
					0.922				0.831				0.931				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	69	0	75	0	0	214	40	0	0	116	0	0	514
4:15 PM	0	0	0	0	71	0	77	0	0	246	48	0	0	126	0	0	568
4:30 PM	0	0	0	0	69	0	69	0	0	227	51	0	0	107	0	0	523
4:45 PM	0	0	0	0	76	0	67	0	0	253	47	0	0	118	0	0	561
5:00 PM	0	0	0	0	63	0	61	0	0	248	37	0	0	132	0	0	541
5:15 PM	0	0	0	0	48	0	62	0	0	266	43	0	0	140	0	0	559
5:30 PM	0	0	0	0	58	0	60	0	0	257	39	0	0	156	0	0	570
5:45 PM	0	0	0	0	72	0	65	0	0	253	34	0	0	133	0	0	557
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	526	0	536	0	0	1964	339	0	0	1028	0	0	4393
APPROACH %'s :					49.53%	0.00%	50.47%	0.00%	0.00%	85.28%	14.72%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	245	0	250	0	0	1024	166	0	0	546	0	0	2231
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.806	0.000	0.933	0.000	0.000	0.962	0.883	0.000	0.000	0.875	0.000	0.000	0.979
					0.865				0.963				0.875				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps & Baseline Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-011
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	I-15 SB Ramps				I-15 SB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	0	2	0	0	3	1	0	0	5	0	0	12
7:15 AM	0	0	0	0	2	0	1	0	0	2	0	0	0	6	0	0	11
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	4
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	3
8:15 AM	0	0	0	0	0	0	1	0	0	2	1	0	0	4	0	0	8
8:30 AM	0	0	0	0	1	0	1	0	0	0	2	0	0	8	0	0	12
8:45 AM	0	0	0	0	1	0	3	0	0	2	1	0	0	2	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	5	0	10	0	0	10	7	0	0	31	0	0	63
APPROACH %'s :					33.33%	0.00%	66.67%	0.00%	0.00%	58.82%	41.18%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	3	0	0	3	3	0	0	10	0	0	19
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.375	0.750	0.000	0.000	0.625	0.000	0.000	0.594
					0.750				0.500				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	4
4:15 PM	0	0	0	0	1	0	0	0	0	2	1	0	0	2	0	0	6
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:00 PM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	4
5:30 PM	0	0	0	0	2	0	0	0	0	2	0	0	0	3	0	0	7
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	4	0	1	0	0	10	3	0	0	10	0	0	28
APPROACH %'s :					80.00%	0.00%	20.00%	0.00%	0.00%	76.92%	23.08%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	3	0	0	0	0	6	2	0	0	5	0	0	16
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.750	0.500	0.000	0.000	0.417	0.000	0.000	0.571
					0.375				0.667				0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps & Baseline Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-011
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	I-15 SB Ramps				I-15 SB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
8:15 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
8:30 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	2	0	2	0	0	2	0	0	0	4	0	0	10
APPROACH %'s :					50.00%	0.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	1	0	0	1	0	0	0	3	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.500
					0.500				0.250				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	0	0	0	0	1	1	0	0	2	0	0	7
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.500
					0.250				0.250				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps & Baseline Rd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-011
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	I-15 SB Ramps				I-15 SB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	3
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	2	0	2	0	0	0	0	0	0	2	0	0	6
8:00 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	4
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	2	0	1	0	0	1	0	0	0	1	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	7	0	6	0	0	3	1	0	0	7	0	0	24
APPROACH %'s :					53.85%	0.00%	46.15%	0.00%	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	4	0	3	0	0	2	0	0	0	3	0	0	12
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.375	0.000	0.000	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.500
					0.438				0.500				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	2	0	0	3	1	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	2	0	0	0	0	1	1	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	10	0	0	0	0	5	1	0	0	0	0	0	16
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500
					0.500				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & Baseline Rd
City: Fontana
Control: Signalized

Project ID: 21-030070-012
Date: 9/15/2021

Data - Total

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	34	2	62	0	0	0	0	0	69	72	0	0	0	347	30	0	616
7:15 AM	62	1	58	0	0	0	0	0	57	93	0	0	0	409	30	0	710
7:30 AM	99	0	82	0	0	0	0	0	73	127	0	0	0	380	40	0	801
7:45 AM	76	0	77	0	0	0	0	0	70	124	0	0	0	440	56	0	843
8:00 AM	47	1	70	0	0	0	0	0	93	142	0	0	0	429	37	0	819
8:15 AM	46	1	67	0	0	0	0	0	110	164	0	0	0	326	34	0	748
8:30 AM	44	0	60	0	0	0	0	0	75	177	0	0	0	259	35	0	650
8:45 AM	38	0	58	0	0	0	0	0	66	111	0	0	0	225	24	0	522
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	446	5	534	0	0	0	0	0	613	1010	0	0	0	2815	286	0	5709
APPROACH %'s :	45.28%	0.51%	54.21%	0.00%					37.77%	62.23%	0.00%	0.00%	0.00%	90.78%	9.22%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	268	2	296	0	0	0	0	0	346	557	0	0	0	1575	167	0	3211
PEAK HR FACTOR :	0.677	0.500	0.902	0.000	0.000	0.000	0.000	0.000	0.786	0.849	0.000	0.000	0.000	0.895	0.746	0.000	0.952
	0.782								0.824				0.878				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	72	1	116	0	0	0	0	0	114	255	0	0	0	191	62	0	811
4:15 PM	58	0	105	0	0	0	0	0	109	188	0	0	0	171	38	0	669
4:30 PM	63	0	128	0	0	0	0	0	106	186	0	0	0	181	63	0	727
4:45 PM	75	0	116	0	0	0	0	0	106	209	0	0	0	186	52	0	744
5:00 PM	68	0	109	0	0	0	0	0	119	227	0	0	0	177	47	0	747
5:15 PM	71	0	122	0	0	0	0	0	109	216	0	0	0	177	44	0	739
5:30 PM	65	0	135	0	0	0	0	0	113	244	0	0	0	214	35	0	806
5:45 PM	69	0	145	0	0	0	0	0	93	218	0	0	0	216	27	0	768
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	541	1	976	0	0	0	0	0	869	1743	0	0	0	1513	368	0	6011
APPROACH %'s :	35.64%	0.07%	64.30%	0.00%					33.27%	66.73%	0.00%	0.00%	0.00%	80.44%	19.56%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	273	0	511	0	0	0	0	0	434	905	0	0	0	784	153	0	3060
PEAK HR FACTOR :	0.961	0.000	0.881	0.000	0.000	0.000	0.000	0.000	0.912	0.927	0.000	0.000	0.000	0.907	0.814	0.000	0.949
	0.916								0.938				0.941				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & Baseline Rd
City: Fontana
Control: Signalized

Project ID: 21-030070-012
Date: 9/15/2021

Data - Cars

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	34	2	55	0	0	0	0	0	67	70	0	0	0	337	28	0	593
7:15 AM	58	1	54	0	0	0	0	0	56	92	0	0	0	397	29	0	687
7:30 AM	94	0	80	0	0	0	0	0	73	126	0	0	0	373	38	0	784
7:45 AM	74	0	75	0	0	0	0	0	68	122	0	0	0	435	52	0	826
8:00 AM	47	1	68	0	0	0	0	0	91	141	0	0	0	426	36	0	810
8:15 AM	45	1	63	0	0	0	0	0	107	162	0	0	0	318	33	0	729
8:30 AM	42	0	57	0	0	0	0	0	74	173	0	0	0	253	34	0	633
8:45 AM	34	0	58	0	0	0	0	0	65	107	0	0	0	216	24	0	504
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	428	5	510	0	0	0	0	0	601	993	0	0	0	2755	274	0	5566
APPROACH %'s :	45.39%	0.53%	54.08%	0.00%					37.70%	62.30%	0.00%	0.00%	0.00%	90.95%	9.05%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	260	2	286	0	0	0	0	0	339	551	0	0	0	1552	159	0	3149
PEAK HR FACTOR :	0.691	0.500	0.894	0.000	0.000	0.000	0.000	0.000	0.792	0.850	0.000	0.000	0.000	0.892	0.764	0.000	0.953
	0.787								0.827				0.878				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	71	1	114	0	0	0	0	0	111	253	0	0	0	190	58	0	798
4:15 PM	57	0	103	0	0	0	0	0	108	185	0	0	0	167	36	0	656
4:30 PM	62	0	126	0	0	0	0	0	105	182	0	0	0	179	62	0	716
4:45 PM	74	0	114	0	0	0	0	0	105	206	0	0	0	180	49	0	728
5:00 PM	68	0	109	0	0	0	0	0	119	226	0	0	0	175	45	0	742
5:15 PM	70	0	122	0	0	0	0	0	109	216	0	0	0	172	43	0	732
5:30 PM	63	0	134	0	0	0	0	0	111	240	0	0	0	205	34	0	787
5:45 PM	69	0	141	0	0	0	0	0	92	215	0	0	0	215	25	0	757
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	534	1	963	0	0	0	0	0	860	1723	0	0	0	1483	352	0	5916
APPROACH %'s :	35.65%	0.07%	64.29%	0.00%					33.29%	66.71%	0.00%	0.00%	0.00%	80.82%	19.18%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	270	0	506	0	0	0	0	0	431	897	0	0	0	767	147	0	3018
PEAK HR FACTOR :	0.964	0.000	0.897	0.000	0.000	0.000	0.000	0.000	0.905	0.934	0.000	0.000	0.000	0.892	0.817	0.000	0.959
	0.924								0.946				0.952				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & Baseline Rd
City: Fontana
Control: Signalized

Project ID: 21-030070-012
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	5	0	0	0	0	0	1	2	0	0	0	5	1	0	14
7:15 AM	2	0	3	0	0	0	0	0	1	1	0	0	0	6	1	0	14
7:30 AM	3	0	2	0	0	0	0	0	0	1	0	0	0	4	0	0	10
7:45 AM	0	0	2	0	0	0	0	0	1	1	0	0	0	3	3	0	10
8:00 AM	0	0	2	0	0	0	0	0	1	0	0	0	0	2	0	0	5
8:15 AM	1	0	1	0	0	0	0	0	0	1	0	0	0	5	0	0	8
8:30 AM	1	0	1	0	0	0	0	0	1	1	0	0	0	4	0	0	8
8:45 AM	4	0	0	0	0	0	0	0	1	1	0	0	0	4	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	0	16	0	0	0	0	0	6	8	0	0	0	33	5	0	79
APPROACH %'s :	40.74%	0.00%	59.26%	0.00%					42.86%	57.14%	0.00%	0.00%	0.00%	86.84%	13.16%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	0	7	0	0	0	0	0	2	3	0	0	0	14	3	0	33
PEAK HR FACTOR :	0.333	0.000	0.875	0.000	0.000	0.000	0.000	0.000	0.500	0.750	0.000	0.000	0.000	0.700	0.250	0.000	0.825
	0.550								0.625				0.708				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	2	0	0	0	0	0	1	1	0	0	0	1	1	0	7
4:15 PM	0	0	1	0	0	0	0	0	1	1	0	0	0	4	0	0	7
4:30 PM	1	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	6
4:45 PM	1	0	2	0	0	0	0	0	0	2	0	0	0	3	1	0	9
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5
5:30 PM	1	0	1	0	0	0	0	0	1	3	0	0	0	4	1	0	11
5:45 PM	0	0	3	0	0	0	0	0	0	2	0	0	0	1	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	10	0	0	0	0	0	3	12	0	0	0	21	4	0	54
APPROACH %'s :	28.57%	0.00%	71.43%	0.00%					20.00%	80.00%	0.00%	0.00%	0.00%	84.00%	16.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	0	4	0	0	0	0	0	1	6	0	0	0	11	2	0	25
PEAK HR FACTOR :	0.250	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.688	0.500	0.000	0.568
	0.417								0.438				0.650				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & Baseline Rd
City: Fontana
Control: Signalized

Project ID: 21-030070-012
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	3	4	0	0	0	14	1	0	22
APPROACH %'s :									42.86%	57.14%	0.00%	0.00%	0.00%	93.33%	6.67%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	3	0	0	0	0	5	0	0	8
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.417	0.000	0.000	0.400
									0.375				0.417				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	1	0	0	0	0	0	1	5	0	0	0	7	0	0	16
APPROACH %'s :	66.67%	0.00%	33.33%	0.00%					16.67%	83.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	7
PEAK HR FACTOR :	0.500	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.000	0.000	0.438
		0.750												0.333			

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & Baseline Rd
City: Fontana
Control: Signalized

Project ID: 21-030070-012
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	4
7:15 AM	2	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	6
7:30 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	5
7:45 AM	2	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	6
8:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	4
8:15 AM	0	0	3	0	0	0	0	0	1	1	0	0	0	0	1	0	6
8:30 AM	1	0	2	0	0	0	0	0	0	0	0	0	0	2	1	0	6
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	0	8	0	0	0	0	0	3	5	0	0	0	13	6	0	42
APPROACH %'s :	46.67%	0.00%	53.33%	0.00%					37.50%	62.50%	0.00%	0.00%	0.00%	68.42%	31.58%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	0	3	0	0	0	0	0	2	3	0	0	0	4	5	0	21
PEAK HR FACTOR :	0.500	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.750	0.000	0.000	0.000	0.500	0.625	0.000	0.875
	0.583								0.625				0.750				

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				Baseline Rd				Baseline Rd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0	1.5	0	0	0	0	0	2	3	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	0	5
4:15 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	4
4:30 PM	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	2	0	0	0	0	0	5	3	0	0	0	2	12	0	25
APPROACH %'s :	33.33%	0.00%	66.67%	0.00%					62.50%	37.50%	0.00%	0.00%	0.00%	14.29%	85.71%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	2	2	0	0	0	2	4	0	10
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.250	0.500	0.000	0.625
									0.500				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-013
Date: 9/8/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	75	24	0	8	184	72	0	19	57	12	0	76	260	12	0	809
7:15 AM	10	82	17	0	8	144	57	0	30	63	16	0	85	283	20	0	815
7:30 AM	12	105	29	0	12	171	101	0	47	87	21	0	93	392	16	0	1086
7:45 AM	13	103	32	0	12	177	113	0	55	123	45	0	105	426	25	0	1229
8:00 AM	11	134	48	0	19	167	95	0	71	148	36	0	121	310	15	0	1175
8:15 AM	16	139	36	0	25	211	97	0	57	133	29	0	83	195	10	0	1031
8:30 AM	16	78	22	0	21	133	54	0	45	136	26	0	75	160	6	0	772
8:45 AM	17	100	14	0	11	168	45	0	44	79	23	0	61	124	7	0	693
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	105	816	222	0	116	1355	634	0	368	826	208	0	699	2150	111	0	7610
APPROACH %'s :	9.19%	71.39%	19.42%	0.00%	5.51%	64.37%	30.12%	0.00%	26.25%	58.92%	14.84%	0.00%	23.61%	72.64%	3.75%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	52	481	145	0	68	726	406	0	230	491	131	0	402	1323	66	0	4521
PEAK HR FACTOR :	0.813	0.865	0.755	0.000	0.680	0.860	0.898	0.000	0.810	0.829	0.728	0.000	0.831	0.776	0.660	0.000	0.920
	0.878				0.901				0.835				0.805				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	209	58	0	19	150	32	0	64	249	22	0	76	110	9	0	1020
4:15 PM	24	215	59	0	28	166	25	0	54	196	28	0	78	107	18	0	998
4:30 PM	40	263	83	0	23	129	30	0	68	225	23	0	61	117	11	0	1073
4:45 PM	47	248	81	0	24	140	22	0	79	252	20	0	72	128	13	0	1126
5:00 PM	28	201	84	0	17	85	17	0	77	247	18	0	60	136	15	0	985
5:15 PM	35	246	84	0	31	87	34	0	68	236	21	0	81	149	16	0	1088
5:30 PM	31	186	75	0	34	87	13	0	80	320	21	0	71	166	15	0	1099
5:45 PM	27	184	95	0	29	94	38	0	65	274	19	0	64	124	19	0	1032
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	254	1752	619	0	205	938	211	0	555	1999	172	0	563	1037	116	0	8421
APPROACH %'s :	9.68%	66.74%	23.58%	0.00%	15.14%	69.28%	15.58%	0.00%	20.36%	73.33%	6.31%	0.00%	32.81%	60.43%	6.76%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	141	881	324	0	106	399	86	0	304	1055	80	0	284	579	59	0	4298
PEAK HR FACTOR :	0.750	0.888	0.964	0.000	0.779	0.713	0.632	0.000	0.950	0.824	0.952	0.000	0.877	0.872	0.922	0.000	0.954
	0.895				0.794				0.855				0.915				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-013
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	70	23	0	8	175	71	0	19	56	11	0	72	255	11	0	779
7:15 AM	8	81	16	0	8	134	55	0	29	61	16	0	85	281	20	0	794
7:30 AM	11	95	28	0	11	157	99	0	46	82	19	0	89	390	16	0	1043
7:45 AM	11	95	27	0	12	169	113	0	54	123	43	0	103	424	25	0	1199
8:00 AM	9	119	48	0	19	144	94	0	71	144	36	0	119	306	15	0	1124
8:15 AM	12	129	33	0	25	188	94	0	56	131	27	0	81	191	10	0	977
8:30 AM	13	61	19	0	20	122	54	0	45	132	25	0	67	156	5	0	719
8:45 AM	14	89	14	0	11	158	42	0	44	76	20	0	58	121	7	0	654
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	86	739	208	0	114	1247	622	0	364	805	197	0	674	2124	109	0	7289
APPROACH %'s :	8.33%	71.54%	20.14%	0.00%	5.75%	62.88%	31.37%	0.00%	26.65%	58.93%	14.42%	0.00%	23.19%	73.07%	3.75%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	43	438	136	0	67	658	400	0	227	480	125	0	392	1311	66	0	4343
PEAK HR FACTOR :	0.896	0.849	0.708	0.000	0.670	0.875	0.885	0.000	0.799	0.833	0.727	0.000	0.824	0.773	0.660	0.000	0.906
	0.876				0.916				0.829				0.801				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	203	55	0	18	137	32	0	63	247	20	0	72	108	9	0	986
4:15 PM	22	200	57	0	28	157	25	0	53	195	27	0	74	104	18	0	960
4:30 PM	38	255	80	0	23	120	30	0	67	221	22	0	59	116	11	0	1042
4:45 PM	45	239	80	0	23	128	21	0	79	250	20	0	70	125	13	0	1093
5:00 PM	27	194	80	0	17	81	16	0	77	245	18	0	60	134	14	0	963
5:15 PM	32	240	83	0	31	82	33	0	68	236	21	0	75	144	16	0	1061
5:30 PM	28	179	73	0	34	81	13	0	79	317	20	0	71	162	15	0	1072
5:45 PM	27	177	93	0	29	92	38	0	65	272	19	0	64	124	18	0	1018
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	241	1687	601	0	203	878	208	0	551	1983	167	0	545	1017	114	0	8195
APPROACH %'s :	9.53%	66.71%	23.76%	0.00%	15.75%	68.11%	16.14%	0.00%	20.40%	73.42%	6.18%	0.00%	32.52%	60.68%	6.80%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	132	852	316	0	105	372	83	0	303	1048	79	0	276	565	58	0	4189
PEAK HR FACTOR :	0.733	0.888	0.952	0.000	0.772	0.727	0.629	0.000	0.959	0.826	0.940	0.000	0.920	0.872	0.906	0.000	0.958
	0.893				0.814				0.859				0.906				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-013
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	2	0	0	0	4	1	0	0	1	1	0	3	4	1	0	18
7:15 AM	0	0	0	0	0	2	0	0	1	2	0	0	0	2	0	0	7
7:30 AM	0	4	1	0	0	2	2	0	1	4	0	0	2	2	0	0	18
7:45 AM	1	3	2	0	0	2	0	0	1	0	1	0	0	0	0	0	10
8:00 AM	2	7	0	0	0	5	1	0	0	2	0	0	1	4	0	0	22
8:15 AM	1	6	2	0	0	6	2	0	1	1	1	0	1	1	0	0	22
8:30 AM	2	7	0	0	1	3	0	0	0	1	1	0	2	4	0	0	21
8:45 AM	0	4	0	0	0	6	2	0	0	1	1	0	2	2	0	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	33	5	0	1	30	8	0	4	12	5	0	11	19	1	0	136
APPROACH %'s :	15.56%	73.33%	11.11%	0.00%	2.56%	76.92%	20.51%	0.00%	19.05%	57.14%	23.81%	0.00%	35.48%	61.29%	3.23%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	20	5	0	0	15	5	0	3	7	2	0	4	7	0	0	72
PEAK HR FACTOR :	0.500	0.714	0.625	0.000	0.000	0.625	0.625	0.000	0.750	0.438	0.500	0.000	0.500	0.438	0.000	0.000	0.818
	0.806				0.625				0.600				0.550				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	1	3	0	0	1	0	0	0	2	1	0	0	11
4:15 PM	0	6	0	0	0	2	0	0	1	1	0	0	0	2	0	0	12
4:30 PM	0	0	1	0	0	1	0	0	0	3	0	0	2	1	0	0	8
4:45 PM	1	1	0	0	1	1	1	0	0	2	0	0	1	3	0	0	11
5:00 PM	0	0	1	0	0	1	1	0	0	2	0	0	0	1	0	0	6
5:15 PM	1	1	0	0	0	1	1	0	0	0	0	0	2	3	0	0	9
5:30 PM	1	0	0	0	0	1	0	0	1	2	0	0	0	3	0	0	8
5:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	12	2	0	2	10	3	0	3	11	0	0	7	14	0	0	67
APPROACH %'s :	17.65%	70.59%	11.76%	0.00%	13.33%	66.67%	20.00%	0.00%	21.43%	78.57%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	3	2	1	0	1	4	3	0	1	6	0	0	3	10	0	0	34
PEAK HR FACTOR :	0.750	0.500	0.250	0.000	0.250	1.000	0.750	0.000	0.250	0.750	0.000	0.000	0.375	0.833	0.000	0.000	0.773
	0.750				0.667				0.583				0.650				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-013
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	2	1	0	0	2	0	0	0	0	0	0	1	0	0	0	7
7:15 AM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	3	0	0	1	5	0	0	0	0	1	0	0	0	0	0	10
7:45 AM	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	0	5
8:00 AM	0	3	0	0	0	3	0	0	0	1	0	0	1	0	0	0	8
8:15 AM	1	1	0	0	0	2	1	0	0	0	0	0	0	1	0	0	6
8:30 AM	0	1	2	0	0	1	0	0	0	2	0	0	3	0	0	0	9
8:45 AM	0	2	0	0	0	1	1	0	0	0	2	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	14	4	0	1	17	2	0	0	3	3	0	6	1	0	0	54
APPROACH %'s :	14.29%	66.67%	19.05%	0.00%	5.00%	85.00%	10.00%	0.00%	0.00%	50.00%	50.00%	0.00%	85.71%	14.29%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	8	1	0	1	12	1	0	0	1	1	0	2	1	0	0	29
PEAK HR FACTOR :	0.250	0.667	0.250	0.000	0.250	0.600	0.250	0.000	0.000	0.250	0.250	0.000	0.500	0.250	0.000	0.000	0.725
	0.833				0.583				0.500				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	0	3	0	0	0	1	0	0	2	1	0	0	9
4:15 PM	0	2	0	0	0	2	0	0	0	0	1	0	3	1	0	0	9
4:30 PM	1	3	0	0	0	3	0	0	1	1	0	0	0	0	0	0	9
4:45 PM	0	3	0	0	0	6	0	0	0	0	0	0	1	0	0	0	10
5:00 PM	0	2	1	0	0	2	0	0	0	0	0	0	0	1	0	0	6
5:15 PM	0	3	0	0	0	2	0	0	0	0	0	0	3	1	0	0	9
5:30 PM	1	2	0	0	0	2	0	0	0	0	1	0	0	0	0	0	6
5:45 PM	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	17	4	0	0	21	0	0	1	2	2	0	9	4	0	0	62
APPROACH %'s :	8.70%	73.91%	17.39%	0.00%	0.00%	100.00%	0.00%	0.00%	20.00%	40.00%	40.00%	0.00%	69.23%	30.77%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	10	1	0	0	12	0	0	0	0	1	0	4	2	0	0	31
PEAK HR FACTOR :	0.250	0.833	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.333	0.500	0.000	0.000	0.775
	1.000				0.500				0.250				0.375				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-013
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	5
7:15 AM	1	0	1	0	0	7	2	0	0	0	0	0	0	0	0	0	11
7:30 AM	1	3	0	0	0	7	0	0	0	1	1	0	2	0	0	0	15
7:45 AM	1	4	2	0	0	4	0	0	0	0	1	0	1	2	0	0	15
8:00 AM	0	5	0	0	0	15	0	0	0	1	0	0	0	0	0	0	21
8:15 AM	2	3	1	0	0	15	0	0	0	1	1	0	1	2	0	0	26
8:30 AM	1	9	1	0	0	7	0	0	0	1	0	0	3	0	1	0	23
8:45 AM	3	5	0	0	0	3	0	0	0	2	0	0	1	1	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	30	5	0	0	61	2	0	0	6	3	0	8	6	1	0	131
APPROACH %'s :	20.45%	68.18%	11.36%	0.00%	0.00%	96.83%	3.17%	0.00%	0.00%	66.67%	33.33%	0.00%	53.33%	40.00%	6.67%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	15	3	0	0	41	0	0	0	3	3	0	4	4	0	0	77
PEAK HR FACTOR :	0.500	0.750	0.375	0.000	0.000	0.683	0.000	0.000	0.000	0.750	0.750	0.000	0.500	0.500	0.000	0.000	0.740
	0.786				0.683				0.750				0.667				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	1	0	0	7	0	0	0	1	2	0	0	0	0	0	14
4:15 PM	2	7	2	0	0	5	0	0	0	0	0	0	1	0	0	0	17
4:30 PM	1	5	2	0	0	5	0	0	0	0	1	0	0	0	0	0	14
4:45 PM	1	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	12
5:00 PM	1	5	2	0	0	1	0	0	0	0	0	0	0	0	1	0	10
5:15 PM	2	2	1	0	0	2	0	0	0	0	0	0	1	1	0	0	9
5:30 PM	1	5	2	0	0	3	0	0	0	1	0	0	0	1	0	0	13
5:45 PM	0	4	1	0	0	1	0	0	0	1	0	0	0	0	1	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	36	12	0	0	29	0	0	0	3	3	0	2	2	2	0	97
APPROACH %'s :	14.29%	64.29%	21.43%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	33.33%	33.33%	33.33%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	5	17	6	0	0	11	0	0	0	1	0	0	1	2	1	0	44
PEAK HR FACTOR :	0.625	0.850	0.750	0.000	0.000	0.550	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.250	0.000	0.846
	0.875				0.550				0.250				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-014
Date: 9/8/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	20	78	5	0	20	45	70	0	42	95	6	0	7	184	30	4	606
7:15 AM	12	92	2	0	31	84	60	0	31	122	15	0	4	148	28	6	635
7:30 AM	13	41	3	0	20	68	40	0	34	95	6	0	1	117	14	9	461
7:45 AM	19	28	3	0	22	41	24	0	24	89	10	0	7	116	10	7	400
8:00 AM	14	17	7	0	11	23	24	0	12	79	11	0	3	89	14	7	311
8:15 AM	11	34	2	0	13	19	25	0	16	78	6	0	5	78	10	13	310
8:30 AM	12	30	4	0	10	20	15	0	11	72	5	0	5	65	17	5	271
8:45 AM	16	23	5	0	16	27	13	0	18	64	5	0	4	70	12	8	281
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	117	343	31	0	143	327	271	0	188	694	64	0	36	867	135	59	3275
APPROACH %'s :	23.83%	69.86%	6.31%	0.00%	19.30%	44.13%	36.57%	0.00%	19.87%	73.36%	6.77%	0.00%	3.28%	79.03%	12.31%	5.38%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	64	239	13	0	93	238	194	0	131	401	37	0	19	565	82	26	2102
PEAK HR FACTOR :	0.800	0.649	0.650	0.000	0.750	0.708	0.693	0.000	0.780	0.822	0.617	0.000	0.679	0.768	0.683	0.722	0.828
	0.745				0.750				0.847				0.769				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	43	7	0	21	40	22	0	51	226	18	0	5	102	17	2	570
4:15 PM	20	51	4	0	30	41	18	0	49	239	14	0	5	135	28	7	641
4:30 PM	24	45	5	0	32	47	27	0	50	250	17	0	10	126	29	6	668
4:45 PM	25	70	9	0	33	46	23	0	61	281	20	0	7	145	30	1	751
5:00 PM	21	61	6	0	33	50	13	0	54	207	17	0	18	153	33	4	670
5:15 PM	24	73	3	0	32	46	27	0	46	226	18	0	13	113	29	4	654
5:30 PM	12	64	5	0	26	56	28	0	40	190	22	0	5	105	21	6	580
5:45 PM	21	31	4	0	27	46	17	0	45	161	16	0	4	90	17	4	483
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	163	438	43	0	234	372	175	0	396	1780	142	0	67	969	204	34	5017
APPROACH %'s :	25.31%	68.01%	6.68%	0.00%	29.96%	47.63%	22.41%	0.00%	17.08%	76.79%	6.13%	0.00%	5.26%	76.06%	16.01%	2.67%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	94	249	23	0	130	189	90	0	211	964	72	0	48	537	121	15	2743
PEAK HR FACTOR :	0.940	0.853	0.639	0.000	0.985	0.945	0.833	0.000	0.865	0.858	0.900	0.000	0.667	0.877	0.917	0.625	0.913
	0.880				0.965				0.861				0.867				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-014
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	78	5	0	19	45	70	0	42	93	6	0	7	181	30	4	599
7:15 AM	12	92	2	0	31	84	58	0	30	119	15	0	4	142	28	6	623
7:30 AM	13	41	3	0	20	67	38	0	34	92	6	0	1	112	14	9	450
7:45 AM	19	28	3	0	22	40	24	0	24	85	10	0	7	112	10	7	391
8:00 AM	14	17	7	0	11	23	24	0	12	78	11	0	3	87	14	7	308
8:15 AM	11	32	2	0	12	18	25	0	16	74	6	0	5	74	10	13	298
8:30 AM	12	29	4	0	10	19	15	0	10	67	5	0	5	64	17	5	262
8:45 AM	16	23	5	0	15	27	13	0	17	60	4	0	3	69	12	8	272
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	116	340	31	0	140	323	267	0	185	668	63	0	35	841	135	59	3203
APPROACH %'s :	23.82%	69.82%	6.37%	0.00%	19.18%	44.25%	36.58%	0.00%	20.20%	72.93%	6.88%	0.00%	3.27%	78.60%	12.62%	5.51%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	63	239	13	0	92	236	190	0	130	389	37	0	19	547	82	26	2063
PEAK HR FACTOR :	0.829	0.649	0.650	0.000	0.742	0.702	0.679	0.000	0.774	0.817	0.617	0.000	0.679	0.756	0.683	0.722	0.828
	0.743				0.749				0.848				0.759				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	42	7	0	21	40	22	0	50	221	18	0	5	100	17	2	561
4:15 PM	20	51	4	0	30	41	16	0	48	236	14	0	5	128	28	7	628
4:30 PM	24	44	5	0	31	47	27	0	50	246	16	0	9	122	29	6	656
4:45 PM	25	70	8	0	33	45	23	0	61	280	20	0	7	145	30	1	748
5:00 PM	21	61	6	0	32	50	13	0	54	203	17	0	17	146	33	4	657
5:15 PM	24	72	3	0	32	46	27	0	46	224	18	0	13	112	29	4	650
5:30 PM	12	64	5	0	26	56	28	0	39	186	22	0	5	103	21	6	573
5:45 PM	21	30	4	0	27	46	17	0	45	161	16	0	4	90	16	4	481
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	163	434	42	0	232	371	173	0	393	1757	141	0	65	946	203	34	4954
APPROACH %'s :	25.51%	67.92%	6.57%	0.00%	29.90%	47.81%	22.29%	0.00%	17.15%	76.69%	6.15%	0.00%	5.21%	75.80%	16.27%	2.72%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	94	247	22	0	128	188	90	0	211	953	71	0	46	525	121	15	2711
PEAK HR FACTOR :	0.940	0.858	0.688	0.000	0.970	0.940	0.833	0.000	0.865	0.851	0.888	0.000	0.676	0.899	0.917	0.625	0.906
	0.881				0.967				0.855				0.884				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-014
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	5
7:15 AM	0	0	0	0	0	0	1	0	1	1	0	0	0	2	0	0	5
7:30 AM	0	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	4
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	1	0	0	0	3	0	0	0	2	0	0	8
8:30 AM	0	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0	5
8:45 AM	0	0	0	0	1	0	0	0	1	3	1	0	1	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	0	0	3	3	2	0	3	12	1	0	1	9	0	0	37
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	37.50%	37.50%	25.00%	0.00%	18.75%	75.00%	6.25%	0.00%	10.00%	90.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	0	0	0	1	2	2	0	1	3	0	0	0	7	0	0	17
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.250	0.500	0.500	0.000	0.250	0.750	0.000	0.000	0.000	0.875	0.000	0.000	0.850
	0.250				0.625				0.500				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
4:15 PM	0	0	0	0	0	0	2	0	1	1	0	0	0	2	0	0	6
4:30 PM	0	1	0	0	1	0	0	0	0	2	1	0	1	2	0	0	8
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	4
5:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	1	0	2	0	2	0	3	8	1	0	1	8	1	0	29
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	50.00%	0.00%	50.00%	0.00%	25.00%	66.67%	8.33%	0.00%	10.00%	80.00%	10.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	1	0	2	0	0	0	0	4	1	0	1	5	0	0	16
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.250	0.625	0.000	0.000	0.500
	0.750				0.500				0.417				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-014
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	2	0	0	4	0	0	0	5	0	0	12
APPROACH %'s :					0.00%	33.33%	66.67%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	0	2	0	0	0	2	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.750
					0.500				0.250				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	0	0	0	0	2	0	0	1	7	0	0	12
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	12.50%	87.50%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.000	0.000	0.333
									0.250				0.375				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-014
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
7:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	10	0	0	0	12	0	0	23
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	7	0	0	0	9	0	0	16
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.875	0.000	0.000	0.000	0.563	0.000	0.000	0.667
									0.875				0.563				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	13	0	0	0	8	0	0	22
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	6	0	0	0	5	0	0	12
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.313	0.000	0.000	0.500
						0.250				0.750				0.313			

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-015
Date: 9/8/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	87	18	0	15	141	56	8	46	47	10	0	9	99	12	2	563
7:15 AM	14	99	8	0	23	164	44	6	32	65	12	1	17	141	11	2	639
7:30 AM	22	123	19	0	15	166	67	3	60	84	15	0	26	168	22	3	793
7:45 AM	37	137	16	0	27	200	61	4	73	100	26	1	40	152	20	2	896
8:00 AM	31	129	21	0	28	179	59	6	58	85	26	4	32	126	28	0	812
8:15 AM	26	153	17	0	27	189	44	8	70	67	39	3	38	193	28	2	904
8:30 AM	16	114	10	0	34	176	34	12	47	69	18	2	20	85	17	3	657
8:45 AM	14	106	10	0	11	123	31	10	49	60	17	4	18	69	12	7	541
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	173	948	119	0	180	1338	396	57	435	577	163	15	200	1033	150	21	5805
APPROACH %'s :	13.95%	76.45%	9.60%	0.00%	9.13%	67.88%	20.09%	2.89%	36.55%	48.49%	13.70%	1.26%	14.25%	73.58%	10.68%	1.50%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	116	542	73	0	97	734	231	21	261	336	106	8	136	639	98	7	3405
PEAK HR FACTOR :	0.784	0.886	0.869	0.000	0.866	0.918	0.862	0.656	0.894	0.840	0.679	0.500	0.850	0.828	0.875	0.583	0.942
	0.932				0.927				0.889				0.843				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	29	130	22	0	24	108	28	6	62	142	20	2	30	74	11	8	696
4:15 PM	23	156	14	0	20	143	34	5	51	137	26	4	23	82	14	4	736
4:30 PM	22	156	15	0	25	152	26	5	57	132	29	5	25	51	14	3	717
4:45 PM	23	143	16	0	18	141	20	9	50	163	33	6	22	89	9	4	746
5:00 PM	25	145	10	0	16	118	22	4	81	167	28	5	22	103	14	8	768
5:15 PM	26	165	20	0	31	104	23	7	59	167	28	5	35	116	13	3	802
5:30 PM	22	132	26	0	32	85	23	9	70	189	30	9	36	157	13	4	837
5:45 PM	22	156	9	0	19	123	32	8	63	179	29	3	38	133	18	6	838
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	192	1183	132	0	185	974	208	53	493	1276	223	39	231	805	106	40	6140
APPROACH %'s :	12.74%	78.50%	8.76%	0.00%	13.03%	68.59%	14.65%	3.73%	24.27%	62.83%	10.98%	1.92%	19.54%	68.10%	8.97%	3.38%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	95	598	65	0	98	430	100	28	273	702	115	22	131	509	58	21	3245
PEAK HR FACTOR :	0.913	0.906	0.625	0.000	0.766	0.874	0.781	0.778	0.843	0.929	0.958	0.611	0.862	0.811	0.806	0.656	0.968
	0.898				0.901				0.933				0.856				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-015
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	80	16	0	12	136	55	8	46	45	10	0	8	95	12	2	538
7:15 AM	14	87	7	0	21	159	42	5	32	64	12	1	15	134	11	2	606
7:30 AM	20	119	19	0	15	158	66	3	59	82	14	0	26	164	22	3	770
7:45 AM	35	131	16	0	26	192	59	4	71	97	26	1	38	152	19	2	869
8:00 AM	31	127	21	0	26	174	58	6	57	83	26	4	29	122	25	0	789
8:15 AM	25	145	17	0	25	184	42	7	68	66	38	3	34	185	26	2	867
8:30 AM	16	108	9	0	33	167	33	12	44	66	18	2	20	80	16	3	627
8:45 AM	14	101	9	0	10	116	30	10	49	59	17	4	17	67	10	7	520
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	168	898	114	0	168	1286	385	55	426	562	161	15	187	999	141	21	5586
APPROACH %'s :	14.24%	76.10%	9.66%	0.00%	8.87%	67.90%	20.33%	2.90%	36.60%	48.28%	13.83%	1.29%	13.87%	74.11%	10.46%	1.56%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	111	522	73	0	92	708	225	20	255	328	104	8	127	623	92	7	3295
PEAK HR FACTOR :	0.793	0.900	0.869	0.000	0.885	0.922	0.852	0.714	0.898	0.845	0.684	0.500	0.836	0.842	0.885	0.583	0.948
	0.944				0.930				0.891				0.859				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	29	126	19	0	22	107	27	6	61	139	20	2	28	71	11	8	676
4:15 PM	23	154	14	0	20	134	32	5	50	134	26	4	20	80	13	4	713
4:30 PM	22	151	13	0	25	148	26	5	56	129	29	5	24	51	13	3	700
4:45 PM	23	139	14	0	17	137	20	9	49	161	32	6	22	88	9	4	730
5:00 PM	25	141	9	0	16	115	20	4	79	162	28	5	21	100	14	8	747
5:15 PM	26	163	20	0	31	103	22	7	58	165	28	5	34	109	13	3	787
5:30 PM	22	131	25	0	31	83	23	9	69	185	30	9	34	157	13	4	825
5:45 PM	22	154	9	0	18	121	30	8	63	177	29	3	36	130	18	6	824
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	192	1159	123	0	180	948	200	53	485	1252	222	39	219	786	104	40	6002
APPROACH %'s :	13.03%	78.63%	8.34%	0.00%	13.03%	68.65%	14.48%	3.84%	24.27%	62.66%	11.11%	1.95%	19.06%	68.41%	9.05%	3.48%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	95	589	63	0	96	422	95	28	269	689	115	22	125	496	58	21	3183
PEAK HR FACTOR :	0.913	0.903	0.630	0.000	0.774	0.872	0.792	0.778	0.851	0.931	0.958	0.611	0.868	0.790	0.806	0.656	0.965
	0.894				0.905				0.934				0.841				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-015
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	1	0	2	2	0	0	0	1	0	0	1	2	0	0	12
7:15 AM	0	7	0	0	2	3	1	0	0	0	0	0	1	3	0	0	17
7:30 AM	2	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	6
7:45 AM	1	3	0	0	1	3	2	0	0	1	0	0	1	0	1	0	13
8:00 AM	0	1	0	0	0	0	1	0	1	1	0	0	1	2	1	0	8
8:15 AM	1	3	0	0	0	3	1	1	2	0	0	0	1	3	2	0	17
8:30 AM	0	2	1	0	1	1	0	0	2	0	0	0	0	2	1	0	10
8:45 AM	0	0	0	0	1	3	0	0	0	0	0	0	1	1	2	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	19	2	0	7	16	5	1	6	4	0	0	6	14	7	0	91
APPROACH %'s :	16.00%	76.00%	8.00%	0.00%	24.14%	55.17%	17.24%	3.45%	60.00%	40.00%	0.00%	0.00%	22.22%	51.85%	25.93%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	7	0	0	1	7	4	1	4	3	0	0	3	6	4	0	44
PEAK HR FACTOR :	0.500	0.583	0.000	0.000	0.250	0.583	0.500	0.250	0.500	0.750	0.000	0.000	0.750	0.500	0.500	0.000	0.647
	0.688				0.542				0.875				0.542				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	2	0	0	0	0	1	0	0	2	0	0	0	7
4:15 PM	0	2	0	0	0	4	1	0	1	1	0	0	1	0	0	0	10
4:30 PM	0	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	5
4:45 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	5
5:00 PM	0	2	0	0	0	0	1	0	1	3	0	0	0	1	0	0	8
5:15 PM	0	1	0	0	0	1	1	0	1	1	0	0	0	1	0	0	6
5:30 PM	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	11	1	0	5	6	3	0	5	9	0	0	3	4	0	0	47
APPROACH %'s :	0.00%	91.67%	8.33%	0.00%	35.71%	42.86%	21.43%	0.00%	35.71%	64.29%	0.00%	0.00%	42.86%	57.14%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	4	0	0	2	1	2	0	3	5	0	0	0	3	0	0	20
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.500	0.250	0.500	0.000	0.750	0.417	0.000	0.000	0.000	0.750	0.000	0.000	0.625
	0.500				0.625				0.500				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-015
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	1	0	0	1	1	0	0	0	0	0	0	0	0	0	5
7:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	4
7:30 AM	0	0	0	0	0	3	0	0	0	1	1	0	0	1	0	0	6
7:45 AM	0	1	0	0	0	1	0	0	1	1	0	0	1	0	0	0	5
8:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	1	2	0	5
8:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3
8:30 AM	0	2	0	0	0	2	0	0	1	1	0	0	0	0	0	0	6
8:45 AM	0	3	1	0	0	1	0	0	0	1	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	3	0	3	9	2	0	2	4	1	0	1	5	2	0	40
APPROACH %'s :	0.00%	72.73%	27.27%	0.00%	21.43%	64.29%	14.29%	0.00%	28.57%	57.14%	14.29%	0.00%	12.50%	62.50%	25.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	3	5	0	0	1	2	1	0	1	3	2	0	19
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.375	0.417	0.000	0.000	0.250	0.500	0.250	0.000	0.250	0.750	0.250	0.000	0.792
	0.250				0.667				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	2	0	0	1	1	0	0	1	0	0	0	2	0	0	9
4:15 PM	0	0	0	0	0	3	1	0	0	0	0	0	1	1	0	0	6
4:30 PM	0	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	6
4:45 PM	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	0	2	0	0	0	1	0	0	0	1	0	0	1	1	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	3
5:45 PM	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	4	0	0	11	3	0	0	2	0	0	5	8	0	0	41
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	0.00%	78.57%	21.43%	0.00%	0.00%	100.00%	0.00%	0.00%	38.46%	61.54%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	2	1	0	0	1	0	0	4	5	0	0	16
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.500	0.313	0.000	0.000	0.667
	0.375				0.750				0.250				0.563				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-015
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	8
7:15 AM	0	5	0	0	0	2	0	1	0	1	0	0	1	2	0	0	12
7:30 AM	0	4	0	0	0	4	1	0	0	0	0	0	0	2	0	0	11
7:45 AM	1	2	0	0	0	4	0	0	1	1	0	0	0	0	0	0	9
8:00 AM	0	1	0	0	0	5	0	0	0	1	0	0	2	1	0	0	10
8:15 AM	0	5	0	0	1	1	1	0	0	1	1	0	3	4	0	0	17
8:30 AM	0	2	0	0	0	6	1	0	0	2	0	0	0	3	0	0	14
8:45 AM	0	2	0	0	0	3	1	0	0	0	0	0	0	1	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	23	0	0	2	27	4	1	1	7	1	0	6	15	0	0	88
APPROACH %'s :	4.17%	95.83%	0.00%	0.00%	5.88%	79.41%	11.76%	2.94%	11.11%	77.78%	11.11%	0.00%	28.57%	71.43%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	12	0	0	1	14	2	0	1	3	1	0	5	7	0	0	47
PEAK HR FACTOR :	0.250	0.600	0.000	0.000	0.250	0.700	0.500	0.000	0.250	0.750	0.250	0.000	0.417	0.438	0.000	0.000	0.691
	0.650				0.850				0.625				0.429				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0	4
4:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	1	1	1	0	7
4:30 PM	0	1	0	0	0	1	0	0	0	2	0	0	1	0	1	0	6
4:45 PM	0	2	1	0	0	1	0	0	1	1	1	0	0	0	0	0	7
5:00 PM	0	0	1	0	0	2	1	0	1	1	0	0	0	1	0	0	7
5:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	1	2	0	0	5
5:30 PM	0	0	1	0	0	1	0	0	0	3	0	0	0	0	0	0	5
5:45 PM	0	1	0	0	0	2	1	0	0	2	0	0	1	2	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	4	0	0	9	2	0	3	13	1	0	4	7	2	0	50
APPROACH %'s :	0.00%	55.56%	44.44%	0.00%	0.00%	81.82%	18.18%	0.00%	17.65%	76.47%	5.88%	0.00%	30.77%	53.85%	15.38%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	2	0	0	5	2	0	1	7	0	0	2	5	0	0	26
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.000	0.625	0.500	0.000	0.250	0.583	0.000	0.000	0.500	0.625	0.000	0.000	0.722
	1.000				0.583				0.667				0.583				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-016
Date: 9/8/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	16	106	5	2	39	174	22	0	11	56	10	0	14	76	27	6	564
7:15 AM	30	120	12	1	36	206	28	1	15	67	19	1	14	116	28	7	701
7:30 AM	44	165	19	1	41	269	36	1	28	71	32	1	17	118	25	7	875
7:45 AM	40	196	15	2	46	285	32	3	26	111	29	0	13	118	38	9	963
8:00 AM	35	141	10	3	60	269	23	2	17	93	22	0	14	127	42	11	869
8:15 AM	30	102	8	1	64	210	9	0	19	123	25	1	10	90	27	5	724
8:30 AM	22	144	4	1	43	219	19	0	13	62	11	0	7	47	19	2	613
8:45 AM	18	112	4	0	35	216	14	0	8	46	17	0	9	47	26	7	559
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	235	1086	77	11	364	1848	183	7	137	629	165	3	98	739	232	54	5868
APPROACH %'s :	16.68%	77.08%	5.46%	0.78%	15.15%	76.94%	7.62%	0.29%	14.67%	67.34%	17.67%	0.32%	8.73%	65.81%	20.66%	4.81%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	149	604	52	7	211	1033	100	6	90	398	108	2	54	453	132	32	3431
PEAK HR FACTOR :	0.847	0.770	0.684	0.583	0.824	0.906	0.694	0.500	0.804	0.809	0.844	0.500	0.794	0.892	0.786	0.727	0.891
	0.802				0.922				0.890				0.865				

NS/EW Streets:	Sierra Ave				Sierra Ave				Baseline Ave				Baseline Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	21	216	15	1	39	172	24	2	45	123	16	0	14	71	39	5	803
4:15 PM	25	232	12	0	56	166	16	1	25	85	18	0	20	49	26	4	735
4:30 PM	20	237	11	1	58	145	16	0	35	125	24	1	9	66	34	5	787
4:45 PM	23	264	21	1	35	127	22	0	26	128	18	0	18	79	35	7	804
5:00 PM	25	265	15	1	59	143	9	2	37	115	17	1	10	133	59	5	896
5:15 PM	21	255	12	0	56	121	13	2	36	168	22	0	13	142	59	7	927
5:30 PM	25	241	21	0	57	108	20	1	31	147	26	1	23	161	60	6	928
5:45 PM	31	202	13	1	47	128	13	1	28	148	25	1	21	175	46	5	885
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	191	1912	120	5	407	1110	133	9	263	1039	166	4	128	876	358	44	6765
APPROACH %'s :	8.57%	85.82%	5.39%	0.22%	24.53%	66.91%	8.02%	0.54%	17.87%	70.58%	11.28%	0.27%	9.10%	62.30%	25.46%	3.13%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	102	963	61	2	219	500	55	6	132	578	90	3	67	611	224	23	3636
PEAK HR FACTOR :	0.823	0.908	0.726	0.500	0.928	0.874	0.688	0.750	0.892	0.860	0.865	0.750	0.728	0.873	0.933	0.821	0.980
	0.922				0.915				0.888				0.925				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-016
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	15	99	5	2	37	171	20	0	10	49	10	0	13	74	24	6	535
7:15 AM	28	117	12	1	35	201	25	1	15	65	19	1	14	112	26	7	679
7:30 AM	43	163	18	1	41	263	36	1	28	70	31	1	16	115	25	7	859
7:45 AM	40	188	14	2	44	280	30	3	26	109	29	0	12	108	36	9	930
8:00 AM	35	135	9	3	60	266	20	2	17	92	21	0	14	119	39	11	843
8:15 AM	30	99	8	1	62	206	9	0	17	122	25	1	9	82	27	5	703
8:30 AM	22	140	4	1	43	213	16	0	13	56	11	0	6	44	17	2	588
8:45 AM	18	109	4	0	33	213	11	0	8	42	17	0	8	47	25	7	542
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	231	1050	74	11	355	1813	167	7	134	605	163	3	92	701	219	54	5679
APPROACH %'s :	16.91%	76.87%	5.42%	0.81%	15.16%	77.41%	7.13%	0.30%	14.81%	66.85%	18.01%	0.33%	8.63%	65.76%	20.54%	5.07%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	148	585	49	7	207	1015	95	6	88	393	106	2	51	424	127	32	3335
PEAK HR FACTOR :	0.860	0.778	0.681	0.583	0.835	0.906	0.660	0.500	0.786	0.805	0.855	0.500	0.797	0.891	0.814	0.727	0.897
	0.808				0.926				0.892				0.866				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	210	14	1	38	169	23	2	43	118	16	0	13	67	38	5	777
4:15 PM	25	230	12	0	56	165	16	1	24	85	18	0	20	48	26	4	730
4:30 PM	19	235	11	1	58	140	16	0	35	120	24	1	8	65	31	5	769
4:45 PM	23	260	21	1	34	124	22	0	26	123	18	0	17	78	35	6	788
5:00 PM	25	261	15	1	58	143	9	2	37	110	17	1	9	126	58	5	877
5:15 PM	21	253	12	0	56	119	13	2	36	165	22	0	13	137	54	7	910
5:30 PM	25	239	21	0	57	104	20	1	31	145	26	1	23	158	59	6	916
5:45 PM	31	199	13	1	46	124	13	1	27	145	25	1	21	167	44	5	863
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	189	1887	119	5	403	1088	132	9	259	1011	166	4	124	846	345	43	6630
APPROACH %'s :	8.59%	85.77%	5.41%	0.23%	24.69%	66.67%	8.09%	0.55%	17.99%	70.21%	11.53%	0.28%	9.13%	62.30%	25.41%	3.17%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	102	952	61	2	217	490	55	6	131	565	90	3	66	588	215	23	3566
PEAK HR FACTOR :	0.823	0.912	0.726	0.500	0.935	0.857	0.688	0.750	0.885	0.856	0.865	0.750	0.717	0.880	0.911	0.821	0.973
	0.925				0.906				0.885				0.907				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-016
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	5	0	0	2	3	0	0	0	3	0	0	0	1	1	0	16
7:15 AM	2	1	0	0	1	4	2	0	0	2	0	0	0	0	1	0	13
7:30 AM	0	1	0	0	0	4	0	0	0	0	1	0	0	1	0	0	7
7:45 AM	0	3	0	0	1	1	1	0	0	0	0	0	0	5	1	0	12
8:00 AM	0	2	1	0	0	3	1	0	0	1	1	0	0	2	1	0	12
8:15 AM	0	2	0	0	1	1	0	0	1	0	0	0	0	1	0	0	6
8:30 AM	0	3	0	0	0	3	1	0	0	1	0	0	0	1	1	0	10
8:45 AM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	18	1	0	6	21	5	0	1	9	2	0	0	11	5	0	82
APPROACH %'s :	13.64%	81.82%	4.55%	0.00%	18.75%	65.63%	15.63%	0.00%	8.33%	75.00%	16.67%	0.00%	0.00%	68.75%	31.25%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	8	1	0	2	9	2	0	1	1	2	0	0	9	2	0	37
PEAK HR FACTOR :	0.000	0.667	0.250	0.000	0.500	0.563	0.500	0.000	0.250	0.250	0.500	0.000	0.000	0.450	0.500	0.000	0.771
	0.750				0.813				0.500				0.458				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	0	0	1	2	0	0	0	1	0	0	0	0	1	0	9
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	1	2	0	0	0	3	0	0	0	1	0	0	1	0	1	0	9
4:45 PM	0	4	0	0	1	2	0	0	0	3	0	0	0	1	0	0	11
5:00 PM	0	3	0	0	1	0	0	0	0	2	0	0	0	0	1	0	7
5:15 PM	0	2	0	0	0	1	0	0	0	1	0	0	0	2	3	0	9
5:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	1	0	0	1	2	0	0	0	1	0	0	0	3	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	16	0	0	4	13	0	0	0	9	0	0	1	7	6	0	58
APPROACH %'s :	11.11%	88.89%	0.00%	0.00%	23.53%	76.47%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	7.14%	50.00%	42.86%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	7	0	0	2	6	0	0	0	4	0	0	0	5	4	0	28
PEAK HR FACTOR :	0.000	0.583	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.417	0.333	0.000	0.778
	0.583				0.667				0.500				0.450				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-016
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	2	0	1	3	0	0	1	0	1	0	8
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:30 AM	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	4
7:45 AM	0	0	1	0	1	1	1	0	0	1	0	0	1	3	0	0	9
8:00 AM	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	1	1	0	0	1	0	0	0	0	2	0	0	5
8:30 AM	0	0	0	0	0	1	2	0	0	2	0	0	1	0	0	0	6
8:45 AM	0	0	0	0	0	1	3	0	0	1	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	1	0	2	4	11	0	2	8	0	0	4	6	1	0	41
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	11.76%	23.53%	64.71%	0.00%	20.00%	80.00%	0.00%	0.00%	36.36%	54.55%	9.09%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	1	1	0	2	2	3	0	1	2	0	0	2	6	0	0	21
PEAK HR FACTOR :	0.250	0.250	0.250	0.000	0.500	0.500	0.375	0.000	0.250	0.500	0.000	0.000	0.500	0.500	0.000	0.000	0.583
	0.750				0.583				0.750				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	0	0	0	0	2	1	0	0	0	2	0	0	7
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	3
5:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	4	0	0	6
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	1	0	0	2	0	0	3	4	0	0	0	12	1	1	27
APPROACH %'s :	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	42.86%	57.14%	0.00%	0.00%	0.00%	85.71%	7.14%	7.14%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	1	1	0	0	0	10	1	0	15
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.625	0.250	0.000	0.625
	0.250				0.250				0.500				0.688				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Baseline Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-016
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Baseline Ave				Baseline Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	1	1	0	5
7:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	4	1	0	8
7:30 AM	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	5
7:45 AM	0	5	0	0	0	3	0	0	0	1	0	0	0	2	1	0	12
8:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	6	2	0	11
8:15 AM	0	1	0	0	0	2	0	0	0	1	0	0	1	5	0	0	10
8:30 AM	0	1	0	0	0	2	0	0	0	3	0	0	0	2	1	0	9
8:45 AM	0	2	0	0	1	0	0	0	0	1	0	0	1	0	1	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	17	1	0	1	10	0	0	0	7	0	0	2	21	7	0	66
APPROACH %'s :	0.00%	94.44%	5.56%	0.00%	9.09%	90.91%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	6.67%	70.00%	23.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	10	1	0	0	7	0	0	0	2	0	0	1	14	3	0	38
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.000	0.583	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.583	0.375	0.000	0.792
	0.550				0.583				0.500				0.563				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	1	1	0	0	3	0	0	1	2	0	0	10
4:15 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	2	0	0	0	3	0	0	0	1	2	0	8
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	3	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1	0	4
5:30 PM	0	1	0	0	0	1	0	0	0	2	0	0	0	2	1	0	7
5:45 PM	0	2	0	0	0	2	0	0	0	2	0	0	0	2	2	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	0	0	0	7	1	0	1	15	0	0	3	11	6	0	50
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	87.50%	12.50%	0.00%	6.25%	93.75%	0.00%	0.00%	15.00%	55.00%	30.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	3	0	0	0	8	0	0	1	8	4	0	27
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.375	0.000	0.000	0.000	1.000	0.000	0.000	0.250	0.667	0.500	0.000	0.675
	0.375				0.375				1.000				0.813				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	44	15	60	14	47	5	66	15	49	12	76	7	25	12	44	246
07:15 AM	8	71	17	96	14	74	17	105	20	48	11	79	42	36	24	102	382
07:30 AM	20	56	29	105	18	103	23	144	33	91	20	144	35	58	27	120	513
07:45 AM	19	72	45	136	24	134	13	171	38	49	40	127	17	64	23	104	538
Total	48	243	106	397	70	358	58	486	106	237	83	426	101	183	86	370	1679
08:00 AM	21	79	29	129	20	142	21	183	30	60	70	160	23	86	31	140	612
08:15 AM	15	74	18	107	31	84	11	126	40	37	14	91	11	40	26	77	401
08:30 AM	4	59	22	85	13	55	5	73	13	40	10	63	7	43	34	84	305
08:45 AM	4	21	8	33	7	32	4	43	17	25	4	46	6	13	9	28	150
Total	44	233	77	354	71	313	41	425	100	162	98	360	47	182	100	329	1468
Grand Total	92	476	183	751	141	671	99	911	206	399	181	786	148	365	186	699	3147
Apprch %	12.3	63.4	24.4		15.5	73.7	10.9		26.2	50.8	23		21.2	52.2	26.6		
Total %	2.9	15.1	5.8	23.9	4.5	21.3	3.1	28.9	6.5	12.7	5.8	25	4.7	11.6	5.9	22.2	
Passenger Vehicles	91	470	182	743	139	666	98	903	202	386	177	765	144	363	185	692	3103
% Passenger Vehicles	98.9	98.7	99.5	98.9	98.6	99.3	99	99.1	98.1	96.7	97.8	97.3	97.3	99.5	99.5	99	98.6
Large 2 Axle Vehicles	1	5	1	7	2	5	1	8	3	11	4	18	4	2	1	7	40
% Large 2 Axle Vehicles	1.1	1.1	0.5	0.9	1.4	0.7	1	0.9	1.5	2.8	2.2	2.3	2.7	0.5	0.5	1	1.3
3 Axle Vehicles	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0	3
% 3 Axle Vehicles	0	0.2	0	0.1	0	0	0	0	0.5	0.3	0	0.3	0	0	0	0	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0.3	0	0.1	0	0	0	0	0

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	20	56	29	105	18	103	**23**	144	33	**91**	20	144	**35**	58	27	120	513
07:45 AM	19	72	**45**	**136**	24	134	13	171	38	49	40	127	17	64	23	104	538
08:00 AM	**21**	**79**	29	129	20	**142**	21	**183**	30	60	**70**	**160**	23	**86**	**31**	**140**	**612**
08:15 AM	15	74	18	107	**31**	84	11	126	**40**	37	14	91	11	40	26	77	401
Total Volume	75	281	121	477	93	463	68	624	141	237	144	522	86	248	107	441	2064
% App. Total	15.7	58.9	25.4		14.9	74.2	10.9		27	45.4	27.6		19.5	56.2	24.3		
PHF	.893	.889	.672	.877	.750	.815	.739	.852	.881	.651	.514	.816	.614	.721	.863	.788	.843

Counts Unlimited, Inc.
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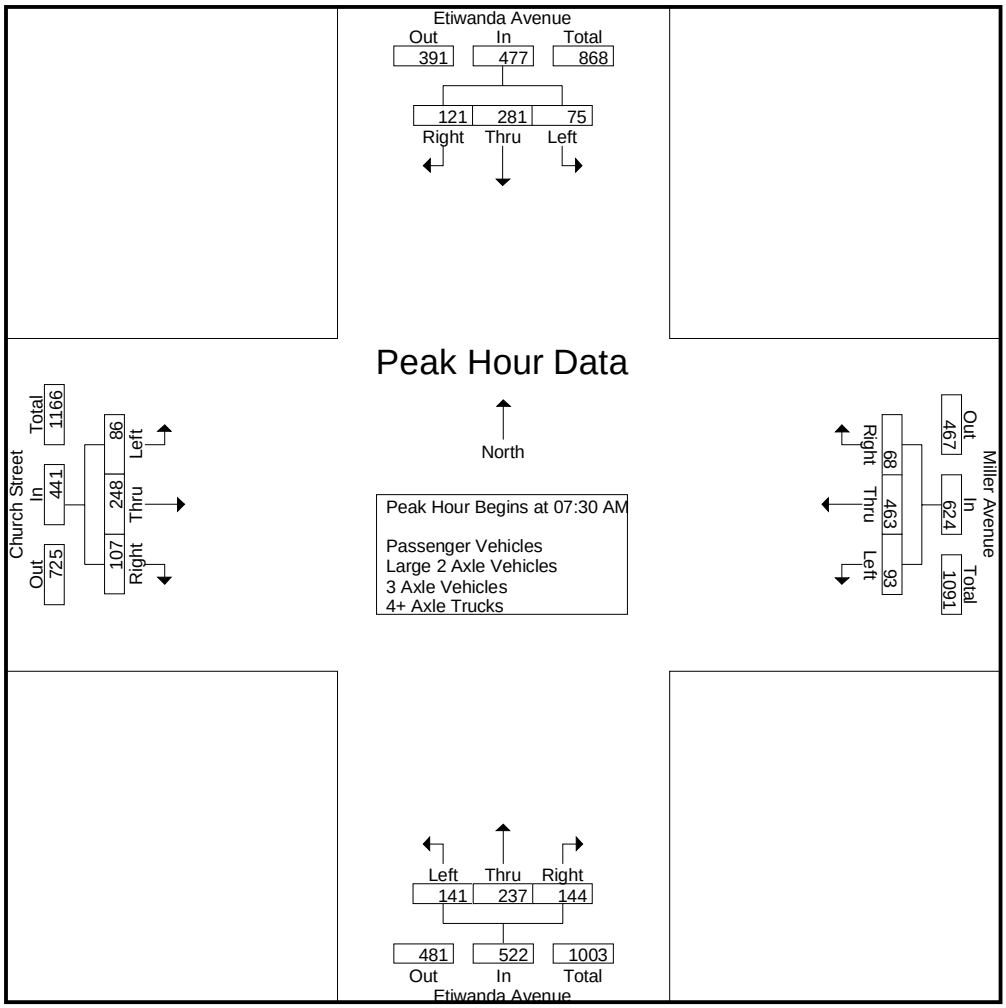
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:15 AM			
+0 mins.	20	56	29	105	18	103	**23**	144	33	**91**	20	144	**42**	36	24	102
+15 mins.	19	72	**45**	**136**	24	134	13	171	38	49	40	127	35	58	27	120
+30 mins.	**21**	**79**	29	129	20	**142**	21	**183**	30	60	**70**	**160**	17	64	23	104
+45 mins.	15	74	18	107	**31**	84	11	126	**40**	37	14	91	23	**86**	**31**	**140**
Total Volume	75	281	121	477	93	463	68	624	141	237	144	522	117	244	105	466
% App. Total	15.7	58.9	25.4		14.9	74.2	10.9		27	45.4	27.6		25.1	52.4	22.5	
PHF	.893	.889	.672	.877	.750	.815	.739	.852	.881	.651	.514	.816	.696	.709	.847	.832

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	43	14	58	14	45	5	64	14	46	11	71	6	24	12	42	235
07:15 AM	8	69	17	94	14	74	17	105	18	48	11	77	42	36	24	102	378
07:30 AM	19	56	29	104	17	102	23	142	33	91	20	144	35	58	27	120	510
07:45 AM	19	71	45	135	24	134	12	170	38	49	38	125	17	63	23	103	533
Total	47	239	105	391	69	355	57	481	103	234	80	417	100	181	86	367	1656
08:00 AM	21	79	29	129	20	142	21	183	30	58	70	158	21	86	31	138	608
08:15 AM	15	74	18	107	30	84	11	125	40	36	14	90	11	40	25	76	398
08:30 AM	4	59	22	85	13	55	5	73	13	35	10	58	7	43	34	84	300
08:45 AM	4	19	8	31	7	30	4	41	16	23	3	42	5	13	9	27	141
Total	44	231	77	352	70	311	41	422	99	152	97	348	44	182	99	325	1447
Grand Total	91	470	182	743	139	666	98	903	202	386	177	765	144	363	185	692	3103
Apprch %	12.2	63.3	24.5		15.4	73.8	10.9		26.4	50.5	23.1		20.8	52.5	26.7		
Total %	2.9	15.1	5.9	23.9	4.5	21.5	3.2	29.1	6.5	12.4	5.7	24.7	4.6	11.7	6	22.3	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	19	56	29	104	17	102	**23**	142	33	**91**	20	144	**35**	58	27	120	510
07:45 AM	19	71	**45**	**135**	24	134	12	170	38	49	38	125	17	63	23	103	533
08:00 AM	**21**	**79**	29	129	20	**142**	21	**183**	30	58	**70**	**158**	21	**86**	**31**	**138**	**608**
08:15 AM	15	74	18	107	**30**	84	11	125	**40**	36	14	90	11	40	25	76	398
Total Volume	74	280	121	475	91	462	67	620	141	234	142	517	84	247	106	437	2049
% App. Total	15.6	58.9	25.5		14.7	74.5	10.8		27.3	45.3	27.5		19.2	56.5	24.3		
PHF	.881	.886	.672	.880	.758	.813	.728	.847	.881	.643	.507	.818	.600	.718	.855	.792	.843

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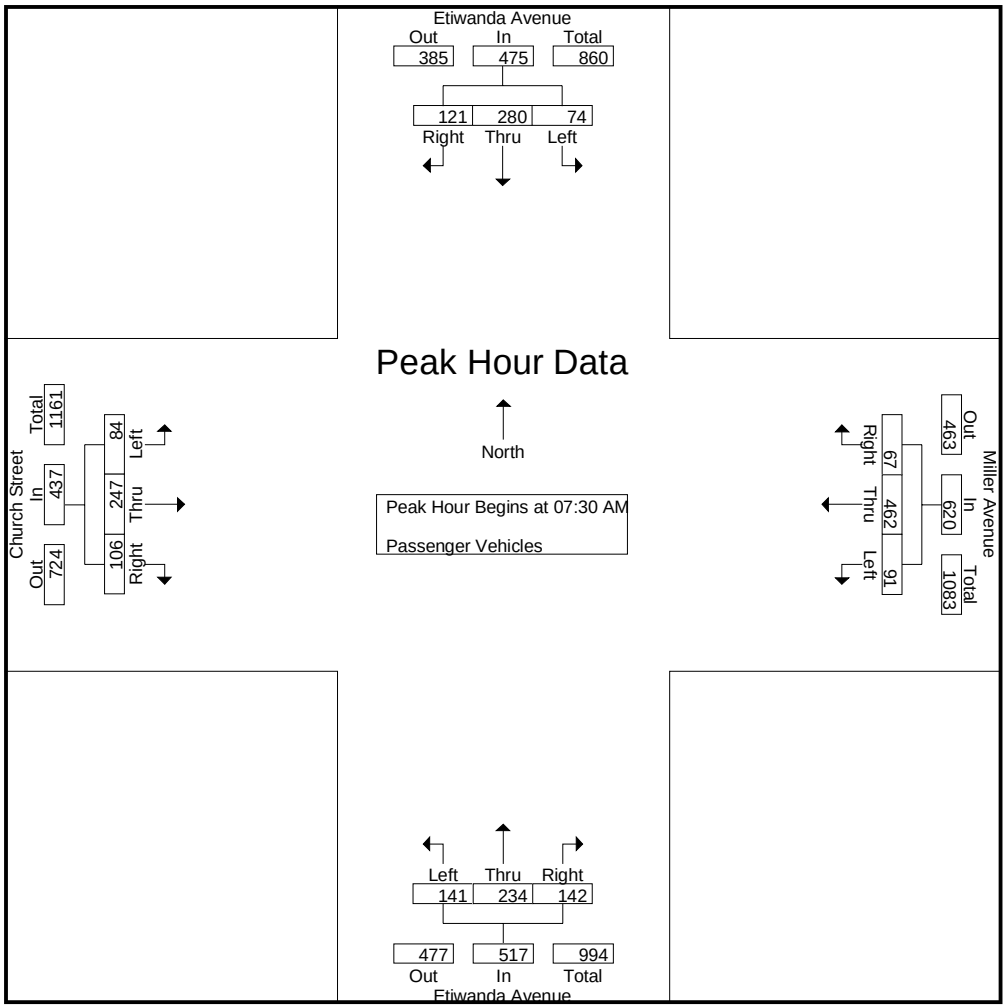
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	19	56	29	104	17	102	**23**	142	33	**91**	20	144	**35**	58	27	120
+15 mins.	19	71	**45**	**135**	24	134	12	170	38	49	38	125	17	63	23	103
+30 mins.	**21**	**79**	29	129	20	**142**	21	**183**	30	58	**70**	**158**	21	**86**	**31**	**138**
+45 mins.	15	74	18	107	**30**	84	11	125	**40**	36	14	90	11	40	25	76
Total Volume	74	280	121	475	91	462	67	620	141	234	142	517	84	247	106	437
% App. Total	15.6	58.9	25.5		14.7	74.5	10.8		27.3	45.3	27.5		19.2	56.5	24.3	
PHF	.881	.886	.672	.880	.758	.813	.728	.847	.881	.643	.507	.818	.600	.718	.855	.792

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	1	2	0	2	0	2	0	2	1	3	1	1	0	2	9
07:15 AM	0	2	0	2	0	0	0	0	2	0	0	2	0	0	0	0	4
07:30 AM	1	0	0	1	1	1	0	2	0	0	0	0	0	0	0	0	3
07:45 AM	0	1	0	1	0	0	1	1	0	0	2	2	0	1	0	1	5
Total	1	4	1	6	1	3	1	5	2	2	3	7	1	2	0	3	21
08:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2	0	0	2	4
08:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	5
08:45 AM	0	1	0	1	0	2	0	2	1	2	1	4	1	0	0	1	8
Total	0	1	0	1	1	2	0	3	1	9	1	11	3	0	1	4	19
Grand Total	1	5	1	7	2	5	1	8	3	11	4	18	4	2	1	7	40
Apprch %	14.3	71.4	14.3		25	62.5	12.5		16.7	61.1	22.2		57.1	28.6	14.3		
Total %	2.5	12.5	2.5	17.5	5	12.5	2.5	20	7.5	27.5	10	45	10	5	2.5	17.5	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**1**	0	0	**1**	**1**	**1**	0	**2**	0	0	0	0	0	0	0	0	3
07:45 AM	0	**1**	0	1	0	0	**1**	1	0	0	**2**	**2**	0	**1**	0	1	**5**
08:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	2	**2**	0	0	**2**	4
08:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**1**	1	2
Total Volume	1	1	0	2	2	1	1	4	0	2	2	4	2	1	1	4	14
% App. Total	50	50	0		50	25	25		0	50	50		50	25	25		
PHF	.250	.250	.000	.500	.500	.250	.250	.500	.000	.250	.250	.500	.250	.250	.250	.500	.700

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City of Fontana
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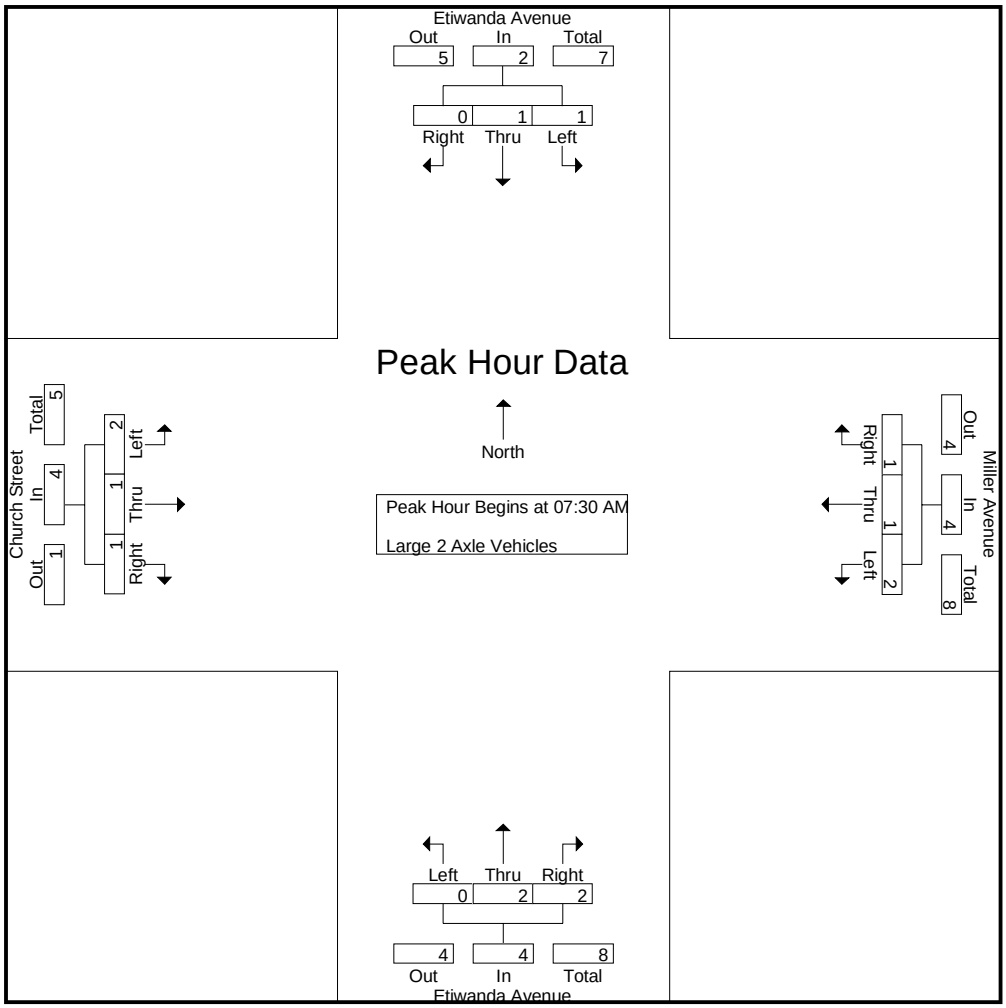
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**1**	0	0	**1**	**1**	**1**	0	**2**	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	0	1	0	0	**1**	1	0	0	**2**	**2**	0	**1**	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	**2**	0	2	**2**	0	0	**2**
+45 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**1**	1
Total Volume	1	1	0	2	2	1	1	4	0	2	2	4	2	1	1	4
% App. Total	50	50	0		50	25	25		0	50	50		50	25	25	
PHF	.250	.250	.000	.500	.500	.250	.250	.500	.000	.250	.250	.500	.250	.250	.250	.500

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- 3 Axle Vehicles

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Grand Total	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0	3
Apprch %	0	100	0		0	0	0		50	50	0		0	0	0		
Total %	0	33.3	0	33.3	0	0	0	0	33.3	33.3	0	66.7	0	0	0	0	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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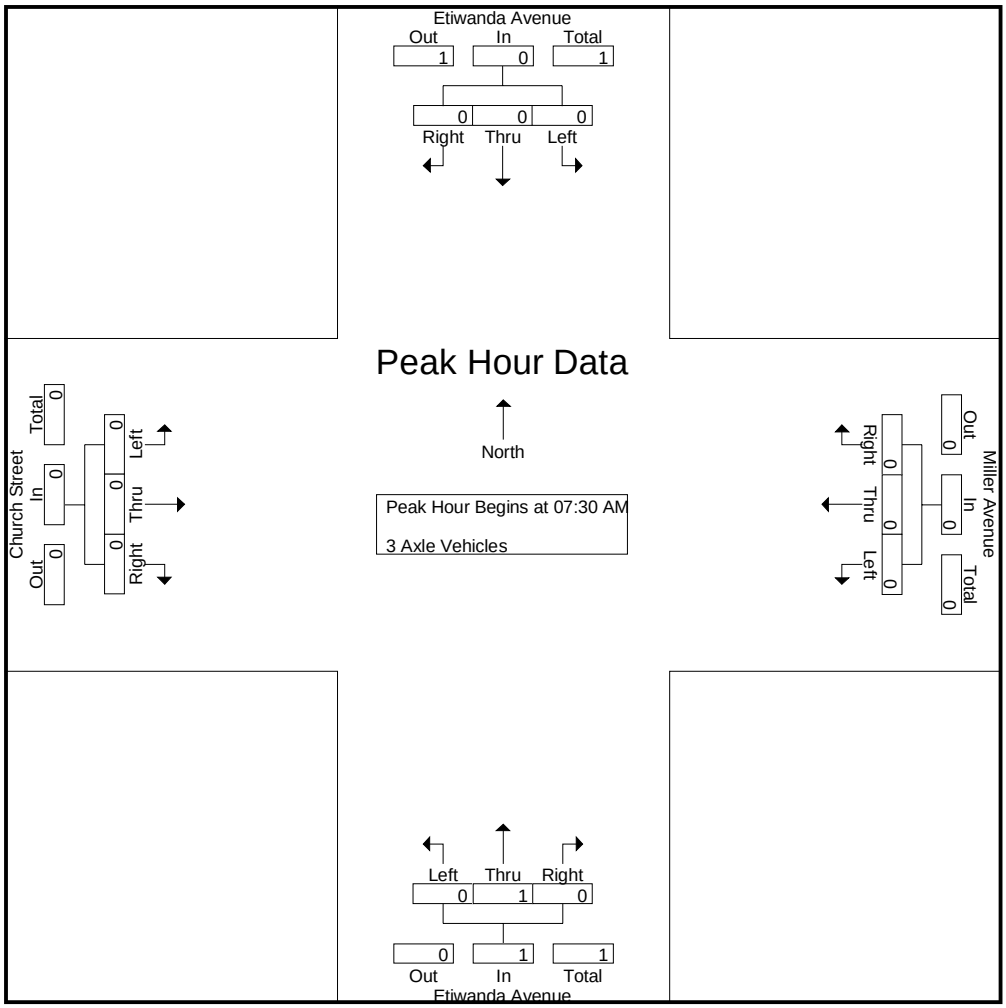
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Fontana
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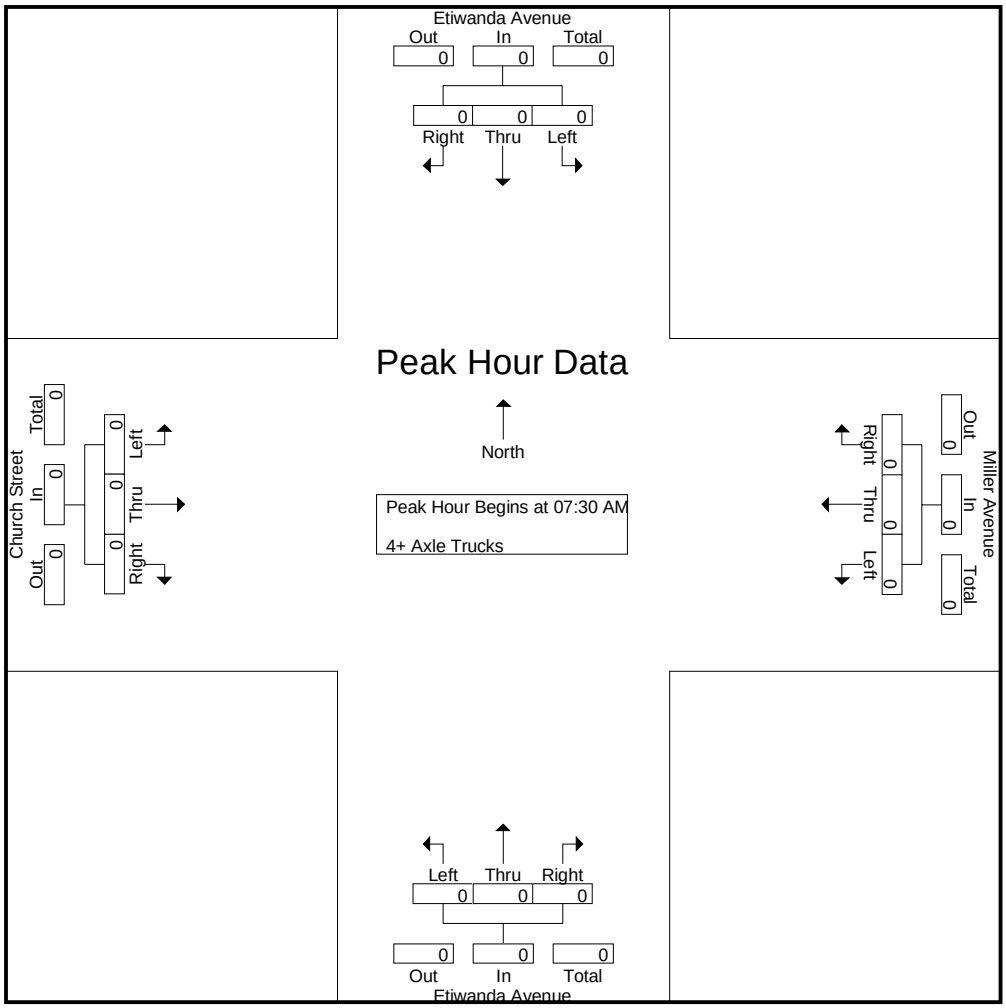
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church AM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	10	46	33	89	11	59	4	74	34	52	16	102	42	108	33	183	448
04:15 PM	6	45	26	77	10	65	4	79	30	64	31	125	35	95	37	167	448
04:30 PM	7	61	27	95	16	63	11	90	28	52	22	102	37	98	41	176	463
04:45 PM	7	57	24	88	12	63	8	83	28	65	28	121	28	97	47	172	464
Total	30	209	110	349	49	250	27	326	120	233	97	450	142	398	158	698	1823
05:00 PM	2	51	14	67	7	66	5	78	38	65	25	128	33	113	39	185	458
05:15 PM	7	37	28	72	7	63	6	76	36	73	21	130	39	129	38	206	484
05:30 PM	5	50	23	78	12	57	5	74	27	62	19	108	44	103	40	187	447
05:45 PM	5	36	30	71	14	63	5	82	36	58	19	113	31	129	33	193	459
Total	19	174	95	288	40	249	21	310	137	258	84	479	147	474	150	771	1848
Grand Total	49	383	205	637	89	499	48	636	257	491	181	929	289	872	308	1469	3671
Apprch %	7.7	60.1	32.2		14	78.5	7.5		27.7	52.9	19.5		19.7	59.4	21		
Total %	1.3	10.4	5.6	17.4	2.4	13.6	1.3	17.3	7	13.4	4.9	25.3	7.9	23.8	8.4	40	
Passenger Vehicles	48	360	204	612	89	498	48	635	252	488	176	916	288	868	302	1458	3621
% Passenger Vehicles	98	94	99.5	96.1	100	99.8	100	99.8	98.1	99.4	97.2	98.6	99.7	99.5	98.1	99.3	98.6
Large 2 Axle Vehicles	1	3	1	5	0	1	0	1	3	3	4	10	1	3	2	6	22
% Large 2 Axle Vehicles	2	0.8	0.5	0.8	0	0.2	0	0.2	1.2	0.6	2.2	1.1	0.3	0.3	0.6	0.4	0.6
3 Axle Vehicles	0	20	0	20	0	0	0	0	2	0	1	3	0	1	4	5	28
% 3 Axle Vehicles	0	5.2	0	3.1	0	0	0	0	0.8	0	0.6	0.3	0	0.1	1.3	0.3	0.8
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**7**	**61**	27	**95**	**16**	63	**11**	**90**	28	52	22	102	37	98	41	176	463
04:45 PM	7	57	24	88	12	63	8	83	28	65	**28**	121	28	97	**47**	172	464
05:00 PM	2	51	14	67	7	**66**	5	78	**38**	65	25	128	33	113	39	185	458
05:15 PM	7	37	**28**	72	7	63	6	76	36	**73**	21	**130**	**39**	**129**	38	**206**	**484**
Total Volume	23	206	93	322	42	255	30	327	130	255	96	481	137	437	165	739	1869
% App. Total	7.1	64	28.9		12.8	78	9.2		27	53	20		18.5	59.1	22.3		
PHF	.821	.844	.830	.847	.656	.966	.682	.908	.855	.873	.857	.925	.878	.847	.878	.897	.965

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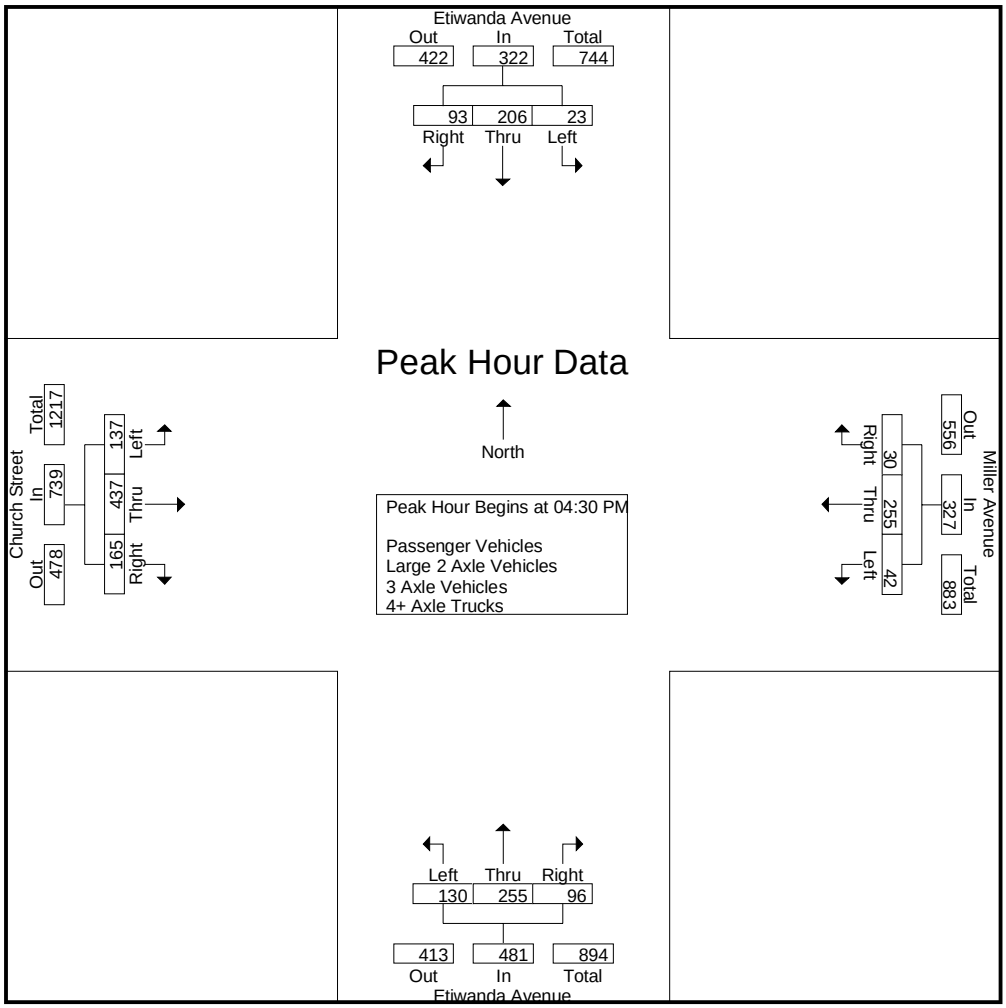
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:15 PM				04:45 PM				05:00 PM			
+0 mins.	**10**	46	**33**	89	10	65	4	79	28	65	**28**	121	33	113	39	185
+15 mins.	6	45	26	77	**16**	63	**11**	**90**	**38**	65	25	128	39	**129**	38	**206**
+30 mins.	7	**61**	27	**95**	12	63	8	83	36	**73**	21	**130**	**44**	103	**40**	187
+45 mins.	7	57	24	88	7	**66**	5	78	27	62	19	108	31	129	33	193
Total Volume	30	209	110	349	45	257	28	330	129	265	93	487	147	474	150	771
% App. Total	8.6	59.9	31.5		13.6	77.9	8.5		26.5	54.4	19.1		19.1	61.5	19.5	
PHF	.750	.857	.833	.918	.703	.973	.636	.917	.849	.908	.830	.937	.835	.919	.938	.936

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	10	45	33	88	11	59	4	74	33	52	16	101	41	108	31	180	443
04:15 PM	6	43	26	75	10	65	4	79	30	63	29	122	35	94	37	166	442
04:30 PM	7	55	27	89	16	63	11	90	27	52	21	100	37	97	41	175	454
04:45 PM	7	53	24	84	12	63	8	83	27	65	28	120	28	96	47	171	458
Total	30	196	110	336	49	250	27	326	117	232	94	443	141	395	156	692	1797
05:00 PM	2	44	14	60	7	65	5	77	36	64	24	124	33	113	38	184	445
05:15 PM	7	35	28	70	7	63	6	76	36	73	20	129	39	129	37	205	480
05:30 PM	4	49	22	75	12	57	5	74	27	61	19	107	44	102	39	185	441
05:45 PM	5	36	30	71	14	63	5	82	36	58	19	113	31	129	32	192	458
Total	18	164	94	276	40	248	21	309	135	256	82	473	147	473	146	766	1824
Grand Total	48	360	204	612	89	498	48	635	252	488	176	916	288	868	302	1458	3621
Apprch %	7.8	58.8	33.3		14	78.4	7.6		27.5	53.3	19.2		19.8	59.5	20.7		
Total %	1.3	9.9	5.6	16.9	2.5	13.8	1.3	17.5	7	13.5	4.9	25.3	8	24	8.3	40.3	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**7**	**55**	27	**89**	**16**	63	**11**	**90**	27	52	21	100	37	97	41	175	454
04:45 PM	7	53	24	84	12	63	8	83	27	65	**28**	120	28	96	**47**	171	458
05:00 PM	2	44	14	60	7	**65**	5	77	**36**	64	24	124	33	113	38	184	445
05:15 PM	7	35	**28**	70	7	63	6	76	36	**73**	20	**129**	**39**	**129**	37	**205**	**480**
Total Volume	23	187	93	303	42	254	30	326	126	254	93	473	137	435	163	735	1837
% App. Total	7.6	61.7	30.7		12.9	77.9	9.2		26.6	53.7	19.7		18.6	59.2	22.2		
PHF	.821	.850	.830	.851	.656	.977	.682	.906	.875	.870	.830	.917	.878	.843	.867	.896	.957

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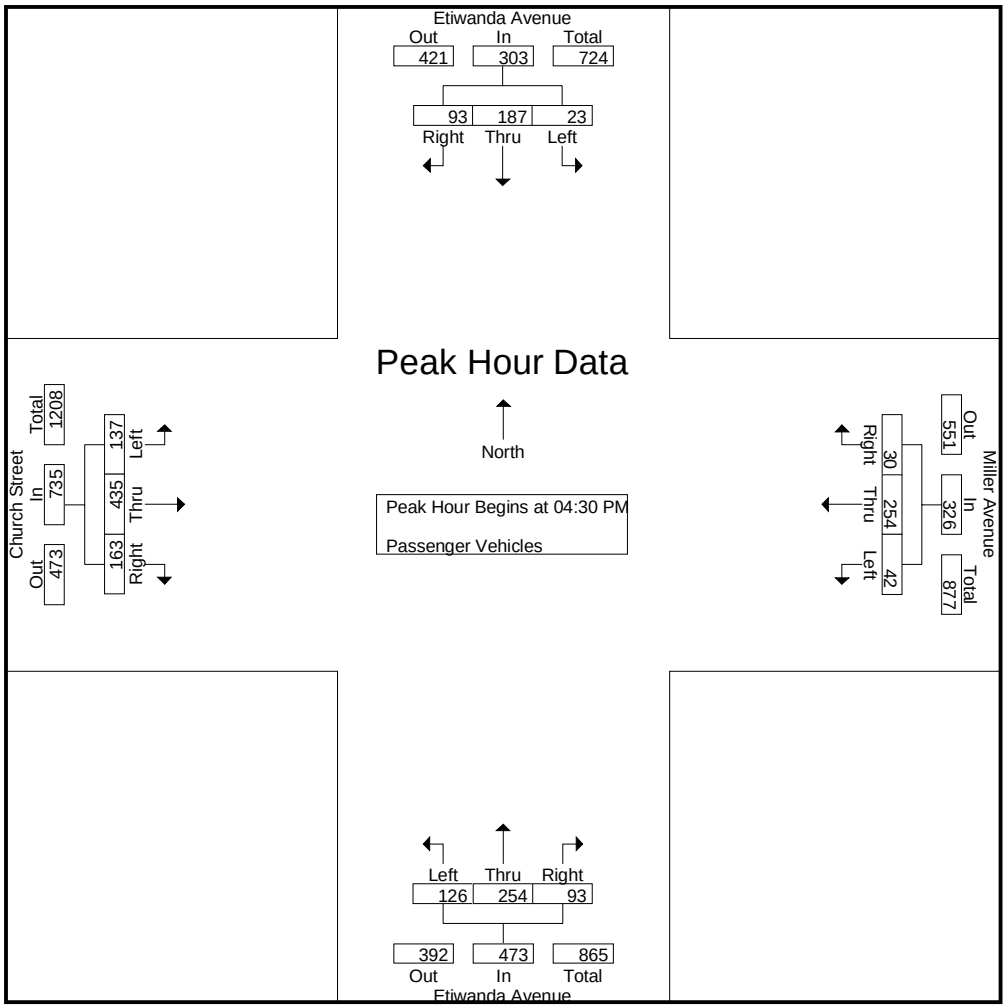
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	**7**	**55**	27	**89**	**16**	63	**11**	**90**	27	52	21	100	37	97	41	175
+15 mins.	7	53	24	84	12	63	8	83	27	65	**28**	120	28	96	**47**	171
+30 mins.	2	44	14	60	7	**65**	5	77	**36**	64	24	124	33	113	38	184
+45 mins.	7	35	**28**	70	7	63	6	76	36	**73**	20	**129**	**39**	**129**	37	**205**
Total Volume	23	187	93	303	42	254	30	326	126	254	93	473	137	435	163	735
% App. Total	7.6	61.7	30.7		12.9	77.9	9.2		26.6	53.7	19.7		18.6	59.2	22.2	
PHF	.821	.850	.830	.851	.656	.977	.682	.906	.875	.870	.830	.917	.878	.843	.867	.896

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:15 PM	0	1	0	1	0	0	0	0	0	1	1	2	0	1	0	1	4
04:30 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0	1	3
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	1	1	2	4	1	2	0	3	9
05:00 PM	0	1	0	1	0	1	0	1	2	1	1	4	0	0	0	0	6
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:30 PM	1	0	1	2	0	0	0	0	0	1	0	1	0	1	1	2	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	1	1	1	3	0	1	0	1	2	2	2	6	0	1	2	3	13
Grand Total	1	3	1	5	0	1	0	1	3	3	4	10	1	3	2	6	22
Apprch %	20	60	20		0	100	0		30	30	40		16.7	50	33.3		
Total %	4.5	13.6	4.5	22.7	0	4.5	0	4.5	13.6	13.6	18.2	45.5	4.5	13.6	9.1	27.3	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**1**	0	**1**	0	0	0	0	0	0	**1**	1	0	**1**	0	**1**	3
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:00 PM	0	1	0	1	0	**1**	0	**1**	**2**	**1**	1	**4**	0	0	0	0	**6**
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total Volume	0	2	0	2	0	1	0	1	3	1	3	7	0	1	0	1	11
% App. Total	0	100	0		0	100	0		42.9	14.3	42.9		0	100	0		
PHF	.000	.500	.000	.500	.000	.250	.000	.250	.375	.250	.750	.438	.000	.250	.000	.250	.458

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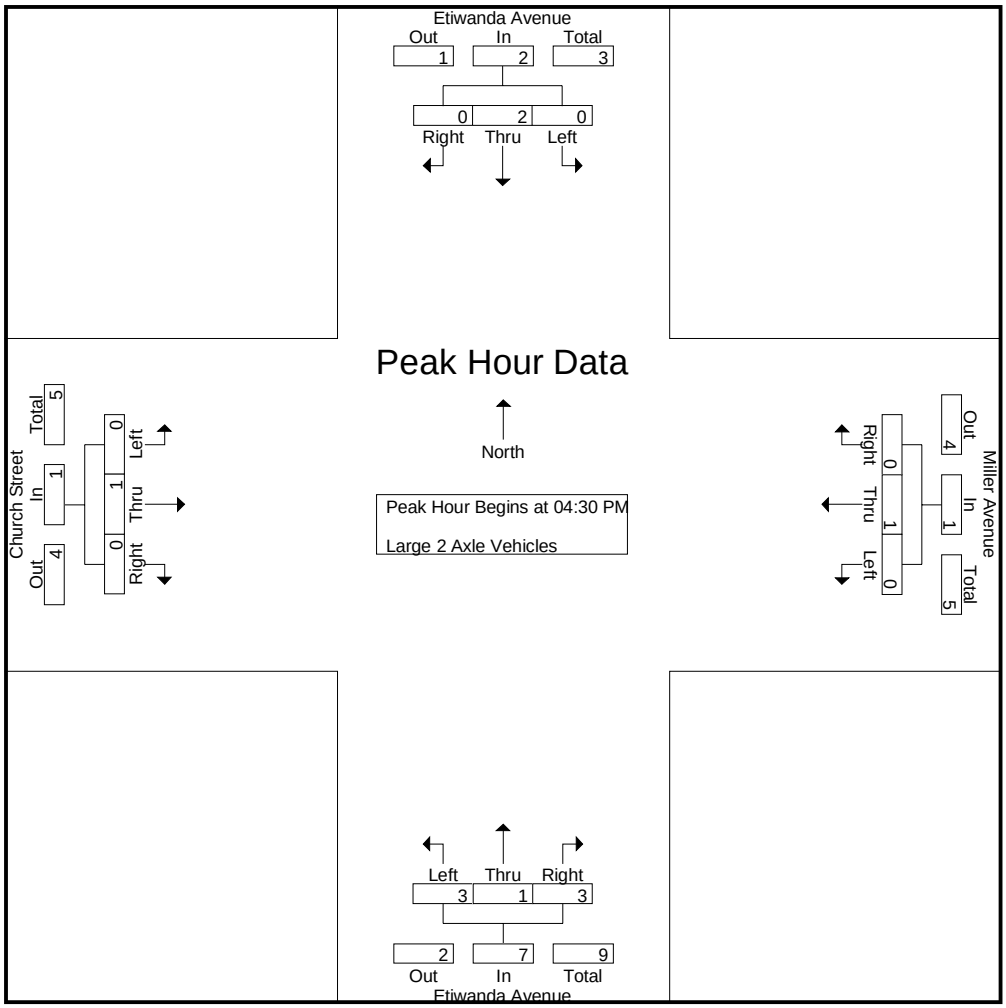
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	**1**	1	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
+30 mins.	0	1	0	1	0	**1**	0	**1**	**2**	**1**	1	**4**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Total Volume	0	2	0	2	0	1	0	1	3	1	3	7	0	1	0	1
% App. Total	0	100	0		0	100	0		42.9	14.3	42.9		0	100	0	
PHF	.000	.500	.000	.500	.000	.250	.000	.250	.375	.250	.750	.438	.000	.250	.000	.250

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	1	0	0	1	0	0	2	2	4
04:15 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
04:30 PM	0	5	0	5	0	0	0	0	1	0	0	1	0	0	0	0	6
04:45 PM	0	4	0	4	0	0	0	0	0	0	0	0	0	1	0	1	5
Total	0	11	0	11	0	0	0	0	2	0	1	3	0	1	2	3	17
05:00 PM	0	6	0	6	0	0	0	0	0	0	0	0	0	0	1	1	7
05:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
05:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	9	0	9	0	0	0	0	0	0	0	0	0	0	2	2	11
Grand Total	0	20	0	20	0	0	0	0	2	0	1	3	0	1	4	5	28
Apprch %	0	100	0		0	0	0		66.7	0	33.3		0	20	80		
Total %	0	71.4	0	71.4	0	0	0	0	7.1	0	3.6	10.7	0	3.6	14.3	17.9	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	5	0	5	0	0	0	0	**1**	0	0	**1**	0	0	0	0	6
04:45 PM	0	4	0	4	0	0	0	0	0	0	0	0	0	**1**	0	**1**	5
05:00 PM	0	**6**	0	**6**	0	0	0	0	0	0	0	0	0	0	**1**	1	**7**
05:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
Total Volume	0	17	0	17	0	0	0	0	1	0	0	1	0	1	2	3	21
% App. Total	0	100	0		0	0	0		100	0	0		0	33.3	66.7		
PHF	.000	.708	.000	.708	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.500	.750	.750

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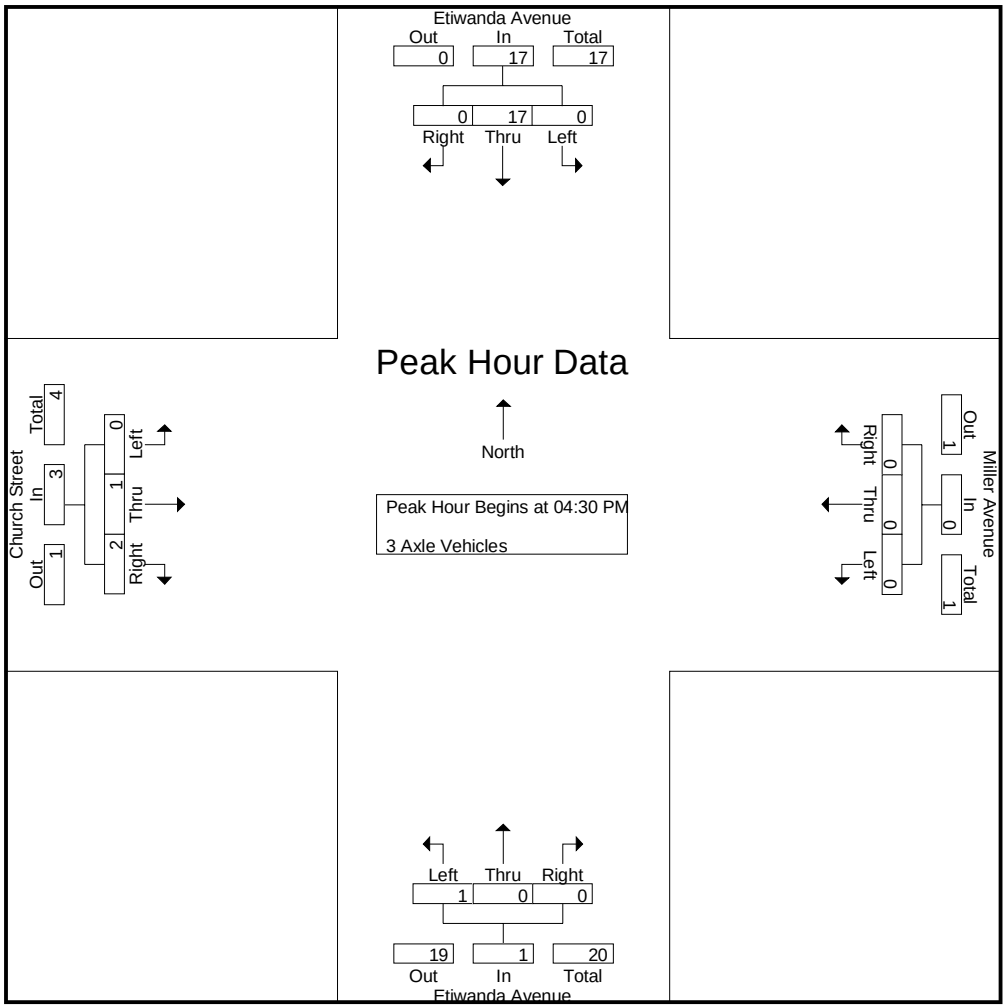
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	5	0	5	0	0	0	0	**1**	0	0	**1**	0	0	0	0
+15 mins.	0	4	0	4	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+30 mins.	0	**6**	0	**6**	0	0	0	0	0	0	0	0	0	0	**1**	1
+45 mins.	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1
Total Volume	0	17	0	17	0	0	0	0	1	0	0	1	0	1	2	3
% App. Total	0	100	0		0	0	0		100	0	0		0	33.3	66.7	
PHF	.000	.708	.000	.708	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.500	.750

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City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	Etiwanda Avenue Southbound				Miller Avenue Westbound				Etiwanda Avenue Northbound				Church Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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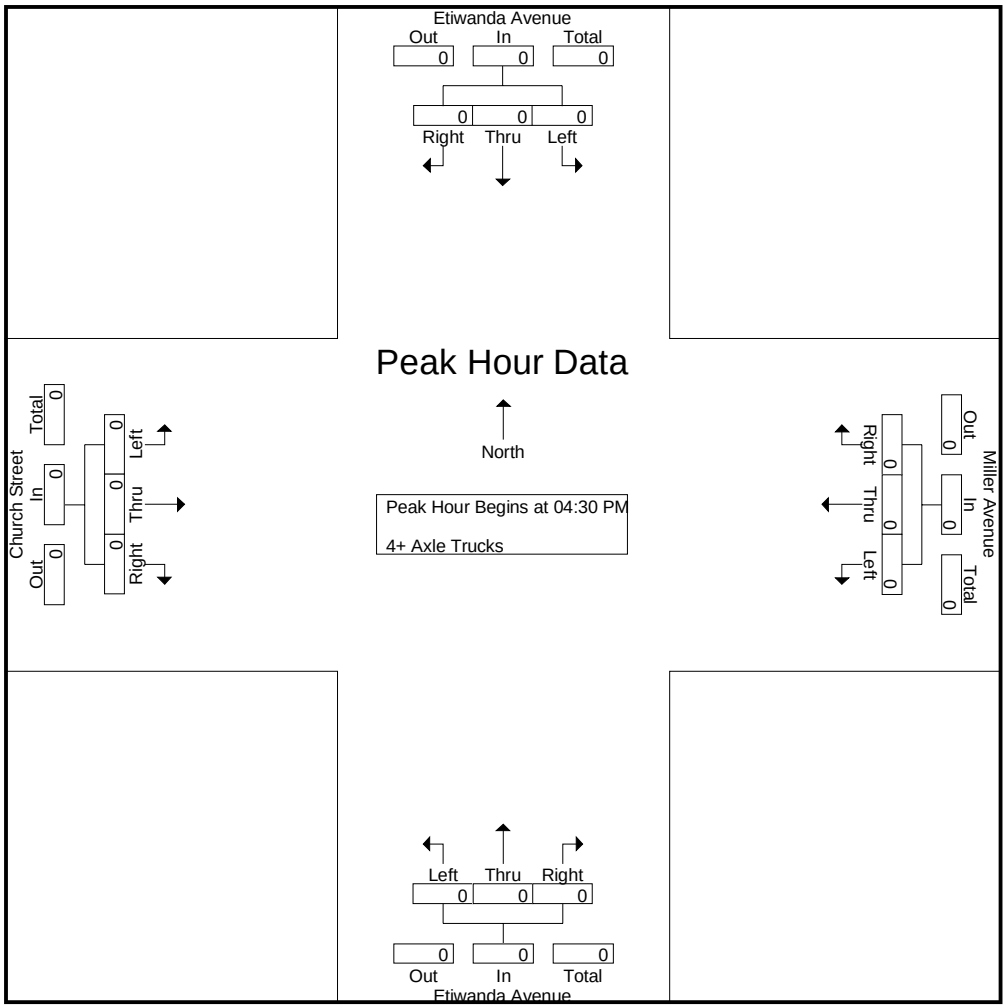
City of Fontana
N/S: Etiwanda Avenue
E/W: Church Street/Miller Avenue
Weather: Clear

File Name : 11_FON_Etiwanda_Church PM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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PO Box 1178
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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	23	0	193	216	0	235	137	372	0	0	0	0	0	89	174	263	851
07:15 AM	25	0	206	231	0	299	139	438	0	0	0	0	0	125	209	334	1003
07:30 AM	40	0	224	264	0	354	146	500	0	0	0	0	0	107	171	278	1042
07:45 AM	37	0	184	221	0	405	181	586	0	0	0	0	0	126	177	303	1110
Total	125	0	807	932	0	1293	603	1896	0	0	0	0	0	447	731	1178	4006
08:00 AM	23	0	201	224	0	330	144	474	0	0	0	0	0	134	211	345	1043
08:15 AM	32	0	170	202	0	323	125	448	0	0	0	0	0	142	192	334	984
08:30 AM	23	0	158	181	0	313	122	435	0	0	0	0	0	130	172	302	918
08:45 AM	28	0	193	221	0	329	101	430	0	0	0	0	0	150	144	294	945
Total	106	0	722	828	0	1295	492	1787	0	0	0	0	0	556	719	1275	3890
Grand Total	231	0	1529	1760	0	2588	1095	3683	0	0	0	0	0	1003	1450	2453	7896
Apprch %	13.1	0	86.9		0	70.3	29.7		0	0	0		0	40.9	59.1		
Total %	2.9	0	19.4	22.3	0	32.8	13.9	46.6	0	0	0	0	0	12.7	18.4	31.1	
Passenger Vehicles	195	0	1483	1678	0	2483	1033	3516	0	0	0	0	0	948	1403	2351	7545
% Passenger Vehicles	84.4	0	97	95.3	0	95.9	94.3	95.5	0	0	0	0	0	94.5	96.8	95.8	95.6
Large 2 Axle Vehicles	7	0	14	21	0	64	23	87	0	0	0	0	0	29	23	52	160
% Large 2 Axle Vehicles	3	0	0.9	1.2	0	2.5	2.1	2.4	0	0	0	0	0	2.9	1.6	2.1	2
3 Axle Vehicles	9	0	4	13	0	17	13	30	0	0	0	0	0	8	4	12	55
% 3 Axle Vehicles	3.9	0	0.3	0.7	0	0.7	1.2	0.8	0	0	0	0	0	0.8	0.3	0.5	0.7
4+ Axle Trucks	20	0	28	48	0	24	26	50	0	0	0	0	0	18	20	38	136
% 4+ Axle Trucks	8.7	0	1.8	2.7	0	0.9	2.4	1.4	0	0	0	0	0	1.8	1.4	1.5	1.7

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	25	0	206	231	0	299	139	438	0	0	0	0	0	125	209	334	1003
07:30 AM	**40**	0	**224**	**264**	0	354	146	500	0	0	0	0	0	107	171	278	1042
07:45 AM	37	0	184	221	0	**405**	**181**	**586**	0	0	0	0	0	126	177	303	**1110**
08:00 AM	23	0	201	224	0	330	144	474	0	0	0	0	0	**134**	**211**	**345**	1043
Total Volume	125	0	815	940	0	1388	610	1998	0	0	0	0	0	492	768	1260	4198
% App. Total	13.3	0	86.7		0	69.5	30.5		0	0	0		0	39	61		
PHF	.781	.000	.910	.890	.000	.857	.843	.852	.000	.000	.000	.000	.000	.918	.910	.913	.945

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
Start Date : 9/28/2021
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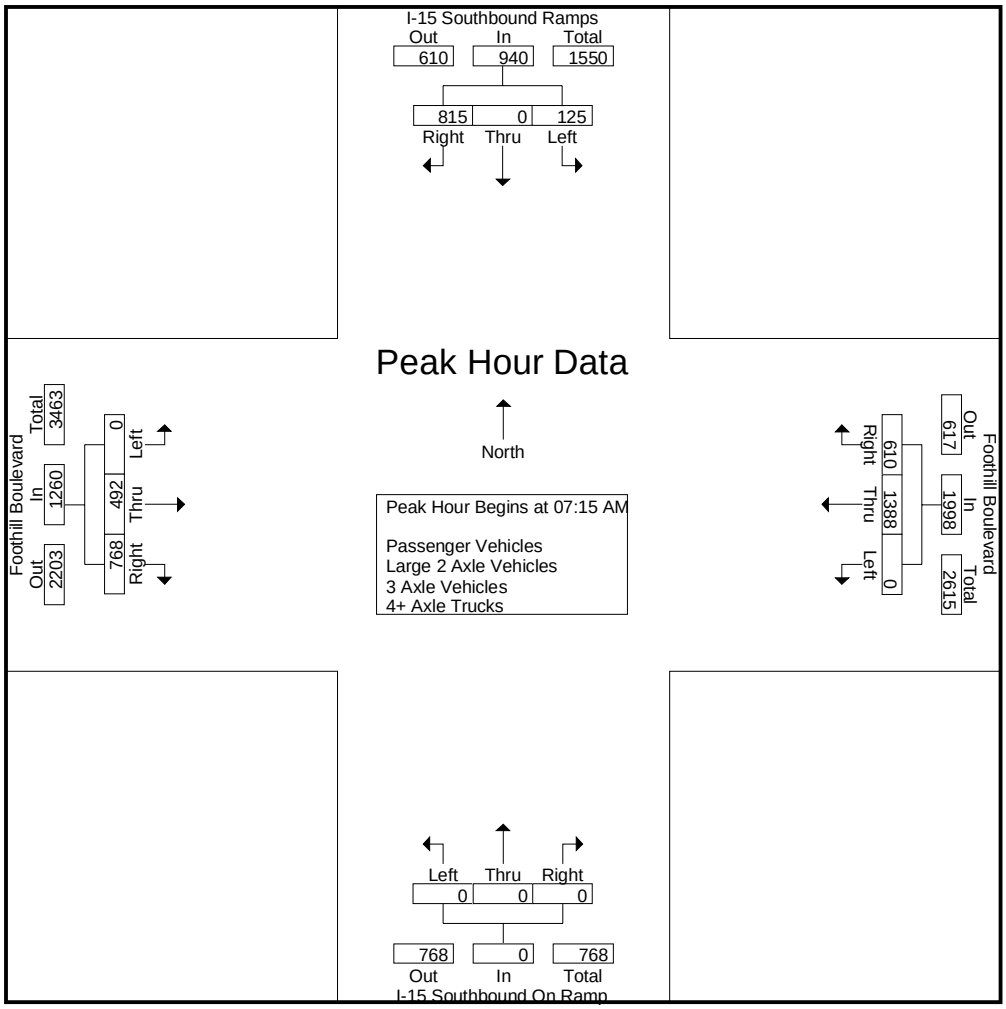

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:30 AM				07:00 AM				07:45 AM			
+0 mins.	25	0	206	231	0	354	146	500	0	0	0	0	0	126	177	303
+15 mins.	**40**	0	**224**	**264**	0	**405**	**181**	**586**	0	0	0	0	0	134	**211**	**345**
+30 mins.	37	0	184	221	0	330	144	474	0	0	0	0	0	**142**	192	334
+45 mins.	23	0	201	224	0	323	125	448	0	0	0	0	0	130	172	302
Total Volume	125	0	815	940	0	1412	596	2008	0	0	0	0	0	532	752	1284
% App. Total	13.3	0	86.7		0	70.3	29.7		0	0	0		0	41.4	58.6	
PHF	.781	.000	.910	.890	.000	.872	.823	.857	.000	.000	.000	.000	.000	.937	.891	.930

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File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	18	0	188	206	0	227	132	359	0	0	0	0	0	85	169	254	819
07:15 AM	22	0	200	222	0	285	128	413	0	0	0	0	0	120	208	328	963
07:30 AM	35	0	220	255	0	342	140	482	0	0	0	0	0	101	163	264	1001
07:45 AM	32	0	180	212	0	395	176	571	0	0	0	0	0	123	171	294	1077
Total	107	0	788	895	0	1249	576	1825	0	0	0	0	0	429	711	1140	3860
08:00 AM	20	0	195	215	0	318	135	453	0	0	0	0	0	124	201	325	993
08:15 AM	27	0	161	188	0	302	120	422	0	0	0	0	0	133	189	322	932
08:30 AM	19	0	149	168	0	299	112	411	0	0	0	0	0	120	165	285	864
08:45 AM	22	0	190	212	0	315	90	405	0	0	0	0	0	142	137	279	896
Total	88	0	695	783	0	1234	457	1691	0	0	0	0	0	519	692	1211	3685
Grand Total	195	0	1483	1678	0	2483	1033	3516	0	0	0	0	0	948	1403	2351	7545
Apprch %	11.6	0	88.4		0	70.6	29.4		0	0	0		0	40.3	59.7		
Total %	2.6	0	19.7	22.2	0	32.9	13.7	46.6	0	0	0	0	0	12.6	18.6	31.2	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	22	0	200	222	0	285	128	413	0	0	0	0	0	120	**208**	**328**	963
07:30 AM	**35**	0	**220**	**255**	0	342	140	482	0	0	0	0	0	101	163	264	1001
07:45 AM	32	0	180	212	0	**395**	**176**	**571**	0	0	0	0	0	123	171	294	**1077**
08:00 AM	20	0	195	215	0	318	135	453	0	0	0	0	0	**124**	201	325	993
Total Volume	109	0	795	904	0	1340	579	1919	0	0	0	0	0	468	743	1211	4034
% App. Total	12.1	0	87.9		0	69.8	30.2		0	0	0		0	38.6	61.4		
PHF	.779	.000	.903	.886	.000	.848	.822	.840	.000	.000	.000	.000	.000	.944	.893	.923	.936

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City of Fontana
N/S: I-15 Southbound Ramps
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File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
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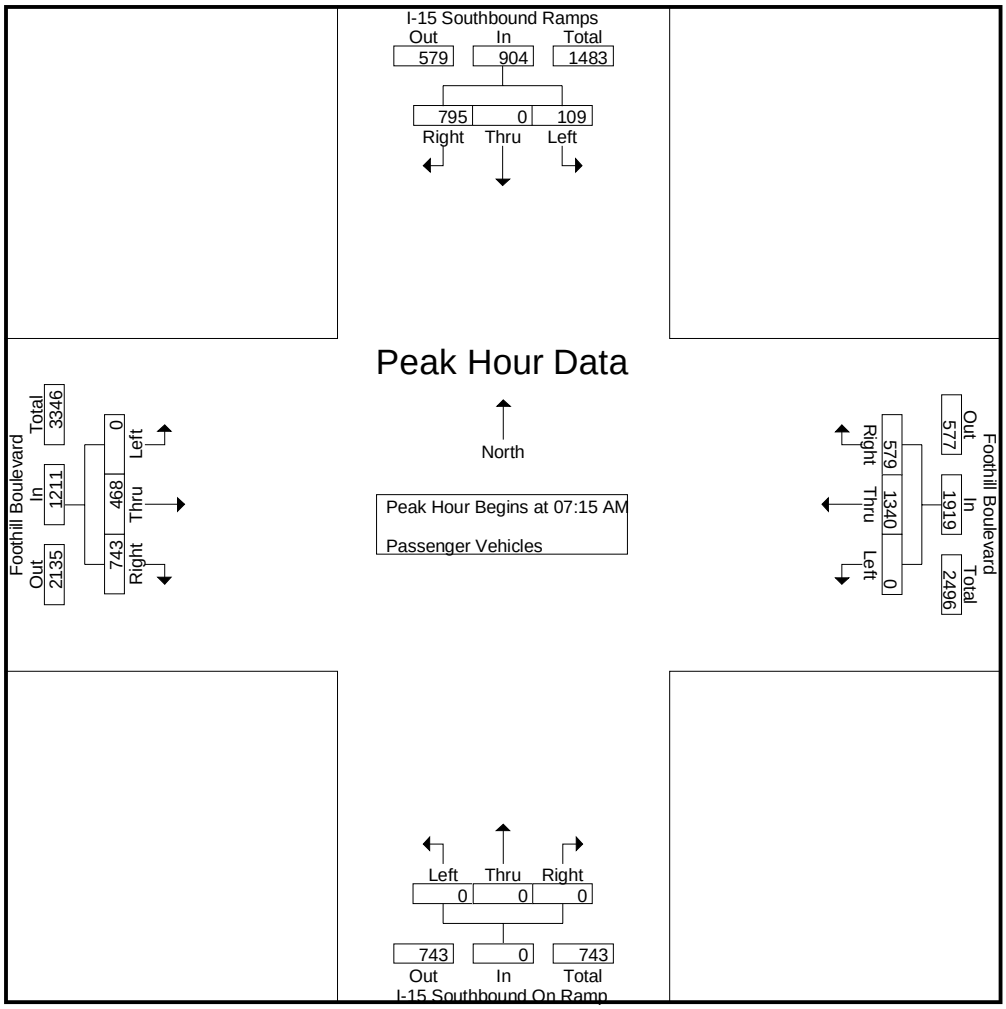

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	22	0	200	222	0	285	128	413	0	0	0	0	0	120	**208**	**328**
+15 mins.	**35**	0	**220**	**255**	0	342	140	482	0	0	0	0	0	101	163	264
+30 mins.	32	0	180	212	0	**395**	**176**	**571**	0	0	0	0	0	123	171	294
+45 mins.	20	0	195	215	0	318	135	453	0	0	0	0	0	**124**	201	325
Total Volume	109	0	795	904	0	1340	579	1919	0	0	0	0	0	468	743	1211
% App. Total	12.1	0	87.9		0	69.8	30.2		0	0	0		0	38.6	61.4	
PHF	.779	.000	.903	.886	.000	.848	.822	.840	.000	.000	.000	.000	.000	.944	.893	.923

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	5	5	0	5	3	8	0	0	0	0	0	1	4	5	18
07:15 AM	0	0	1	1	0	8	4	12	0	0	0	0	0	2	1	3	16
07:30 AM	1	0	1	2	0	5	3	8	0	0	0	0	0	5	3	8	18
07:45 AM	1	0	1	2	0	6	1	7	0	0	0	0	0	0	2	2	11
Total	2	0	8	10	0	24	11	35	0	0	0	0	0	8	10	18	63
08:00 AM	1	0	0	1	0	9	5	14	0	0	0	0	0	2	6	8	23
08:15 AM	1	0	3	4	0	13	1	14	0	0	0	0	0	7	1	8	26
08:30 AM	0	0	2	2	0	10	1	11	0	0	0	0	0	6	2	8	21
08:45 AM	3	0	1	4	0	8	5	13	0	0	0	0	0	6	4	10	27
Total	5	0	6	11	0	40	12	52	0	0	0	0	0	21	13	34	97
Grand Total	7	0	14	21	0	64	23	87	0	0	0	0	0	29	23	52	160
Apprch %	33.3	0	66.7		0	73.6	26.4		0	0	0		0	55.8	44.2		
Total %	4.4	0	8.8	13.1	0	40	14.4	54.4	0	0	0	0	0	18.1	14.4	32.5	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	**1**	1	0	8	4	12	0	0	0	0	0	2	1	3	16
07:30 AM	**1**	0	1	**2**	0	5	3	8	0	0	0	0	0	**5**	3	**8**	18
07:45 AM	1	0	1	2	0	6	1	7	0	0	0	0	0	0	2	2	11
08:00 AM	1	0	0	1	0	**9**	**5**	**14**	0	0	0	0	0	2	**6**	8	**23**
Total Volume	3	0	3	6	0	28	13	41	0	0	0	0	0	9	12	21	68
% App. Total	50	0	50		0	68.3	31.7		0	0	0		0	42.9	57.1		
PHF	.750	.000	.750	.750	.000	.778	.650	.732	.000	.000	.000	.000	.000	.450	.500	.656	.739

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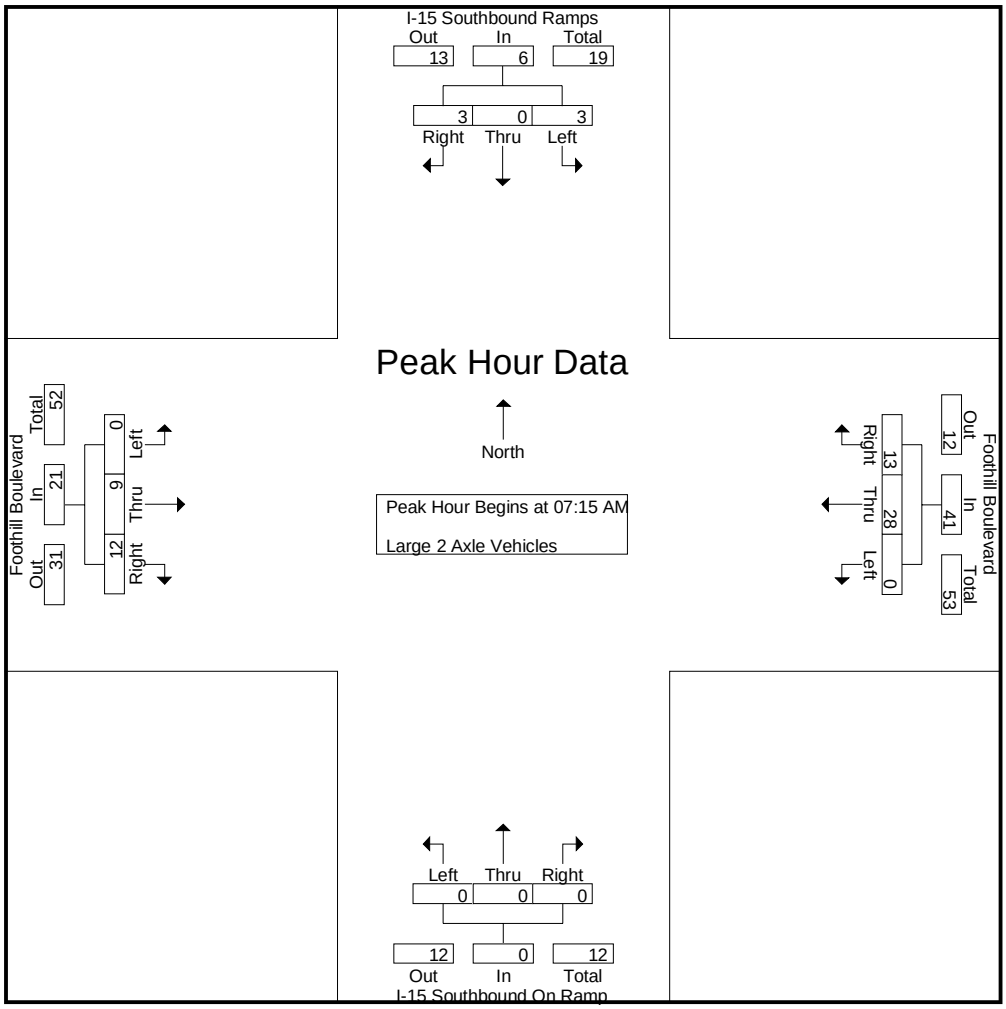

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	**1**	1	0	8	4	12	0	0	0	0	0	2	1	3
+15 mins.	**1**	0	1	**2**	0	5	3	8	0	0	0	0	0	**5**	3	**8**
+30 mins.	1	0	1	2	0	6	1	7	0	0	0	0	0	0	2	2
+45 mins.	1	0	0	1	0	**9**	**5**	**14**	0	0	0	0	0	2	**6**	8
Total Volume	3	0	3	6	0	28	13	41	0	0	0	0	0	9	12	21
% App. Total	50	0	50		0	68.3	31.7		0	0	0		0	42.9	57.1	
PHF	.750	.000	.750	.750	.000	.778	.650	.732	.000	.000	.000	.000	.000	.450	.500	.656

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City of Fontana
N/S: I-15 Southbound Ramps
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File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
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Groups Printed- 3 Axle Vehicles

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	1	1	0	3	3	6	0	0	0	0	0	0	0	0	7
07:30 AM	1	0	0	1	0	2	1	3	0	0	0	0	0	0	0	0	4
07:45 AM	1	0	1	2	0	2	1	3	0	0	0	0	0	1	0	1	6
Total	2	0	2	4	0	8	6	14	0	0	0	0	0	1	0	1	19
08:00 AM	1	0	0	1	0	0	1	1	0	0	0	0	0	6	2	8	10
08:15 AM	1	0	0	1	0	8	1	9	0	0	0	0	0	0	1	1	11
08:30 AM	4	0	1	5	0	1	2	3	0	0	0	0	0	1	0	1	9
08:45 AM	1	0	1	2	0	0	3	3	0	0	0	0	0	0	1	1	6
Total	7	0	2	9	0	9	7	16	0	0	0	0	0	7	4	11	36
Grand Total	9	0	4	13	0	17	13	30	0	0	0	0	0	8	4	12	55
Apprch %	69.2	0	30.8		0	56.7	43.3		0	0	0		0	66.7	33.3		
Total %	16.4	0	7.3	23.6	0	30.9	23.6	54.5	0	0	0	0	0	14.5	7.3	21.8	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	**1**	1	0	**3**	**3**	**6**	0	0	0	0	0	0	0	0	7
07:30 AM	**1**	0	0	1	0	2	1	3	0	0	0	0	0	0	0	0	4
07:45 AM	1	0	1	**2**	0	2	1	3	0	0	0	0	0	1	0	1	6
08:00 AM	1	0	0	1	0	0	1	1	0	0	0	0	0	**6**	**2**	**8**	**10**
Total Volume	3	0	2	5	0	7	6	13	0	0	0	0	0	7	2	9	27
% App. Total	60	0	40		0	53.8	46.2		0	0	0		0	77.8	22.2		
PHF	.750	.000	.500	.625	.000	.583	.500	.542	.000	.000	.000	.000	.000	.292	.250	.281	.675

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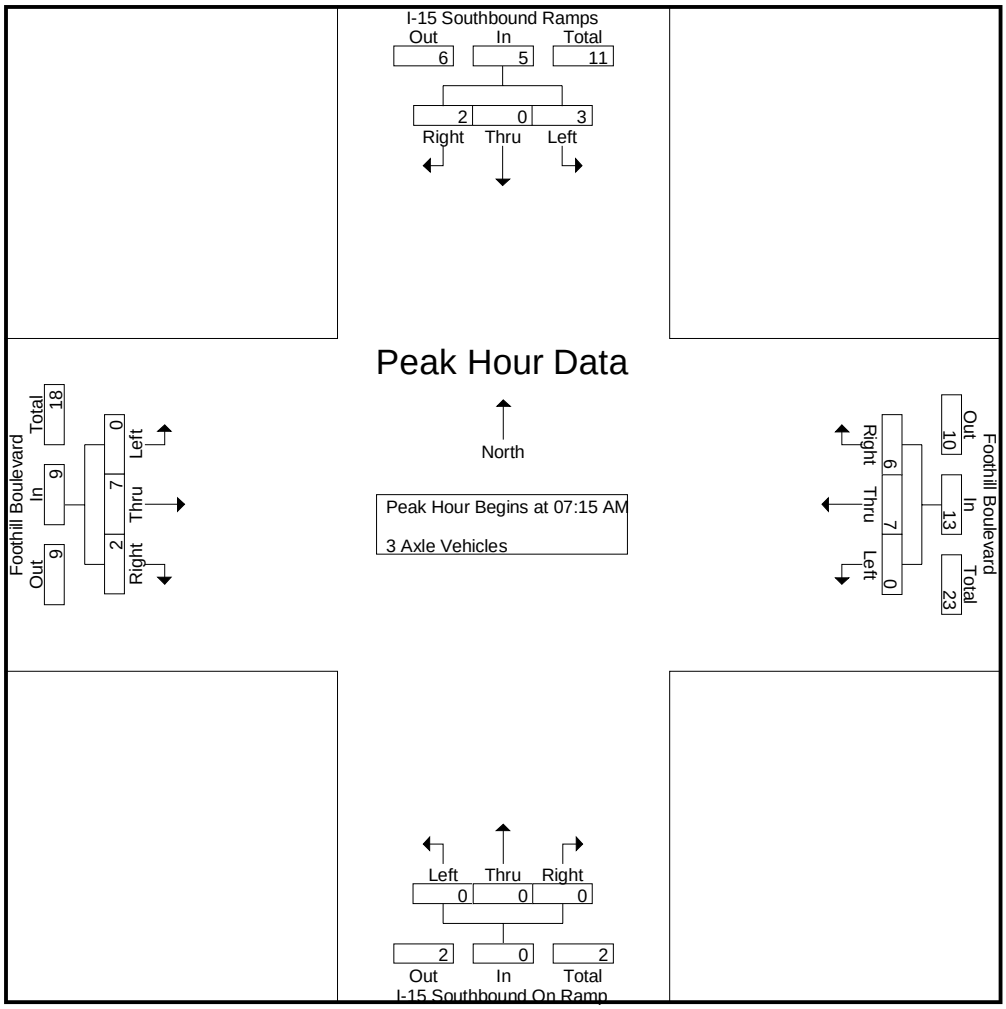

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	**1**	1	0	**3**	**3**	**6**	0	0	0	0	0	0	0	0
+15 mins.	**1**	0	0	1	0	2	1	3	0	0	0	0	0	0	0	0
+30 mins.	1	0	1	**2**	0	2	1	3	0	0	0	0	0	1	0	1
+45 mins.	1	0	0	1	0	0	1	1	0	0	0	0	0	**6**	**2**	**8**
Total Volume	3	0	2	5	0	7	6	13	0	0	0	0	0	7	2	9
% App. Total	60	0	40		0	53.8	46.2		0	0	0		0	77.8	22.2	
PHF	.750	.000	.500	.625	.000	.583	.500	.542	.000	.000	.000	.000	.000	.292	.250	.281

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill AM
Site Code : 10821516
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Groups Printed- 4+ Axle Trucks

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	0	0	5	0	2	1	3	0	0	0	0	0	3	1	4	12
07:15 AM	3	0	4	7	0	3	4	7	0	0	0	0	0	3	0	3	17
07:30 AM	3	0	3	6	0	5	2	7	0	0	0	0	0	1	5	6	19
07:45 AM	3	0	2	5	0	2	3	5	0	0	0	0	0	2	4	6	16
Total	14	0	9	23	0	12	10	22	0	0	0	0	0	9	10	19	64
08:00 AM	1	0	6	7	0	3	3	6	0	0	0	0	0	2	2	4	17
08:15 AM	3	0	6	9	0	0	3	3	0	0	0	0	0	2	1	3	15
08:30 AM	0	0	6	6	0	3	7	10	0	0	0	0	0	3	5	8	24
08:45 AM	2	0	1	3	0	6	3	9	0	0	0	0	0	2	2	4	16
Total	6	0	19	25	0	12	16	28	0	0	0	0	0	9	10	19	72
Grand Total	20	0	28	48	0	24	26	50	0	0	0	0	0	18	20	38	136
Apprch %	41.7	0	58.3		0	48	52		0	0	0		0	47.4	52.6		
Total %	14.7	0	20.6	35.3	0	17.6	19.1	36.8	0	0	0	0	0	13.2	14.7	27.9	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**3**	0	4	**7**	0	3	**4**	**7**	0	0	0	0	0	**3**	0	3	17
07:30 AM	3	0	3	6	0	**5**	2	7	0	0	0	0	0	1	**5**	**6**	**19**
07:45 AM	3	0	2	5	0	2	3	5	0	0	0	0	0	2	4	6	16
08:00 AM	1	0	**6**	7	0	3	3	6	0	0	0	0	0	2	2	4	17
Total Volume	10	0	15	25	0	13	12	25	0	0	0	0	0	8	11	19	69
% App. Total	40	0	60		0	52	48		0	0	0		0	42.1	57.9		
PHF	.833	.000	.625	.893	.000	.650	.750	.893	.000	.000	.000	.000	.000	.667	.550	.792	.908

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File Name : 09_FON_15S_Foothill AM
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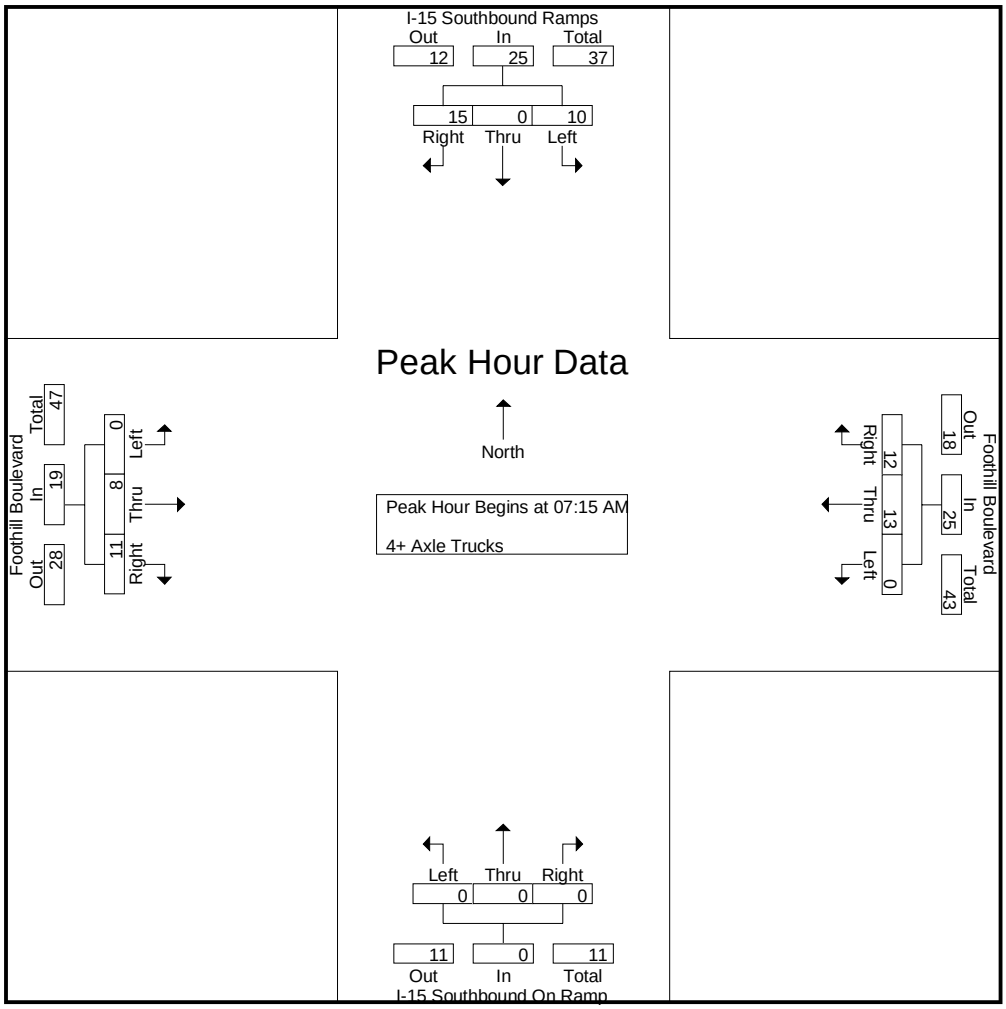

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	**3**	0	4	**7**	0	3	**4**	**7**	0	0	0	0	0	**3**	0	3
+15 mins.	3	0	3	6	0	**5**	2	7	0	0	0	0	0	1	**5**	**6**
+30 mins.	3	0	2	5	0	2	3	5	0	0	0	0	0	2	4	6
+45 mins.	1	0	**6**	7	0	3	3	6	0	0	0	0	0	2	2	4
Total Volume	10	0	15	25	0	13	12	25	0	0	0	0	0	8	11	19
% App. Total	40	0	60		0	52	48		0	0	0		0	42.1	57.9	
PHF	.833	.000	.625	.893	.000	.650	.750	.893	.000	.000	.000	.000	.000	.667	.550	.792

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill PM
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	29	0	142	171	0	293	112	405	0	0	0	0	0	414	224	638	1214
04:15 PM	42	0	167	209	0	305	94	399	0	0	0	0	0	460	246	706	1314
04:30 PM	43	0	97	140	0	348	125	473	0	0	0	0	0	448	207	655	1268
04:45 PM	38	0	123	161	0	306	97	403	0	0	0	0	0	446	206	652	1216
Total	152	0	529	681	0	1252	428	1680	0	0	0	0	0	1768	883	2651	5012
05:00 PM	32	0	109	141	0	329	91	420	0	0	0	0	0	460	216	676	1237
05:15 PM	46	0	123	169	0	346	124	470	0	0	0	0	0	509	270	779	1418
05:30 PM	21	0	145	166	0	336	109	445	0	0	0	0	0	457	223	680	1291
05:45 PM	37	0	144	181	0	323	111	434	0	0	0	0	0	433	211	644	1259
Total	136	0	521	657	0	1334	435	1769	0	0	0	0	0	1859	920	2779	5205
Grand Total	288	0	1050	1338	0	2586	863	3449	0	0	0	0	0	3627	1803	5430	10217
Apprch %	21.5	0	78.5		0	75	25		0	0	0		0	66.8	33.2		
Total %	2.8	0	10.3	13.1	0	25.3	8.4	33.8	0	0	0	0	0	35.5	17.6	53.1	
Passenger Vehicles	249	0	1032	1281	0	2562	815	3377	0	0	0	0	0	3563	1774	5337	9995
% Passenger Vehicles	86.5	0	98.3	95.7	0	99.1	94.4	97.9	0	0	0	0	0	98.2	98.4	98.3	97.8
Large 2 Axle Vehicles	5	0	7	12	0	13	9	22	0	0	0	0	0	26	17	43	77
% Large 2 Axle Vehicles	1.7	0	0.7	0.9	0	0.5	1	0.6	0	0	0	0	0	0.7	0.9	0.8	0.8
3 Axle Vehicles	7	0	0	7	0	4	5	9	0	0	0	0	0	7	3	10	26
% 3 Axle Vehicles	2.4	0	0	0.5	0	0.2	0.6	0.3	0	0	0	0	0	0.2	0.2	0.2	0.3
4+ Axle Trucks	27	0	11	38	0	7	34	41	0	0	0	0	0	31	9	40	119
% 4+ Axle Trucks	9.4	0	1	2.8	0	0.3	3.9	1.2	0	0	0	0	0	0.9	0.5	0.7	1.2

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	32	0	109	141	0	329	91	420	0	0	0	0	0	460	216	676	1237
05:15 PM	**46**	0	123	169	0	**346**	**124**	**470**	0	0	0	0	0	**509**	**270**	**779**	**1418**
05:30 PM	21	0	**145**	166	0	336	109	445	0	0	0	0	0	457	223	680	1291
05:45 PM	37	0	144	**181**	0	323	111	434	0	0	0	0	0	433	211	644	1259
Total Volume	136	0	521	657	0	1334	435	1769	0	0	0	0	0	1859	920	2779	5205
% App. Total	20.7	0	79.3		0	75.4	24.6		0	0	0		0	66.9	33.1		
PHF	.739	.000	.898	.907	.000	.964	.877	.941	.000	.000	.000	.000	.000	.913	.852	.892	.918

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill PM
Site Code : 10821516
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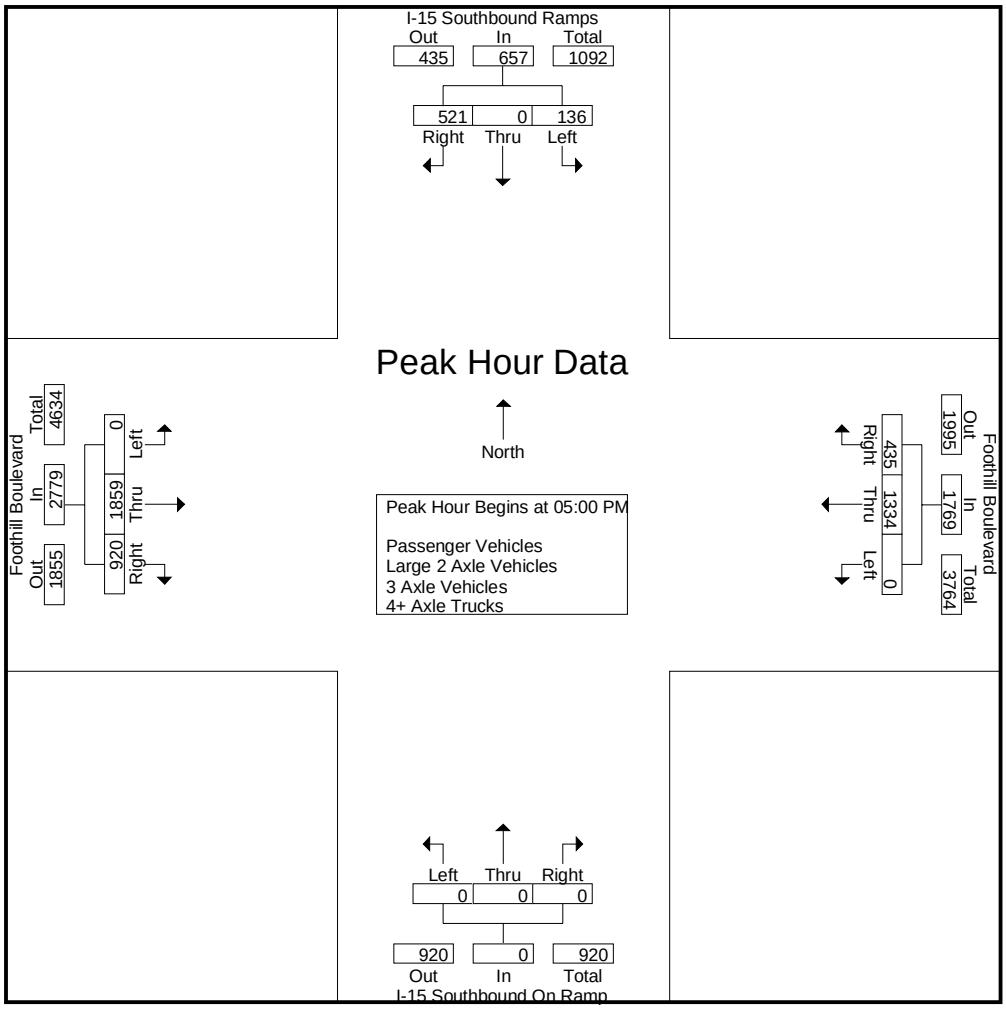

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:00 PM				04:45 PM			
+0 mins.	29	0	142	171	0	329	91	420	0	0	0	0	0	446	206	652
+15 mins.	42	0	**167**	**209**	0	**346**	**124**	**470**	0	0	0	0	0	460	216	676
+30 mins.	**43**	0	97	140	0	336	109	445	0	0	0	0	0	**509**	**270**	**779**
+45 mins.	38	0	123	161	0	323	111	434	0	0	0	0	0	457	223	680
Total Volume	152	0	529	681	0	1334	435	1769	0	0	0	0	0	1872	915	2787
% App. Total	22.3	0	77.7		0	75.4	24.6		0	0	0		0	67.2	32.8	
PHF	.884	.000	.792	.815	.000	.964	.877	.941	.000	.000	.000	.000	.000	.919	.847	.894

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City of Fontana
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File Name : 09_FON_15S_Foothill PM
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Groups Printed- Passenger Vehicles

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	25	0	140	165	0	291	100	391	0	0	0	0	0	403	219	622	1178
04:15 PM	37	0	161	198	0	303	86	389	0	0	0	0	0	451	245	696	1283
04:30 PM	37	0	96	133	0	345	116	461	0	0	0	0	0	442	202	644	1238
04:45 PM	32	0	122	154	0	302	94	396	0	0	0	0	0	439	203	642	1192
Total	131	0	519	650	0	1241	396	1637	0	0	0	0	0	1735	869	2604	4891
05:00 PM	27	0	108	135	0	325	90	415	0	0	0	0	0	455	213	668	1218
05:15 PM	39	0	121	160	0	345	120	465	0	0	0	0	0	502	265	767	1392
05:30 PM	16	0	144	160	0	333	105	438	0	0	0	0	0	450	220	670	1268
05:45 PM	36	0	140	176	0	318	104	422	0	0	0	0	0	421	207	628	1226
Total	118	0	513	631	0	1321	419	1740	0	0	0	0	0	1828	905	2733	5104
Grand Total	249	0	1032	1281	0	2562	815	3377	0	0	0	0	0	3563	1774	5337	9995
Apprch %	19.4	0	80.6		0	75.9	24.1		0	0	0		0	66.8	33.2		
Total %	2.5	0	10.3	12.8	0	25.6	8.2	33.8	0	0	0	0	0	35.6	17.7	53.4	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	27	0	108	135	0	325	90	415	0	0	0	0	0	455	213	668	1218
05:15 PM	**39**	0	121	160	0	**345**	**120**	**465**	0	0	0	0	0	**502**	**265**	**767**	**1392**
05:30 PM	16	0	**144**	160	0	333	105	438	0	0	0	0	0	450	220	670	1268
05:45 PM	36	0	140	**176**	0	318	104	422	0	0	0	0	0	421	207	628	1226
Total Volume	118	0	513	631	0	1321	419	1740	0	0	0	0	0	1828	905	2733	5104
% App. Total	18.7	0	81.3		0	75.9	24.1		0	0	0		0	66.9	33.1		
PHF	.756	.000	.891	.896	.000	.957	.873	.935	.000	.000	.000	.000	.000	.910	.854	.891	.917

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City of Fontana
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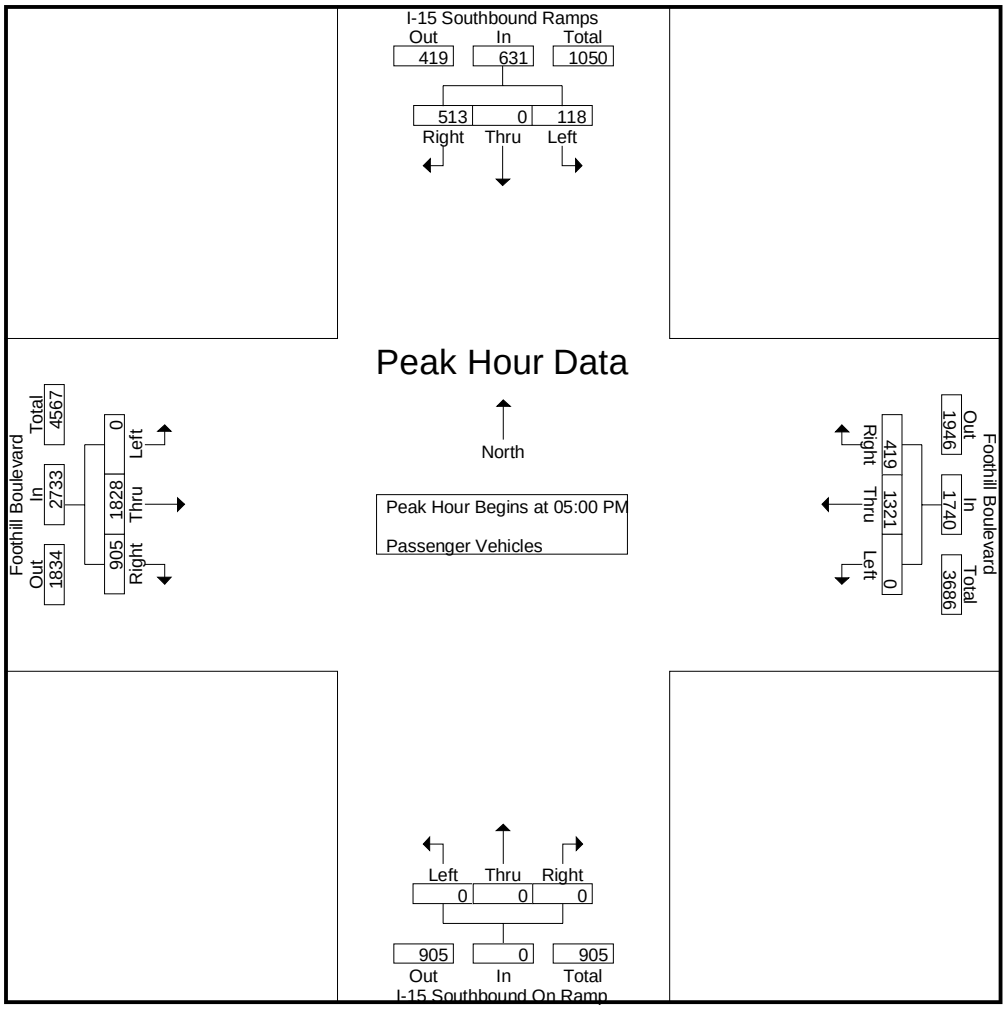

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	27	0	108	135	0	325	90	415	0	0	0	0	0	455	213	668
+15 mins.	**39**	0	121	160	0	**345**	**120**	**465**	0	0	0	0	0	**502**	**265**	**767**
+30 mins.	16	0	**144**	160	0	333	105	438	0	0	0	0	0	450	220	670
+45 mins.	36	0	140	**176**	0	318	104	422	0	0	0	0	0	421	207	628
Total Volume	118	0	513	631	0	1321	419	1740	0	0	0	0	0	1828	905	2733
% App. Total	18.7	0	81.3		0	75.9	24.1		0	0	0		0	66.9	33.1	
PHF	.756	.000	.891	.896	.000	.957	.873	.935	.000	.000	.000	.000	.000	.910	.854	.891

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City of Fontana
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File Name : 09_FON_15S_Foothill PM
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Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	1	1	0	2	1	3	0	0	0	0	0	4	2	6	10
04:15 PM	0	0	5	5	0	2	2	4	0	0	0	0	0	4	0	4	13
04:30 PM	2	0	0	2	0	2	2	4	0	0	0	0	0	2	3	5	11
04:45 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	3	2	5	7
Total	3	0	6	9	0	7	5	12	0	0	0	0	0	13	7	20	41
05:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	4	2	6	8
05:15 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	3	4	7	9
05:30 PM	1	0	1	2	0	1	1	2	0	0	0	0	0	2	2	4	8
05:45 PM	0	0	0	0	0	3	2	5	0	0	0	0	0	4	2	6	11
Total	2	0	1	3	0	6	4	10	0	0	0	0	0	13	10	23	36
Grand Total	5	0	7	12	0	13	9	22	0	0	0	0	0	26	17	43	77
Apprch %	41.7	0	58.3		0	59.1	40.9		0	0	0		0	60.5	39.5		
Total %	6.5	0	9.1	15.6	0	16.9	11.7	28.6	0	0	0	0	0	33.8	22.1	55.8	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**1**	0	0	1	0	1	0	1	0	0	0	0	0	**4**	2	6	8
05:15 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	3	**4**	**7**	9
05:30 PM	1	0	**1**	**2**	0	1	1	2	0	0	0	0	0	2	2	4	8
05:45 PM	0	0	0	0	0	**3**	**2**	**5**	0	0	0	0	0	4	2	6	**11**
Total Volume	2	0	1	3	0	6	4	10	0	0	0	0	0	13	10	23	36
% App. Total	66.7	0	33.3		0	60	40		0	0	0		0	56.5	43.5		
PHF	.500	.000	.250	.375	.000	.500	.500	.500	.000	.000	.000	.000	.000	.813	.625	.821	.818

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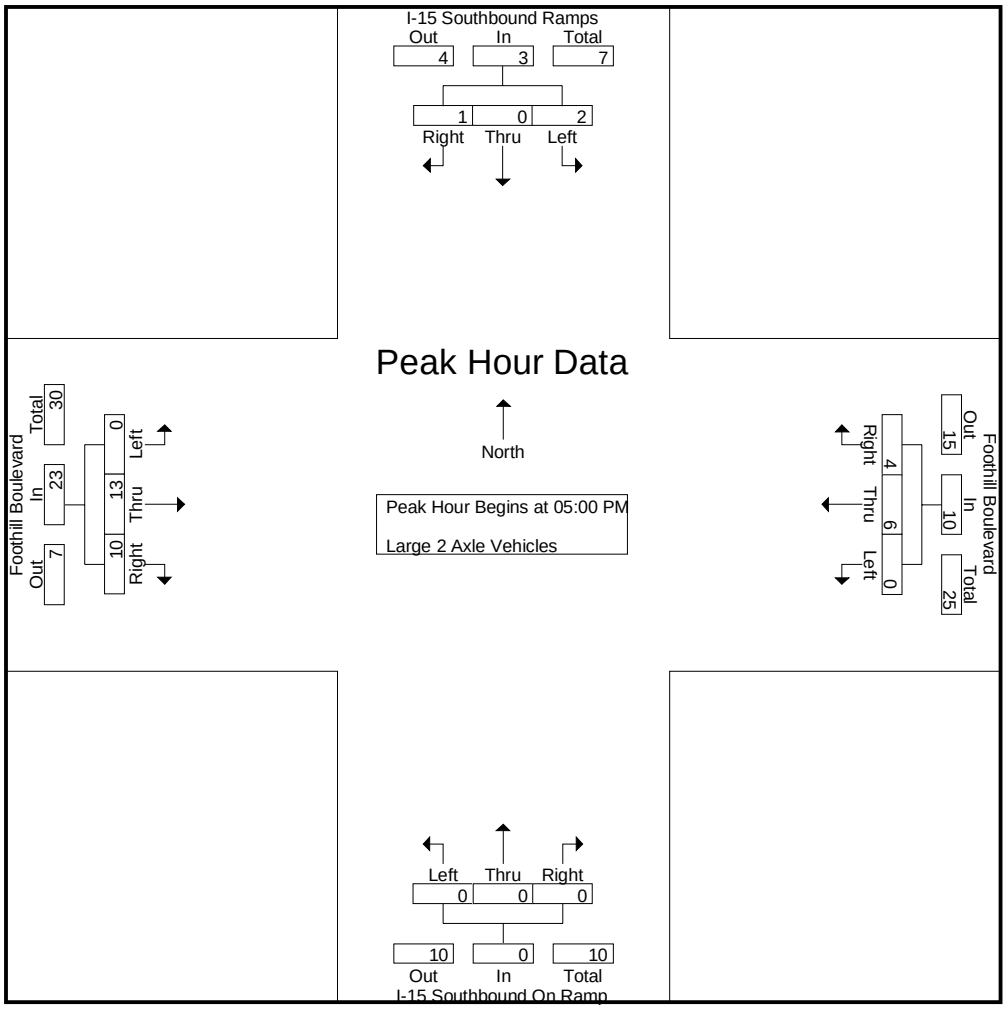

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	**1**	0	0	1	0	1	0	1	0	0	0	0	0	**4**	2	6
+15 mins.	0	0	0	0	0	1	1	2	0	0	0	0	0	3	**4**	**7**
+30 mins.	1	0	**1**	**2**	0	1	1	2	0	0	0	0	0	2	2	4
+45 mins.	0	0	0	0	0	**3**	**2**	**5**	0	0	0	0	0	4	2	6
Total Volume	2	0	1	3	0	6	4	10	0	0	0	0	0	13	10	23
% App. Total	66.7	0	33.3		0	60	40		0	0	0		0	56.5	43.5	
PHF	.500	.000	.250	.375	.000	.500	.500	.500	.000	.000	.000	.000	.000	.813	.625	.821

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City of Fontana
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Groups Printed- 3 Axle Vehicles

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	0	1	0	0	2	2	0	0	0	0	0	1	1	2	5
04:15 PM	2	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	3
04:30 PM	2	0	0	2	0	0	2	2	0	0	0	0	0	0	1	1	5
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
Total	5	0	0	5	0	1	5	6	0	0	0	0	0	3	2	5	16
05:00 PM	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
05:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	3
Total	2	0	0	2	0	3	0	3	0	0	0	0	0	4	1	5	10
Grand Total	7	0	0	7	0	4	5	9	0	0	0	0	0	7	3	10	26
Apprch %	100	0	0		0	44.4	55.6		0	0	0		0	70	30		
Total %	26.9	0	0	26.9	0	15.4	19.2	34.6	0	0	0	0	0	26.9	11.5	38.5	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**1**	0	0	**1**	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**3**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**	0	**2**	3
05:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	**1**	2	3
Total Volume	2	0	0	2	0	3	0	3	0	0	0	0	0	4	1	5	10
% App. Total	100	0	0		0	100	0		0	0	0		0	80	20		
PHF	.500	.000	.000	.500	.000	.375	.000	.375	.000	.000	.000	.000	.000	.500	.250	.625	.833

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 09_FON_15S_Foothill PM
Site Code : 10821516
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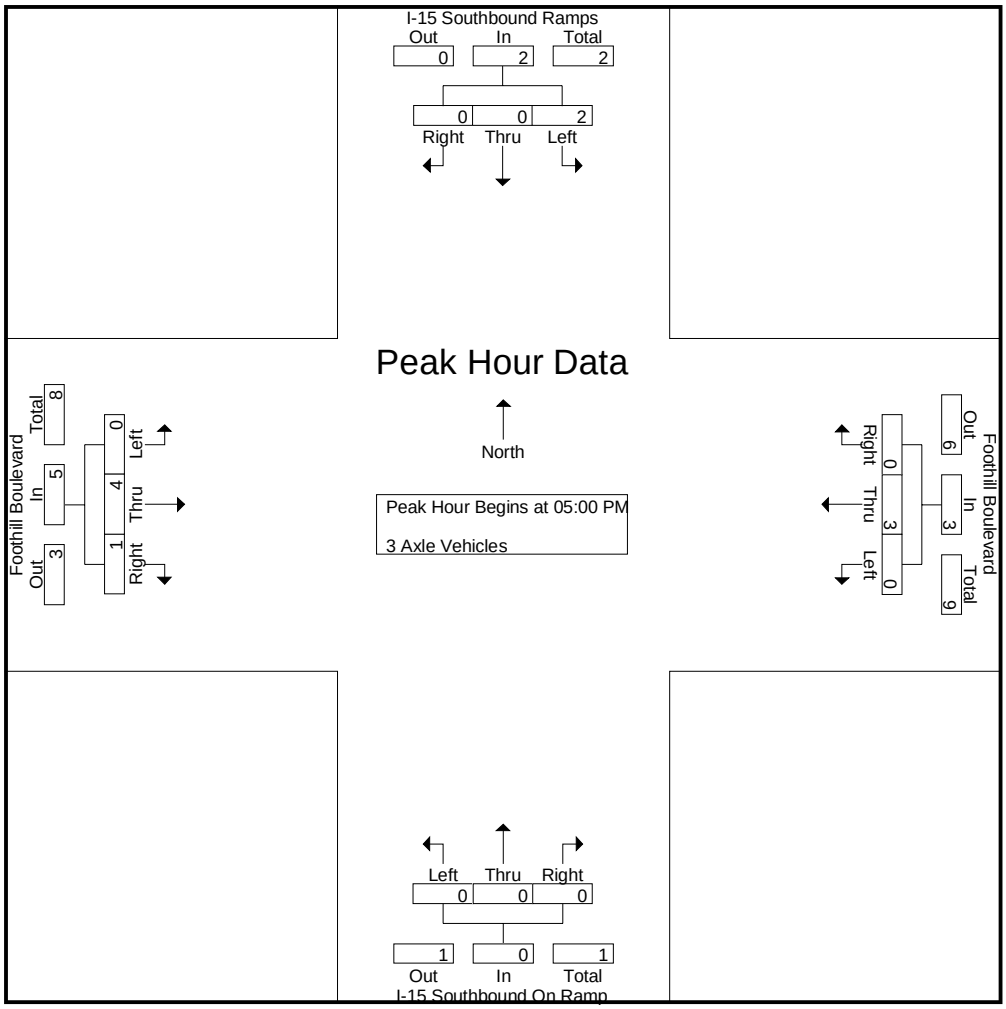

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	**1**	0	0	**1**	0	**2**	0	**2**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**	0	**2**
+45 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	1	**1**	2
Total Volume	2	0	0	2	0	3	0	3	0	0	0	0	0	4	1	5
% App. Total	100	0	0		0	100	0		0	0	0		0	80	20	
PHF	.500	.000	.000	.500	.000	.375	.000	.375	.000	.000	.000	.000	.000	.500	.250	.625

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City of Fontana
N/S: I-15 Southbound Ramps
E/W: Foothill Boulevard
Weather: Clear

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Groups Printed- 4+ Axle Trucks

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	0	1	4	0	0	9	9	0	0	0	0	0	6	2	8	21
04:15 PM	3	0	1	4	0	0	5	5	0	0	0	0	0	5	1	6	15
04:30 PM	2	0	1	3	0	1	5	6	0	0	0	0	0	4	1	5	14
04:45 PM	5	0	1	6	0	2	3	5	0	0	0	0	0	2	1	3	14
Total	13	0	4	17	0	3	22	25	0	0	0	0	0	17	5	22	64
05:00 PM	3	0	1	4	0	1	1	2	0	0	0	0	0	1	1	2	8
05:15 PM	7	0	2	9	0	0	3	3	0	0	0	0	0	3	1	4	16
05:30 PM	4	0	0	4	0	1	3	4	0	0	0	0	0	3	1	4	12
05:45 PM	0	0	4	4	0	2	5	7	0	0	0	0	0	7	1	8	19
Total	14	0	7	21	0	4	12	16	0	0	0	0	0	14	4	18	55
Grand Total	27	0	11	38	0	7	34	41	0	0	0	0	0	31	9	40	119
Apprch %	71.1	0	28.9		0	17.1	82.9		0	0	0		0	77.5	22.5		
Total %	22.7	0	9.2	31.9	0	5.9	28.6	34.5	0	0	0	0	0	26.1	7.6	33.6	

	I-15 Southbound Ramps Southbound				Foothill Boulevard Westbound				I-15 Southbound On Ramp Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	3	0	1	4	0	1	1	2	0	0	0	0	0	1	**1**	2	8
05:15 PM	**7**	0	2	**9**	0	0	3	3	0	0	0	0	0	3	1	4	16
05:30 PM	4	0	0	4	0	1	3	4	0	0	0	0	0	3	1	4	12
05:45 PM	0	0	**4**	4	0	**2**	**5**	**7**	0	0	0	0	0	**7**	1	**8**	**19**
Total Volume	14	0	7	21	0	4	12	16	0	0	0	0	0	14	4	18	55
% App. Total	66.7	0	33.3		0	25	75		0	0	0		0	77.8	22.2		
PHF	.500	.000	.438	.583	.000	.500	.600	.571	.000	.000	.000	.000	.000	.500	1.00	.563	.724

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City of Fontana
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E/W: Foothill Boulevard
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File Name : 09_FON_15S_Foothill PM
Site Code : 10821516
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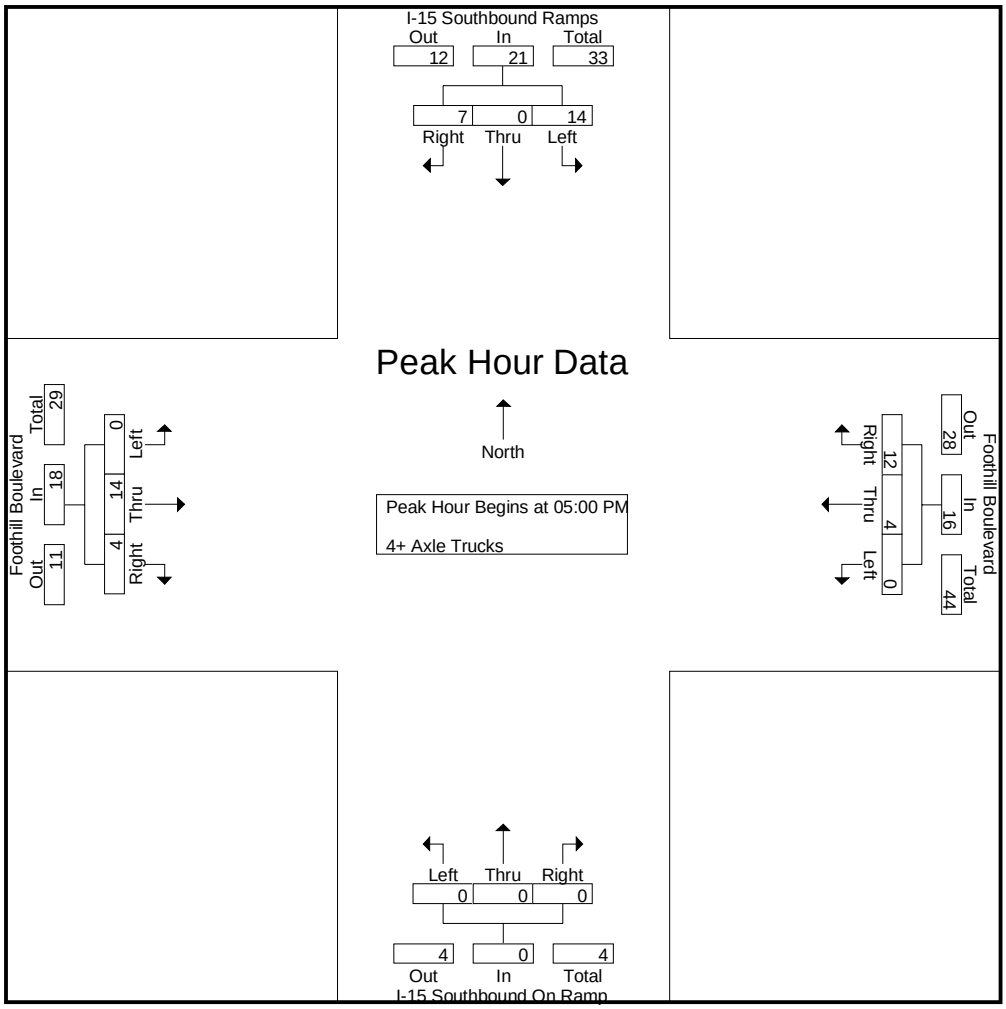

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	3	0	1	4	0	1	1	2	0	0	0	0	0	1	**1**	2
+15 mins.	**7**	0	2	**9**	0	0	3	3	0	0	0	0	0	3	1	4
+30 mins.	4	0	0	4	0	1	3	4	0	0	0	0	0	3	1	4
+45 mins.	0	0	**4**	4	0	**2**	**5**	**7**	0	0	0	0	0	**7**	1	**8**
Total Volume	14	0	7	21	0	4	12	16	0	0	0	0	0	14	4	18
% App. Total	66.7	0	33.3		0	25	75		0	0	0		0	77.8	22.2	
PHF	.500	.000	.438	.583	.000	.500	.600	.571	.000	.000	.000	.000	.000	.500	1.000	.563

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill AM
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	245	31	276	131	0	85	216	0	58	55	113	605
07:15 AM	0	0	0	0	0	287	24	311	161	0	90	251	0	87	55	142	704
07:30 AM	0	0	0	0	0	282	40	322	221	0	102	323	0	94	49	143	788
07:45 AM	0	0	0	0	0	341	42	383	244	0	132	376	0	94	71	165	924
Total	0	0	0	0	0	1155	137	1292	757	0	409	1166	0	333	230	563	3021
08:00 AM	0	0	0	0	0	292	32	324	184	0	96	280	0	87	76	163	767
08:15 AM	0	0	0	0	0	257	46	303	192	0	106	298	0	121	49	170	771
08:30 AM	0	0	0	0	0	228	41	269	210	0	104	314	0	108	54	162	745
08:45 AM	0	0	0	0	0	197	24	221	238	0	97	335	0	124	47	171	727
Total	0	0	0	0	0	974	143	1117	824	0	403	1227	0	440	226	666	3010
Grand Total	0	0	0	0	0	2129	280	2409	1581	0	812	2393	0	773	456	1229	6031
Apprch %	0	0	0		0	88.4	11.6		66.1	0	33.9		0	62.9	37.1		
Total %	0	0	0	0	0	35.3	4.6	39.9	26.2	0	13.5	39.7	0	12.8	7.6	20.4	
Passenger Vehicles	0	0	0	0	0	2027	241	2268	1522	0	726	2248	0	701	430	1131	5647
% Passenger Vehicles	0	0	0	0	0	95.2	86.1	94.1	96.3	0	89.4	93.9	0	90.7	94.3	92	93.6
Large 2 Axle Vehicles	0	0	0	0	0	47	10	57	34	0	32	66	0	29	11	40	163
% Large 2 Axle Vehicles	0	0	0	0	0	2.2	3.6	2.4	2.2	0	3.9	2.8	0	3.8	2.4	3.3	2.7
3 Axle Vehicles	0	0	0	0	0	22	1	23	3	0	9	12	0	16	1	17	52
% 3 Axle Vehicles	0	0	0	0	0	1	0.4	1	0.2	0	1.1	0.5	0	2.1	0.2	1.4	0.9
4+ Axle Trucks	0	0	0	0	0	33	28	61	22	0	45	67	0	27	14	41	169
% 4+ Axle Trucks	0	0	0	0	0	1.6	10	2.5	1.4	0	5.5	2.8	0	3.5	3.1	3.3	2.8

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	282	40	322	221	0	102	323	0	94	49	143	788
07:45 AM	0	0	0	0	0	**341**	42	**383**	**244**	0	**132**	**376**	0	94	71	165	**924**
08:00 AM	0	0	0	0	0	292	32	324	184	0	96	280	0	87	**76**	163	767
08:15 AM	0	0	0	0	0	257	**46**	303	192	0	106	298	0	**121**	49	**170**	771
Total Volume	0	0	0	0	0	1172	160	1332	841	0	436	1277	0	396	245	641	3250
% App. Total	0	0	0		0	88	12		65.9	0	34.1		0	61.8	38.2		
PHF	.000	.000	.000	.000	.000	.859	.870	.869	.862	.000	.826	.849	.000	.818	.806	.943	.879

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill AM
Site Code : 10821516
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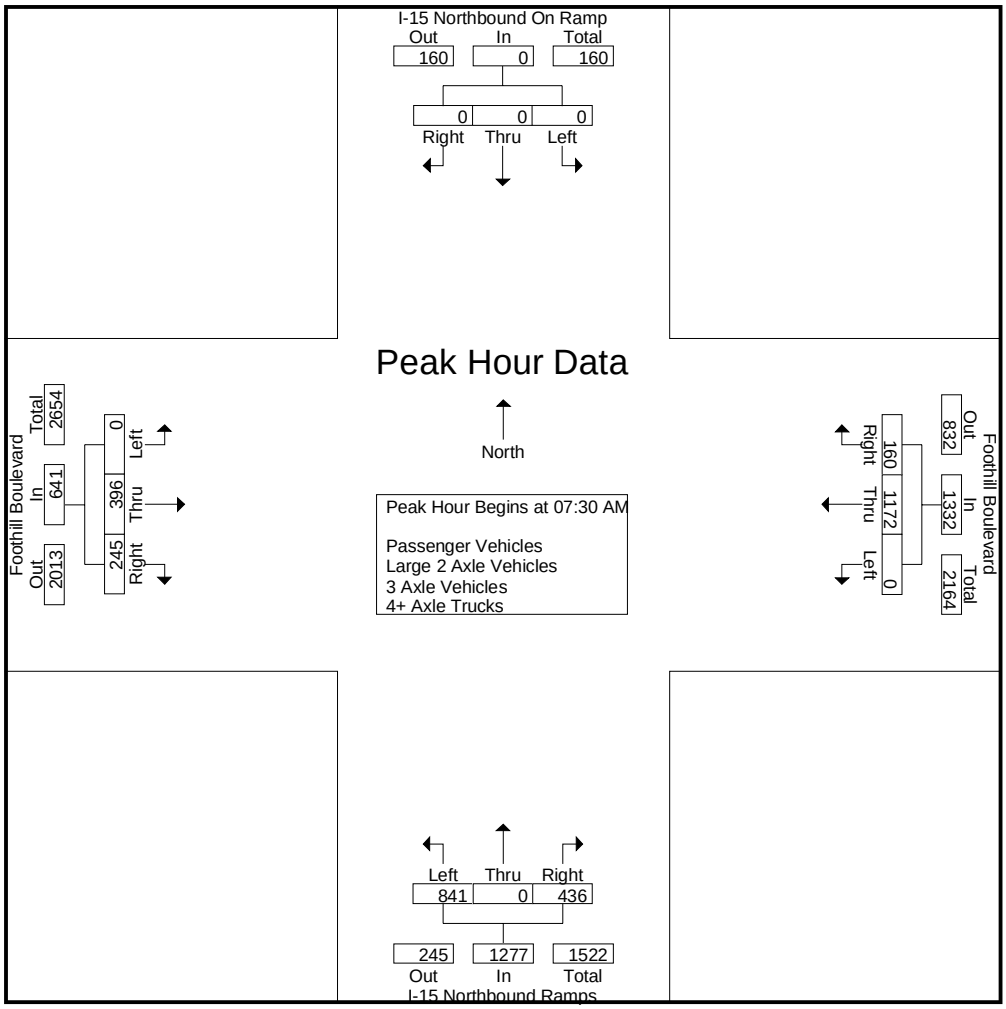

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:30 AM				08:00 AM			
+0 mins.	0	0	0	0	0	287	24	311	221	0	102	323	0	87	**76**	163
+15 mins.	0	0	0	0	0	282	40	322	**244**	0	**132**	**376**	0	121	49	170
+30 mins.	0	0	0	0	0	**341**	**42**	**383**	184	0	96	280	0	108	54	162
+45 mins.	0	0	0	0	0	292	32	324	192	0	106	298	0	**124**	47	**171**
Total Volume	0	0	0	0	0	1202	138	1340	841	0	436	1277	0	440	226	666
% App. Total	0	0	0		0	89.7	10.3		65.9	0	34.1		0	66.1	33.9	
PHF	.000	.000	.000	.000	.000	.881	.821	.875	.862	.000	.826	.849	.000	.887	.743	.974

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City of Fontana
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File Name : 10_FON_15N_Foothill AM
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Groups Printed- Passenger Vehicles

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	236	28	264	127	0	79	206	0	50	52	102	572
07:15 AM	0	0	0	0	0	270	22	292	152	0	84	236	0	81	52	133	661
07:30 AM	0	0	0	0	0	273	35	308	213	0	92	305	0	87	46	133	746
07:45 AM	0	0	0	0	0	333	40	373	234	0	122	356	0	86	69	155	884
Total	0	0	0	0	0	1112	125	1237	726	0	377	1103	0	304	219	523	2863
08:00 AM	0	0	0	0	0	281	25	306	178	0	83	261	0	76	73	149	716
08:15 AM	0	0	0	0	0	240	37	277	186	0	92	278	0	109	46	155	710
08:30 AM	0	0	0	0	0	215	33	248	201	0	90	291	0	98	49	147	686
08:45 AM	0	0	0	0	0	179	21	200	231	0	84	315	0	114	43	157	672
Total	0	0	0	0	0	915	116	1031	796	0	349	1145	0	397	211	608	2784
Grand Total	0	0	0	0	0	2027	241	2268	1522	0	726	2248	0	701	430	1131	5647
Apprch %	0	0	0		0	89.4	10.6		67.7	0	32.3		0	62	38		
Total %	0	0	0	0	0	35.9	4.3	40.2	27	0	12.9	39.8	0	12.4	7.6	20	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	273	35	308	213	0	92	305	0	87	46	133	746
07:45 AM	0	0	0	0	0	**333**	**40**	**373**	**234**	0	**122**	**356**	0	86	69	**155**	**884**
08:00 AM	0	0	0	0	0	281	25	306	178	0	83	261	0	76	**73**	149	716
08:15 AM	0	0	0	0	0	240	37	277	186	0	92	278	0	**109**	46	155	710
Total Volume	0	0	0	0	0	1127	137	1264	811	0	389	1200	0	358	234	592	3056
% App. Total	0	0	0		0	89.2	10.8		67.6	0	32.4		0	60.5	39.5		
PHF	.000	.000	.000	.000	.000	.846	.856	.847	.866	.000	.797	.843	.000	.821	.801	.955	.864

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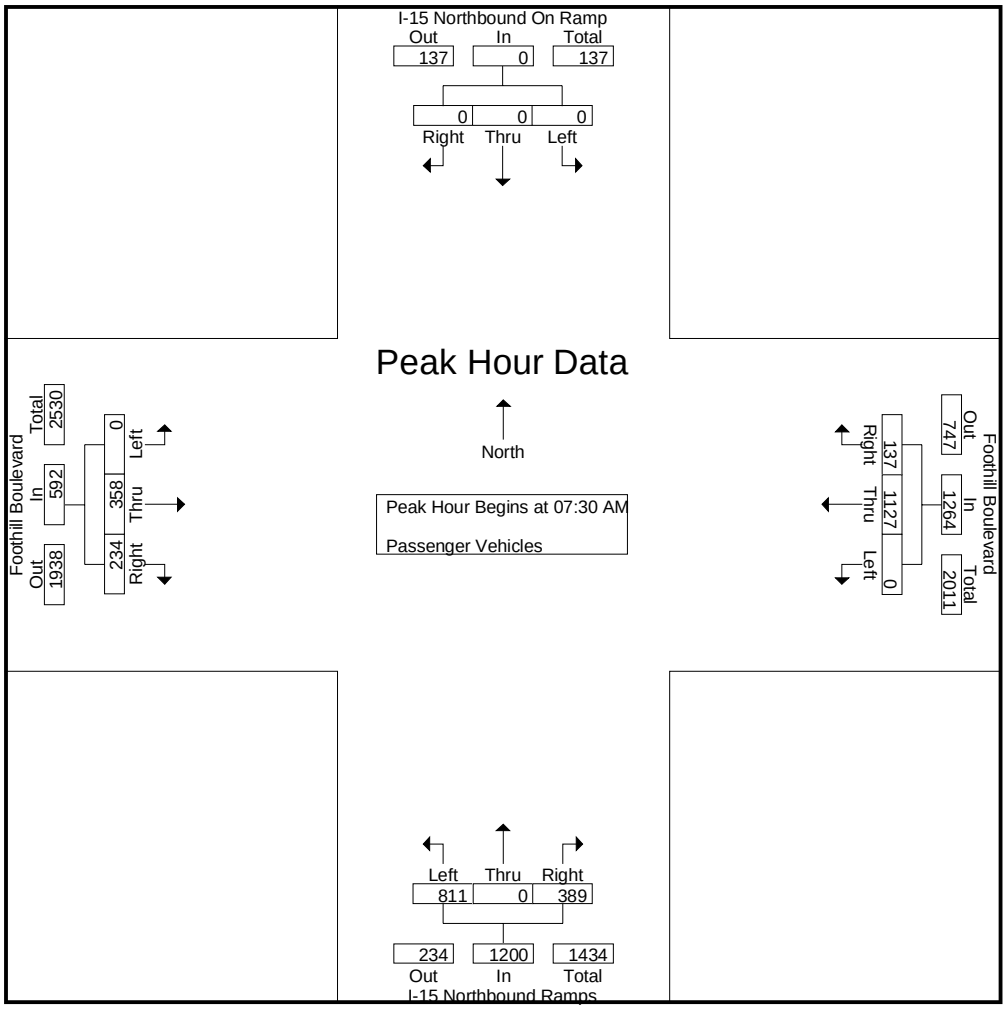

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	273	35	308	213	0	92	305	0	87	46	133
+15 mins.	0	0	0	0	0	**333**	**40**	**373**	**234**	0	**122**	**356**	0	86	69	**155**
+30 mins.	0	0	0	0	0	281	25	306	178	0	83	261	0	76	**73**	149
+45 mins.	0	0	0	0	0	240	37	277	186	0	92	278	0	**109**	46	155
Total Volume	0	0	0	0	0	1127	137	1264	811	0	389	1200	0	358	234	592
% App. Total	0	0	0		0	89.2	10.8		67.6	0	32.4		0	60.5	39.5	
PHF	.000	.000	.000	.000	.000	.846	.856	.847	.866	.000	.797	.843	.000	.821	.801	.955

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City of Fontana
N/S: I-15 Northbound Ramps
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File Name : 10_FON_15N_Foothill AM
Site Code : 10821516
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Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	4	1	5	3	0	2	5	0	1	0	1	11
07:15 AM	0	0	0	0	0	6	0	6	7	0	2	9	0	3	0	3	18
07:30 AM	0	0	0	0	0	5	0	5	3	0	5	8	0	4	2	6	19
07:45 AM	0	0	0	0	0	4	0	4	6	0	4	10	0	2	1	3	17
Total	0	0	0	0	0	19	1	20	19	0	13	32	0	10	3	13	65
08:00 AM	0	0	0	0	0	7	3	10	2	0	5	7	0	3	1	4	21
08:15 AM	0	0	0	0	0	7	3	10	6	0	6	12	0	6	1	7	29
08:30 AM	0	0	0	0	0	6	2	8	3	0	5	8	0	4	4	8	24
08:45 AM	0	0	0	0	0	8	1	9	4	0	3	7	0	6	2	8	24
Total	0	0	0	0	0	28	9	37	15	0	19	34	0	19	8	27	98
Grand Total	0	0	0	0	0	47	10	57	34	0	32	66	0	29	11	40	163
Apprch %	0	0	0		0	82.5	17.5		51.5	0	48.5		0	72.5	27.5		
Total %	0	0	0	0	0	28.8	6.1	35	20.9	0	19.6	40.5	0	17.8	6.7	24.5	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	5	0	5	3	0	5	8	0	4	**2**	6	19
07:45 AM	0	0	0	0	0	4	0	4	**6**	0	4	10	0	2	1	3	17
08:00 AM	0	0	0	0	0	**7**	**3**	**10**	2	0	5	7	0	3	1	4	21
08:15 AM	0	0	0	0	0	7	3	10	6	0	**6**	**12**	0	**6**	1	**7**	**29**
Total Volume	0	0	0	0	0	23	6	29	17	0	20	37	0	15	5	20	86
% App. Total	0	0	0		0	79.3	20.7		45.9	0	54.1		0	75	25		
PHF	.000	.000	.000	.000	.000	.821	.500	.725	.708	.000	.833	.771	.000	.625	.625	.714	.741

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill AM
Site Code : 10821516
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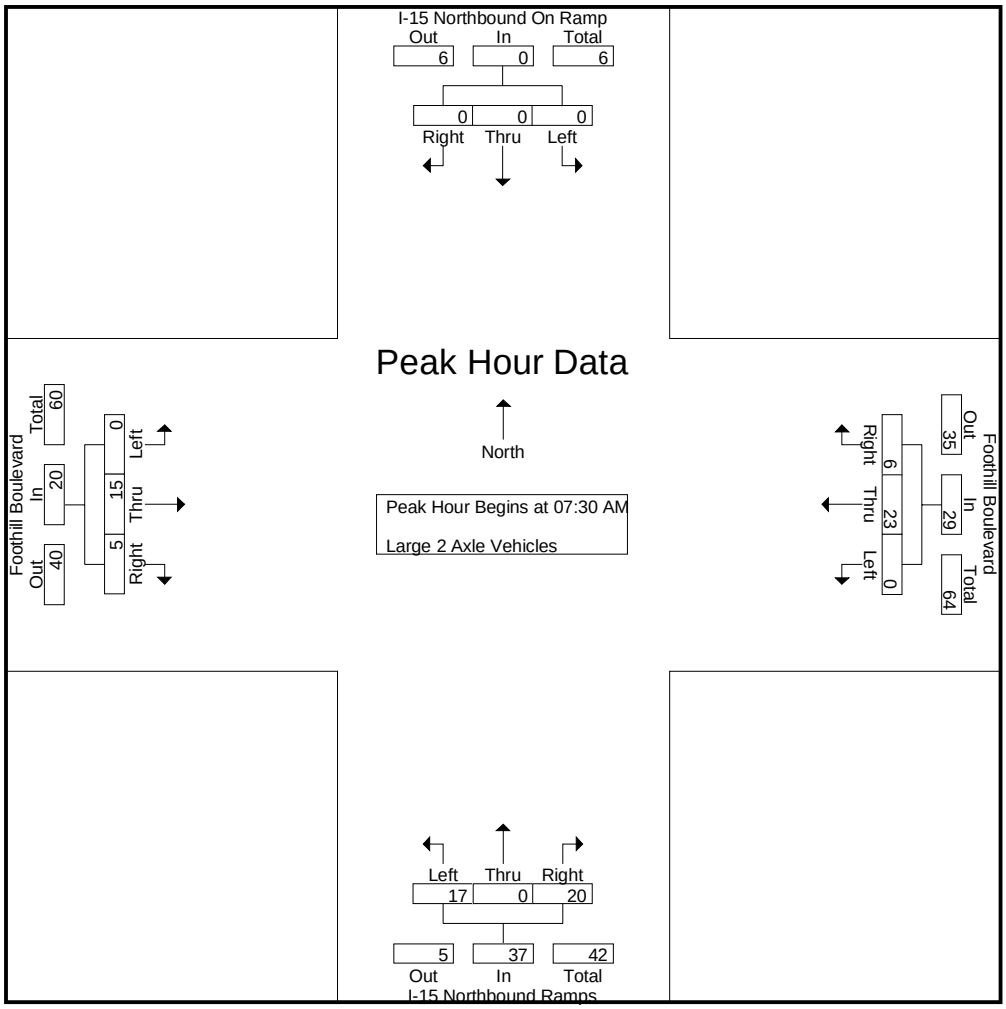

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	5	0	5	3	0	5	8	0	4	**2**	6
+15 mins.	0	0	0	0	0	4	0	4	**6**	0	4	10	0	2	1	3
+30 mins.	0	0	0	0	0	**7**	**3**	**10**	2	0	5	7	0	3	1	4
+45 mins.	0	0	0	0	0	7	3	10	6	0	**6**	**12**	0	**6**	1	**7**
Total Volume	0	0	0	0	0	23	6	29	17	0	20	37	0	15	5	20
% App. Total	0	0	0		0	79.3	20.7		45.9	0	54.1		0	75	25	
PHF	.000	.000	.000	.000	.000	.821	.500	.725	.708	.000	.833	.771	.000	.625	.625	.714

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill AM
Site Code : 10821516
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Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	6
07:30 AM	0	0	0	0	0	1	0	1	2	0	2	4	0	1	0	1	6
07:45 AM	0	0	0	0	0	1	0	1	1	0	1	2	0	2	0	2	5
Total	0	0	0	0	0	10	0	10	3	0	3	6	0	3	0	3	19
08:00 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	5	1	6	8
08:15 AM	0	0	0	0	0	6	0	6	0	0	2	2	0	1	0	1	9
08:30 AM	0	0	0	0	0	3	1	4	0	0	1	1	0	5	0	5	10
08:45 AM	0	0	0	0	0	2	0	2	0	0	2	2	0	2	0	2	6
Total	0	0	0	0	0	12	1	13	0	0	6	6	0	13	1	14	33
Grand Total	0	0	0	0	0	22	1	23	3	0	9	12	0	16	1	17	52
Apprch %	0	0	0		0	95.7	4.3		25	0	75		0	94.1	5.9		
Total %	0	0	0	0	0	42.3	1.9	44.2	5.8	0	17.3	23.1	0	30.8	1.9	32.7	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	1	0	1	**2**	0	**2**	**4**	0	1	0	1	6
07:45 AM	0	0	0	0	0	1	0	1	1	0	1	2	0	2	0	2	5
08:00 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	**5**	**1**	**6**	8
08:15 AM	0	0	0	0	0	**6**	0	**6**	0	0	2	2	0	1	0	1	**9**
Total Volume	0	0	0	0	0	9	0	9	3	0	6	9	0	9	1	10	28
% App. Total	0	0	0		0	100	0		33.3	0	66.7		0	90	10		
PHF	.000	.000	.000	.000	.000	.375	.000	.375	.375	.000	.750	.563	.000	.450	.250	.417	.778

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill AM
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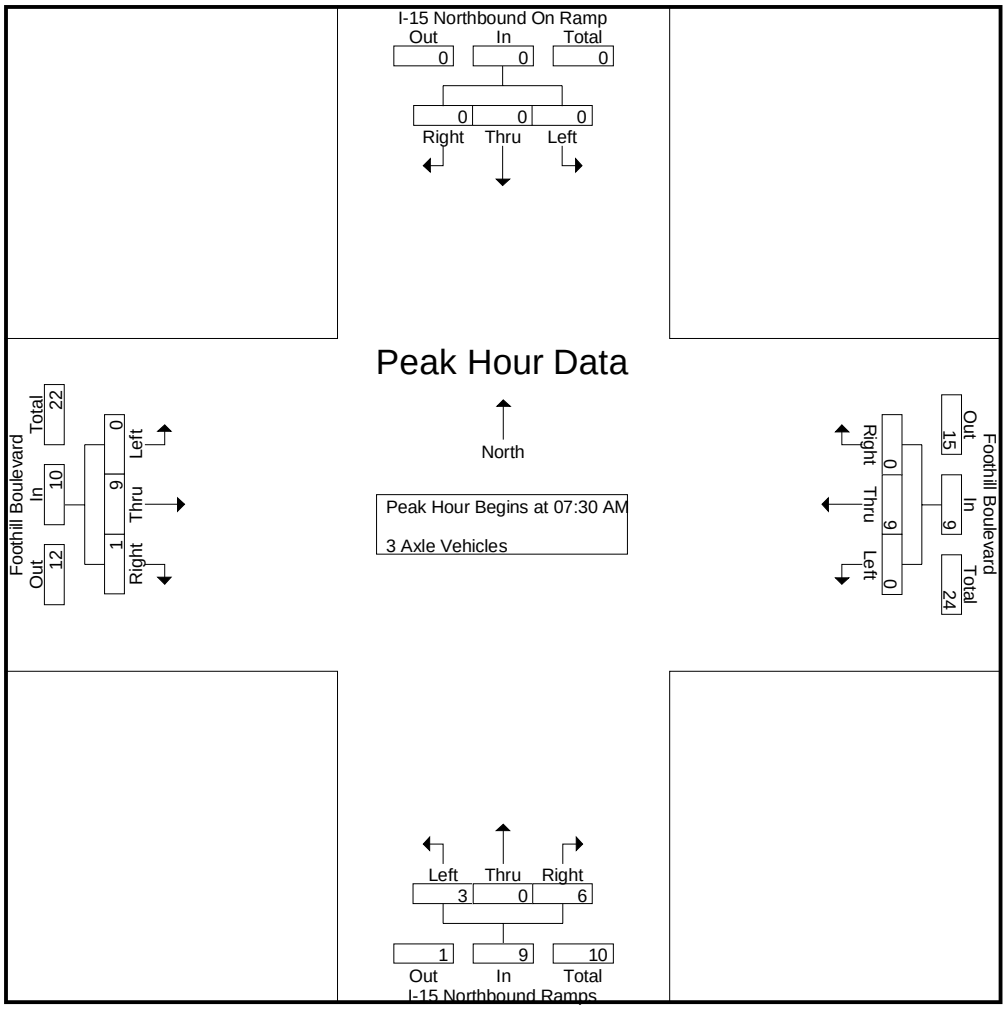

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	1	0	1	**2**	0	**2**	**4**	0	1	0	1
+15 mins.	0	0	0	0	0	1	0	1	1	0	1	2	0	2	0	2
+30 mins.	0	0	0	0	0	1	0	1	0	0	1	1	0	**5**	**1**	**6**
+45 mins.	0	0	0	0	0	**6**	0	**6**	0	0	2	2	0	1	0	1
Total Volume	0	0	0	0	0	9	0	9	3	0	6	9	0	9	1	10
% App. Total	0	0	0		0	100	0		33.3	0	66.7		0	90	10	
PHF	.000	.000	.000	.000	.000	.375	.000	.375	.375	.000	.750	.563	.000	.450	.250	.417

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City of Fontana
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Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	3	2	5	1	0	4	5	0	7	3	10	20
07:15 AM	0	0	0	0	0	5	2	7	2	0	4	6	0	3	3	6	19
07:30 AM	0	0	0	0	0	3	5	8	3	0	3	6	0	2	1	3	17
07:45 AM	0	0	0	0	0	3	2	5	3	0	5	8	0	4	1	5	18
Total	0	0	0	0	0	14	11	25	9	0	16	25	0	16	8	24	74
08:00 AM	0	0	0	0	0	3	4	7	4	0	7	11	0	3	1	4	22
08:15 AM	0	0	0	0	0	4	6	10	0	0	6	6	0	5	2	7	23
08:30 AM	0	0	0	0	0	4	5	9	6	0	8	14	0	1	1	2	25
08:45 AM	0	0	0	0	0	8	2	10	3	0	8	11	0	2	2	4	25
Total	0	0	0	0	0	19	17	36	13	0	29	42	0	11	6	17	95
Grand Total	0	0	0	0	0	33	28	61	22	0	45	67	0	27	14	41	169
Apprch %	0	0	0		0	54.1	45.9		32.8	0	67.2		0	65.9	34.1		
Total %	0	0	0	0	0	19.5	16.6	36.1	13	0	26.6	39.6	0	16	8.3	24.3	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	3	5	8	3	0	3	6	0	2	1	3	17
07:45 AM	0	0	0	0	0	3	2	5	3	0	5	8	0	4	1	5	18
08:00 AM	0	0	0	0	0	3	4	7	**4**	0	**7**	**11**	0	3	1	4	22
08:15 AM	0	0	0	0	0	**4**	**6**	**10**	0	0	6	6	0	**5**	**2**	**7**	**23**
Total Volume	0	0	0	0	0	13	17	30	10	0	21	31	0	14	5	19	80
% App. Total	0	0	0		0	43.3	56.7		32.3	0	67.7		0	73.7	26.3		
PHF	.000	.000	.000	.000	.000	.813	.708	.750	.625	.000	.750	.705	.000	.700	.625	.679	.870

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City of Fontana
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File Name : 10_FON_15N_Foothill AM
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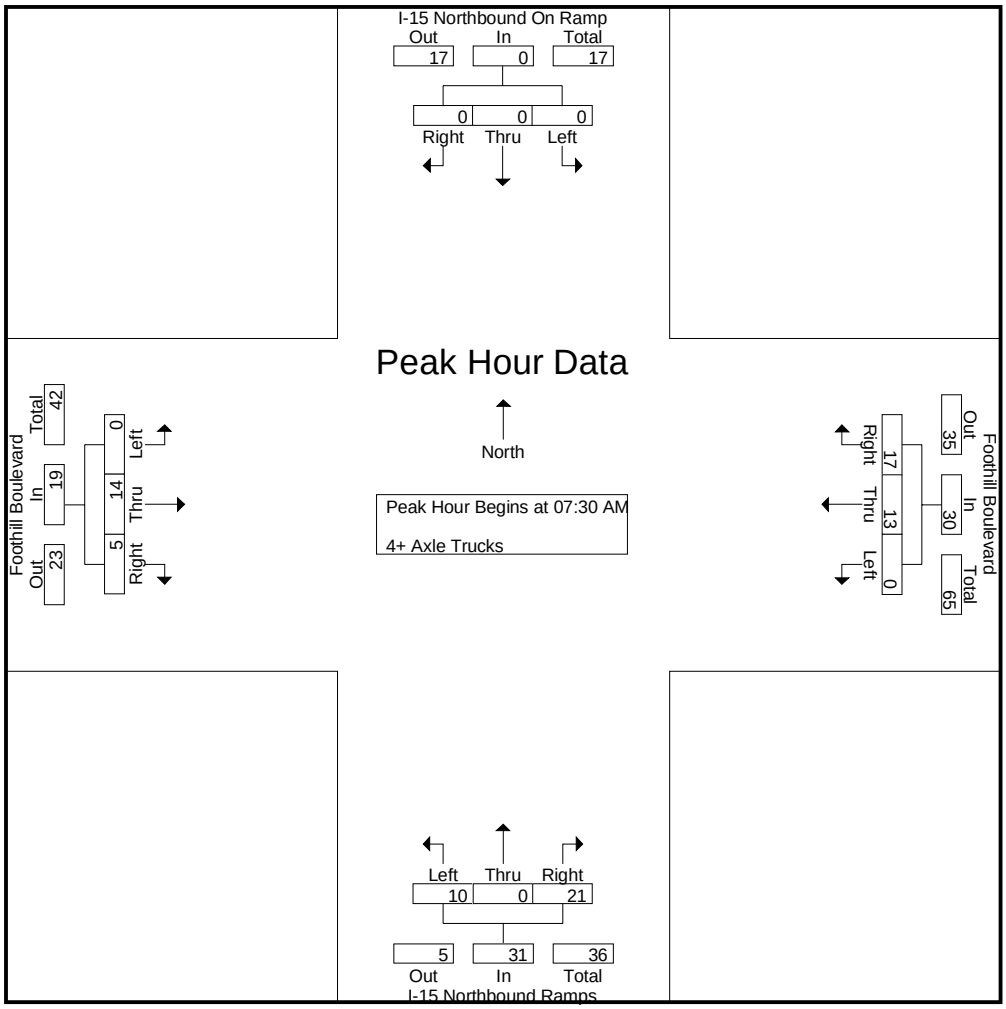

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	3	5	8	3	0	3	6	0	2	1	3
+15 mins.	0	0	0	0	0	3	2	5	3	0	5	8	0	4	1	5
+30 mins.	0	0	0	0	0	3	4	7	**4**	0	**7**	**11**	0	3	1	4
+45 mins.	0	0	0	0	0	**4**	**6**	**10**	0	0	6	6	0	**5**	**2**	**7**
Total Volume	0	0	0	0	0	13	17	30	10	0	21	31	0	14	5	19
% App. Total	0	0	0		0	43.3	56.7		32.3	0	67.7		0	73.7	26.3	
PHF	.000	.000	.000	.000	.000	.813	.708	.750	.625	.000	.750	.705	.000	.700	.625	.679

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	272	83	355	137	0	90	227	0	219	223	442	1024
04:15 PM	0	0	0	0	0	252	75	327	143	0	105	248	0	297	207	504	1079
04:30 PM	0	0	0	0	0	299	58	357	186	0	102	288	0	257	238	495	1140
04:45 PM	0	0	0	0	0	238	68	306	174	0	125	299	0	258	223	481	1086
Total	0	0	0	0	0	1061	284	1345	640	0	422	1062	0	1031	891	1922	4329
05:00 PM	0	0	0	0	0	254	78	332	174	0	102	276	0	250	233	483	1091
05:15 PM	0	0	0	0	0	291	67	358	186	0	109	295	0	280	271	551	1204
05:30 PM	0	0	0	0	0	264	69	333	182	0	92	274	0	261	231	492	1099
05:45 PM	0	0	0	0	0	251	57	308	177	0	119	296	0	269	195	464	1068
Total	0	0	0	0	0	1060	271	1331	719	0	422	1141	0	1060	930	1990	4462
Grand Total	0	0	0	0	0	2121	555	2676	1359	0	844	2203	0	2091	1821	3912	8791
Apprch %	0	0	0		0	79.3	20.7		61.7	0	38.3		0	53.5	46.5		
Total %	0	0	0	0	0	24.1	6.3	30.4	15.5	0	9.6	25.1	0	23.8	20.7	44.5	
Passenger Vehicles	0	0	0	0	0	2064	522	2586	1346	0	809	2155	0	2021	1779	3800	8541
% Passenger Vehicles	0	0	0	0	0	97.3	94.1	96.6	99	0	95.9	97.8	0	96.7	97.7	97.1	97.2
Large 2 Axle Vehicles	0	0	0	0	0	20	8	28	3	0	13	16	0	30	11	41	85
% Large 2 Axle Vehicles	0	0	0	0	0	0.9	1.4	1	0.2	0	1.5	0.7	0	1.4	0.6	1	1
3 Axle Vehicles	0	0	0	0	0	8	7	15	4	0	5	9	0	13	2	15	39
% 3 Axle Vehicles	0	0	0	0	0	0.4	1.3	0.6	0.3	0	0.6	0.4	0	0.6	0.1	0.4	0.4
4+ Axle Trucks	0	0	0	0	0	29	18	47	6	0	17	23	0	27	29	56	126
% 4+ Axle Trucks	0	0	0	0	0	1.4	3.2	1.8	0.4	0	2	1	0	1.3	1.6	1.4	1.4

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**299**	58	357	**186**	0	102	288	0	257	238	495	1140
04:45 PM	0	0	0	0	0	238	68	306	174	0	**125**	**299**	0	258	223	481	1086
05:00 PM	0	0	0	0	0	254	**78**	332	174	0	102	276	0	250	233	483	1091
05:15 PM	0	0	0	0	0	291	67	**358**	186	0	109	295	0	**280**	**271**	**551**	**1204**
Total Volume	0	0	0	0	0	1082	271	1353	720	0	438	1158	0	1045	965	2010	4521
% App. Total	0	0	0		0	80	20		62.2	0	37.8		0	52	48		
PHF	.000	.000	.000	.000	.000	.905	.869	.945	.968	.000	.876	.968	.000	.933	.890	.912	.939

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City of Fontana
N/S: I-15 Northbound Ramps
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File Name : 10_FON_15N_Foothill PM
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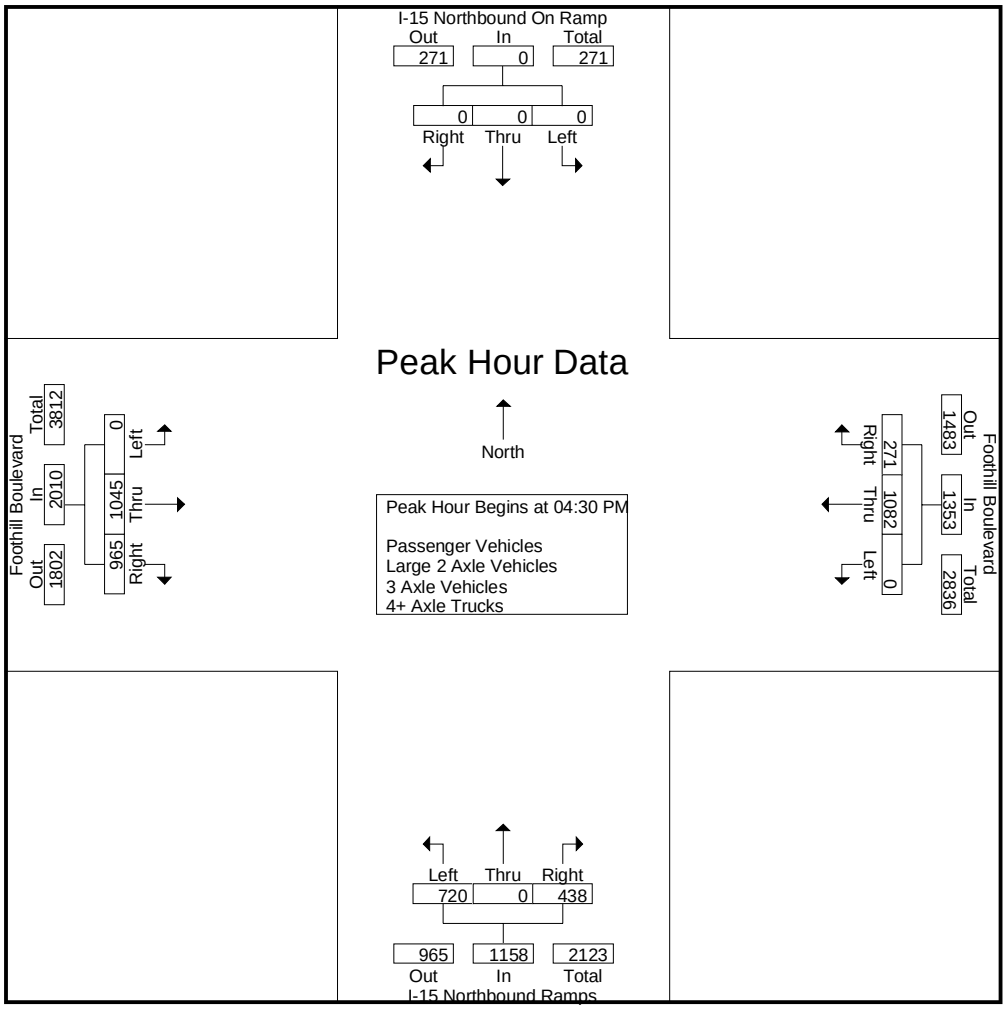

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**299**	58	357	**186**	0	102	288	0	257	238	495
+15 mins.	0	0	0	0	0	238	68	306	174	0	**125**	**299**	0	258	223	481
+30 mins.	0	0	0	0	0	254	**78**	332	174	0	102	276	0	250	233	483
+45 mins.	0	0	0	0	0	291	67	**358**	186	0	109	295	0	**280**	**271**	**551**
Total Volume	0	0	0	0	0	1082	271	1353	720	0	438	1158	0	1045	965	2010
% App. Total	0	0	0		0	80	20		62.2	0	37.8		0	52	48	
PHF	.000	.000	.000	.000	.000	.905	.869	.945	.968	.000	.876	.968	.000	.933	.890	.912

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File Name : 10_FON_15N_Foothill PM
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Groups Printed- Passenger Vehicles

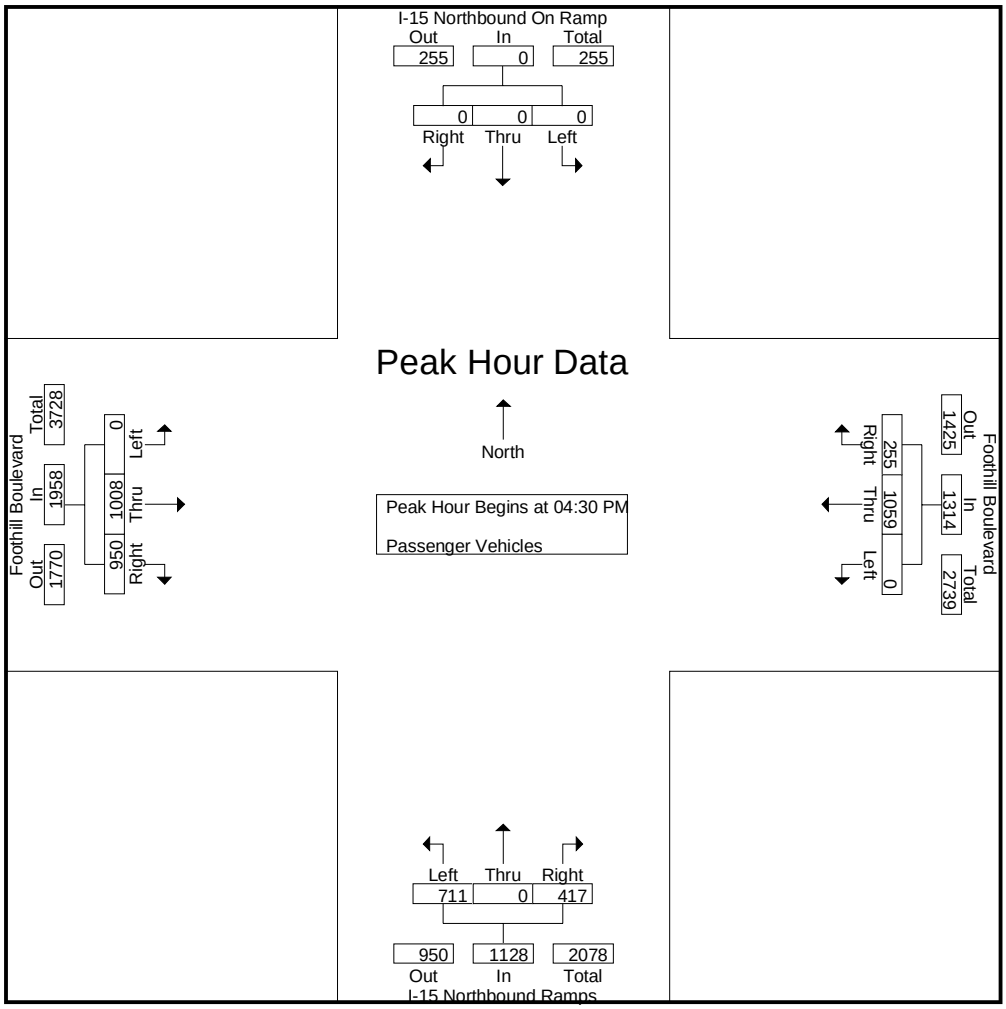
	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	259	82	341	137	0	85	222	0	209	214	423	986
04:15 PM	0	0	0	0	0	243	67	310	143	0	101	244	0	288	202	490	1044
04:30 PM	0	0	0	0	0	290	53	343	184	0	96	280	0	250	233	483	1106
04:45 PM	0	0	0	0	0	233	66	299	169	0	119	288	0	249	219	468	1055
Total	0	0	0	0	0	1025	268	1293	633	0	401	1034	0	996	868	1864	4191
05:00 PM	0	0	0	0	0	250	73	323	172	0	95	267	0	240	231	471	1061
05:15 PM	0	0	0	0	0	286	63	349	186	0	107	293	0	269	267	536	1178
05:30 PM	0	0	0	0	0	259	66	325	181	0	90	271	0	254	225	479	1075
05:45 PM	0	0	0	0	0	244	52	296	174	0	116	290	0	262	188	450	1036
Total	0	0	0	0	0	1039	254	1293	713	0	408	1121	0	1025	911	1936	4350
Grand Total	0	0	0	0	0	2064	522	2586	1346	0	809	2155	0	2021	1779	3800	8541
Apprch %	0	0	0		0	79.8	20.2		62.5	0	37.5		0	53.2	46.8		
Total %	0	0	0	0	0	24.2	6.1	30.3	15.8	0	9.5	25.2	0	23.7	20.8	44.5	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**290**	53	343	184	0	96	280	0	250	233	483	1106
04:45 PM	0	0	0	0	0	233	66	299	169	0	**119**	288	0	249	219	468	1055
05:00 PM	0	0	0	0	0	250	**73**	323	172	0	95	267	0	240	231	471	1061
05:15 PM	0	0	0	0	0	286	63	**349**	**186**	0	107	**293**	0	**269**	**267**	**536**	**1178**
Total Volume	0	0	0	0	0	1059	255	1314	711	0	417	1128	0	1008	950	1958	4400
% App. Total	0	0	0		0	80.6	19.4		63	0	37		0	51.5	48.5		
PHF	.000	.000	.000	.000	.000	.913	.873	.941	.956	.000	.876	.962	.000	.937	.890	.913	.934

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**290**	53	343	184	0	96	280	0	250	233	483
+15 mins.	0	0	0	0	0	233	66	299	169	0	**119**	288	0	249	219	468
+30 mins.	0	0	0	0	0	250	**73**	323	172	0	95	267	0	240	231	471
+45 mins.	0	0	0	0	0	286	63	**349**	**186**	0	107	**293**	0	**269**	**267**	**536**
Total Volume	0	0	0	0	0	1059	255	1314	711	0	417	1128	0	1008	950	1958
% App. Total	0	0	0		0	80.6	19.4		63	0	37		0	51.5	48.5	
PHF	.000	.000	.000	.000	.000	.913	.873	.941	.956	.000	.876	.962	.000	.937	.890	.913

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	3	0	3	0	0	2	2	0	4	3	7	12
04:15 PM	0	0	0	0	0	5	0	5	0	0	1	1	0	4	1	5	11
04:30 PM	0	0	0	0	0	3	1	4	1	0	3	4	0	3	1	4	12
04:45 PM	0	0	0	0	0	1	0	1	0	0	4	4	0	2	2	4	9
Total	0	0	0	0	0	12	1	13	1	0	10	11	0	13	7	20	44
05:00 PM	0	0	0	0	0	1	3	4	1	0	1	2	0	6	1	7	13
05:15 PM	0	0	0	0	0	2	3	5	0	0	1	1	0	3	2	5	11
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	1	4	6
05:45 PM	0	0	0	0	0	3	1	4	1	0	1	2	0	5	0	5	11
Total	0	0	0	0	0	8	7	15	2	0	3	5	0	17	4	21	41
Grand Total	0	0	0	0	0	20	8	28	3	0	13	16	0	30	11	41	85
Apprch %	0	0	0		0	71.4	28.6		18.8	0	81.2		0	73.2	26.8		
Total %	0	0	0	0	0	23.5	9.4	32.9	3.5	0	15.3	18.8	0	35.3	12.9	48.2	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**3**	1	4	**1**	0	3	**4**	0	3	1	4	12
04:45 PM	0	0	0	0	0	1	0	1	0	0	**4**	4	0	2	**2**	4	9
05:00 PM	0	0	0	0	0	1	**3**	4	1	0	1	2	0	**6**	1	**7**	**13**
05:15 PM	0	0	0	0	0	2	3	**5**	0	0	1	1	0	3	2	5	11
Total Volume	0	0	0	0	0	7	7	14	2	0	9	11	0	14	6	20	45
% App. Total	0	0	0		0	50	50		18.2	0	81.8		0	70	30		
PHF	.000	.000	.000	.000	.000	.583	.583	.700	.500	.000	.563	.688	.000	.583	.750	.714	.865

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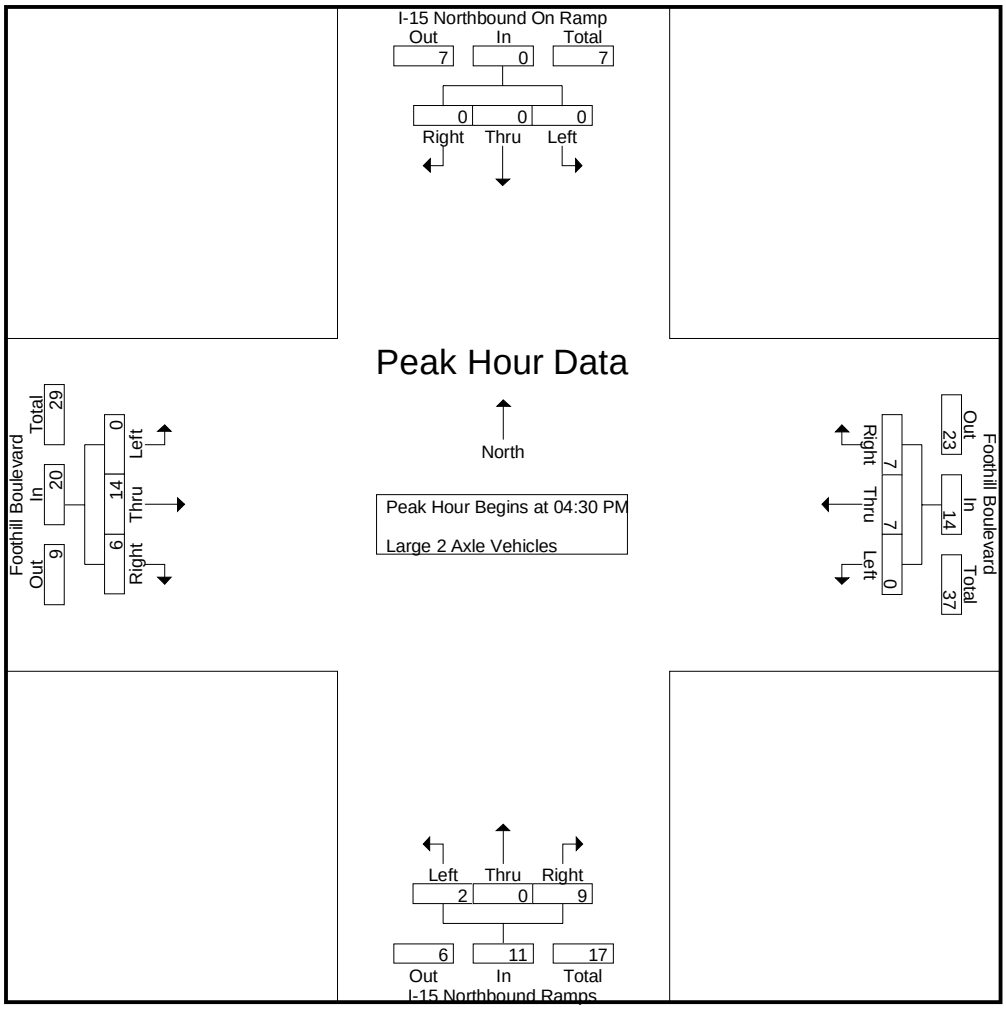
City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**3**	1	4	**1**	0	3	**4**	0	3	1	4
+15 mins.	0	0	0	0	0	1	0	1	0	0	**4**	4	0	2	**2**	4
+30 mins.	0	0	0	0	0	1	**3**	4	1	0	1	2	0	**6**	1	**7**
+45 mins.	0	0	0	0	0	2	3	**5**	0	0	1	1	0	3	2	5
Total Volume	0	0	0	0	0	7	7	14	2	0	9	11	0	14	6	20
% App. Total	0	0	0		0	50	50		18.2	0	81.8		0	70	30	
PHF	.000	.000	.000	.000	.000	.583	.583	.700	.500	.000	.563	.688	.000	.583	.750	.714

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
04:15 PM	0	0	0	0	0	1	5	6	0	0	2	2	0	2	0	2	10
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
04:45 PM	0	0	0	0	0	0	1	1	3	0	0	3	0	2	0	2	6
Total	0	0	0	0	0	5	6	11	3	0	2	5	0	9	0	9	25
05:00 PM	0	0	0	0	0	1	0	1	1	0	1	2	0	1	0	1	4
05:15 PM	0	0	0	0	0	1	0	1	0	0	1	1	0	1	0	1	3
05:30 PM	0	0	0	0	0	1	1	2	0	0	1	1	0	0	2	2	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total	0	0	0	0	0	3	1	4	1	0	3	4	0	4	2	6	14
Grand Total	0	0	0	0	0	8	7	15	4	0	5	9	0	13	2	15	39
Apprch %	0	0	0		0	53.3	46.7		44.4	0	55.6		0	86.7	13.3		
Total %	0	0	0	0	0	20.5	17.9	38.5	10.3	0	12.8	23.1	0	33.3	5.1	38.5	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	**2**	0	**2**	4
04:45 PM	0	0	0	0	0	0	**1**	1	**3**	0	0	**3**	0	2	0	2	**6**
05:00 PM	0	0	0	0	0	1	0	1	1	0	**1**	2	0	1	0	1	4
05:15 PM	0	0	0	0	0	1	0	1	0	0	1	1	0	1	0	1	3
Total Volume	0	0	0	0	0	4	1	5	4	0	2	6	0	6	0	6	17
% App. Total	0	0	0		0	80	20		66.7	0	33.3		0	100	0		
PHF	.000	.000	.000	.000	.000	.500	.250	.625	.333	.000	.500	.500	.000	.750	.000	.750	.708

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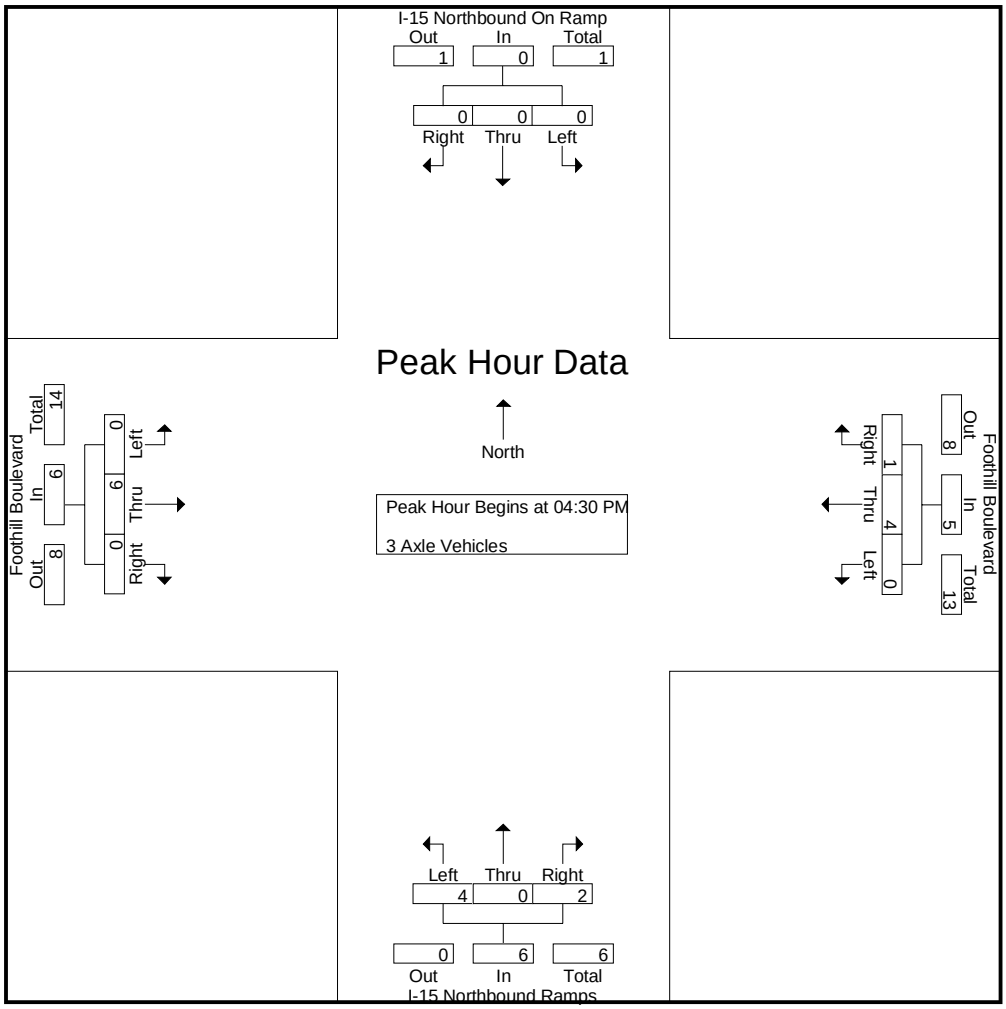
City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	**2**	0	**2**
+15 mins.	0	0	0	0	0	0	**1**	1	**3**	0	0	**3**	0	2	0	2
+30 mins.	0	0	0	0	0	1	0	1	1	0	**1**	2	0	1	0	1
+45 mins.	0	0	0	0	0	1	0	1	0	0	1	1	0	1	0	1
Total Volume	0	0	0	0	0	4	1	5	4	0	2	6	0	6	0	6
% App. Total	0	0	0		0	80	20		66.7	0	33.3		0	100	0	
PHF	.000	.000	.000	.000	.000	.500	.250	.625	.333	.000	.500	.500	.000	.750	.000	.750

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City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	8	1	9	0	0	3	3	0	3	6	9	21
04:15 PM	0	0	0	0	0	3	3	6	0	0	1	1	0	3	4	7	14
04:30 PM	0	0	0	0	0	4	4	8	1	0	3	4	0	2	4	6	18
04:45 PM	0	0	0	0	0	4	1	5	2	0	2	4	0	5	2	7	16
Total	0	0	0	0	0	19	9	28	3	0	9	12	0	13	16	29	69
05:00 PM	0	0	0	0	0	2	2	4	0	0	5	5	0	3	1	4	13
05:15 PM	0	0	0	0	0	2	1	3	0	0	0	0	0	7	2	9	12
05:30 PM	0	0	0	0	0	2	2	4	1	0	1	2	0	4	3	7	13
05:45 PM	0	0	0	0	0	4	4	8	2	0	2	4	0	0	7	7	19
Total	0	0	0	0	0	10	9	19	3	0	8	11	0	14	13	27	57
Grand Total	0	0	0	0	0	29	18	47	6	0	17	23	0	27	29	56	126
Apprch %	0	0	0		0	61.7	38.3		26.1	0	73.9		0	48.2	51.8		
Total %	0	0	0	0	0	23	14.3	37.3	4.8	0	13.5	18.3	0	21.4	23	44.4	

	I-15 Northbound On Ramp Southbound				Foothill Boulevard Westbound				I-15 Northbound Ramps Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**4**	**4**	**8**	1	0	3	4	0	2	**4**	6	**18**
04:45 PM	0	0	0	0	0	4	1	5	**2**	0	2	4	0	5	2	7	16
05:00 PM	0	0	0	0	0	2	2	4	0	0	**5**	**5**	0	3	1	4	13
05:15 PM	0	0	0	0	0	2	1	3	0	0	0	0	0	**7**	2	**9**	12
Total Volume	0	0	0	0	0	12	8	20	3	0	10	13	0	17	9	26	59
% App. Total	0	0	0		0	60	40		23.1	0	76.9		0	65.4	34.6		
PHF	.000	.000	.000	.000	.000	.750	.500	.625	.375	.000	.500	.650	.000	.607	.563	.722	.819

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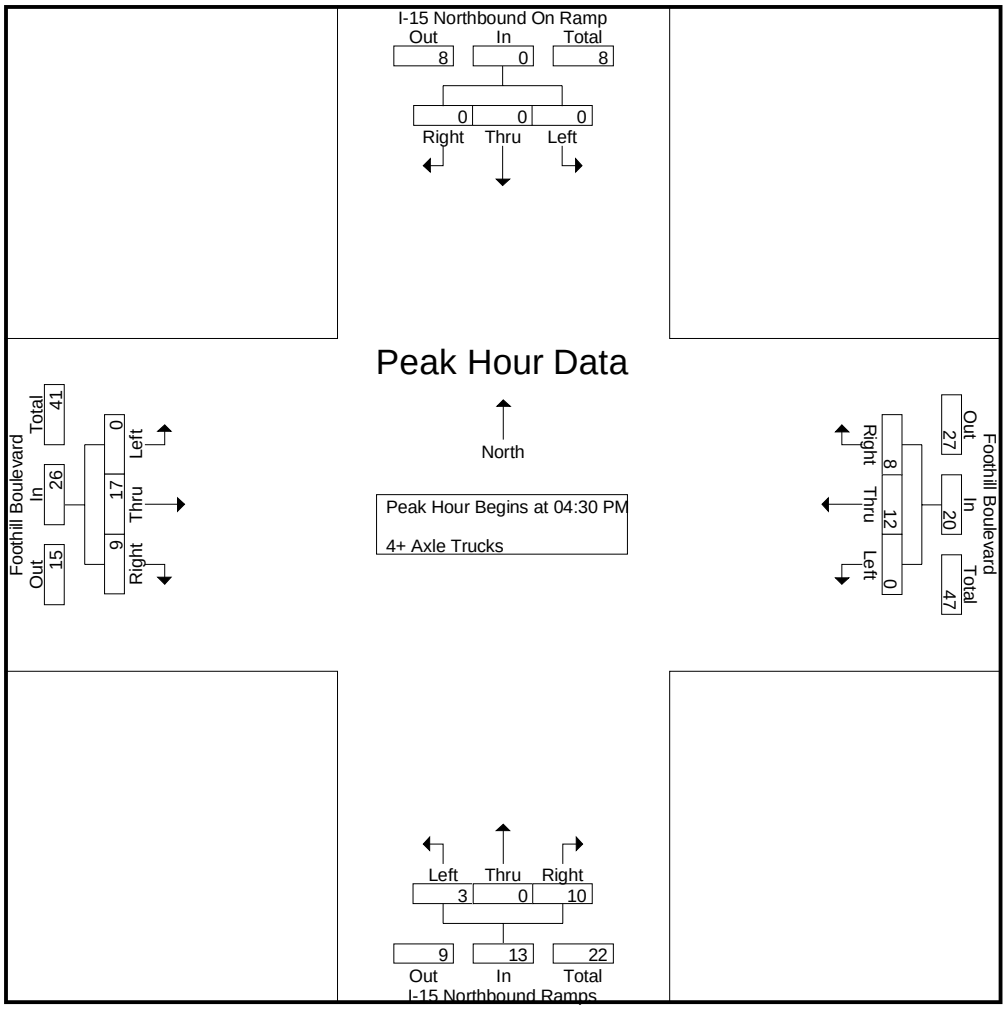
City of Fontana
N/S: I-15 Northbound Ramps
E/W: Foothill Boulevard
Weather: Clear

File Name : 10_FON_15N_Foothill PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**4**	**4**	**8**	1	0	3	4	0	2	**4**	6
+15 mins.	0	0	0	0	0	4	1	5	**2**	0	2	4	0	5	2	7
+30 mins.	0	0	0	0	0	2	2	4	0	0	**5**	**5**	0	3	1	4
+45 mins.	0	0	0	0	0	2	1	3	0	0	0	0	0	**7**	2	**9**
Total Volume	0	0	0	0	0	12	8	20	3	0	10	13	0	17	9	26
% App. Total	0	0	0		0	60	40		23.1	0	76.9		0	65.4	34.6	
PHF	.000	.000	.000	.000	.000	.750	.500	.625	.375	.000	.500	.650	.000	.607	.563	.722

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Foothill Blvd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-020
Date: 9/8/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	22	16	9	0	2	71	28	0	3	84	28	1	65	201	8	0	538
7:15 AM	28	22	8	0	15	71	31	0	14	60	48	0	46	189	15	0	547
7:30 AM	28	36	18	0	4	76	43	0	9	75	32	0	66	263	15	0	665
7:45 AM	38	54	19	0	4	76	55	0	15	74	37	2	83	302	23	0	782
8:00 AM	34	51	22	0	12	80	55	0	23	115	43	1	102	311	34	0	883
8:15 AM	24	60	11	0	11	104	63	0	35	110	38	0	68	301	37	0	862
8:30 AM	31	28	11	0	22	76	54	0	19	99	37	3	82	244	20	1	727
8:45 AM	35	25	20	0	18	71	51	0	27	99	42	3	44	207	8	0	650
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	240	292	118	0	88	625	380	0	145	716	305	10	556	2018	160	1	5654
APPROACH %'s :	36.92%	44.92%	18.15%	0.00%	8.05%	57.18%	34.77%	0.00%	12.33%	60.88%	25.94%	0.85%	20.33%	73.78%	5.85%	0.04%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	127	193	63	0	49	336	227	0	92	398	155	6	335	1158	114	1	3254
PEAK HR FACTOR :	0.836	0.804	0.716	0.000	0.557	0.808	0.901	0.000	0.657	0.865	0.901	0.500	0.821	0.931	0.770	0.250	0.921
	0.863				0.860				0.889				0.899				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	60	58	45	0	25	50	34	0	35	185	35	14	33	159	14	0	747
4:15 PM	41	68	43	0	11	43	41	0	42	186	47	20	20	162	9	0	733
4:30 PM	64	62	70	0	18	44	24	0	29	191	43	3	28	165	6	0	747
4:45 PM	47	81	50	0	13	54	36	0	43	206	40	13	25	193	11	0	812
5:00 PM	52	102	56	0	12	45	27	0	46	231	39	7	23	181	20	0	841
5:15 PM	66	78	37	0	17	52	52	0	50	245	33	11	25	158	9	0	833
5:30 PM	67	85	46	0	19	36	37	0	50	225	37	16	26	190	7	0	841
5:45 PM	67	78	48	0	18	28	37	0	31	250	37	14	22	153	11	0	794
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	464	612	395	0	133	352	288	0	326	1719	311	98	202	1361	87	0	6348
APPROACH %'s :	31.54%	41.60%	26.85%	0.00%	17.21%	45.54%	37.26%	0.00%	13.28%	70.05%	12.67%	3.99%	12.24%	82.48%	5.27%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	232	346	189	0	61	187	152	0	189	907	149	47	99	722	47	0	3327
PEAK HR FACTOR :	0.866	0.848	0.844	0.000	0.803	0.866	0.731	0.000	0.945	0.926	0.931	0.734	0.952	0.935	0.588	0.000	0.989
	0.913				0.826				0.953				0.948				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Foothill Blvd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-020
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	17	14	9	0	2	71	28	0	3	74	26	1	62	197	8	0	512
7:15 AM	21	18	8	0	13	71	30	0	13	55	41	0	46	180	15	0	511
7:30 AM	20	35	17	0	3	71	43	0	9	72	23	0	65	258	14	0	630
7:45 AM	32	53	18	0	4	74	55	0	15	65	32	2	82	295	23	0	750
8:00 AM	29	51	21	0	12	79	55	0	23	111	34	0	101	305	34	0	855
8:15 AM	21	59	9	0	11	102	62	0	34	100	27	0	68	292	36	0	821
8:30 AM	27	25	11	0	21	76	53	0	19	88	27	3	81	237	20	1	689
8:45 AM	30	25	18	0	18	70	50	0	27	87	38	3	42	202	8	0	618
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	197	280	111	0	84	614	376	0	143	652	248	9	547	1966	158	1	5386
APPROACH %'s :	33.50%	47.62%	18.88%	0.00%	7.82%	57.17%	35.01%	0.00%	13.59%	61.98%	23.57%	0.86%	20.47%	73.58%	5.91%	0.04%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	109	188	59	0	48	331	225	0	91	364	120	5	332	1129	113	1	3115
PEAK HR FACTOR :	0.852	0.797	0.702	0.000	0.571	0.811	0.907	0.000	0.669	0.820	0.882	0.417	0.822	0.925	0.785	0.250	0.911
	0.864				0.863				0.863				0.895				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	55	57	44	0	24	49	34	0	35	182	30	14	33	153	14	0	724
4:15 PM	37	66	43	0	11	40	40	0	42	176	39	20	19	155	9	0	697
4:30 PM	61	62	70	0	18	36	24	0	28	189	34	3	27	155	6	0	713
4:45 PM	42	80	50	0	12	46	36	0	43	201	36	13	23	187	11	0	780
5:00 PM	49	102	56	0	12	36	25	0	46	229	35	7	23	177	20	0	817
5:15 PM	63	78	37	0	17	49	52	0	50	237	27	11	24	153	9	0	807
5:30 PM	62	83	46	0	19	33	37	0	50	221	34	16	25	184	7	0	817
5:45 PM	66	77	47	0	18	27	37	0	31	245	31	14	21	149	11	0	774
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	435	605	393	0	131	316	285	0	325	1680	266	98	195	1313	87	0	6129
APPROACH %'s :	30.36%	42.22%	27.42%	0.00%	17.90%	43.17%	38.93%	0.00%	13.72%	70.92%	11.23%	4.14%	12.23%	82.32%	5.45%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	216	343	189	0	60	164	150	0	189	888	132	47	95	701	47	0	3221
PEAK HR FACTOR :	0.857	0.841	0.844	0.000	0.789	0.837	0.721	0.000	0.945	0.937	0.917	0.734	0.950	0.937	0.588	0.000	0.986
	0.903				0.792				0.966				0.954				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Foothill Blvd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-020
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	0	3	0	0	1	1	0	0	6
7:15 AM	1	2	0	0	1	0	0	0	1	2	4	0	0	2	0	0	13
7:30 AM	0	1	0	0	1	3	0	0	0	2	2	0	1	2	1	0	13
7:45 AM	1	1	1	0	0	1	0	0	0	3	1	0	0	1	0	0	9
8:00 AM	2	0	1	0	0	1	0	0	0	2	1	0	0	1	0	0	8
8:15 AM	0	0	1	0	0	1	0	0	0	3	3	0	0	2	0	0	10
8:30 AM	0	0	0	0	1	0	1	0	0	4	2	0	0	2	0	0	10
8:45 AM	0	0	1	0	0	1	0	0	0	7	3	0	1	4	0	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	4	4	0	3	7	1	0	1	26	16	0	3	15	1	0	86
APPROACH %'s :	38.46%	30.77%	30.77%	0.00%	27.27%	63.64%	9.09%	0.00%	2.33%	60.47%	37.21%	0.00%	15.79%	78.95%	5.26%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	3	1	3	0	1	3	1	0	0	12	7	0	0	6	0	0	37
PEAK HR FACTOR :	0.375	0.250	0.750	0.000	0.250	0.750	0.250	0.000	0.000	0.750	0.583	0.000	0.000	0.750	0.000	0.000	0.925
	0.583				0.625				0.792				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	1	0	1	0	0	0	0	1	1	0	0	3	0	0	8
4:15 PM	0	1	0	0	0	1	1	0	0	4	1	0	0	2	0	0	10
4:30 PM	0	0	0	0	0	4	0	0	1	0	2	0	0	5	0	0	12
4:45 PM	1	1	0	0	0	1	0	0	0	3	0	0	0	3	0	0	9
5:00 PM	0	0	0	0	0	1	0	0	0	2	2	0	0	1	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
5:30 PM	0	1	0	0	0	2	0	0	0	2	0	0	0	3	0	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	3	1	0	1	9	1	0	1	15	6	0	1	21	0	0	61
APPROACH %'s :	33.33%	50.00%	16.67%	0.00%	9.09%	81.82%	9.09%	0.00%	4.55%	68.18%	27.27%	0.00%	4.55%	95.45%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	2	0	0	0	4	0	0	0	8	2	0	0	10	0	0	27
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.667	0.250	0.000	0.000	0.833	0.000	0.000	0.750
	0.375				0.500				0.625				0.833				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Foothill Blvd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-020
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5
7:15 AM	1	2	0	0	1	0	1	0	0	1	0	0	0	1	0	0	7
7:30 AM	1	0	1	0	0	1	0	0	0	0	2	0	0	2	0	0	7
7:45 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	5
8:00 AM	1	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	5
8:15 AM	2	1	0	0	0	1	0	0	1	0	1	0	0	3	1	0	10
8:30 AM	1	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	5
8:45 AM	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	7	2	0	1	2	2	0	1	2	7	1	1	10	1	0	48
APPROACH %'s :	55.00%	35.00%	10.00%	0.00%	20.00%	40.00%	40.00%	0.00%	9.09%	18.18%	63.64%	9.09%	8.33%	83.33%	8.33%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	6	3	0	0	0	1	0	0	1	0	5	1	0	7	1	0	25
PEAK HR FACTOR :	0.750	0.375	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.625	0.250	0.000	0.583	0.250	0.000	0.625
	0.750				0.250				0.583				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	4
4:15 PM	2	0	0	0	0	2	0	0	0	2	1	0	1	0	0	0	8
4:30 PM	1	0	0	0	0	4	0	0	0	0	3	0	1	1	0	0	10
4:45 PM	1	0	0	0	1	7	0	0	0	1	1	0	2	0	0	0	13
5:00 PM	0	0	0	0	0	7	1	0	0	0	0	0	0	1	0	0	9
5:15 PM	2	0	0	0	0	3	0	0	0	1	2	0	0	0	0	0	8
5:30 PM	0	1	0	0	0	1	0	0	0	0	1	0	1	0	0	0	4
5:45 PM	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	2	0	0	1	26	1	0	0	6	8	0	5	3	0	0	60
APPROACH %'s :	80.00%	20.00%	0.00%	0.00%	3.57%	92.86%	3.57%	0.00%	0.00%	42.86%	57.14%	0.00%	62.50%	37.50%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	3	1	0	0	1	18	1	0	0	2	4	0	3	1	0	0	34
PEAK HR FACTOR :	0.375	0.250	0.000	0.000	0.250	0.643	0.250	0.000	0.000	0.500	0.500	0.000	0.375	0.250	0.000	0.000	0.654
	0.500				0.625				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Foothill Blvd
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-020
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	0	0	0	0	0	0	0	7	2	0	1	3	0	0	15
7:15 AM	5	0	0	0	0	0	0	0	0	2	3	0	0	6	0	0	16
7:30 AM	7	0	0	0	0	1	0	0	0	1	5	0	0	1	0	0	15
7:45 AM	3	0	0	0	0	1	0	0	0	6	3	0	1	4	0	0	18
8:00 AM	2	0	0	0	0	0	0	0	0	2	6	0	1	4	0	0	15
8:15 AM	1	0	1	0	0	0	1	0	0	7	7	0	0	4	0	0	21
8:30 AM	3	1	0	0	0	0	0	0	0	7	7	0	1	4	0	0	23
8:45 AM	4	0	0	0	0	0	0	0	0	4	1	0	1	1	0	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	1	1	0	0	2	1	0	0	36	34	0	5	27	0	0	134
APPROACH %'s :	93.10%	3.45%	3.45%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	51.43%	48.57%	0.00%	15.63%	84.38%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	9	1	1	0	0	1	1	0	0	22	23	0	3	16	0	0	77
PEAK HR FACTOR :	0.750	0.250	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.786	0.821	0.000	0.750	1.000	0.000	0.000	0.837
	0.688				0.500				0.804				0.950				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	0	0	0	0	0	0	0	0	1	4	0	0	3	0	0	11
4:15 PM	2	1	0	0	0	0	0	0	0	4	6	0	0	5	0	0	18
4:30 PM	2	0	0	0	0	0	0	0	0	2	4	0	0	4	0	0	12
4:45 PM	3	0	0	0	0	0	0	0	0	1	3	0	0	3	0	0	10
5:00 PM	3	0	0	0	0	1	1	0	0	0	2	0	0	2	0	0	9
5:15 PM	1	0	0	0	0	0	0	0	0	6	4	0	1	2	0	0	14
5:30 PM	5	0	0	0	0	0	0	0	0	2	2	0	0	3	0	0	12
5:45 PM	0	1	1	0	0	0	0	0	0	2	6	0	0	2	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	2	1	0	0	1	1	0	0	18	31	0	1	24	0	0	98
APPROACH %'s :	86.36%	9.09%	4.55%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	36.73%	63.27%	0.00%	4.00%	96.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	12	0	0	0	0	1	1	0	0	9	11	0	1	10	0	0	45
PEAK HR FACTOR :	0.600	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.375	0.688	0.000	0.250	0.833	0.000	0.000	0.804
	0.600				0.250				0.500				0.917				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-021
Date: 9/8/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	29	70	15	1	19	183	32	13	22	69	27	4	38	184	15	2	723
7:15 AM	46	79	14	5	27	156	36	9	27	76	38	2	69	276	16	3	879
7:30 AM	46	75	34	2	28	175	57	11	44	92	50	0	60	321	18	2	1015
7:45 AM	60	99	34	2	25	171	44	6	39	109	28	3	76	320	35	6	1057
8:00 AM	43	103	24	3	41	211	49	14	52	113	33	1	45	194	18	4	948
8:15 AM	46	90	30	1	42	143	47	8	36	88	32	4	39	141	25	7	779
8:30 AM	33	89	21	3	53	133	39	15	33	72	37	3	32	154	22	6	745
8:45 AM	31	80	21	1	28	135	33	20	34	108	24	3	38	164	21	5	746
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	334	685	193	18	263	1307	337	96	287	727	269	20	397	1754	170	35	6892
APPROACH %'s :	27.15%	55.69%	15.69%	1.46%	13.13%	65.25%	16.82%	4.79%	22.03%	55.79%	20.64%	1.53%	16.85%	74.45%	7.22%	1.49%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	195	356	106	12	121	713	186	40	162	390	149	6	250	1111	87	15	3899
PEAK HR FACTOR :	0.813	0.864	0.779	0.600	0.738	0.845	0.816	0.714	0.779	0.863	0.745	0.500	0.822	0.865	0.621	0.625	0.922
	0.858				0.841				0.888				0.837				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	71	222	59	6	45	138	38	19	50	196	21	1	27	116	42	3	1054
4:15 PM	49	176	49	4	54	113	46	12	66	234	29	2	28	158	36	6	1062
4:30 PM	69	193	50	6	78	152	52	14	52	188	17	3	25	134	24	3	1060
4:45 PM	52	171	55	5	37	134	36	11	66	220	30	2	24	143	17	7	1010
5:00 PM	65	216	38	4	47	91	33	16	45	196	29	1	35	149	31	8	1004
5:15 PM	51	206	50	6	44	100	34	14	44	205	29	2	21	142	35	7	990
5:30 PM	51	146	53	4	56	104	34	12	72	180	36	0	39	139	18	6	950
5:45 PM	59	160	54	2	42	106	35	23	57	200	41	1	26	132	15	7	960
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	467	1490	408	37	403	938	308	121	452	1619	232	12	225	1113	218	47	8090
APPROACH %'s :	19.44%	62.03%	16.99%	1.54%	22.77%	52.99%	17.40%	6.84%	19.52%	69.94%	10.02%	0.52%	14.04%	69.43%	13.60%	2.93%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	241	762	213	21	214	537	172	56	234	838	97	8	104	551	119	19	4186
PEAK HR FACTOR :	0.849	0.858	0.903	0.875	0.686	0.883	0.827	0.737	0.886	0.895	0.808	0.667	0.929	0.872	0.708	0.679	0.985
	0.864				0.827				0.889				0.870				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-021
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	25	63	14	1	18	174	30	12	19	62	25	3	37	180	14	2	679
7:15 AM	43	74	13	4	25	142	34	9	26	74	37	2	65	272	14	3	837
7:30 AM	45	67	32	2	28	165	52	11	43	82	50	0	55	316	16	2	966
7:45 AM	58	87	30	2	25	161	43	6	35	105	27	3	74	313	33	6	1008
8:00 AM	43	91	23	3	41	187	46	14	48	109	31	1	41	190	17	4	889
8:15 AM	42	75	28	1	41	127	44	7	35	79	32	4	39	133	23	7	717
8:30 AM	33	75	19	3	51	109	36	15	30	66	34	2	28	146	21	6	674
8:45 AM	28	63	13	1	28	125	32	18	30	105	23	3	35	153	18	5	680
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	317	595	172	17	257	1190	317	92	266	682	259	18	374	1703	156	35	6450
APPROACH %'s :	28.79%	54.04%	15.62%	1.54%	13.85%	64.12%	17.08%	4.96%	21.71%	55.67%	21.14%	1.47%	16.49%	75.09%	6.88%	1.54%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	189	319	98	11	119	655	175	40	152	370	145	6	235	1091	80	15	3700
PEAK HR FACTOR :	0.815	0.876	0.766	0.688	0.726	0.876	0.841	0.714	0.792	0.849	0.725	0.500	0.794	0.863	0.606	0.625	0.918
	0.871				0.859				0.890				0.834				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	68	208	55	6	44	114	35	19	48	187	20	1	25	112	41	3	986
4:15 PM	46	160	46	4	52	98	41	12	66	229	29	2	25	151	36	6	1003
4:30 PM	67	184	46	6	72	135	50	14	51	181	17	3	22	132	22	3	1005
4:45 PM	49	160	53	5	37	118	33	11	66	217	28	2	22	138	15	7	961
5:00 PM	65	202	36	4	45	85	32	16	43	193	28	1	33	146	31	8	968
5:15 PM	50	190	48	6	44	91	31	14	44	203	27	2	19	139	35	7	950
5:30 PM	50	136	51	4	56	99	33	12	69	176	35	0	32	138	18	6	915
5:45 PM	58	151	52	2	41	99	32	23	55	194	40	1	22	128	15	7	920
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	453	1391	387	37	391	839	287	121	442	1580	224	12	200	1084	213	47	7708
APPROACH %'s :	19.97%	61.33%	17.06%	1.63%	23.87%	51.22%	17.52%	7.39%	19.57%	69.97%	9.92%	0.53%	12.95%	70.21%	13.80%	3.04%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	230	712	200	21	205	465	159	56	231	814	94	8	94	533	114	19	3955
PEAK HR FACTOR :	0.846	0.856	0.909	0.875	0.712	0.861	0.795	0.737	0.875	0.889	0.810	0.667	0.940	0.882	0.695	0.679	0.984
	0.863				0.816				0.880				0.872				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-021
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	1	1	0	1	3	1	1	2	5	1	0	0	2	0	0	20
7:15 AM	2	2	1	1	0	3	0	0	0	2	1	0	0	1	1	0	14
7:30 AM	1	3	1	0	0	2	2	0	0	4	0	0	3	3	0	0	19
7:45 AM	1	4	1	0	0	4	0	0	3	3	1	0	1	2	1	0	21
8:00 AM	0	5	1	0	0	6	0	0	0	1	1	0	0	1	0	0	15
8:15 AM	2	3	1	0	0	5	3	1	0	5	0	0	0	4	1	0	25
8:30 AM	0	4	1	0	0	8	2	0	0	2	1	1	1	5	1	0	26
8:45 AM	0	8	4	0	0	4	1	1	2	2	1	0	1	6	1	0	31
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	30	11	1	1	35	9	3	7	24	6	1	6	24	5	0	171
APPROACH %'s :	16.00%	60.00%	22.00%	2.00%	2.08%	72.92%	18.75%	6.25%	18.42%	63.16%	15.79%	2.63%	17.14%	68.57%	14.29%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	14	4	1	0	15	2	0	3	10	3	0	4	7	2	0	69
PEAK HR FACTOR :	0.500	0.700	1.000	0.250	0.000	0.625	0.250	0.000	0.250	0.625	0.750	0.000	0.333	0.583	0.500	0.000	0.821
	0.958				0.708				0.571				0.542				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	5	1	0	1	3	0	0	0	5	0	0	0	3	1	0	19
4:15 PM	0	5	1	0	2	6	0	0	0	4	0	0	1	5	0	0	24
4:30 PM	1	2	0	0	2	2	0	0	0	3	0	0	1	2	2	0	15
4:45 PM	2	2	1	0	0	6	0	0	0	3	2	0	2	3	1	0	22
5:00 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	2	0	0	9
5:15 PM	0	4	0	0	0	1	1	0	0	1	2	0	0	3	0	0	12
5:30 PM	0	1	0	0	0	0	0	0	1	2	1	0	1	1	0	0	7
5:45 PM	1	2	0	0	0	2	1	0	1	2	0	0	1	3	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	25	3	0	6	22	2	0	2	20	5	0	6	22	4	0	121
APPROACH %'s :	12.50%	78.13%	9.38%	0.00%	20.00%	73.33%	6.67%	0.00%	7.41%	74.07%	18.52%	0.00%	18.75%	68.75%	12.50%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	3	14	3	0	5	17	0	0	0	15	2	0	4	13	4	0	80
PEAK HR FACTOR :	0.375	0.700	0.750	0.000	0.625	0.708	0.000	0.000	0.000	0.750	0.250	0.000	0.500	0.650	0.500	0.000	0.833
	0.833				0.688				0.850				0.875				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-021
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	2	0	0	0	1	0	1	1	2	0	0	12
7:15 AM	0	0	0	0	1	4	0	0	1	0	0	0	2	1	0	0	9
7:30 AM	0	1	0	0	0	3	2	0	0	0	0	0	1	1	0	0	8
7:45 AM	0	2	1	0	0	2	0	0	0	0	0	0	0	1	0	0	6
8:00 AM	0	2	0	0	0	5	0	0	0	1	0	0	2	0	0	0	10
8:15 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	1	0	0	1	4	1	0	1	1	1	0	2	0	0	0	12
8:45 AM	1	2	0	0	0	2	0	0	1	0	0	0	0	3	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	13	1	0	2	25	3	0	3	3	1	1	8	8	0	0	70
APPROACH %'s :	12.50%	81.25%	6.25%	0.00%	6.67%	83.33%	10.00%	0.00%	37.50%	37.50%	12.50%	12.50%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	5	1	0	1	14	2	0	1	1	0	0	5	3	0	0	33
PEAK HR FACTOR :	0.000	0.625	0.250	0.000	0.250	0.700	0.250	0.000	0.250	0.250	0.000	0.000	0.625	0.750	0.000	0.000	0.825
	0.500				0.850				0.500				0.667				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	2	0	0	8	2	0	1	2	0	0	1	0	0	0	20
4:15 PM	2	4	2	0	0	4	0	0	0	0	0	0	1	1	0	0	14
4:30 PM	1	3	1	0	0	4	0	0	0	2	0	0	0	0	0	0	11
4:45 PM	1	2	0	0	0	6	1	0	0	0	0	0	0	0	0	0	10
5:00 PM	0	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	7
5:15 PM	1	4	1	0	0	6	1	0	0	0	0	0	1	0	0	0	14
5:30 PM	1	2	0	0	0	2	0	0	1	1	0	0	5	0	0	0	12
5:45 PM	0	0	1	0	0	1	1	0	0	1	1	0	1	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	22	9	0	1	32	5	0	2	6	1	0	9	1	0	0	94
APPROACH %'s :	16.22%	59.46%	24.32%	0.00%	2.63%	84.21%	13.16%	0.00%	22.22%	66.67%	11.11%	0.00%	90.00%	10.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	4	13	5	0	0	22	3	0	1	4	0	0	2	1	0	0	55
PEAK HR FACTOR :	0.500	0.813	0.625	0.000	0.000	0.688	0.375	0.000	0.250	0.500	0.000	0.000	0.500	0.250	0.000	0.000	0.688
	0.688				0.625				0.417				0.375				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-021
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	2	0	0	0	4	1	0	1	1	1	0	0	0	1	0	12
7:15 AM	1	3	0	0	1	7	2	0	0	0	0	0	2	2	1	0	19
7:30 AM	0	4	1	0	0	5	1	0	1	6	0	0	1	1	2	0	22
7:45 AM	1	6	2	0	0	4	1	0	1	1	0	0	1	4	1	0	22
8:00 AM	0	5	0	0	0	13	3	0	4	2	1	0	2	3	1	0	34
8:15 AM	2	11	1	0	1	8	0	0	1	4	0	0	0	4	1	0	33
8:30 AM	0	9	1	0	1	12	0	0	2	3	1	0	1	3	0	0	33
8:45 AM	2	7	4	0	0	4	0	1	1	1	0	0	2	2	2	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	47	9	0	3	57	8	1	11	18	3	0	9	19	9	0	201
APPROACH %'s :	11.11%	74.60%	14.29%	0.00%	4.35%	82.61%	11.59%	1.45%	34.38%	56.25%	9.38%	0.00%	24.32%	51.35%	24.32%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	18	3	0	1	29	7	0	6	9	1	0	6	10	5	0	97
PEAK HR FACTOR :	0.500	0.750	0.375	0.000	0.250	0.558	0.583	0.000	0.375	0.375	0.250	0.000	0.750	0.625	0.625	0.000	0.713
	0.639				0.578				0.571				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND								
	1	3	1	0	1	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	5	1	0	0	13	1	0	1	2	1	0	1	1	0	0	29
4:15 PM	1	7	0	0	0	5	5	0	0	1	0	0	1	1	0	0	21
4:30 PM	0	4	3	0	4	11	2	0	1	2	0	0	2	0	0	0	29
4:45 PM	0	7	1	0	0	4	2	0	0	0	0	0	0	2	1	0	17
5:00 PM	0	7	0	0	0	3	1	0	2	3	1	0	2	1	0	0	20
5:15 PM	0	8	1	0	0	2	1	0	0	1	0	0	1	0	0	0	14
5:30 PM	0	7	2	0	0	3	1	0	1	1	0	0	1	0	0	0	16
5:45 PM	0	7	1	0	1	4	1	0	1	3	0	0	2	1	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	52	9	0	5	45	14	0	6	13	2	0	10	6	1	0	167
APPROACH %'s :	6.15%	80.00%	13.85%	0.00%	7.81%	70.31%	21.88%	0.00%	28.57%	61.90%	9.52%	0.00%	58.82%	35.29%	5.88%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	4	23	5	0	4	33	10	0	2	5	1	0	4	4	1	0	96
PEAK HR FACTOR :	0.333	0.821	0.417	0.000	0.250	0.635	0.500	0.000	0.500	0.625	0.250	0.000	0.500	0.500	0.250	0.000	0.828
	0.889				0.691				0.500				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Foothill Blvd
City: Fontana
Control: 1-Way Stop (NB)

Project ID: 21-030070-022
Date: 9/8/2021

Data - Total

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	16	0	0	0	0	0	0	88	10	0	42	236	0	0	394
7:15 AM	7	0	17	0	0	0	0	0	0	120	7	0	43	338	0	0	532
7:30 AM	5	0	26	0	0	0	0	0	0	147	10	0	41	387	0	0	616
7:45 AM	5	0	33	0	0	0	0	0	0	174	11	0	57	461	0	0	741
8:00 AM	3	0	20	0	0	0	0	0	0	153	5	0	54	314	0	0	549
8:15 AM	6	0	27	0	0	0	0	0	0	138	9	0	40	222	0	0	442
8:30 AM	7	0	23	0	0	0	0	0	0	123	9	0	26	247	0	0	435
8:45 AM	9	0	22	0	0	0	0	0	0	158	13	0	15	205	0	0	422
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	44	0	184	0	0	0	0	0	0	1101	74	0	318	2410	0	0	4131
APPROACH %'s :	19.30%	0.00%	80.70%	0.00%					0.00%	93.70%	6.30%	0.00%	11.66%	88.34%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	20	0	96	0	0	0	0	0	0	594	33	0	195	1500	0	0	2438
PEAK HR FACTOR :	0.714	0.000	0.727	0.000	0.000	0.000	0.000	0.000	0.000	0.853	0.750	0.000	0.855	0.813	0.000	0.000	0.823
	0.763								0.847				0.818				

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	0	25	0	0	0	0	0	0	300	11	0	25	189	0	0	566
4:15 PM	14	0	42	0	0	0	0	0	0	328	18	0	31	192	0	0	625
4:30 PM	16	0	30	0	0	0	0	0	0	305	13	0	25	189	0	0	578
4:45 PM	12	0	21	0	0	0	0	0	0	360	10	0	21	171	0	0	595
5:00 PM	6	0	39	0	0	0	0	0	0	313	9	0	21	170	0	0	558
5:15 PM	10	0	33	0	0	0	0	0	0	279	12	0	25	173	0	1	533
5:30 PM	7	0	29	0	0	0	0	0	0	303	17	0	34	183	0	0	573
5:45 PM	4	0	38	0	0	0	0	0	0	281	8	0	35	184	0	0	550
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	85	0	257	0	0	0	0	0	0	2469	98	0	217	1451	0	1	4578
APPROACH %'s :	24.85%	0.00%	75.15%	0.00%					0.00%	96.18%	3.82%	0.00%	13.00%	86.94%	0.00%	0.06%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	58	0	118	0	0	0	0	0	0	1293	52	0	102	741	0	0	2364
PEAK HR FACTOR :	0.906	0.000	0.702	0.000	0.000	0.000	0.000	0.000	0.000	0.898	0.722	0.000	0.823	0.965	0.000	0.000	0.946
	0.786								0.909				0.945				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Foothill Blvd
City: Fontana
Control: 1-Way Stop (NB)

Project ID: 21-030070-022
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	13	0	0	0	0	0	0	81	9	0	41	231	0	0	377
7:15 AM	7	0	15	0	0	0	0	0	0	116	7	0	41	336	0	0	522
7:30 AM	4	0	24	0	0	0	0	0	0	139	10	0	41	380	0	0	598
7:45 AM	5	0	31	0	0	0	0	0	0	164	10	0	56	457	0	0	723
8:00 AM	3	0	19	0	0	0	0	0	0	148	4	0	52	305	0	0	531
8:15 AM	6	0	27	0	0	0	0	0	0	132	9	0	39	212	0	0	425
8:30 AM	6	0	22	0	0	0	0	0	0	117	7	0	26	240	0	0	418
8:45 AM	6	0	21	0	0	0	0	0	0	143	13	0	15	193	0	0	391
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	39	0	172	0	0	0	0	0	0	1040	69	0	311	2354	0	0	3985
APPROACH %'s :	18.48%	0.00%	81.52%	0.00%					0.00%	93.78%	6.22%	0.00%	11.67%	88.33%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	19	0	89	0	0	0	0	0	0	567	31	0	190	1478	0	0	2374
PEAK HR FACTOR :	0.679	0.000	0.718	0.000	0.000	0.000	0.000	0.000	0.000	0.864	0.775	0.000	0.848	0.809	0.000	0.000	0.821
	0.750								0.859				0.813				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	0	25	0	0	0	0	0	0	293	11	0	25	185	0	0	555
4:15 PM	14	0	42	0	0	0	0	0	0	321	18	0	30	184	0	0	609
4:30 PM	15	0	30	0	0	0	0	0	0	291	10	0	23	184	0	0	553
4:45 PM	12	0	21	0	0	0	0	0	0	350	10	0	21	166	0	0	580
5:00 PM	6	0	39	0	0	0	0	0	0	309	9	0	21	165	0	0	549
5:15 PM	10	0	33	0	0	0	0	0	0	276	12	0	24	168	0	1	524
5:30 PM	7	0	27	0	0	0	0	0	0	301	17	0	31	178	0	0	561
5:45 PM	4	0	37	0	0	0	0	0	0	273	8	0	35	178	0	0	535
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	84	0	254	0	0	0	0	0	0	2414	95	0	210	1408	0	1	4466
APPROACH %'s :	24.85%	0.00%	75.15%	0.00%					0.00%	96.21%	3.79%	0.00%	12.97%	86.97%	0.00%	0.06%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	57	0	118	0	0	0	0	0	0	1255	49	0	99	719	0	0	2297
PEAK HR FACTOR :	0.891	0.000	0.702	0.000	0.000	0.000	0.000	0.000	0.000	0.896	0.681	0.000	0.825	0.972	0.000	0.000	0.943
	0.781								0.906				0.956				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Foothill Blvd
City: Fontana
Control: 1-Way Stop (NB)

Project ID: 21-030070-022
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	5	1	0	0	3	0	0	10
7:15 AM	0	0	2	0	0	0	0	0	0	3	0	0	2	1	0	0	8
7:30 AM	1	0	1	0	0	0	0	0	0	2	0	0	0	4	0	0	8
7:45 AM	0	0	2	0	0	0	0	0	0	7	0	0	1	4	0	0	14
8:00 AM	0	0	0	0	0	0	0	0	0	5	1	0	2	1	0	0	9
8:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	0	11
8:30 AM	1	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	6
8:45 AM	2	0	1	0	0	0	0	0	0	8	0	0	0	7	0	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	7	0	0	0	0	0	0	37	2	0	5	29	0	0	84
APPROACH %'s :	36.36%	0.00%	63.64%	0.00%					0.00%	94.87%	5.13%	0.00%	14.71%	85.29%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	0	5	0	0	0	0	0	0	17	1	0	5	10	0	0	39
PEAK HR FACTOR :	0.250	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.607	0.250	0.000	0.625	0.625	0.000	0.000	0.696
	0.750								0.643				0.750				

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	1	5	0	0	10
4:30 PM	0	0	0	0	0	0	0	0	0	10	3	0	2	5	0	0	20
4:45 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	2	0	0	9
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	4	0	0	6
5:30 PM	0	0	2	0	0	0	0	0	0	1	0	0	3	1	0	0	7
5:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	2	0	0	0	0	0	0	31	3	0	7	24	0	0	67
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	91.18%	8.82%	0.00%	22.58%	77.42%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	24	3	0	3	14	0	0	44
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	0.250	0.000	0.375	0.700	0.000	0.000	0.550
									0.519				0.607				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Foothill Blvd
City: Fontana
Control: 1-Way Stop (NB)

Project ID: 21-030070-022
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	2	0	0	0	0	0	0	10	1	0	2	6	0	0	21
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	90.91%	9.09%	0.00%	25.00%	75.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	2	0	0	0	3	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.500
	0.250								0.500				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	11	0	0	0	11	0	0	22
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	7	0	0	0	4	0	0	11
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.500	0.000	0.000	0.688
									0.583				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Foothill Blvd
City: Fontana
Control: 1-Way Stop (NB)

Project ID: 21-030070-022
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Beach Ave				Beach Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	1	0	0	0	0	0	0	5	0	0	0	3	0	0	9
7:45 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
8:30 AM	0	0	1	0	0	0	0	0	0	2	1	0	0	4	0	0	8
8:45 AM	1	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	3	0	0	0	0	0	0	14	2	0	0	21	0	0	41
APPROACH %'s :	25.00%	0.00%	75.00%	0.00%					0.00%	87.50%	12.50%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	8	1	0	0	9	0	0	19
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.400	0.250	0.000	0.000	0.375	0.000	0.000	0.528
	0.250				0.450								0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
4:30 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	0	0	0	0	13	0	0	0	8	0	0	23
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	7	0	0	0	4	0	0	12
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.500	0.000	0.000	0.600
	0.250								0.583				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-023
Date: 9/8/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	23	78	13	0	19	126	22	0	18	59	17	4	42	182	14	5	622
7:15 AM	33	88	15	0	20	164	33	0	22	74	21	1	35	213	15	3	737
7:30 AM	34	132	14	0	31	153	40	0	25	93	35	1	48	295	27	7	935
7:45 AM	42	121	21	0	23	200	44	0	37	116	24	4	39	210	11	11	903
8:00 AM	32	113	9	0	32	163	41	0	27	95	36	7	49	149	21	12	786
8:15 AM	33	127	27	0	41	167	28	0	35	109	18	6	44	126	18	16	795
8:30 AM	20	102	18	0	41	133	28	0	23	90	13	4	41	158	20	19	710
8:45 AM	28	78	23	0	34	115	26	0	35	116	24	4	42	119	20	11	675
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	245	839	140	0	241	1221	262	0	222	752	188	31	340	1452	146	84	6163
APPROACH %'s :	20.02%	68.55%	11.44%	0.00%	13.98%	70.82%	15.20%	0.00%	18.61%	63.03%	15.76%	2.60%	16.82%	71.81%	7.22%	4.15%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	141	493	71	0	127	683	153	0	124	413	113	18	180	780	77	46	3419
PEAK HR FACTOR :	0.839	0.934	0.657	0.000	0.774	0.854	0.869	0.000	0.838	0.890	0.785	0.643	0.918	0.661	0.713	0.719	0.914
	0.943				0.902				0.923				0.718				

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	28	163	26	0	24	117	24	0	59	196	54	2	39	132	30	21	915
4:15 PM	31	161	23	0	34	121	14	0	58	204	41	4	49	146	32	20	938
4:30 PM	46	168	25	0	31	131	26	0	53	195	48	4	60	147	30	14	978
4:45 PM	30	162	21	0	30	138	14	0	61	232	40	5	52	112	30	21	948
5:00 PM	29	161	16	0	35	135	11	0	69	195	45	1	48	140	26	20	931
5:15 PM	37	173	26	0	32	117	15	0	55	184	37	5	42	126	22	21	892
5:30 PM	34	178	29	0	20	120	27	0	66	185	38	1	39	128	18	23	906
5:45 PM	32	155	25	0	31	135	13	0	47	191	33	5	46	125	33	25	896
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	267	1321	191	0	237	1014	144	0	468	1582	336	27	375	1056	221	165	7404
APPROACH %'s :	15.01%	74.26%	10.74%	0.00%	16.99%	72.69%	10.32%	0.00%	19.39%	65.56%	13.92%	1.12%	20.64%	58.12%	12.16%	9.08%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	136	652	85	0	130	525	65	0	241	826	174	14	209	545	118	75	3795
PEAK HR FACTOR :	0.739	0.970	0.850	0.000	0.929	0.951	0.625	0.000	0.873	0.890	0.906	0.700	0.871	0.927	0.922	0.893	0.970
	0.913				0.957				0.928				0.943				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-023
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	22	70	10	0	18	118	21	0	18	53	15	4	39	180	13	5	586
7:15 AM	32	80	13	0	20	158	31	0	20	73	21	1	35	209	15	3	711
7:30 AM	33	127	13	0	29	148	37	0	25	88	35	1	45	295	27	7	910
7:45 AM	41	119	20	0	22	189	44	0	33	112	23	4	38	204	10	11	870
8:00 AM	32	107	9	0	30	156	39	0	26	89	36	7	49	144	20	12	756
8:15 AM	32	121	21	0	41	159	28	0	33	102	18	6	42	121	18	16	758
8:30 AM	19	95	17	0	40	124	27	0	23	89	13	4	41	152	18	19	681
8:45 AM	28	73	21	0	34	108	26	0	34	110	21	4	42	113	20	11	645
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	239	792	124	0	234	1160	253	0	212	716	182	31	331	1418	141	84	5917
APPROACH %'s :	20.69%	68.57%	10.74%	0.00%	14.21%	70.43%	15.36%	0.00%	18.58%	62.75%	15.95%	2.72%	16.77%	71.83%	7.14%	4.26%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	138	474	63	0	122	652	148	0	117	391	112	18	174	764	75	46	3294
PEAK HR FACTOR :	0.841	0.933	0.750	0.000	0.744	0.862	0.841	0.000	0.886	0.873	0.778	0.643	0.888	0.647	0.694	0.719	0.905
	0.938				0.904				0.927				0.708				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	26	157	24	0	24	113	22	0	58	194	53	2	38	130	30	21	892
4:15 PM	30	155	23	0	34	112	12	0	57	202	41	4	47	143	32	20	912
4:30 PM	45	164	25	0	30	127	26	0	53	190	46	4	59	146	29	14	958
4:45 PM	29	157	20	0	30	133	12	0	61	229	39	5	51	111	30	21	928
5:00 PM	29	156	15	0	35	131	11	0	69	191	45	1	48	133	26	20	910
5:15 PM	37	172	26	0	31	114	15	0	55	182	37	5	42	124	22	21	883
5:30 PM	34	176	29	0	20	119	23	0	65	182	38	1	39	124	18	23	891
5:45 PM	32	153	25	0	31	132	12	0	47	185	33	5	45	122	33	25	880
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	262	1290	187	0	235	981	133	0	465	1555	332	27	369	1033	220	165	7254
APPROACH %'s :	15.07%	74.18%	10.75%	0.00%	17.42%	72.72%	9.86%	0.00%	19.55%	65.36%	13.96%	1.13%	20.65%	57.81%	12.31%	9.23%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	133	632	83	0	129	503	61	0	240	812	171	14	205	533	117	75	3708
PEAK HR FACTOR :	0.739	0.963	0.830	0.000	0.921	0.945	0.587	0.000	0.870	0.886	0.929	0.700	0.869	0.913	0.914	0.893	0.968
	0.906				0.947				0.926				0.938				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-023
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	2	0	0	0	4	1	0	0	4	0	0	2	2	1	0	17
7:15 AM	1	2	1	0	0	3	1	0	2	1	0	0	0	2	0	0	13
7:30 AM	1	3	1	0	1	1	0	0	0	2	0	0	2	0	0	0	11
7:45 AM	1	2	0	0	1	5	0	0	2	4	1	0	0	5	1	0	22
8:00 AM	0	2	0	0	1	1	0	0	1	6	0	0	0	2	1	0	14
8:15 AM	1	3	3	0	0	3	0	0	2	6	0	0	2	1	0	0	21
8:30 AM	1	1	1	0	1	1	1	0	0	0	0	0	0	2	0	0	8
8:45 AM	0	1	1	0	0	2	0	0	1	1	0	0	0	4	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	16	7	0	4	20	3	0	8	24	1	0	6	18	3	0	116
APPROACH %'s :	20.69%	55.17%	24.14%	0.00%	14.81%	74.07%	11.11%	0.00%	24.24%	72.73%	3.03%	0.00%	22.22%	66.67%	11.11%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	10	4	0	3	10	0	0	5	18	1	0	4	8	2	0	68
PEAK HR FACTOR :	0.750	0.833	0.333	0.000	0.750	0.500	0.000	0.000	0.625	0.750	0.250	0.000	0.500	0.400	0.500	0.000	0.773
	0.607				0.542				0.750				0.583				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	2	0	0	2	1	0	0	1	0	0	1	1	0	0	12
4:15 PM	1	3	0	0	0	4	0	0	1	1	0	0	1	3	0	0	14
4:30 PM	1	2	0	0	1	1	0	0	0	3	1	0	0	1	1	0	11
4:45 PM	0	2	1	0	0	1	1	0	0	3	1	0	1	1	0	0	11
5:00 PM	0	1	0	0	0	1	0	0	0	2	0	0	0	6	0	0	10
5:15 PM	0	0	0	0	1	2	0	0	0	1	0	0	0	1	0	0	5
5:30 PM	0	2	0	0	0	1	0	0	0	2	0	0	0	2	0	0	7
5:45 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	14	3	0	2	12	2	0	1	15	2	0	3	17	1	0	75
APPROACH %'s :	15.00%	70.00%	15.00%	0.00%	12.50%	75.00%	12.50%	0.00%	5.56%	83.33%	11.11%	0.00%	14.29%	80.95%	4.76%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	8	1	0	1	7	1	0	1	9	2	0	2	11	1	0	46
PEAK HR FACTOR :	0.500	0.667	0.250	0.000	0.250	0.438	0.250	0.000	0.250	0.750	0.500	0.000	0.500	0.458	0.250	0.000	0.821
	0.688				0.563				0.750				0.583				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-023
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	1	0	0	1	0	0	0	1	0	0	0	0	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	1	0	0	1	3	0	0	0	1	0	0	0	0	0	0	6
7:45 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
8:15 AM	0	0	2	0	0	1	0	0	0	1	0	0	0	2	0	0	6
8:30 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	1	1	0	8
8:45 AM	0	2	1	0	0	1	0	0	0	3	2	0	0	1	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	10	5	0	1	11	1	0	0	6	2	0	0	6	1	0	43
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	7.69%	84.62%	7.69%	0.00%	0.00%	75.00%	25.00%	0.00%	0.00%	85.71%	14.29%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	3	0	1	6	1	0	0	2	0	0	0	3	0	0	17
PEAK HR FACTOR :	0.000	0.250	0.375	0.000	0.250	0.500	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.708
	0.500				0.500				0.500				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	2	1	0	1	0	1	0	0	1	0	0	8
4:15 PM	0	2	0	0	0	3	1	0	0	1	0	0	1	0	0	0	8
4:30 PM	0	1	0	0	0	1	0	0	0	2	0	0	1	0	0	0	5
4:45 PM	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	0	2	1	0	0	2	0	0	0	1	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	0	3	0	0	1	0	0	0	2	0	0	6
5:45 PM	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	10	1	0	0	10	6	0	1	7	1	0	2	4	0	0	43
APPROACH %'s :	8.33%	83.33%	8.33%	0.00%	0.00%	62.50%	37.50%	0.00%	11.11%	77.78%	11.11%	0.00%	33.33%	66.67%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	7	1	0	0	8	1	0	0	4	0	0	2	0	0	0	24
PEAK HR FACTOR :	0.250	0.875	0.250	0.000	0.000	0.667	0.250	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.750
	0.750				0.563				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-023
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	2	0	1	3	0	0	0	1	2	0	1	0	0	0	12
7:15 AM	0	6	1	0	0	3	1	0	0	0	0	0	0	1	0	0	12
7:30 AM	0	1	0	0	0	1	3	0	0	2	0	0	1	0	0	0	8
7:45 AM	0	0	0	0	0	4	0	0	2	0	0	0	1	1	0	0	8
8:00 AM	0	4	0	0	1	6	1	0	0	0	0	0	0	2	0	0	14
8:15 AM	0	3	1	0	0	4	0	0	0	0	0	0	0	2	0	0	10
8:30 AM	0	3	0	0	0	5	0	0	0	1	0	0	0	3	1	0	13
8:45 AM	0	2	0	0	0	4	0	0	0	2	1	0	0	1	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	21	4	0	2	30	5	0	2	6	3	0	3	10	1	0	87
APPROACH %'s :	0.00%	84.00%	16.00%	0.00%	5.41%	81.08%	13.51%	0.00%	18.18%	54.55%	27.27%	0.00%	21.43%	71.43%	7.14%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	8	1	0	1	15	4	0	2	2	0	0	2	5	0	0	40
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.250	0.625	0.333	0.000	0.250	0.250	0.000	0.000	0.500	0.625	0.000	0.000	0.714
	0.563				0.625				0.500				0.875				

NS/EW Streets:	Citrus Ave				Citrus Ave				Foothill Blvd				Foothill Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
4:15 PM	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	1	0	0	0	2	0	0	0	0	1	0	0	0	0	0	4
4:45 PM	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	4
5:00 PM	0	2	0	0	0	1	0	0	0	1	0	0	0	1	0	0	5
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	3	0	0	0	3	0	0	1	1	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	7	0	0	0	11	3	0	1	5	1	0	1	2	0	0	32
APPROACH %'s :	12.50%	87.50%	0.00%	0.00%	0.00%	78.57%	21.43%	0.00%	14.29%	71.43%	14.29%	0.00%	33.33%	66.67%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	5	0	0	0	7	2	0	0	1	1	0	0	1	0	0	17
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.000	0.875	0.500	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.850
	0.625				0.750				0.500				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-024
Date: 9/8/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	67	7	0	18	133	30	0	12	54	14	1	12	134	13	1	507
7:15 AM	16	61	9	0	34	144	40	0	16	72	20	2	19	194	20	4	651
7:30 AM	23	93	13	0	23	165	45	0	21	77	21	1	25	176	37	8	728
7:45 AM	22	127	18	0	65	202	31	0	31	93	18	1	31	195	29	3	866
8:00 AM	17	87	19	0	50	241	28	0	39	82	20	2	31	131	37	5	789
8:15 AM	17	90	13	0	38	175	28	0	29	110	31	2	25	125	27	8	718
8:30 AM	21	106	27	0	33	180	33	0	26	81	26	2	31	142	30	15	753
8:45 AM	23	80	18	0	47	145	21	0	20	77	26	1	41	110	26	15	650
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	150	711	124	0	308	1385	256	0	194	646	176	12	215	1207	219	59	5662
APPROACH %'s :	15.23%	72.18%	12.59%	0.00%	15.80%	71.06%	13.13%	0.00%	18.87%	62.84%	17.12%	1.17%	12.65%	71.00%	12.88%	3.47%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	77	410	77	0	186	798	120	0	125	366	95	7	118	593	123	31	3126
PEAK HR FACTOR :	0.875	0.807	0.713	0.000	0.715	0.828	0.909	0.000	0.801	0.832	0.766	0.875	0.952	0.760	0.831	0.517	0.902
	0.844				0.865				0.862				0.838				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	35	165	37	1	34	145	23	0	37	156	31	2	29	129	56	16	896
4:15 PM	18	201	38	0	44	135	26	0	58	153	30	5	32	114	36	12	902
4:30 PM	20	176	37	0	29	122	31	0	43	175	39	3	35	150	47	15	922
4:45 PM	34	182	27	0	36	132	27	0	43	179	31	3	44	109	31	21	899
5:00 PM	31	232	30	0	36	95	32	0	39	176	32	3	28	124	46	9	913
5:15 PM	31	178	25	0	31	74	25	0	45	164	38	0	31	110	55	18	825
5:30 PM	42	195	25	0	57	89	22	0	49	136	16	2	32	120	37	11	833
5:45 PM	28	171	38	0	44	107	29	0	43	162	32	1	43	129	46	10	883
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	239	1500	257	1	311	899	215	0	357	1301	249	19	274	985	354	112	7073
APPROACH %'s :	11.97%	75.11%	12.87%	0.05%	21.82%	63.09%	15.09%	0.00%	18.54%	67.55%	12.93%	0.99%	15.88%	57.10%	20.52%	6.49%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	103	791	132	0	145	484	116	0	183	683	132	14	139	497	160	57	3636
PEAK HR FACTOR :	0.757	0.852	0.868	0.000	0.824	0.896	0.906	0.000	0.789	0.954	0.846	0.700	0.790	0.828	0.851	0.679	0.986
	0.875				0.909				0.973				0.863				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-024
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	62	6	0	18	133	30	0	11	49	13	1	11	133	12	1	490
7:15 AM	16	58	8	0	34	142	38	0	15	69	20	2	18	193	18	4	635
7:30 AM	23	90	13	0	23	163	44	0	19	76	21	1	23	172	35	8	711
7:45 AM	19	118	17	0	63	195	29	0	28	90	16	1	29	191	28	3	827
8:00 AM	17	82	18	0	49	239	28	0	36	77	19	2	31	130	37	5	770
8:15 AM	17	89	12	0	36	171	28	0	28	106	29	2	24	118	27	8	695
8:30 AM	21	103	26	0	32	178	32	0	26	78	25	2	30	140	29	15	737
8:45 AM	22	78	17	0	44	143	18	0	20	71	25	1	38	109	24	15	625
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	145	680	117	0	299	1364	247	0	183	616	168	12	204	1186	210	59	5490
APPROACH %'s :	15.39%	72.19%	12.42%	0.00%	15.65%	71.41%	12.93%	0.00%	18.69%	62.92%	17.16%	1.23%	12.30%	71.49%	12.66%	3.56%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	74	392	73	0	180	783	117	0	118	351	89	7	114	579	121	31	3029
PEAK HR FACTOR :	0.881	0.831	0.702	0.000	0.714	0.819	0.914	0.000	0.819	0.828	0.767	0.875	0.919	0.758	0.818	0.517	0.916
	0.875				0.854				0.856				0.842				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	35	162	36	1	33	144	22	0	37	156	31	2	28	126	51	16	880
4:15 PM	18	197	37	0	41	135	25	0	57	151	28	5	31	111	35	12	883
4:30 PM	20	175	36	0	28	122	31	0	43	173	38	3	33	150	47	15	914
4:45 PM	34	178	25	0	35	128	27	0	42	178	31	3	44	107	31	21	884
5:00 PM	31	230	29	0	35	95	30	0	38	174	32	3	26	122	46	9	900
5:15 PM	31	175	24	0	31	74	24	0	45	161	38	0	30	109	55	18	815
5:30 PM	42	193	24	0	56	87	21	0	48	135	16	2	30	118	37	11	820
5:45 PM	28	169	38	0	44	106	28	0	43	161	32	1	41	127	46	10	874
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	239	1479	249	1	303	891	208	0	353	1289	246	19	263	970	348	112	6970
APPROACH %'s :	12.14%	75.15%	12.65%	0.05%	21.61%	63.55%	14.84%	0.00%	18.51%	67.59%	12.90%	1.00%	15.53%	57.29%	20.56%	6.62%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	103	780	127	0	139	480	113	0	180	676	129	14	134	490	159	57	3581
PEAK HR FACTOR :	0.757	0.848	0.858	0.000	0.848	0.889	0.911	0.000	0.789	0.949	0.849	0.700	0.761	0.817	0.846	0.679	0.979
	0.871				0.910				0.972				0.857				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-024
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	1	0	0	0	0	0	1	1	1	0	1	0	0	0	10
7:15 AM	0	2	1	0	0	2	0	0	1	1	0	0	1	1	1	0	10
7:30 AM	0	1	0	0	0	1	1	0	1	0	0	0	1	3	0	0	8
7:45 AM	3	2	1	0	1	4	0	0	1	3	1	0	2	2	1	0	21
8:00 AM	0	2	1	0	0	1	0	0	2	5	0	0	0	1	0	0	12
8:15 AM	0	0	1	0	1	2	0	0	0	4	2	0	1	2	0	0	13
8:30 AM	0	1	1	0	0	2	0	0	0	2	1	0	1	0	0	0	8
8:45 AM	1	2	1	0	1	1	3	0	0	3	1	0	3	0	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	14	7	0	3	13	4	0	6	19	6	0	10	9	2	0	98
APPROACH %'s :	19.23%	53.85%	26.92%	0.00%	15.00%	65.00%	20.00%	0.00%	19.35%	61.29%	19.35%	0.00%	47.62%	42.86%	9.52%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	3	5	4	0	2	9	0	0	3	14	4	0	4	5	1	0	54
PEAK HR FACTOR :	0.250	0.625	1.000	0.000	0.500	0.563	0.000	0.000	0.375	0.700	0.500	0.000	0.500	0.625	0.250	0.000	0.643
	0.500				0.550				0.750				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	1	0	0	1	1	0	0	0	0	0	1	2	2	0	11
4:15 PM	0	3	1	0	1	0	1	0	0	1	2	0	1	3	0	0	13
4:30 PM	0	1	1	0	0	0	0	0	0	2	1	0	2	0	0	0	7
4:45 PM	0	4	2	0	1	3	0	0	1	1	0	0	0	2	0	0	14
5:00 PM	0	2	1	0	0	0	1	0	0	1	0	0	1	1	0	0	7
5:15 PM	0	3	1	0	0	0	0	0	0	1	0	0	1	1	0	0	7
5:30 PM	0	1	1	0	0	2	1	0	1	1	0	0	2	0	0	0	9
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	2	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	17	8	0	2	7	4	0	2	7	3	0	10	10	2	0	72
APPROACH %'s :	0.00%	68.00%	32.00%	0.00%	15.38%	53.85%	30.77%	0.00%	16.67%	58.33%	25.00%	0.00%	45.45%	45.45%	9.09%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	10	5	0	2	3	2	0	1	5	3	0	4	6	0	0	41
PEAK HR FACTOR :	0.000	0.625	0.625	0.000	0.500	0.250	0.500	0.000	0.250	0.625	0.375	0.000	0.500	0.500	0.000	0.000	0.732
	0.625				0.438				0.750				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-024
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	2	0	0	1	0	0	0	1	0	1	0	0	0	0	0	5
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	3
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0	4
8:45 AM	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	3	2	1	0	1	4	1	0	0	3	2	0	20
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	50.00%	33.33%	16.67%	0.00%	16.67%	66.67%	16.67%	0.00%	0.00%	60.00%	40.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	3	0	0	3	1	0	0	1	0	1	0	0	3	1	0	13
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.750	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.375	0.250	0.000	0.650
	0.375				1.000				0.250				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	3
4:15 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	2	0	1	0	2	2	0	0	0	4	1	0	12
APPROACH %'s :					66.67%	0.00%	33.33%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	80.00%	20.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	2	1	0	0	0	1	0	0	5
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.417
					0.250				0.375				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Foothill Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-024
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Foothill Blvd				Foothill Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	1	1	0	5
7:15 AM	0	1	0	0	0	0	1	0	0	2	0	0	0	0	1	0	5
7:30 AM	0	2	0	0	0	1	0	0	1	1	0	0	1	1	1	0	8
7:45 AM	0	7	0	0	0	3	2	0	2	0	1	0	0	2	0	0	17
8:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	1	0	0	1	1	0	0	1	0	0	0	0	3	0	0	7
8:30 AM	0	1	0	0	0	0	1	0	0	1	0	0	0	1	0	0	4
8:45 AM	0	0	0	0	2	0	0	0	0	1	0	0	0	1	2	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	0	0	3	6	4	0	4	7	1	0	1	9	5	0	54
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	23.08%	46.15%	30.77%	0.00%	33.33%	58.33%	8.33%	0.00%	6.67%	60.00%	33.33%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	10	0	0	1	5	3	0	3	1	1	0	0	6	0	0	30
PEAK HR FACTOR :	0.000	0.357	0.000	0.000	0.250	0.417	0.375	0.000	0.375	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.441
	0.357				0.450				0.417				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	4
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	2	0	0	0	0	1	0	0	1	0	0	0	1	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	4	1	2	0	0	3	0	0	1	1	3	0	19
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	57.14%	14.29%	28.57%	0.00%	0.00%	100.00%	0.00%	0.00%	20.00%	20.00%	60.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	1	0	0	3	1	1	0	0	1	0	0	1	0	1	0	9
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.750	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.563
	0.250				0.625				0.250				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Arrow Route
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-025
Date: 9/15/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	1	0	2	1	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	38	26	10	0	13	77	80	0	12	50	28	0	21	122	26	0	503
7:15 AM	43	24	6	0	28	56	74	0	11	56	25	0	16	179	28	0	546
7:30 AM	78	24	7	0	20	74	92	0	14	63	25	0	39	205	28	0	669
7:45 AM	77	41	6	0	24	78	111	0	29	54	42	0	34	207	29	0	732
8:00 AM	53	35	11	0	36	74	72	0	19	55	24	0	23	129	31	0	562
8:15 AM	69	34	6	0	33	70	85	0	13	57	21	0	20	135	26	0	569
8:30 AM	48	44	6	0	15	59	54	0	25	59	39	0	24	111	13	0	497
8:45 AM	40	40	7	0	21	46	56	0	24	43	25	0	20	111	8	0	441
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	446	268	59	0	190	534	624	0	147	437	229	0	197	1199	189	0	4519
APPROACH %'s :	57.70%	34.67%	7.63%	0.00%	14.09%	39.61%	46.29%	0.00%	18.08%	53.75%	28.17%	0.00%	12.43%	75.65%	11.92%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	277	134	30	0	113	296	360	0	75	229	112	0	116	676	114	0	2532
PEAK HR FACTOR :	0.888	0.817	0.682	0.000	0.785	0.949	0.811	0.000	0.647	0.909	0.667	0.000	0.744	0.816	0.919	0.000	0.865
	0.889				0.903				0.832				0.833				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	1	0	2	1	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	25	110	23	0	19	47	24	0	86	130	63	0	12	71	46	0	656
4:15 PM	30	105	38	0	26	48	27	0	100	172	75	0	19	89	35	0	764
4:30 PM	35	132	30	0	34	60	24	0	71	134	81	0	30	80	33	0	744
4:45 PM	31	115	25	0	21	51	32	0	93	156	76	0	15	85	37	0	737
5:00 PM	36	113	22	0	27	46	29	0	76	154	88	0	28	95	40	0	754
5:15 PM	37	127	34	0	31	42	27	0	101	159	89	0	20	89	30	0	786
5:30 PM	35	117	30	0	29	47	33	0	84	145	105	0	8	65	28	0	726
5:45 PM	32	100	38	0	23	39	20	0	78	157	73	0	18	74	34	0	686
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	261	919	240	0	210	380	216	0	689	1207	650	0	150	648	283	0	5853
APPROACH %'s :	18.38%	64.72%	16.90%	0.00%	26.05%	47.15%	26.80%	0.00%	27.06%	47.41%	25.53%	0.00%	13.88%	59.94%	26.18%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	139	487	111	0	113	199	112	0	341	603	334	0	93	349	140	0	3021
PEAK HR FACTOR :	0.939	0.922	0.816	0.000	0.831	0.829	0.875	0.000	0.844	0.948	0.938	0.000	0.775	0.918	0.875	0.000	0.961
	0.931				0.898				0.915				0.893				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Arrow Route
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-025
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	1	0	2	1	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	25	19	8	0	12	71	78	0	12	46	18	0	18	120	23	0	450
7:15 AM	33	23	3	0	27	55	68	0	10	50	19	0	15	170	24	0	497
7:30 AM	69	22	4	0	18	71	86	0	13	60	19	0	34	203	26	0	625
7:45 AM	65	37	5	0	24	71	107	0	23	54	32	0	30	201	28	0	677
8:00 AM	48	29	10	0	34	70	68	0	15	47	20	0	19	127	27	0	514
8:15 AM	62	29	5	0	33	66	82	0	13	54	13	0	18	125	23	0	523
8:30 AM	42	39	5	0	13	53	53	0	24	55	23	0	20	106	11	0	444
8:45 AM	32	34	2	0	19	44	54	0	20	41	10	0	19	111	7	0	393
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	376	232	42	0	180	501	596	0	130	407	154	0	173	1163	169	0	4123
APPROACH %'s :	57.85%	35.69%	6.46%	0.00%	14.10%	39.23%	46.67%	0.00%	18.81%	58.90%	22.29%	0.00%	11.50%	77.28%	11.23%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	244	117	24	0	109	278	343	0	64	215	84	0	101	656	104	0	2339
PEAK HR FACTOR :	0.884	0.791	0.600	0.000	0.801	0.979	0.801	0.000	0.696	0.896	0.656	0.000	0.743	0.808	0.929	0.000	0.864
	0.900				0.903				0.833				0.818				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	1	0	2	1	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	100	23	0	17	37	21	0	79	117	49	0	9	67	44	0	582
4:15 PM	24	101	35	0	25	37	26	0	99	164	49	0	18	85	35	0	698
4:30 PM	32	126	29	0	31	47	24	0	68	129	68	0	28	75	33	0	690
4:45 PM	25	108	23	0	19	44	32	0	92	153	64	0	13	84	36	0	693
5:00 PM	33	107	21	0	25	37	29	0	74	150	77	0	26	94	39	0	712
5:15 PM	32	120	34	0	30	35	26	0	101	155	83	0	19	86	30	0	751
5:30 PM	28	114	28	0	27	43	33	0	82	139	96	0	8	64	28	0	690
5:45 PM	25	99	38	0	21	39	20	0	76	154	68	0	16	73	34	0	663
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	218	875	231	0	195	319	211	0	671	1161	554	0	137	628	279	0	5479
APPROACH %'s :	16.47%	66.09%	17.45%	0.00%	26.90%	44.00%	29.10%	0.00%	28.12%	48.66%	23.22%	0.00%	13.12%	60.15%	26.72%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	122	461	107	0	105	163	111	0	335	587	292	0	86	339	138	0	2846
PEAK HR FACTOR :	0.924	0.915	0.787	0.000	0.847	0.867	0.867	0.000	0.829	0.947	0.880	0.000	0.768	0.902	0.885	0.000	0.947
	0.922				0.929				0.895				0.885				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Arrow Route
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-025
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	2 EL	1 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	TOTAL
7:00 AM	4	2	0	0	0	1	0	0	0	1	1	0	0	1	0	0	10
7:15 AM	2	0	2	0	0	0	2	0	0	2	1	0	0	4	1	0	14
7:30 AM	3	0	0	0	1	1	1	0	0	1	2	0	0	1	1	0	11
7:45 AM	2	0	0	0	0	2	0	0	1	0	1	0	0	3	0	0	9
8:00 AM	1	1	0	0	0	2	0	0	1	1	0	0	0	2	0	0	8
8:15 AM	0	1	0	0	0	0	0	0	0	2	0	0	1	3	0	0	7
8:30 AM	0	0	0	0	0	0	0	0	1	1	4	0	0	2	0	0	8
8:45 AM	0	3	1	0	0	0	1	0	0	1	3	0	1	0	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	7	3	0	1	6	4	0	3	9	12	0	2	16	2	0	77
APPROACH %'s :	54.55%	31.82%	13.64%	0.00%	9.09%	54.55%	36.36%	0.00%	12.50%	37.50%	50.00%	0.00%	10.00%	80.00%	10.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	2	0	0	1	5	1	0	2	4	3	0	1	9	1	0	35
PEAK HR FACTOR :	0.500	0.500	0.000	0.000	0.250	0.625	0.250	0.000	0.500	0.500	0.375	0.000	0.250	0.750	0.250	0.000	0.795
	0.667				0.583				0.750				0.688				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	2 EL	1 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	TOTAL
4:00 PM	3	2	0	0	1	9	1	0	3	7	8	0	1	2	1	0	38
4:15 PM	1	0	1	0	0	7	0	0	0	8	7	0	1	2	0	0	27
4:30 PM	1	2	1	0	0	9	0	0	2	2	5	0	2	3	0	0	27
4:45 PM	2	2	1	0	0	5	0	0	0	0	5	0	1	1	0	0	17
5:00 PM	1	0	0	0	0	2	0	0	1	2	3	0	0	0	0	0	9
5:15 PM	1	3	0	0	0	3	0	0	0	2	2	0	0	1	0	0	12
5:30 PM	0	1	0	0	0	2	0	0	1	3	4	0	0	0	0	0	11
5:45 PM	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	10	3	0	2	37	1	0	8	25	34	0	6	9	1	0	145
APPROACH %'s :	40.91%	45.45%	13.64%	0.00%	5.00%	92.50%	2.50%	0.00%	11.94%	37.31%	50.75%	0.00%	37.50%	56.25%	6.25%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	5	7	2	0	0	19	0	0	3	6	15	0	3	5	0	0	65
PEAK HR FACTOR :	0.625	0.583	0.500	0.000	0.000	0.528	0.000	0.000	0.375	0.750	0.750	0.000	0.375	0.417	0.000	0.000	0.602
	0.700				0.528				0.667				0.400				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Arrow Route
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-025
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	1	0	2	1	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	3	1	0	1	1	0	0	0	2	5	0	0	0	0	0	14
7:15 AM	2	1	0	0	0	0	0	0	0	2	4	0	1	3	0	0	13
7:30 AM	1	0	3	0	0	0	1	0	0	2	4	0	1	0	0	0	12
7:45 AM	5	1	1	0	0	0	0	0	0	0	6	0	1	1	0	0	15
8:00 AM	0	2	1	0	0	0	0	0	1	3	1	0	2	0	0	0	10
8:15 AM	3	1	1	0	0	1	0	0	0	1	5	0	0	3	0	0	15
8:30 AM	2	2	0	0	0	0	0	0	0	1	3	0	2	2	0	0	12
8:45 AM	1	0	3	0	2	0	0	0	1	0	5	0	0	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	15	10	10	0	3	2	1	0	2	11	33	0	7	9	0	0	103
APPROACH %'s :	42.86%	28.57%	28.57%	0.00%	50.00%	33.33%	16.67%	0.00%	4.35%	23.91%	71.74%	0.00%	43.75%	56.25%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	4	6	0	0	1	1	0	1	6	16	0	4	4	0	0	52
PEAK HR FACTOR :	0.450	0.500	0.500	0.000	0.000	0.250	0.250	0.000	0.250	0.500	0.667	0.000	0.500	0.333	0.000	0.000	0.867
	0.679				0.500				0.958				0.667				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	1	0	2	1	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	1	0	0	2	3	0	1	1	1	0	10
4:15 PM	0	1	1	0	0	0	0	0	0	0	16	0	0	2	0	0	20
4:30 PM	0	1	0	0	2	1	0	0	0	2	3	0	0	1	0	0	10
4:45 PM	2	3	0	0	0	1	0	0	0	0	1	0	1	0	0	0	8
5:00 PM	1	4	0	0	0	4	0	0	0	2	3	0	1	0	0	0	15
5:15 PM	0	1	0	0	0	2	0	0	0	0	2	0	1	1	0	0	7
5:30 PM	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	4
5:45 PM	3	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	13	1	0	2	9	1	0	0	7	29	0	4	6	1	0	80
APPROACH %'s :	33.33%	61.90%	4.76%	0.00%	16.67%	75.00%	8.33%	0.00%	0.00%	19.44%	80.56%	0.00%	36.36%	54.55%	9.09%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	3	9	0	0	2	8	0	0	0	4	9	0	3	2	0	0	40
PEAK HR FACTOR :	0.375	0.563	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.500	0.750	0.000	0.750	0.500	0.000	0.000	0.667
	0.600				0.625				0.650				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Arrow Route
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-025
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	2 EL	1 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	TOTAL
7:00 AM	8	2	1	0	0	4	2	0	0	1	4	0	3	1	3	0	29
7:15 AM	6	0	1	0	1	1	4	0	1	2	1	0	0	2	3	0	22
7:30 AM	5	2	0	0	1	2	4	0	1	0	0	0	4	1	1	0	21
7:45 AM	5	3	0	0	0	5	4	0	5	0	3	0	3	2	1	0	31
8:00 AM	4	3	0	0	2	2	4	0	2	4	3	0	2	0	4	0	30
8:15 AM	4	3	0	0	0	3	3	0	0	0	3	0	1	4	3	0	24
8:30 AM	4	3	1	0	2	6	1	0	0	2	9	0	2	1	2	0	33
8:45 AM	7	3	1	0	0	2	1	0	3	1	7	0	0	0	1	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	43	19	4	0	6	25	23	0	12	10	30	0	15	11	18	0	216
APPROACH %'s :	65.15%	28.79%	6.06%	0.00%	11.11%	46.30%	42.59%	0.00%	23.08%	19.23%	57.69%	0.00%	34.09%	25.00%	40.91%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	18	11	0	0	3	12	15	0	8	4	9	0	10	7	9	0	106
PEAK HR FACTOR :	0.900	0.917	0.000	0.000	0.375	0.600	0.938	0.000	0.400	0.250	0.750	0.000	0.625	0.438	0.563	0.000	0.855
	0.906				0.833				0.583				0.813				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	2 EL	1 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	TOTAL
4:00 PM	3	7	0	0	1	1	1	0	4	4	3	0	1	1	0	0	26
4:15 PM	5	3	1	0	1	4	1	0	1	0	3	0	0	0	0	0	19
4:30 PM	2	3	0	0	1	3	0	0	1	1	5	0	0	1	0	0	17
4:45 PM	2	2	1	0	2	1	0	0	1	3	6	0	0	0	1	0	19
5:00 PM	1	2	1	0	2	3	0	0	1	0	5	0	1	1	1	0	18
5:15 PM	4	3	0	0	1	2	1	0	0	2	2	0	0	1	0	0	16
5:30 PM	6	1	2	0	2	1	0	0	1	2	5	0	0	1	0	0	21
5:45 PM	4	0	0	0	1	0	0	0	1	2	4	0	1	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	21	5	0	11	15	3	0	10	14	33	0	3	5	2	0	149
APPROACH %'s :	50.94%	39.62%	9.43%	0.00%	37.93%	51.72%	10.34%	0.00%	17.54%	24.56%	57.89%	0.00%	30.00%	50.00%	20.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	9	10	2	0	6	9	1	0	3	6	18	0	1	3	2	0	70
PEAK HR FACTOR :	0.563	0.833	0.500	0.000	0.750	0.750	0.250	0.000	0.750	0.500	0.750	0.000	0.250	0.750	0.500	0.000	0.921
	0.750				0.800				0.675				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Arrow Route
City: Fontana
Control: Signalized

Project ID: 21-030070-026
Date: 9/21/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	129	16	1	12	191	19	2	11	71	19	0	16	102	12	0	613
7:15 AM	17	130	18	0	14	194	17	0	10	73	21	0	19	136	13	0	662
7:30 AM	23	137	32	2	11	217	18	2	16	84	20	0	41	169	16	0	788
7:45 AM	29	166	19	0	13	226	27	1	15	90	19	0	30	167	14	0	816
8:00 AM	18	170	32	2	9	243	20	2	14	98	20	0	37	131	12	0	808
8:15 AM	18	138	31	0	10	192	16	0	17	87	20	0	33	106	14	0	682
8:30 AM	16	138	16	1	11	219	19	2	13	73	12	0	16	78	11	0	625
8:45 AM	18	131	21	1	12	197	16	3	15	70	18	0	18	102	16	0	638
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	151	1139	185	7	92	1679	152	12	111	646	149	0	210	991	108	0	5632
APPROACH %'s :	10.19%	76.86%	12.48%	0.47%	4.75%	86.77%	7.86%	0.62%	12.25%	71.30%	16.45%	0.00%	16.04%	75.71%	8.25%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	88	611	114	4	43	878	81	5	62	359	79	0	141	573	56	0	3094
PEAK HR FACTOR :	0.759	0.899	0.891	0.500	0.827	0.903	0.750	0.625	0.912	0.916	0.988	0.000	0.860	0.848	0.875	0.000	0.948
	0.920				0.919				0.947				0.852				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	213	43	2	19	168	20	3	21	150	23	0	20	121	14	0	836
4:15 PM	36	239	52	1	15	181	17	3	17	134	22	0	28	127	11	0	883
4:30 PM	21	242	49	1	15	161	22	1	17	134	20	0	27	136	14	0	860
4:45 PM	20	262	52	3	17	171	23	2	19	158	23	0	33	132	13	0	928
5:00 PM	39	217	57	2	12	175	23	1	23	160	24	0	22	120	13	0	888
5:15 PM	25	246	47	1	14	158	20	2	18	154	22	0	27	122	10	0	866
5:30 PM	12	219	62	2	16	159	14	3	17	147	17	0	18	115	15	0	816
5:45 PM	34	244	60	1	15	147	19	2	18	145	19	0	24	117	12	0	857
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	206	1882	422	13	123	1320	158	17	150	1182	170	0	199	990	102	0	6934
APPROACH %'s :	8.16%	74.59%	16.73%	0.52%	7.60%	81.58%	9.77%	1.05%	9.99%	78.70%	11.32%	0.00%	15.41%	76.68%	7.90%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	116	960	210	7	59	688	85	7	76	586	89	0	110	515	51	0	3559
PEAK HR FACTOR :	0.744	0.916	0.921	0.583	0.868	0.950	0.924	0.583	0.826	0.916	0.927	0.000	0.833	0.947	0.911	0.000	0.959
	0.959				0.971				0.907				0.949				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Arrow Route
City: Fontana
Control: Signalized

Project ID: 21-030070-026
Date: 9/21/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	120	16	1	12	180	18	2	11	64	18	0	14	99	12	0	578
7:15 AM	15	112	16	0	13	172	15	0	9	66	20	0	19	123	10	0	590
7:30 AM	21	132	31	2	10	196	13	2	13	78	17	0	35	160	15	0	725
7:45 AM	29	146	16	0	12	208	21	1	14	85	16	0	27	165	14	0	754
8:00 AM	14	160	31	2	9	215	17	2	12	91	19	0	36	126	11	0	745
8:15 AM	16	126	29	0	9	172	14	0	16	80	15	0	31	97	13	0	618
8:30 AM	14	119	16	1	10	191	18	2	10	68	12	0	14	72	10	0	557
8:45 AM	17	111	20	1	11	176	16	3	15	66	16	0	18	91	16	0	577
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	137	1026	175	7	86	1510	132	12	100	598	133	0	194	933	101	0	5144
APPROACH %'s :	10.19%	76.28%	13.01%	0.52%	4.94%	86.78%	7.59%	0.69%	12.03%	71.96%	16.00%	0.00%	15.80%	75.98%	8.22%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	80	564	107	4	40	791	65	5	55	334	67	0	129	548	53	0	2842
PEAK HR FACTOR :	0.690	0.881	0.863	0.500	0.833	0.920	0.774	0.625	0.859	0.918	0.882	0.000	0.896	0.830	0.883	0.000	0.942
	0.912				0.927				0.934				0.869				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	196	42	2	18	150	18	3	20	148	21	0	18	112	12	0	776
4:15 PM	34	213	50	1	15	156	16	3	16	129	20	0	26	121	11	0	811
4:30 PM	19	223	46	1	14	146	20	1	15	129	18	0	26	131	13	0	802
4:45 PM	19	236	52	3	16	158	22	2	19	154	22	0	33	128	10	0	874
5:00 PM	35	209	53	2	12	159	19	1	20	155	22	0	20	111	12	0	830
5:15 PM	20	221	46	1	14	145	17	2	16	151	19	0	26	116	10	0	804
5:30 PM	10	214	60	2	13	140	14	3	15	145	15	0	17	109	15	0	772
5:45 PM	32	226	59	1	15	139	18	2	18	140	18	0	24	114	11	0	817
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	185	1738	408	13	117	1193	144	17	139	1151	155	0	190	942	94	0	6486
APPROACH %'s :	7.89%	74.15%	17.41%	0.55%	7.95%	81.10%	9.79%	1.16%	9.62%	79.65%	10.73%	0.00%	15.50%	76.84%	7.67%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	107	881	201	7	57	619	77	7	70	567	82	0	105	491	46	0	3317
PEAK HR FACTOR :	0.764	0.933	0.948	0.583	0.891	0.973	0.875	0.583	0.875	0.915	0.932	0.000	0.795	0.937	0.885	0.000	0.949
	0.965				0.960				0.912				0.939				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Arrow Route
City: Fontana
Control: Signalized

Project ID: 21-030070-026
Date: 9/21/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	0	0	0	1	0	0	0	6	0	0	1	1	0	0	15
7:15 AM	1	3	1	0	1	2	2	0	0	1	1	0	0	3	1	0	16
7:30 AM	1	5	0	0	0	5	3	0	1	1	0	0	4	6	0	0	26
7:45 AM	0	4	2	0	0	0	6	0	1	2	1	0	1	1	0	0	18
8:00 AM	2	6	0	0	0	7	1	0	1	3	0	0	0	4	1	0	25
8:15 AM	0	4	1	0	0	5	1	0	0	2	3	0	1	1	0	0	18
8:30 AM	1	7	0	0	0	8	0	0	2	2	0	0	1	1	0	0	22
8:45 AM	0	8	1	0	0	5	0	0	0	2	1	0	0	4	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	43	5	0	1	33	13	0	5	19	6	0	8	21	2	0	161
APPROACH %'s :	9.43%	81.13%	9.43%	0.00%	2.13%	70.21%	27.66%	0.00%	16.67%	63.33%	20.00%	0.00%	25.81%	67.74%	6.45%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	19	3	0	0	17	11	0	3	8	4	0	6	12	1	0	87
PEAK HR FACTOR :	0.375	0.792	0.375	0.000	0.000	0.607	0.458	0.000	0.750	0.667	0.333	0.000	0.375	0.500	0.250	0.000	0.837
	0.781				0.875				0.750				0.475				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	4	0	0	0	3	1	0	0	1	0	0	0	5	1	0	16
4:15 PM	0	8	1	0	0	9	1	0	1	4	0	0	1	2	0	0	27
4:30 PM	1	7	0	0	0	6	0	0	1	3	1	0	0	1	0	0	20
4:45 PM	0	8	0	0	0	6	1	0	0	1	0	0	0	2	0	0	18
5:00 PM	1	1	1	0	0	0	2	0	0	1	1	0	1	4	1	0	13
5:15 PM	3	4	0	0	0	7	1	0	1	2	0	0	0	1	0	0	19
5:30 PM	0	1	0	0	1	5	0	0	1	1	1	0	0	1	0	0	11
5:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	33	2	0	1	36	6	0	4	16	3	0	2	17	3	0	129
APPROACH %'s :	14.63%	80.49%	4.88%	0.00%	2.33%	83.72%	13.95%	0.00%	17.39%	69.57%	13.04%	0.00%	9.09%	77.27%	13.64%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	24	2	0	0	21	4	0	2	9	2	0	2	9	1	0	78
PEAK HR FACTOR :	0.500	0.750	0.500	0.000	0.000	0.583	0.500	0.000	0.500	0.563	0.500	0.000	0.500	0.563	0.250	0.000	0.722
	0.778				0.625				0.650				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Arrow Route
City: Fontana
Control: Signalized

Project ID: 21-030070-026
Date: 9/21/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
7:15 AM	1	5	1	0	0	6	0	0	1	1	0	0	0	1	0	0	16
7:30 AM	0	0	0	0	0	3	1	0	1	2	1	0	1	2	1	0	12
7:45 AM	0	5	1	0	0	4	0	0	0	1	2	0	0	1	0	0	14
8:00 AM	1	1	0	0	0	8	1	0	0	3	0	0	0	0	0	0	14
8:15 AM	0	0	1	0	1	4	0	0	1	1	1	0	1	1	1	0	12
8:30 AM	0	1	0	0	0	5	0	0	0	2	0	0	0	0	0	0	8
8:45 AM	0	4	0	0	1	8	0	0	0	1	0	0	0	1	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	17	3	0	2	39	2	0	3	11	4	0	2	7	2	0	94
APPROACH %'s :	9.09%	77.27%	13.64%	0.00%	4.65%	90.70%	4.65%	0.00%	16.67%	61.11%	22.22%	0.00%	18.18%	63.64%	18.18%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	6	2	0	1	19	2	0	2	7	4	0	2	4	2	0	52
PEAK HR FACTOR :	0.250	0.300	0.500	0.000	0.250	0.594	0.500	0.000	0.500	0.583	0.500	0.000	0.500	0.500	0.500	0.000	0.929
	0.375				0.611				0.813				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	2	1	0	0	4	0	0	0	1	0	0	0	3	0	0	12
4:15 PM	0	5	1	0	0	4	0	0	0	0	1	0	1	1	0	0	13
4:30 PM	0	2	2	0	0	1	1	0	0	1	0	0	0	2	1	0	10
4:45 PM	0	6	0	0	1	7	0	0	0	1	1	0	0	1	0	0	17
5:00 PM	0	0	3	0	0	6	1	0	1	3	0	0	0	4	0	0	18
5:15 PM	0	8	1	0	0	6	2	0	1	1	2	0	1	5	0	0	27
5:30 PM	1	0	1	0	1	5	0	0	0	0	1	0	0	2	0	0	11
5:45 PM	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	28	9	0	2	38	4	0	2	8	5	0	2	19	1	0	120
APPROACH %'s :	5.13%	71.79%	23.08%	0.00%	4.55%	86.36%	9.09%	0.00%	13.33%	53.33%	33.33%	0.00%	9.09%	86.36%	4.55%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	13	6	0	1	18	2	0	1	5	2	0	1	8	1	0	58
PEAK HR FACTOR :	0.000	0.542	0.500	0.000	0.250	0.643	0.500	0.000	0.250	0.417	0.500	0.000	0.250	0.500	0.250	0.000	0.806
	0.792				0.656				0.500				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Arrow Route
City: Fontana
Control: Signalized

Project ID: 21-030070-026
Date: 9/21/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Arrow Route				Arrow Route				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	2	0	0	0	9	1	0	0	1	1	0	1	1	0	0	17
7:15 AM	0	10	0	0	0	14	0	0	0	5	0	0	0	9	2	0	40
7:30 AM	1	0	1	0	1	13	1	0	1	3	2	0	1	1	0	0	25
7:45 AM	0	11	0	0	1	14	0	0	0	2	0	0	2	0	0	0	30
8:00 AM	1	3	1	0	0	13	1	0	1	1	1	0	1	1	0	0	24
8:15 AM	2	8	0	0	0	11	1	0	0	4	1	0	0	7	0	0	34
8:30 AM	1	11	0	0	1	15	1	0	1	1	0	0	1	5	1	0	38
8:45 AM	1	8	0	0	0	8	0	0	0	1	1	0	0	6	0	0	25
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	53	2	0	3	97	5	0	3	18	6	0	6	30	3	0	233
APPROACH %'s :	11.29%	85.48%	3.23%	0.00%	2.86%	92.38%	4.76%	0.00%	11.11%	66.67%	22.22%	0.00%	15.38%	76.92%	7.69%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	22	2	0	2	51	3	0	2	10	4	0	4	9	0	0	113
PEAK HR FACTOR :	0.500	0.500	0.500	0.000	0.500	0.911	0.750	0.000	0.500	0.625	0.500	0.000	0.500	0.321	0.000	0.000	0.831
	0.636				0.933				0.667				0.464				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	11	0	0	1	11	1	0	1	0	2	0	2	1	1	0	32
4:15 PM	2	13	0	0	0	12	0	0	0	1	1	0	0	3	0	0	32
4:30 PM	1	10	1	0	1	8	1	0	1	1	1	0	1	2	0	0	28
4:45 PM	1	12	0	0	0	0	0	0	0	2	0	0	0	1	3	0	19
5:00 PM	3	7	0	0	0	10	1	0	2	1	1	0	1	1	0	0	27
5:15 PM	2	13	0	0	0	0	0	0	0	0	1	0	0	0	0	0	16
5:30 PM	1	4	1	0	1	9	0	0	1	1	0	0	1	3	0	0	22
5:45 PM	2	13	1	0	0	3	1	0	0	1	1	0	0	1	0	0	23
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	83	3	0	3	53	4	0	5	7	7	0	5	12	4	0	199
APPROACH %'s :	13.13%	83.84%	3.03%	0.00%	5.00%	88.33%	6.67%	0.00%	26.32%	36.84%	36.84%	0.00%	23.81%	57.14%	19.05%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	7	42	1	0	1	30	2	0	3	5	3	0	2	7	3	0	106
PEAK HR FACTOR :	0.583	0.808	0.250	0.000	0.250	0.625	0.500	0.000	0.375	0.625	0.750	0.000	0.500	0.583	0.250	0.000	0.828
	0.833				0.688				0.688				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-027
Date: 9/8/2021

Data - Total

NS/EW Streets:	Beach Ave				Beach Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	18	16	0	1	33	10	0	4	60	11	0	19	105	4	0	293
7:15 AM	15	18	23	0	6	36	6	0	4	63	13	0	23	135	4	0	346
7:30 AM	22	28	23	0	3	41	16	0	9	71	12	0	36	156	5	0	422
7:45 AM	27	39	24	0	2	44	29	0	4	82	10	0	28	165	8	0	462
8:00 AM	16	30	33	0	1	39	22	0	14	88	14	0	35	141	6	0	439
8:15 AM	17	27	26	0	5	27	7	0	9	75	18	0	33	109	1	0	354
8:30 AM	16	26	17	0	2	27	7	0	4	61	11	0	21	86	4	0	282
8:45 AM	19	26	22	0	4	22	5	0	4	61	15	0	24	97	2	0	301
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	144	212	184	0	24	269	102	0	52	561	104	0	219	994	34	0	2899
APPROACH %'s :	26.67%	39.26%	34.07%	0.00%	6.08%	68.10%	25.82%	0.00%	7.25%	78.24%	14.50%	0.00%	17.56%	79.71%	2.73%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	82	124	106	0	11	151	74	0	36	316	54	0	132	571	20	0	1677
PEAK HR FACTOR :	0.759	0.795	0.803	0.000	0.550	0.858	0.638	0.000	0.643	0.898	0.750	0.000	0.917	0.865	0.625	0.000	0.907
	0.867				0.787				0.875				0.899				

NS/EW Streets:	Beach Ave				Beach Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	24	56	45	0	2	34	8	0	4	146	17	0	27	92	5	0	460
4:15 PM	36	44	50	0	1	42	6	0	5	138	10	0	28	99	10	0	469
4:30 PM	27	47	47	0	3	35	10	0	6	135	10	0	24	94	4	0	442
4:45 PM	24	26	53	0	5	31	2	0	4	165	16	0	32	97	8	0	463
5:00 PM	30	50	52	0	1	26	9	0	11	165	15	0	19	103	5	0	486
5:15 PM	25	38	44	0	4	33	5	0	6	150	19	0	21	110	6	0	461
5:30 PM	15	36	63	0	5	45	5	0	7	145	12	0	16	99	8	0	456
5:45 PM	32	31	59	0	2	41	5	0	6	151	15	0	23	84	6	0	455
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	213	328	413	0	23	287	50	0	49	1195	114	0	190	778	52	0	3692
APPROACH %'s :	22.33%	34.38%	43.29%	0.00%	6.39%	79.72%	13.89%	0.00%	3.61%	88.00%	8.39%	0.00%	18.63%	76.27%	5.10%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	94	150	212	0	15	135	21	0	28	625	62	0	88	409	27	0	1866
PEAK HR FACTOR :	0.783	0.750	0.841	0.000	0.750	0.750	0.583	0.000	0.636	0.947	0.816	0.000	0.688	0.930	0.844	0.000	0.960
	0.864				0.777				0.936				0.956				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-027
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Beach Ave				Beach Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	17	16	0	1	31	10	0	4	55	11	0	18	99	4	0	278
7:15 AM	13	16	21	0	5	34	6	0	4	57	13	0	23	122	4	0	318
7:30 AM	21	28	22	0	3	41	15	0	7	67	12	0	33	151	4	0	404
7:45 AM	27	36	21	0	1	43	25	0	3	78	9	0	26	157	8	0	434
8:00 AM	16	29	32	0	1	37	19	0	12	80	14	0	34	138	5	0	417
8:15 AM	17	27	24	0	4	27	5	0	8	71	15	0	31	101	1	0	331
8:30 AM	16	24	16	0	1	27	7	0	4	59	11	0	18	77	3	0	263
8:45 AM	18	24	21	0	3	21	5	0	4	57	13	0	24	91	2	0	283
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	140	201	173	0	19	261	92	0	46	524	98	0	207	936	31	0	2728
APPROACH %'s :	27.24%	39.11%	33.66%	0.00%	5.11%	70.16%	24.73%	0.00%	6.89%	78.44%	14.67%	0.00%	17.63%	79.73%	2.64%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	81	120	99	0	9	148	64	0	30	296	50	0	124	547	18	0	1586
PEAK HR FACTOR :	0.750	0.833	0.773	0.000	0.563	0.860	0.640	0.000	0.625	0.925	0.833	0.000	0.912	0.871	0.563	0.000	0.914
	0.893				0.801				0.887				0.902				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	55	44	0	2	33	7	0	3	144	17	0	27	85	4	0	443
4:15 PM	36	44	49	0	1	41	5	0	4	134	10	0	26	95	10	0	455
4:30 PM	26	47	45	0	2	32	10	0	5	131	9	0	24	92	4	0	427
4:45 PM	24	26	53	0	5	30	2	0	4	161	16	0	32	92	8	0	453
5:00 PM	29	50	49	0	1	26	8	0	10	162	14	0	19	102	5	0	475
5:15 PM	23	38	44	0	4	31	5	0	4	149	17	0	21	105	6	0	447
5:30 PM	15	35	61	0	3	41	5	0	6	143	12	0	15	94	8	0	438
5:45 PM	32	30	58	0	2	41	4	0	6	147	15	0	23	82	5	0	445
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	207	325	403	0	20	275	46	0	42	1171	110	0	187	747	50	0	3583
APPROACH %'s :	22.14%	34.76%	43.10%	0.00%	5.87%	80.65%	13.49%	0.00%	3.17%	88.51%	8.31%	0.00%	19.00%	75.91%	5.08%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	91	149	207	0	13	128	20	0	24	615	59	0	87	393	27	0	1813
PEAK HR FACTOR :	0.784	0.745	0.848	0.000	0.650	0.780	0.625	0.000	0.600	0.949	0.868	0.000	0.680	0.936	0.844	0.000	0.954
	0.873				0.821				0.938				0.960				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-027
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Beach Ave				Beach Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	2	0	0	1	1	0	0	5
7:15 AM	2	2	1	0	1	2	0	0	0	2	0	0	0	4	0	0	14
7:30 AM	1	0	0	0	0	0	0	0	1	2	0	0	2	4	0	0	10
7:45 AM	0	2	2	0	0	0	4	0	1	1	1	0	2	4	0	0	17
8:00 AM	0	0	0	0	0	2	2	0	2	3	0	0	0	2	1	0	12
8:15 AM	0	0	1	0	0	0	1	0	0	3	2	0	1	2	0	0	10
8:30 AM	0	2	0	0	0	0	0	0	0	2	0	0	2	3	0	0	9
8:45 AM	0	2	1	0	0	1	0	0	0	2	1	0	0	2	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	8	5	0	1	6	7	0	4	17	4	0	8	22	1	0	86
APPROACH %'s :	18.75%	50.00%	31.25%	0.00%	7.14%	42.86%	50.00%	0.00%	16.00%	68.00%	16.00%	0.00%	25.81%	70.97%	3.23%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	2	3	0	0	2	7	0	4	9	3	0	5	12	1	0	49
PEAK HR FACTOR :	0.250	0.250	0.375	0.000	0.000	0.250	0.438	0.000	0.500	0.750	0.375	0.000	0.625	0.750	0.250	0.000	0.721
	0.375				0.563				0.800				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	1	1	0	0	1	0	0	0	5	0	0	9
4:15 PM	0	0	0	0	0	1	1	0	1	3	0	0	1	0	0	0	7
4:30 PM	1	0	0	0	0	2	0	0	1	2	1	0	0	1	0	0	8
4:45 PM	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	6
5:00 PM	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	4
5:15 PM	2	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	6
5:30 PM	0	1	0	0	1	1	0	0	1	1	0	0	0	1	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	1	1	0	1	8	2	0	4	13	2	0	1	12	1	0	51
APPROACH %'s :	71.43%	14.29%	14.29%	0.00%	9.09%	72.73%	18.18%	0.00%	21.05%	68.42%	10.53%	0.00%	7.14%	85.71%	7.14%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	3	1	1	0	1	4	0	0	2	4	1	0	0	5	0	0	22
PEAK HR FACTOR :	0.375	0.250	0.250	0.000	0.250	0.500	0.000	0.000	0.500	0.500	0.250	0.000	0.000	0.417	0.000	0.000	0.917
	0.625				0.625				0.875				0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-027
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Beach Ave				Beach Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
7:15 AM	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	5
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
7:45 AM	0	1	1	0	0	0	0	0	0	1	0	0	0	2	0	0	5
8:00 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
8:15 AM	0	0	1	0	1	0	0	0	1	1	0	0	1	1	0	0	6
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	3	0	2	1	0	0	1	9	0	0	1	6	1	0	27
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	66.67%	33.33%	0.00%	0.00%	10.00%	90.00%	0.00%	0.00%	12.50%	75.00%	12.50%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	2	0	1	0	0	0	1	6	0	0	1	3	1	0	17
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.250	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.250	0.375	0.250	0.000	0.708
	0.500				0.250				0.583				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	4
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	3
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:00 PM	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	1	1	2	0	0	4	0	0	8
5:30 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	5	0	0	3	1	0	2	4	2	0	1	8	0	0	28
APPROACH %'s :	14.29%	14.29%	71.43%	0.00%	0.00%	75.00%	25.00%	0.00%	25.00%	50.00%	25.00%	0.00%	11.11%	88.89%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	3	0	0	2	1	0	2	3	2	0	0	5	0	0	18
PEAK HR FACTOR :	0.000	0.000	0.375	0.000	0.000	0.250	0.250	0.000	0.500	0.375	0.250	0.000	0.000	0.313	0.000	0.000	0.563
	0.375				0.375				0.438				0.313				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beach Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-027
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Beach Ave				Beach Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	0	9
7:30 AM	0	0	1	0	0	0	1	0	1	1	0	0	1	1	0	0	6
7:45 AM	0	0	0	0	1	1	0	0	0	2	0	0	0	2	0	0	6
8:00 AM	0	0	1	0	0	0	1	0	0	2	0	0	1	1	0	0	6
8:15 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	5	0	0	7
8:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	6	1	0	10
8:45 AM	1	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	3	0	2	1	3	0	1	11	2	0	3	30	1	0	58
APPROACH %'s :	25.00%	0.00%	75.00%	0.00%	33.33%	16.67%	50.00%	0.00%	7.14%	78.57%	14.29%	0.00%	8.82%	88.24%	2.94%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	2	0	1	1	3	0	1	5	1	0	2	9	0	0	25
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.250	0.250	0.750	0.000	0.250	0.625	0.250	0.000	0.500	0.450	0.000	0.000	0.893
	0.500				0.625				0.875				0.550				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	1	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
4:30 PM	0	0	2	0	1	0	0	0	0	2	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	1	0	0	0	1	0	0	1	4	0	0	9
5:45 PM	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	4	0	2	1	1	0	1	7	0	0	1	11	1	0	30
APPROACH %'s :	0.00%	20.00%	80.00%	0.00%	50.00%	25.00%	25.00%	0.00%	12.50%	87.50%	0.00%	0.00%	7.69%	84.62%	7.69%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	1	0	1	1	0	0	0	3	0	0	1	6	0	0	13
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.375	0.000	0.000	0.250	0.375	0.000	0.000	0.361
	0.250				0.250				0.375				0.350				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-028
Date: 9/8/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	41	107	17	5	14	152	18	0	9	34	19	0	40	98	14	0	568
7:15 AM	36	116	33	16	18	203	25	0	8	38	23	0	46	114	26	0	702
7:30 AM	29	145	57	6	20	176	37	0	18	61	29	0	47	129	29	0	783
7:45 AM	44	141	40	14	27	182	39	0	16	59	23	0	61	119	37	0	802
8:00 AM	35	164	44	16	24	200	36	0	15	66	22	0	60	106	25	0	813
8:15 AM	40	150	44	10	24	194	22	0	15	62	20	0	51	79	32	0	743
8:30 AM	31	136	44	8	25	143	17	0	6	50	26	0	29	82	22	0	619
8:45 AM	30	122	19	5	25	140	20	0	13	58	22	0	23	62	14	0	553
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	286	1081	298	80	177	1390	214	0	100	428	184	0	357	789	199	0	5583
APPROACH %'s :	16.39%	61.95%	17.08%	4.58%	9.94%	78.05%	12.02%	0.00%	14.04%	60.11%	25.84%	0.00%	26.54%	58.66%	14.80%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	148	600	185	46	95	752	134	0	64	248	94	0	219	433	123	0	3141
PEAK HR FACTOR :	0.841	0.915	0.811	0.719	0.880	0.940	0.859	0.000	0.889	0.939	0.810	0.000	0.898	0.839	0.831	0.000	0.966
	0.945				0.943				0.940				0.893				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	36	168	41	9	41	153	19	0	27	136	35	0	29	72	28	0	794
4:15 PM	31	226	34	5	25	163	17	0	20	133	41	0	51	69	27	0	842
4:30 PM	39	204	46	7	42	163	15	0	15	122	46	0	33	70	26	0	828
4:45 PM	34	208	39	11	33	192	14	0	14	142	38	0	30	92	18	0	865
5:00 PM	31	197	47	8	36	182	15	1	28	159	36	0	28	73	19	0	860
5:15 PM	38	236	41	10	23	156	12	0	27	128	34	0	28	79	24	0	836
5:30 PM	37	229	52	8	24	149	11	0	19	120	29	0	39	70	27	0	814
5:45 PM	27	237	34	10	35	175	17	0	26	123	30	0	36	56	23	0	829
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	273	1705	334	68	259	1333	120	1	176	1063	289	0	274	581	192	0	6668
APPROACH %'s :	11.47%	71.64%	14.03%	2.86%	15.12%	77.82%	7.01%	0.06%	11.52%	69.57%	18.91%	0.00%	26.17%	55.49%	18.34%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	135	835	166	31	136	700	61	1	77	556	161	0	142	304	90	0	3395
PEAK HR FACTOR :	0.865	0.924	0.883	0.705	0.810	0.911	0.897	0.250	0.688	0.874	0.875	0.000	0.696	0.826	0.833	0.000	0.981
	0.986				0.939				0.890				0.912				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-028
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	40	101	16	5	13	147	18	0	5	34	16	0	38	96	12	0	541
7:15 AM	33	110	31	16	17	193	23	0	6	35	20	0	46	110	25	0	665
7:30 AM	26	140	54	6	20	168	35	0	17	59	27	0	47	127	27	0	753
7:45 AM	42	139	37	14	27	175	36	0	14	58	21	0	57	117	36	0	773
8:00 AM	33	160	40	16	24	192	36	0	12	64	21	0	60	106	24	0	788
8:15 AM	37	142	42	10	22	186	21	0	12	61	17	0	49	77	29	0	705
8:30 AM	25	129	41	8	22	139	15	0	5	50	23	0	28	78	22	0	585
8:45 AM	29	116	17	5	24	135	16	0	12	56	19	0	23	62	13	0	527
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	265	1037	278	80	169	1335	200	0	83	417	164	0	348	773	188	0	5337
APPROACH %'s :	15.96%	62.47%	16.75%	4.82%	9.92%	78.35%	11.74%	0.00%	12.50%	62.80%	24.70%	0.00%	26.59%	59.05%	14.36%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	138	581	173	46	93	721	128	0	55	242	86	0	213	427	116	0	3019
PEAK HR FACTOR :	0.821	0.908	0.801	0.719	0.861	0.939	0.889	0.000	0.809	0.945	0.796	0.000	0.888	0.841	0.806	0.000	0.958
	0.942				0.935				0.930				0.900				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	35	163	40	9	41	150	19	0	27	132	35	0	29	70	26	0	776
4:15 PM	28	219	32	5	24	155	15	0	19	131	39	0	51	67	27	0	812
4:30 PM	39	195	46	7	42	156	14	0	15	117	46	0	32	68	25	0	802
4:45 PM	32	204	39	11	33	182	13	0	14	139	38	0	29	91	18	0	843
5:00 PM	30	191	47	8	36	179	13	1	28	159	33	0	27	72	18	0	842
5:15 PM	37	235	40	10	22	152	12	0	27	126	34	0	28	77	24	0	824
5:30 PM	35	224	51	8	24	148	11	0	18	119	28	0	39	68	27	0	800
5:45 PM	27	236	33	10	34	174	15	0	26	122	28	0	35	56	23	0	819
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	263	1667	328	68	256	1296	112	1	174	1045	281	0	270	569	188	0	6518
APPROACH %'s :	11.31%	71.67%	14.10%	2.92%	15.38%	77.84%	6.73%	0.06%	11.60%	69.67%	18.73%	0.00%	26.29%	55.40%	18.31%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	129	809	164	31	135	672	55	1	76	546	156	0	139	298	88	0	3299
PEAK HR FACTOR :	0.827	0.924	0.872	0.705	0.804	0.923	0.917	0.250	0.679	0.858	0.848	0.000	0.681	0.819	0.815	0.000	0.978
	0.987				0.942				0.884				0.905				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-028
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	0	3	0	0	1	0	3	0	1	0	1	0	11
7:15 AM	2	2	0	0	1	4	1	0	0	1	2	0	0	3	1	0	17
7:30 AM	1	4	0	0	0	4	2	0	0	0	0	0	0	2	1	0	14
7:45 AM	1	2	0	0	0	3	0	0	2	0	2	0	2	1	1	0	14
8:00 AM	0	2	1	0	0	1	0	0	1	2	0	0	0	0	1	0	8
8:15 AM	1	5	1	0	2	5	0	0	2	1	1	0	1	1	1	0	21
8:30 AM	1	2	0	0	0	2	0	0	1	0	1	0	1	2	0	0	10
8:45 AM	1	2	1	0	0	2	1	0	0	2	0	0	0	0	1	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	20	3	0	3	24	4	0	7	6	9	0	5	9	7	0	105
APPROACH %'s :	25.81%	64.52%	9.68%	0.00%	9.68%	77.42%	12.90%	0.00%	31.82%	27.27%	40.91%	0.00%	23.81%	42.86%	33.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	13	2	0	2	13	2	0	5	3	3	0	3	4	4	0	57
PEAK HR FACTOR :	0.750	0.650	0.500	0.000	0.250	0.650	0.250	0.000	0.625	0.375	0.375	0.000	0.375	0.500	1.000	0.000	0.679
	0.643				0.607				0.688				0.688				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	1	0	0	0	0	0	0	2	0	0	0	2	2	0	11
4:15 PM	0	6	1	0	1	4	1	0	0	2	1	0	0	2	0	0	18
4:30 PM	0	5	0	0	0	3	0	0	0	3	0	0	1	2	0	0	14
4:45 PM	1	2	0	0	0	4	0	0	0	1	0	0	1	0	0	0	9
5:00 PM	0	0	0	0	0	3	0	0	0	0	1	0	1	0	1	0	6
5:15 PM	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	0	4
5:30 PM	0	4	1	0	0	1	0	0	1	1	1	0	0	0	0	0	9
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	21	3	0	2	17	1	0	1	10	3	0	4	6	3	0	73
APPROACH %'s :	7.69%	80.77%	11.54%	0.00%	10.00%	85.00%	5.00%	0.00%	7.14%	71.43%	21.43%	0.00%	30.77%	46.15%	23.08%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	13	1	0	1	14	1	0	0	6	2	0	3	4	1	0	47
PEAK HR FACTOR :	0.250	0.542	0.250	0.000	0.250	0.875	0.250	0.000	0.000	0.500	0.500	0.000	0.750	0.500	0.250	0.000	0.653
	0.536				0.667				0.667				0.667				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-028
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	1	2	1	0	7
7:15 AM	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	4
7:30 AM	0	1	0	0	0	3	0	0	1	1	0	0	0	0	0	0	6
7:45 AM	0	0	1	0	0	1	2	0	0	0	0	0	0	1	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	2	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	7
8:30 AM	3	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	9
8:45 AM	0	2	0	0	0	1	2	0	1	0	1	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	11	1	0	0	7	5	0	3	2	2	0	2	5	1	0	45
APPROACH %'s :	33.33%	61.11%	5.56%	0.00%	0.00%	58.33%	41.67%	0.00%	42.86%	28.57%	28.57%	0.00%	25.00%	62.50%	12.50%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	2	1	0	0	4	2	0	2	1	1	0	1	2	0	0	18
PEAK HR FACTOR :	0.250	0.500	0.250	0.000	0.000	0.333	0.250	0.000	0.500	0.250	0.250	0.000	0.250	0.500	0.000	0.000	0.643
	0.417				0.500				0.500				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	5
4:15 PM	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	0	4
4:30 PM	0	3	0	0	0	2	1	0	0	0	0	0	0	0	1	0	7
4:45 PM	1	1	0	0	0	2	1	0	0	2	0	0	0	0	0	0	7
5:00 PM	1	3	0	0	0	0	2	0	0	0	0	0	0	1	0	0	7
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	8	1	0	0	9	5	0	1	6	1	0	0	2	1	0	36
APPROACH %'s :	18.18%	72.73%	9.09%	0.00%	0.00%	64.29%	35.71%	0.00%	12.50%	75.00%	12.50%	0.00%	0.00%	66.67%	33.33%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	7	0	0	0	6	5	0	1	2	0	0	0	1	1	0	25
PEAK HR FACTOR :	0.500	0.583	0.000	0.000	0.000	0.750	0.625	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.893
	0.563				0.917				0.375				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Arrow Route/Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-028
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Arrow Route/Arrow Blvd				Arrow Route/Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	1	0	1	2	0	0	3	0	0	0	0	0	0	0	9
7:15 AM	0	4	2	0	0	5	1	0	2	1	1	0	0	0	0	0	16
7:30 AM	2	0	3	0	0	1	0	0	0	1	2	0	0	0	1	0	10
7:45 AM	1	0	2	0	0	3	1	0	0	1	0	0	2	0	0	0	10
8:00 AM	2	2	3	0	0	7	0	0	2	0	1	0	0	0	0	0	17
8:15 AM	0	2	1	0	0	3	1	0	0	0	1	0	0	0	2	0	10
8:30 AM	2	1	3	0	3	1	1	0	0	0	2	0	0	2	0	0	15
8:45 AM	0	2	1	0	1	2	1	0	0	0	2	0	0	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	13	16	0	5	24	5	0	7	3	9	0	2	2	3	0	96
APPROACH %'s :	19.44%	36.11%	44.44%	0.00%	14.71%	70.59%	14.71%	0.00%	36.84%	15.79%	47.37%	0.00%	28.57%	28.57%	42.86%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	5	4	9	0	0	14	2	0	2	2	4	0	2	0	3	0	47
PEAK HR FACTOR :	0.625	0.500	0.750	0.000	0.000	0.500	0.500	0.000	0.250	0.500	0.500	0.000	0.250	0.000	0.375	0.000	0.691
	0.643				0.571				0.667				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	3	1	1	0	0	2	0	0	0	0	1	0	0	0	0	0	8
4:30 PM	0	1	0	0	0	2	0	0	0	2	0	0	0	0	0	0	5
4:45 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0	6
5:00 PM	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5
5:15 PM	1	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	6
5:30 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	1	1	2	0	0	0	1	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	9	2	0	1	11	2	0	0	2	4	0	0	4	0	0	41
APPROACH %'s :	35.29%	52.94%	11.76%	0.00%	7.14%	78.57%	14.29%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	3	6	1	0	0	8	0	0	0	2	3	0	0	1	0	0	24
PEAK HR FACTOR :	0.250	0.500	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.375	0.000	0.000	0.250	0.000	0.000	0.750
	0.500				0.500				0.625				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-029
Date: 9/8/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	71	12	0	11	108	14	0	9	26	8	0	6	78	4	0	358
7:15 AM	19	85	8	0	11	129	14	0	10	78	6	0	8	129	9	0	506
7:30 AM	16	117	5	0	13	173	27	0	6	121	25	1	23	155	14	0	696
7:45 AM	18	150	12	0	13	173	9	0	16	132	15	1	16	178	21	0	754
8:00 AM	21	116	8	0	13	191	19	0	10	62	11	0	16	103	9	1	580
8:15 AM	29	111	8	0	18	157	13	0	12	75	31	2	10	83	8	0	557
8:30 AM	15	107	12	0	13	175	11	0	17	50	20	0	12	74	12	1	519
8:45 AM	12	117	9	0	12	162	12	0	14	61	18	2	13	81	21	0	534
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	141	874	74	0	104	1268	119	0	94	605	134	6	104	881	98	2	4504
APPROACH %'s :	12.95%	80.26%	6.80%	0.00%	6.98%	85.04%	7.98%	0.00%	11.20%	72.11%	15.97%	0.72%	9.59%	81.20%	9.03%	0.18%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	84	494	33	0	57	694	68	0	44	390	82	4	65	519	52	1	2587
PEAK HR FACTOR :	0.724	0.823	0.688	0.000	0.792	0.908	0.630	0.000	0.688	0.739	0.661	0.500	0.707	0.729	0.619	0.250	0.858
	0.849				0.918				0.793				0.741				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	181	11	0	16	141	21	0	30	131	17	0	6	57	12	2	644
4:15 PM	24	189	17	0	23	131	18	0	20	103	26	0	16	60	13	0	640
4:30 PM	22	189	12	0	30	123	23	0	24	110	18	0	22	76	13	1	663
4:45 PM	20	210	16	0	29	137	21	0	26	115	17	1	10	88	11	2	703
5:00 PM	18	172	8	0	25	106	13	0	30	139	27	0	11	80	15	1	645
5:15 PM	18	200	13	0	25	102	19	0	13	102	15	0	14	76	8	0	605
5:30 PM	16	214	6	0	23	84	13	0	14	126	16	0	16	75	11	0	614
5:45 PM	23	180	13	0	16	119	8	0	16	114	12	0	9	62	8	0	580
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	160	1535	96	0	187	943	136	0	173	940	148	1	104	574	91	6	5094
APPROACH %'s :	8.93%	85.71%	5.36%	0.00%	14.77%	74.49%	10.74%	0.00%	13.71%	74.48%	11.73%	0.08%	13.42%	74.06%	11.74%	0.77%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	84	760	53	0	107	497	75	0	100	467	88	1	59	304	52	4	2651
PEAK HR FACTOR :	0.875	0.905	0.779	0.000	0.892	0.907	0.815	0.000	0.833	0.840	0.815	0.250	0.670	0.864	0.867	0.500	0.943
	0.912				0.908				0.837				0.935				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-029
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	67	12	0	11	106	14	0	9	25	8	0	6	75	4	0	347
7:15 AM	18	83	8	0	10	128	14	0	7	74	6	0	8	126	9	0	491
7:30 AM	15	115	5	0	12	169	26	0	5	116	25	1	22	150	13	0	674
7:45 AM	18	139	12	0	13	164	9	0	12	130	15	1	16	177	20	0	726
8:00 AM	20	112	8	0	12	187	19	0	6	60	11	0	15	101	9	1	561
8:15 AM	27	108	7	0	18	150	12	0	10	71	31	2	7	82	8	0	533
8:30 AM	14	106	11	0	13	171	9	0	14	47	20	0	11	71	10	1	498
8:45 AM	12	112	8	0	12	155	11	0	14	59	18	1	13	79	20	0	514
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	134	842	71	0	101	1230	114	0	77	582	134	5	98	861	93	2	4344
APPROACH %'s :	12.80%	80.42%	6.78%	0.00%	6.99%	85.12%	7.89%	0.00%	9.65%	72.93%	16.79%	0.63%	9.30%	81.69%	8.82%	0.19%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	80	474	32	0	55	670	66	0	33	377	82	4	60	510	50	1	2494
PEAK HR FACTOR :	0.741	0.853	0.667	0.000	0.764	0.896	0.635	0.000	0.688	0.725	0.661	0.500	0.682	0.720	0.625	0.250	0.859
	0.867				0.907				0.785				0.729				

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	178	11	0	16	139	21	0	30	126	16	0	6	52	12	2	628
4:15 PM	24	184	17	0	23	128	17	0	20	102	26	0	15	58	13	0	627
4:30 PM	21	188	10	0	30	122	22	0	24	108	17	0	22	74	13	1	652
4:45 PM	20	203	16	0	28	133	21	0	26	113	17	1	10	85	10	2	685
5:00 PM	18	170	8	0	25	102	13	0	30	137	27	0	11	78	15	1	635
5:15 PM	18	196	13	0	25	101	19	0	12	100	15	0	13	74	7	0	593
5:30 PM	15	211	5	0	23	80	13	0	14	124	15	0	16	75	11	0	602
5:45 PM	23	177	13	0	15	118	8	0	16	111	12	0	9	62	8	0	572
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	158	1507	93	0	185	923	134	0	172	921	145	1	102	558	89	6	4994
APPROACH %'s :	8.99%	85.72%	5.29%	0.00%	14.90%	74.32%	10.79%	0.00%	13.88%	74.33%	11.70%	0.08%	13.51%	73.91%	11.79%	0.79%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	83	745	51	0	106	485	73	0	100	460	87	1	58	295	51	4	2599
PEAK HR FACTOR :	0.865	0.917	0.750	0.000	0.883	0.912	0.830	0.000	0.833	0.839	0.806	0.250	0.659	0.868	0.850	0.500	0.949
	0.919				0.912				0.835				0.927				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-029
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	2	0	0	0	0	0	0	0	1	0	0	8
7:15 AM	0	2	0	0	1	1	0	0	0	1	0	0	0	2	0	0	7
7:30 AM	0	2	0	0	1	4	1	0	0	4	0	0	1	3	1	0	17
7:45 AM	0	8	0	0	0	5	0	0	0	1	0	0	0	1	0	0	15
8:00 AM	0	2	0	0	1	2	0	0	2	0	0	0	1	1	0	0	9
8:15 AM	2	3	0	0	0	5	1	0	0	3	0	0	3	0	0	0	17
8:30 AM	0	0	1	0	0	4	1	0	1	1	0	0	1	2	2	0	13
8:45 AM	0	5	1	0	0	3	1	0	0	1	0	1	0	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	26	2	0	3	26	4	0	3	11	0	1	6	10	3	0	98
APPROACH %'s :	9.68%	83.87%	6.45%	0.00%	9.09%	78.79%	12.12%	0.00%	20.00%	73.33%	0.00%	6.67%	31.58%	52.63%	15.79%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	15	0	0	2	16	2	0	2	8	0	0	5	5	1	0	58
PEAK HR FACTOR :	0.250	0.469	0.000	0.000	0.500	0.800	0.500	0.000	0.250	0.500	0.000	0.000	0.417	0.417	0.250	0.000	0.853
	0.531				0.833				0.625				0.550				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	2	0	0	0	3	1	0	0	5	0	0	14
4:15 PM	0	4	0	0	0	2	0	0	0	0	0	0	1	2	0	0	9
4:30 PM	1	1	1	0	0	1	1	0	0	1	1	0	0	2	0	0	9
4:45 PM	0	6	0	0	1	4	0	0	0	1	0	0	0	2	1	0	15
5:00 PM	0	2	0	0	0	2	0	0	0	2	0	0	0	1	0	0	7
5:15 PM	0	4	0	0	0	1	0	0	1	0	0	0	1	0	0	0	7
5:30 PM	1	2	1	0	0	4	0	0	0	2	1	0	0	0	0	0	11
5:45 PM	0	2	0	0	1	1	0	0	0	1	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	24	2	0	2	17	1	0	1	10	3	0	2	12	1	0	77
APPROACH %'s :	7.14%	85.71%	7.14%	0.00%	10.00%	85.00%	5.00%	0.00%	7.14%	71.43%	21.43%	0.00%	13.33%	80.00%	6.67%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	13	1	0	1	9	1	0	0	4	1	0	1	7	1	0	40
PEAK HR FACTOR :	0.250	0.542	0.250	0.000	0.250	0.563	0.250	0.000	0.000	0.500	0.250	0.000	0.250	0.875	0.250	0.000	0.667
	0.625				0.550				0.625				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-029
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	4
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	5
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	2	0	0	0	3	0	0	0	4	0	0	0	7	1	0	20
APPROACH %'s :	60.00%	40.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	87.50%	12.50%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	1	0	0	0	1	0	0	0	2	0	0	0	3	0	0	9
PEAK HR FACTOR :	0.500	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.375	0.000	0.000	0.450
	0.375				0.250				0.250				0.375				

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	1	0	0	4	0	0	0	1	0	0	8
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	4
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500
	0.250				0.500								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Arrow Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-029
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Arrow Blvd				Arrow Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4
7:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
7:45 AM	0	3	0	0	0	4	0	0	4	1	0	0	0	0	1	0	13
8:00 AM	0	1	0	0	0	2	0	0	2	0	0	0	0	0	0	0	5
8:15 AM	0	0	1	0	0	1	0	0	2	1	0	0	0	1	0	0	6
8:30 AM	1	0	0	0	0	0	1	0	2	2	0	0	0	1	0	0	7
8:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	1	0	0	9	1	0	14	8	0	0	0	3	1	0	42
APPROACH %'s :	16.67%	66.67%	16.67%	0.00%	0.00%	90.00%	10.00%	0.00%	63.64%	36.36%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	4	1	0	0	7	0	0	9	3	0	0	0	1	1	0	26
PEAK HR FACTOR :	0.000	0.333	0.250	0.000	0.000	0.438	0.000	0.000	0.563	0.750	0.000	0.000	0.000	0.250	0.250	0.000	0.500
	0.417				0.438				0.600				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
4:30 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	4
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	1	0	0	2	0	0	0	5	0	0	0	3	1	0	15
APPROACH %'s :	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	1	1	0	0	2	0	0	0	3	0	0	0	1	0	0	8
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.250	0.000	0.000	0.667
	0.500				0.500				0.750				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Whittram Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-030
Date: 9/8/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	57	24	0	9	122	0	0	0	0	0	0	39	0	19	0	270
7:15 AM	0	73	31	0	16	102	0	0	0	0	0	0	34	0	21	0	277
7:30 AM	0	89	23	0	13	143	0	0	0	0	0	0	42	0	39	0	349
7:45 AM	0	113	29	0	13	125	0	0	0	0	0	0	59	0	43	0	382
8:00 AM	0	71	30	0	10	120	0	0	0	0	0	0	40	0	30	0	301
8:15 AM	0	78	26	0	5	108	0	0	0	0	0	0	33	0	20	0	270
8:30 AM	0	76	18	0	21	123	0	0	0	0	0	0	32	0	27	0	297
8:45 AM	0	55	27	0	12	110	0	0	0	0	0	0	32	0	19	0	255
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	612	208	0	99	953	0	0	0	0	0	0	311	0	218	0	2401
APPROACH %'s :	0.00%	74.63%	25.37%	0.00%	9.41%	90.59%	0.00%	0.00%					58.79%	0.00%	41.21%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	346	113	0	52	490	0	0	0	0	0	0	175	0	133	0	1309
PEAK HR FACTOR :	0.000	0.765	0.911	0.000	0.813	0.857	0.000	0.000	0.000	0.000	0.000	0.000	0.742	0.000	0.773	0.000	0.857
	0.808				0.869								0.755				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	135	45	0	29	94	0	0	0	0	0	0	43	0	19	0	365
4:15 PM	0	142	59	0	43	91	0	0	0	0	0	0	40	0	23	0	398
4:30 PM	0	158	43	0	45	119	0	0	0	0	0	0	49	0	21	0	435
4:45 PM	0	171	49	0	37	98	0	0	0	0	0	0	39	0	17	0	411
5:00 PM	0	141	61	0	53	116	0	0	0	0	0	0	38	0	19	0	428
5:15 PM	0	141	72	0	46	89	0	0	0	0	0	0	29	0	22	0	399
5:30 PM	0	189	61	0	49	89	0	0	0	0	0	0	23	0	17	0	428
5:45 PM	0	157	41	0	29	89	0	0	0	0	0	0	31	0	16	0	363
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1234	431	0	331	785	0	0	0	0	0	0	292	0	154	0	3227
APPROACH %'s :	0.00%	74.11%	25.89%	0.00%	29.66%	70.34%	0.00%	0.00%					65.47%	0.00%	34.53%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	611	225	0	181	422	0	0	0	0	0	0	155	0	79	0	1673
PEAK HR FACTOR :	0.000	0.893	0.781	0.000	0.854	0.887	0.000	0.000	0.000	0.000	0.000	0.000	0.791	0.000	0.898	0.000	0.961
	0.950				0.892								0.836				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Whittram Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-030
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	39	16	0	9	110	0	0	0	0	0	0	27	0	17	0	218
7:15 AM	0	54	21	0	14	89	0	0	0	0	0	0	23	0	19	0	220
7:30 AM	0	81	16	0	13	125	0	0	0	0	0	0	33	0	38	0	306
7:45 AM	0	96	25	0	11	111	0	0	0	0	0	0	48	0	43	0	334
8:00 AM	0	61	23	0	6	106	0	0	0	0	0	0	29	0	30	0	255
8:15 AM	0	64	17	0	4	93	0	0	0	0	0	0	20	0	19	0	217
8:30 AM	0	65	13	0	20	98	0	0	0	0	0	0	22	0	23	0	241
8:45 AM	0	45	18	0	11	85	0	0	0	0	0	0	19	0	17	0	195
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	505	149	0	88	817	0	0	0	0	0	0	221	0	206	0	1986
APPROACH %'s :	0.00%	77.22%	22.78%	0.00%	9.72%	90.28%	0.00%	0.00%					51.76%	0.00%	48.24%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	292	85	0	44	431	0	0	0	0	0	0	133	0	130	0	1115
PEAK HR FACTOR :	0.000	0.760	0.850	0.000	0.786	0.862	0.000	0.000	0.000	0.000	0.000	0.000	0.693	0.000	0.756	0.000	0.835
	0.779				0.861								0.723				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	120	28	0	26	76	0	0	0	0	0	0	37	0	19	0	306
4:15 PM	0	132	42	0	39	77	0	0	0	0	0	0	31	0	22	0	343
4:30 PM	0	149	35	0	45	99	0	0	0	0	0	0	35	0	18	0	381
4:45 PM	0	161	44	0	34	74	0	0	0	0	0	0	24	0	15	0	352
5:00 PM	0	134	48	0	49	96	0	0	0	0	0	0	32	0	19	0	378
5:15 PM	0	130	60	0	44	76	0	0	0	0	0	0	24	0	20	0	354
5:30 PM	0	182	46	0	47	74	0	0	0	0	0	0	21	0	14	0	384
5:45 PM	0	145	31	0	27	69	0	0	0	0	0	0	21	0	15	0	308
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1153	334	0	311	641	0	0	0	0	0	0	225	0	142	0	2806
APPROACH %'s :	0.00%	77.54%	22.46%	0.00%	32.67%	67.33%	0.00%	0.00%					61.31%	0.00%	38.69%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	574	187	0	172	345	0	0	0	0	0	0	115	0	72	0	1465
PEAK HR FACTOR :	0.000	0.891	0.779	0.000	0.878	0.871	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.000	0.900	0.000	0.961
	0.928				0.891								0.882				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Whittram Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-030
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	1	0	0	2	0	0	0	0	0	0	2	0	1	0	9
7:15 AM	0	2	1	0	0	3	0	0	0	0	0	0	3	0	0	0	9
7:30 AM	0	3	0	0	0	6	0	0	0	0	0	0	1	0	0	0	10
7:45 AM	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	5
8:00 AM	0	0	3	0	1	3	0	0	0	0	0	0	1	0	0	0	8
8:15 AM	0	2	1	0	0	1	0	0	0	0	0	0	1	0	1	0	6
8:30 AM	0	4	2	0	0	6	0	0	0	0	0	0	0	0	1	0	13
8:45 AM	0	2	1	0	1	6	0	0	0	0	0	0	3	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	18	9	0	2	29	0	0	0	0	0	0	12	0	3	0	73
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	6.45%	93.55%	0.00%	0.00%					80.00%	0.00%	20.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	7	4	0	1	14	0	0	0	0	0	0	6	0	0	0	32
PEAK HR FACTOR :	0.000	0.583	0.333	0.000	0.250	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.800
	0.917				0.625								0.500				

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Whittram Ave				Whittram Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	3	0	0	0	0	0	0	1	0	0	0	6
4:15 PM	0	1	3	0	0	3	0	0	0	0	0	0	0	0	0	0	7
4:30 PM	0	3	0	0	0	6	0	0	0	0	0	0	1	0	0	0	10
4:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	1	0	1	0	5
5:00 PM	0	2	2	0	0	3	0	0	0	0	0	0	1	0	0	0	8
5:15 PM	0	2	2	0	0	2	0	0	0	0	0	0	1	0	0	0	7
5:30 PM	0	2	1	0	0	2	0	0	0	0	0	0	1	0	0	0	6
5:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	13	10	0	0	23	0	0	0	0	0	0	7	0	1	0	54
APPROACH %'s :	0.00%	56.52%	43.48%	0.00%	0.00%	100.00%	0.00%	0.00%					87.50%	0.00%	12.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	8	4	0	0	13	0	0	0	0	0	0	4	0	1	0	30
PEAK HR FACTOR :	0.000	0.667	0.500	0.000	0.000	0.542	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.250	0.000	0.750
	0.750				0.542								0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Whittram Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-030
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	1	0	0	6	0	0	0	0	0	0	4	0	1	0	16
7:15 AM	0	8	5	0	1	5	0	0	0	0	0	0	4	0	1	0	24
7:30 AM	0	2	4	0	0	3	0	0	0	0	0	0	3	0	1	0	13
7:45 AM	0	7	2	0	0	4	0	0	0	0	0	0	5	0	0	0	18
8:00 AM	0	9	1	0	1	3	0	0	0	0	0	0	4	0	0	0	18
8:15 AM	0	5	2	0	0	1	0	0	0	0	0	0	5	0	0	0	13
8:30 AM	0	4	2	0	1	7	0	0	0	0	0	0	1	0	2	0	17
8:45 AM	0	4	5	0	0	10	0	0	0	0	0	0	4	0	1	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	43	22	0	3	39	0	0	0	0	0	0	30	0	6	0	143
APPROACH %'s :	0.00%	66.15%	33.85%	0.00%	7.14%	92.86%	0.00%	0.00%					83.33%	0.00%	16.67%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	26	12	0	2	15	0	0	0	0	0	0	16	0	2	0	73
PEAK HR FACTOR :	0.000	0.722	0.600	0.000	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.000	0.500	0.000	0.760
	0.731				0.708								0.900				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	5	3	0	0	7	0	0	0	0	0	0	3	0	0	0	18
4:15 PM	0	2	5	0	0	9	0	0	0	0	0	0	6	0	1	0	23
4:30 PM	0	2	1	0	0	9	0	0	0	0	0	0	11	0	3	0	26
4:45 PM	0	5	3	0	0	17	0	0	0	0	0	0	9	0	0	0	34
5:00 PM	0	1	6	0	2	10	0	0	0	0	0	0	5	0	0	0	24
5:15 PM	0	1	2	0	1	6	0	0	0	0	0	0	3	0	1	0	14
5:30 PM	0	1	9	0	0	4	0	0	0	0	0	0	1	0	1	0	16
5:45 PM	0	4	4	0	0	10	0	0	0	0	0	0	6	0	1	0	25
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	21	33	0	3	72	0	0	0	0	0	0	44	0	7	0	180
APPROACH %'s :	0.00%	38.89%	61.11%	0.00%	4.00%	96.00%	0.00%	0.00%					86.27%	0.00%	13.73%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	9	12	0	3	42	0	0	0	0	0	0	28	0	4	0	98
PEAK HR FACTOR :	0.000	0.450	0.500	0.000	0.375	0.618	0.000	0.000	0.000	0.000	0.000	0.000	0.636	0.000	0.333	0.000	0.721
	0.656				0.662								0.571				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Whittram Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-030
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	11	6	0	0	4	0	0	0	0	0	0	6	0	0	0	27
7:15 AM	0	9	4	0	1	5	0	0	0	0	0	0	4	0	1	0	24
7:30 AM	0	3	3	0	0	9	0	0	0	0	0	0	5	0	0	0	20
7:45 AM	0	8	2	0	2	8	0	0	0	0	0	0	5	0	0	0	25
8:00 AM	0	1	3	0	2	8	0	0	0	0	0	0	6	0	0	0	20
8:15 AM	0	7	6	0	1	13	0	0	0	0	0	0	7	0	0	0	34
8:30 AM	0	3	1	0	0	12	0	0	0	0	0	0	9	0	1	0	26
8:45 AM	0	4	3	0	0	9	0	0	0	0	0	0	6	0	1	0	23
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	46	28	0	6	68	0	0	0	0	0	0	48	0	3	0	199
APPROACH %'s :	0.00%	62.16%	37.84%	0.00%	8.11%	91.89%	0.00%	0.00%					94.12%	0.00%	5.88%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	21	12	0	5	30	0	0	0	0	0	0	20	0	1	0	89
PEAK HR FACTOR :	0.000	0.583	0.750	0.000	0.625	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.000	0.250	0.000	0.890
	0.635				0.875								0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	8	14	0	3	8	0	0	0	0	0	0	2	0	0	0	35
4:15 PM	0	7	9	0	4	2	0	0	0	0	0	0	3	0	0	0	25
4:30 PM	0	4	7	0	0	5	0	0	0	0	0	0	2	0	0	0	18
4:45 PM	0	4	2	0	3	5	0	0	0	0	0	0	5	0	1	0	20
5:00 PM	0	4	5	0	2	7	0	0	0	0	0	0	0	0	0	0	18
5:15 PM	0	8	8	0	1	5	0	0	0	0	0	0	1	0	1	0	24
5:30 PM	0	4	5	0	2	9	0	0	0	0	0	0	0	0	2	0	22
5:45 PM	0	8	4	0	2	8	0	0	0	0	0	0	3	0	0	0	25
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	47	54	0	17	49	0	0	0	0	0	0	16	0	4	0	187
APPROACH %'s :	0.00%	46.53%	53.47%	0.00%	25.76%	74.24%	0.00%	0.00%					80.00%	0.00%	20.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	20	22	0	6	22	0	0	0	0	0	0	8	0	2	0	80
PEAK HR FACTOR :	0.000	0.625	0.688	0.000	0.500	0.786	0.000	0.000	0.000	0.000	0.000	0.000	0.400	0.000	0.500	0.000	0.833
	0.656				0.778								0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Whittram Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-031
Date: 9/8/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	32	143	22	0	7	204	11	4	8	8	27	0	32	16	9	0	523
7:15 AM	33	141	18	0	3	232	16	1	5	9	44	0	26	25	13	0	566
7:30 AM	46	161	25	0	7	230	27	3	6	7	43	0	28	26	6	0	615
7:45 AM	34	211	34	0	3	247	29	1	5	6	39	0	28	52	12	0	701
8:00 AM	38	216	39	0	7	233	10	5	4	8	29	0	38	31	32	0	690
8:15 AM	18	141	21	0	7	193	17	2	6	9	33	0	24	18	14	0	503
8:30 AM	31	160	22	0	8	171	10	5	7	15	27	0	17	21	11	0	505
8:45 AM	25	134	25	0	11	182	11	1	3	10	23	0	29	12	15	0	481
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	257	1307	206	0	53	1692	131	22	44	72	265	0	222	201	112	0	4584
APPROACH %'s :	14.52%	73.84%	11.64%	0.00%	2.79%	89.15%	6.90%	1.16%	11.55%	18.90%	69.55%	0.00%	41.50%	37.57%	20.93%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	151	729	116	0	20	942	82	10	20	30	155	0	120	134	63	0	2572
PEAK HR FACTOR :	0.821	0.844	0.744	0.000	0.714	0.953	0.707	0.500	0.833	0.833	0.881	0.000	0.789	0.644	0.492	0.000	0.917
	0.850				0.941				0.884				0.785				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	24	300	24	0	7	150	11	2	14	47	50	0	19	11	12	0	671
4:15 PM	26	298	26	0	9	175	16	1	23	30	66	0	21	15	13	0	719
4:30 PM	27	298	29	0	7	156	10	0	21	36	56	0	49	20	20	0	729
4:45 PM	22	351	19	0	9	144	6	1	15	32	54	0	13	10	11	0	687
5:00 PM	31	320	19	0	6	160	10	2	14	35	72	0	19	13	20	0	721
5:15 PM	30	272	22	0	9	153	6	2	23	36	56	0	20	12	9	0	650
5:30 PM	28	294	23	0	3	134	9	3	12	31	54	0	13	9	6	0	619
5:45 PM	20	263	28	0	6	131	7	0	13	29	49	0	10	10	8	0	574
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	208	2396	190	0	56	1203	75	11	135	276	457	0	164	100	99	0	5370
APPROACH %'s :	7.44%	85.76%	6.80%	0.00%	4.16%	89.44%	5.58%	0.82%	15.55%	31.80%	52.65%	0.00%	45.18%	27.55%	27.27%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	106	1267	93	0	31	635	42	4	73	133	248	0	102	58	64	0	2856
PEAK HR FACTOR :	0.855	0.902	0.802	0.000	0.861	0.907	0.656	0.500	0.793	0.924	0.861	0.000	0.520	0.725	0.800	0.000	0.979
	0.935				0.886				0.938				0.629				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Whittram Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-031
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	29	124	19	0	7	184	11	4	6	7	22	0	26	16	9	0	464
7:15 AM	27	130	17	0	2	214	15	1	2	9	35	0	19	25	12	0	508
7:30 AM	43	146	23	0	6	208	24	3	5	7	36	0	21	26	4	0	552
7:45 AM	28	196	28	0	3	229	27	1	3	6	31	0	23	51	12	0	638
8:00 AM	27	194	34	0	5	202	10	5	3	8	20	0	33	30	32	0	603
8:15 AM	17	122	17	0	6	170	12	1	5	8	27	0	22	16	13	0	436
8:30 AM	25	147	15	0	6	142	7	5	4	14	21	0	12	18	10	0	426
8:45 AM	19	107	22	0	7	159	9	1	2	9	17	0	16	11	12	0	391
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	215	1166	175	0	42	1508	115	21	30	68	209	0	172	193	104	0	4018
APPROACH %'s :	13.82%	74.94%	11.25%	0.00%	2.49%	89.44%	6.82%	1.25%	9.77%	22.15%	68.08%	0.00%	36.67%	41.15%	22.17%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	125	666	102	0	16	853	76	10	13	30	122	0	96	132	60	0	2301
PEAK HR FACTOR :	0.727	0.849	0.750	0.000	0.667	0.931	0.704	0.500	0.650	0.833	0.847	0.000	0.727	0.647	0.469	0.000	0.902
	0.875				0.918				0.859				0.758				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	281	20	0	6	124	7	2	12	43	48	0	16	10	9	0	593
4:15 PM	20	278	23	0	7	160	11	1	20	29	56	0	17	12	11	0	645
4:30 PM	21	272	20	0	6	153	9	0	17	34	47	0	39	19	18	0	655
4:45 PM	18	338	17	0	8	125	4	1	13	31	49	0	10	7	10	0	631
5:00 PM	25	299	18	0	5	151	7	2	13	34	64	0	18	13	20	0	669
5:15 PM	28	251	18	0	7	139	4	2	21	35	49	0	20	12	8	0	594
5:30 PM	22	283	19	0	3	126	8	3	10	31	49	0	13	8	4	0	579
5:45 PM	18	249	21	0	6	119	5	0	12	28	43	0	8	9	8	0	526
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	167	2251	156	0	48	1097	55	11	118	265	405	0	141	90	88	0	4892
APPROACH %'s :	6.49%	87.45%	6.06%	0.00%	3.96%	90.59%	4.54%	0.91%	14.97%	33.63%	51.40%	0.00%	44.20%	28.21%	27.59%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	84	1187	78	0	26	589	31	4	63	128	216	0	84	51	59	0	2600
PEAK HR FACTOR :	0.840	0.878	0.848	0.000	0.813	0.920	0.705	0.500	0.788	0.941	0.844	0.000	0.538	0.671	0.738	0.000	0.972
	0.904				0.908				0.917				0.638				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Whittram Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-031
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	7	0	0	0	5	0	0	0	0	1	0	2	0	0	0	16
7:15 AM	3	3	0	0	1	2	0	0	1	0	1	0	0	0	0	0	11
7:30 AM	0	8	0	0	1	4	0	0	1	0	2	0	1	0	1	0	18
7:45 AM	1	5	2	0	0	6	0	0	0	0	3	0	2	1	0	0	20
8:00 AM	1	8	4	0	0	9	0	0	1	0	0	0	2	0	0	0	25
8:15 AM	0	8	1	0	0	6	1	1	1	0	1	0	0	1	0	0	20
8:30 AM	0	4	1	0	1	11	0	0	0	0	2	0	2	1	1	0	23
8:45 AM	3	10	2	0	1	9	1	0	0	0	1	0	3	0	3	0	33
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	53	10	0	4	52	2	1	4	0	11	0	12	3	5	0	166
APPROACH %'s :	12.50%	73.61%	13.89%	0.00%	6.78%	88.14%	3.39%	1.69%	26.67%	0.00%	73.33%	0.00%	60.00%	15.00%	25.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	5	24	6	0	2	21	0	0	3	0	6	0	5	1	1	0	74
PEAK HR FACTOR :	0.417	0.750	0.375	0.000	0.500	0.583	0.000	0.000	0.750	0.000	0.500	0.000	0.625	0.250	0.250	0.000	0.740
	0.673				0.639				0.750				0.583				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	4	1	0	1	5	1	0	0	1	1	0	0	1	2	0	20
4:15 PM	0	10	1	0	1	6	0	0	0	0	3	0	2	0	1	0	24
4:30 PM	0	11	2	0	1	3	1	0	1	0	1	0	2	1	0	0	23
4:45 PM	0	3	2	0	1	6	1	0	0	0	0	0	1	0	0	0	14
5:00 PM	0	6	1	0	1	2	0	0	0	1	1	0	0	0	0	0	12
5:15 PM	0	4	1	0	1	0	0	0	0	0	0	0	0	0	1	0	7
5:30 PM	0	3	2	0	0	0	0	0	0	0	0	0	0	1	1	0	7
5:45 PM	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	42	11	0	6	23	3	0	1	2	6	0	5	3	5	0	111
APPROACH %'s :	7.02%	73.68%	19.30%	0.00%	18.75%	71.88%	9.38%	0.00%	11.11%	22.22%	66.67%	0.00%	38.46%	23.08%	38.46%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	30	6	0	4	17	2	0	1	1	5	0	5	1	1	0	73
PEAK HR FACTOR :	0.000	0.682	0.750	0.000	1.000	0.708	0.500	0.000	0.250	0.250	0.417	0.000	0.625	0.250	0.250	0.000	0.760
	0.692				0.719				0.583				0.583				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Whittram Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-031
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	7	2	0	0	3	0	0	0	1	2	0	1	0	0	0	18
7:15 AM	2	3	0	0	0	3	1	0	0	0	2	0	4	0	0	0	15
7:30 AM	2	2	1	0	0	7	2	0	0	0	2	0	4	0	0	0	20
7:45 AM	3	4	2	0	0	5	2	0	0	0	2	0	2	0	0	0	20
8:00 AM	3	4	0	0	0	6	0	0	0	0	6	0	1	1	0	0	21
8:15 AM	1	1	1	0	0	6	2	0	0	1	2	0	1	1	0	0	16
8:30 AM	2	0	2	0	1	6	0	0	2	1	3	0	1	1	0	0	19
8:45 AM	2	6	0	0	1	5	0	0	0	0	4	0	0	1	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	27	8	0	2	41	7	0	2	3	23	0	14	4	0	0	148
APPROACH %'s :	32.69%	51.92%	15.38%	0.00%	4.00%	82.00%	14.00%	0.00%	7.14%	10.71%	82.14%	0.00%	77.78%	22.22%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	10	13	3	0	0	21	5	0	0	0	12	0	11	1	0	0	76
PEAK HR FACTOR :	0.833	0.813	0.375	0.000	0.000	0.750	0.625	0.000	0.000	0.000	0.500	0.000	0.688	0.250	0.000	0.000	0.905
	0.722				0.722				0.500				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	3	0	0	0	7	1	0	2	0	1	0	1	0	0	0	17
4:15 PM	1	5	0	0	1	4	3	0	0	0	5	0	1	2	0	0	22
4:30 PM	2	4	2	0	0	0	0	0	2	0	2	0	6	0	0	0	18
4:45 PM	2	3	0	0	0	8	1	0	2	1	2	0	2	2	0	0	23
5:00 PM	2	4	0	0	0	2	1	0	1	0	2	0	0	0	0	0	12
5:15 PM	0	6	1	0	0	11	2	0	2	0	6	0	0	0	0	0	28
5:30 PM	2	1	1	0	0	5	0	0	2	0	3	0	0	0	1	0	15
5:45 PM	0	3	1	0	0	4	2	0	0	0	2	0	0	1	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	29	5	0	1	41	10	0	11	1	23	0	10	5	1	0	148
APPROACH %'s :	24.44%	64.44%	11.11%	0.00%	1.92%	78.85%	19.23%	0.00%	31.43%	2.86%	65.71%	0.00%	62.50%	31.25%	6.25%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	7	16	2	0	1	14	5	0	5	1	11	0	9	4	0	0	75
PEAK HR FACTOR :	0.875	0.800	0.250	0.000	0.250	0.438	0.417	0.000	0.625	0.250	0.550	0.000	0.375	0.500	0.000	0.000	0.815
	0.781				0.556				0.850				0.542				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Whittram Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-031
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	1	0	0	12	0	0	2	0	2	0	3	0	0	0	25
7:15 AM	1	5	1	0	0	13	0	0	2	0	6	0	3	0	1	0	32
7:30 AM	1	5	1	0	0	11	1	0	0	0	3	0	2	0	1	0	25
7:45 AM	2	6	2	0	0	7	0	0	2	0	3	0	1	0	0	0	23
8:00 AM	7	10	1	0	2	16	0	0	0	0	3	0	2	0	0	0	41
8:15 AM	0	10	2	0	1	11	2	0	0	0	3	0	1	0	1	0	31
8:30 AM	4	9	4	0	0	12	3	0	1	0	1	0	2	1	0	0	37
8:45 AM	1	11	1	0	2	9	1	0	1	1	1	0	10	0	0	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	16	61	13	0	5	91	7	0	8	1	22	0	24	1	3	0	252
APPROACH %'s :	17.78%	67.78%	14.44%	0.00%	4.85%	88.35%	6.80%	0.00%	25.81%	3.23%	70.97%	0.00%	85.71%	3.57%	10.71%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	11	26	5	0	2	47	1	0	4	0	15	0	8	0	2	0	121
PEAK HR FACTOR :	0.393	0.650	0.625	0.000	0.250	0.734	0.250	0.000	0.500	0.000	0.625	0.000	0.667	0.000	0.500	0.000	0.738
	0.583				0.694				0.594				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	12	3	0	0	14	2	0	0	3	0	0	2	0	1	0	41
4:15 PM	5	5	2	0	0	5	2	0	3	1	2	0	1	1	1	0	28
4:30 PM	4	11	5	0	0	0	0	0	1	2	6	0	2	0	2	0	33
4:45 PM	2	7	0	0	0	5	0	0	0	0	3	0	0	1	1	0	19
5:00 PM	4	11	0	0	0	5	2	0	0	0	5	0	1	0	0	0	28
5:15 PM	2	11	2	0	1	3	0	0	0	1	1	0	0	0	0	0	21
5:30 PM	4	7	1	0	0	3	1	0	0	0	2	0	0	0	0	0	18
5:45 PM	1	10	5	0	0	7	0	0	1	1	4	0	2	0	0	0	31
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	26	74	18	0	1	42	7	0	5	8	23	0	8	2	5	0	219
APPROACH %'s :	22.03%	62.71%	15.25%	0.00%	2.00%	84.00%	14.00%	0.00%	13.89%	22.22%	63.89%	0.00%	53.33%	13.33%	33.33%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	15	34	7	0	0	15	4	0	4	3	16	0	4	2	4	0	108
PEAK HR FACTOR :	0.750	0.773	0.350	0.000	0.000	0.750	0.500	0.000	0.333	0.375	0.667	0.000	0.500	0.500	0.500	0.000	0.818
	0.700				0.679				0.639				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Whittram Ave
City: Fontana
Control: 1-Way Stop (EB)

Project ID: 21-030070-032
Date: 9/8/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	26	47	0	1	2	34	26	0	11	1	7	0	0	0	1	0	156
7:15 AM	25	52	0	0	0	55	20	0	7	0	9	0	0	2	0	0	170
7:30 AM	32	68	0	0	0	70	17	0	11	0	7	0	0	1	0	0	206
7:45 AM	36	87	2	0	0	65	24	0	11	1	15	0	0	0	0	0	241
8:00 AM	36	71	1	0	0	55	35	0	14	1	23	0	0	0	0	0	236
8:15 AM	20	61	0	0	0	60	22	0	13	1	19	0	0	0	1	0	197
8:30 AM	19	56	1	0	1	49	16	0	9	0	19	0	0	0	0	0	170
8:45 AM	21	60	1	0	1	50	17	0	6	0	12	0	0	4	2	0	174
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	215	502	5	1	4	438	177	0	82	4	111	0	0	7	4	0	1550
APPROACH %'s :	29.74%	69.43%	0.69%	0.14%	0.65%	70.76%	28.59%	0.00%	41.62%	2.03%	56.35%	0.00%	0.00%	63.64%	36.36%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	124	287	3	0	0	250	98	0	49	3	64	0	0	1	1	0	880
PEAK HR FACTOR :	0.861	0.825	0.375	0.000	0.000	0.893	0.700	0.000	0.875	0.750	0.696	0.000	0.000	0.250	0.250	0.000	0.913
	0.828				0.967				0.763				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	101	0	1	0	74	14	0	21	1	47	0	0	1	0	0	275
4:15 PM	19	109	1	0	1	81	9	0	21	0	43	0	1	1	0	0	286
4:30 PM	26	105	0	0	0	67	9	0	17	0	37	0	2	1	2	0	266
4:45 PM	17	76	0	1	0	77	3	0	19	0	32	0	1	0	1	0	227
5:00 PM	24	114	2	0	0	64	6	0	14	0	44	0	0	1	1	0	270
5:15 PM	15	89	0	0	0	78	9	0	24	0	40	0	1	0	0	0	256
5:30 PM	14	102	1	0	1	68	10	0	18	0	35	0	0	0	1	0	250
5:45 PM	18	96	0	0	0	70	7	0	25	0	29	0	0	0	3	0	248
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	148	792	4	2	2	579	67	0	159	1	307	0	5	4	8	0	2078
APPROACH %'s :	15.64%	83.72%	0.42%	0.21%	0.31%	89.35%	10.34%	0.00%	34.05%	0.21%	65.74%	0.00%	29.41%	23.53%	47.06%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	77	391	1	2	1	299	35	0	78	1	159	0	4	3	3	0	1054
PEAK HR FACTOR :	0.740	0.897	0.250	0.500	0.250	0.923	0.625	0.000	0.929	0.250	0.846	0.000	0.500	0.750	0.375	0.000	0.921
	0.899				0.920				0.862				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Whittram Ave
City: Fontana
Control: 1-Way Stop (EB)

Project ID: 21-030070-032
Date: 9/8/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	24	46	0	1	2	33	23	0	9	1	6	0	0	0	1	0	146
7:15 AM	24	46	0	0	0	55	18	0	5	0	8	0	0	0	0	0	156
7:30 AM	32	67	0	0	0	67	13	0	10	0	7	0	0	0	0	0	196
7:45 AM	36	85	1	0	0	62	20	0	5	1	15	0	0	0	0	0	225
8:00 AM	35	70	0	0	0	53	31	0	13	1	21	0	0	0	0	0	224
8:15 AM	20	60	0	0	0	58	20	0	11	0	17	0	0	0	1	0	187
8:30 AM	19	54	1	0	1	47	12	0	7	0	17	0	0	0	0	0	158
8:45 AM	18	57	1	0	0	49	14	0	5	0	12	0	0	0	2	0	158
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	208	485	3	1	3	424	151	0	65	3	103	0	0	0	4	0	1450
APPROACH %'s :	29.84%	69.58%	0.43%	0.14%	0.52%	73.36%	26.12%	0.00%	38.01%	1.75%	60.23%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	123	282	1	0	0	240	84	0	39	2	60	0	0	0	1	0	832
PEAK HR FACTOR :	0.854	0.829	0.250	0.000	0.000	0.896	0.677	0.000	0.750	0.500	0.714	0.000	0.000	0.000	0.250	0.000	0.924
	0.832				0.964				0.721				0.250				

NS/EW Streets:	Beech Ave				Beech Ave				Whittram Ave				Whittram Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	97	0	1	0	72	12	0	21	0	45	0	0	0	0	0	261
4:15 PM	16	107	0	0	1	76	9	0	21	0	41	0	0	1	0	0	272
4:30 PM	22	103	0	0	0	62	7	0	16	0	34	0	2	0	2	0	248
4:45 PM	15	76	0	1	0	77	3	0	19	0	29	0	1	0	1	0	222
5:00 PM	23	111	2	0	0	64	5	0	14	0	43	0	0	1	1	0	264
5:15 PM	15	88	0	0	0	76	8	0	23	0	39	0	1	0	0	0	250
5:30 PM	13	101	0	0	1	64	9	0	16	0	33	0	0	0	1	0	238
5:45 PM	18	96	0	0	0	70	7	0	23	0	29	0	0	0	3	0	246
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	135	779	2	2	2	561	60	0	153	0	293	0	4	2	8	0	2001
APPROACH %'s :	14.71%	84.86%	0.22%	0.22%	0.32%	90.05%	9.63%	0.00%	34.30%	0.00%	65.70%	0.00%	28.57%	14.29%	57.14%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	66	383	0	2	1	287	31	0	77	0	149	0	3	1	3	0	1003
PEAK HR FACTOR :	0.750	0.895	0.000	0.500	0.250	0.932	0.646	0.000	0.917	0.000	0.828	0.000	0.375	0.250	0.375	0.000	0.922
	0.902				0.927				0.856				0.438				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Whittram Ave
City: Fontana
Control: 1-Way Stop (EB)

Project ID: 21-030070-032
Date: 9/8/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	4
7:15 AM	0	5	0	0	0	0	2	0	2	0	1	0	0	0	0	0	10
7:30 AM	0	1	0	0	0	1	2	0	1	0	0	0	0	0	0	0	5
7:45 AM	0	2	0	0	0	2	2	0	4	0	0	0	0	0	0	0	10
8:00 AM	1	0	0	0	0	1	2	0	0	0	2	0	0	0	0	0	6
8:15 AM	0	1	0	0	0	2	0	0	1	0	2	0	0	0	0	0	6
8:30 AM	0	2	0	0	0	2	1	0	1	0	1	0	0	0	0	0	7
8:45 AM	2	1	0	0	1	1	1	0	1	0	0	0	0	2	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	12	0	0	1	10	11	0	10	0	6	0	0	2	0	0	57
APPROACH %'s :	29.41%	70.59%	0.00%	0.00%	4.55%	45.45%	50.00%	0.00%	62.50%	0.00%	37.50%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	4	0	0	0	6	6	0	6	0	4	0	0	0	0	0	27
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.750	0.750	0.000	0.375	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.675
	0.625				0.750				0.625								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	1	0	0	0	0	0	0	0	0	2	0	0	1	0	0	6
4:15 PM	3	1	0	0	0	2	0	0	0	0	1	0	0	0	0	0	7
4:30 PM	2	1	0	0	0	3	1	0	0	0	3	0	0	0	0	0	10
4:45 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3
5:00 PM	1	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	5
5:15 PM	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	4
5:30 PM	0	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	7	0	0	0	6	3	0	1	0	12	0	0	1	0	0	39
APPROACH %'s :	56.25%	43.75%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	7.69%	0.00%	92.31%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	8	3	0	0	0	5	1	0	0	0	8	0	0	1	0	0	26
PEAK HR FACTOR :	0.667	0.750	0.000	0.000	0.000	0.417	0.250	0.000	0.000	0.000	0.667	0.000	0.000	0.250	0.000	0.000	0.650
	0.688				0.375				0.667				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Whittram Ave
City: Fontana
Control: 1-Way Stop (EB)

Project ID: 21-030070-032
Date: 9/8/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	4
7:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3
8:00 AM	0	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	0	8	0	5	0	1	0	0	2	0	0	20
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	83.33%	0.00%	16.67%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	6	0	3	0	0	0	0	0	0	0	10
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.750	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
	0.250				0.750				0.750								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	1	1	0	0	2	0	0	0	0	1	0	0	0	0	0	5
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
5:30 PM	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	4	1	0	0	6	4	0	2	0	2	0	0	0	0	0	21
APPROACH %'s :	28.57%	57.14%	14.29%	0.00%	0.00%	60.00%	40.00%	0.00%	50.00%	0.00%	50.00%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	3	1	0	0	2	3	0	0	0	2	0	0	0	0	0	12
PEAK HR FACTOR :	0.250	0.375	0.250	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.600
	0.625				0.625				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Whittram Ave
City: Fontana
Control: 1-Way Stop (EB)

Project ID: 21-030070-032
Date: 9/8/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Whittram Ave				Whittram Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0	4
7:45 AM	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	3
8:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3
8:45 AM	1	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	2	0	0	4	7	0	2	1	1	0	0	3	0	0	23
APPROACH %'s :	20.00%	40.00%	40.00%	0.00%	0.00%	36.36%	63.64%	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	2	0	0	4	2	0	1	1	0	0	0	1	0	0	11
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.000	0.500	0.500	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.688
	0.500				0.500				0.500				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
4:30 PM	2	1	0	0	0	2	0	0	1	0	0	0	0	1	0	0	7
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	2	1	0	0	6	0	0	3	1	0	0	1	1	0	0	17
APPROACH %'s :	40.00%	40.00%	20.00%	0.00%	0.00%	100.00%	0.00%	0.00%	75.00%	25.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	2	0	0	0	5	0	0	1	1	0	0	1	1	0	0	13
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.625	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.464
	0.333				0.625				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Napa St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-033
Date: 9/9/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Napa St				Napa St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	73	21	0	11	146	0	0	0	0	0	0	17	0	0	0	268
7:15 AM	1	97	27	0	8	120	0	0	0	0	1	0	14	0	8	0	276
7:30 AM	0	111	24	0	4	166	0	0	0	0	0	0	26	0	7	0	338
7:45 AM	0	124	22	0	14	161	0	0	0	0	1	0	16	0	3	0	341
8:00 AM	0	101	19	0	6	137	0	0	0	0	0	0	16	0	5	0	284
8:15 AM	1	106	35	0	5	148	1	0	0	0	1	0	20	0	10	0	327
8:30 AM	2	87	23	0	10	103	0	0	0	0	0	0	14	0	5	0	244
8:45 AM	1	112	28	0	4	88	0	0	0	0	0	0	21	0	6	0	260
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	811	199	0	62	1069	1	0	0	0	3	0	144	0	44	0	2338
APPROACH %'s :	0.49%	79.90%	19.61%	0.00%	5.48%	94.43%	0.09%	0.00%	0.00%	0.00%	100.00%	0.00%	76.60%	0.00%	23.40%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	442	100	0	29	612	1	0	0	0	2	0	78	0	25	0	1290
PEAK HR FACTOR :	0.250	0.891	0.714	0.000	0.518	0.922	0.250	0.000	0.000	0.000	0.500	0.000	0.750	0.000	0.625	0.000	0.946
	0.930				0.917				0.500				0.780				

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Napa St				Napa St				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	182	8	0	12	149	1	0	0	0	0	0	33	0	9	0	394
4:15 PM	0	186	14	0	13	99	0	0	0	0	0	0	17	0	19	0	348
4:30 PM	0	194	13	0	10	105	0	0	3	0	14	0	23	0	11	0	373
4:45 PM	0	183	9	0	17	112	0	0	0	0	4	0	30	0	12	0	367
5:00 PM	0	207	4	0	17	155	0	0	1	0	12	0	24	0	8	0	428
5:15 PM	0	190	4	0	7	122	0	0	0	0	0	0	28	0	5	0	356
5:30 PM	0	189	4	0	4	109	0	0	0	0	0	0	23	0	5	0	334
5:45 PM	0	178	5	0	12	120	0	0	2	0	1	0	9	0	3	0	330
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1509	61	0	92	971	1	0	6	0	31	0	187	0	72	0	2930
APPROACH %'s :	0.00%	96.11%	3.89%	0.00%	8.65%	91.26%	0.09%	0.00%	16.22%	0.00%	83.78%	0.00%	72.20%	0.00%	27.80%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	774	30	0	51	494	0	0	4	0	30	0	105	0	36	0	1524
PEAK HR FACTOR :	0.000	0.935	0.577	0.000	0.750	0.797	0.000	0.000	0.333	0.000	0.536	0.000	0.875	0.000	0.750	0.000	0.890
	0.953				0.792				0.500				0.839				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Napa St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-033
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Napa St				Napa St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	63	2	0	5	123	0	0	0	0	0	0	2	0	0	0	195
7:15 AM	1	77	7	0	6	99	0	0	0	0	0	0	1	0	2	0	193
7:30 AM	0	92	7	0	2	139	0	0	0	0	0	0	5	0	2	0	247
7:45 AM	0	108	9	0	7	143	0	0	0	0	1	0	0	0	1	0	269
8:00 AM	0	81	6	0	3	118	0	0	0	0	0	0	2	0	3	0	213
8:15 AM	1	84	8	0	2	117	1	0	0	0	1	0	3	0	6	0	223
8:30 AM	1	71	1	0	3	82	0	0	0	0	0	0	5	0	1	0	164
8:45 AM	0	86	7	0	2	71	0	0	0	0	0	0	1	0	3	0	170
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	662	47	0	30	892	1	0	0	0	2	0	19	0	18	0	1674
APPROACH %'s :	0.42%	92.98%	6.60%	0.00%	3.25%	96.64%	0.11%	0.00%	0.00%	0.00%	100.00%	0.00%	51.35%	0.00%	48.65%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	365	30	0	14	517	1	0	0	0	2	0	10	0	12	0	952
PEAK HR FACTOR :	0.250	0.845	0.833	0.000	0.500	0.904	0.250	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.500	0.000	0.885
	0.846				0.887				0.500				0.611				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	164	2	0	3	130	0	0	0	0	0	0	13	0	8	0	320
4:15 PM	0	166	3	0	0	85	0	0	0	0	0	0	8	0	15	0	277
4:30 PM	0	176	3	0	3	88	0	0	2	0	14	0	5	0	7	0	298
4:45 PM	0	166	1	0	4	100	0	0	0	0	4	0	10	0	10	0	295
5:00 PM	0	182	1	0	1	146	0	0	1	0	12	0	9	0	7	0	359
5:15 PM	0	166	1	0	2	109	0	0	0	0	0	0	5	0	2	0	285
5:30 PM	0	170	3	0	0	98	0	0	0	0	0	0	7	0	4	0	282
5:45 PM	0	152	3	0	0	103	0	0	2	0	1	0	3	0	2	0	266
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1342	17	0	13	859	0	0	5	0	31	0	60	0	55	0	2382
APPROACH %'s :	0.00%	98.75%	1.25%	0.00%	1.49%	98.51%	0.00%	0.00%	13.89%	0.00%	86.11%	0.00%	52.17%	0.00%	47.83%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	690	6	0	10	443	0	0	3	0	30	0	29	0	26	0	1237
PEAK HR FACTOR :	0.000	0.948	0.500	0.000	0.625	0.759	0.000	0.000	0.375	0.000	0.536	0.000	0.725	0.000	0.650	0.000	0.861
	0.951				0.770				0.516				0.688				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Napa St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-033
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Napa St				Napa St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	1	0	1	5	0	0	0	0	0	0	2	0	0	0	10
7:15 AM	0	8	1	0	0	2	0	0	0	0	1	0	1	0	0	0	13
7:30 AM	0	6	3	0	0	6	0	0	0	0	0	0	0	0	2	0	17
7:45 AM	0	2	2	0	1	1	0	0	0	0	0	0	0	0	1	0	7
8:00 AM	0	5	1	0	1	5	0	0	0	0	0	0	2	0	0	0	14
8:15 AM	0	4	1	0	0	6	0	0	0	0	0	0	1	0	1	0	13
8:30 AM	0	3	0	0	1	5	0	0	0	0	0	0	0	0	2	0	11
8:45 AM	0	4	1	0	0	2	0	0	0	0	0	0	1	0	2	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	33	10	0	4	32	0	0	0	0	1	0	7	0	8	0	95
APPROACH %'s :	0.00%	76.74%	23.26%	0.00%	11.11%	88.89%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	46.67%	0.00%	53.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	17	7	0	2	18	0	0	0	0	0	0	3	0	4	0	51
PEAK HR FACTOR :	0.000	0.708	0.583	0.000	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.500	0.000	0.750
	0.667				0.833								0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	0	0	0	5	1	0	0	0	0	0	1	0	1	0	12
4:15 PM	0	4	1	0	1	4	0	0	0	0	0	0	0	0	0	0	10
4:30 PM	0	3	0	0	1	3	0	0	1	0	0	0	1	0	0	0	9
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
5:15 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	0	5
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	1	0	2	18	1	0	1	0	0	0	2	0	4	0	44
APPROACH %'s :	0.00%	93.75%	6.25%	0.00%	9.52%	85.71%	4.76%	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%	0.00%	66.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	4	0	0	1	8	0	0	1	0	0	0	1	0	3	0	18
PEAK HR FACTOR :	0.000	0.333	0.000	0.000	0.250	0.667	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.750	0.000	0.500
	0.333				0.563				0.250				1.000				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Napa St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-033
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Napa St				Napa St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	14	0	2	4	0	0	0	0	0	0	5	0	0	0	28
7:15 AM	0	3	8	0	2	8	0	0	0	0	0	0	7	0	3	0	31
7:30 AM	0	6	5	0	2	4	0	0	0	0	0	0	14	0	2	0	33
7:45 AM	0	5	6	0	3	8	0	0	0	0	0	0	9	0	0	0	31
8:00 AM	0	3	3	0	1	4	0	0	0	0	0	0	4	0	2	0	17
8:15 AM	0	6	15	0	1	6	0	0	0	0	0	0	9	0	1	0	38
8:30 AM	0	3	14	0	0	4	0	0	0	0	0	0	6	0	1	0	28
8:45 AM	1	9	12	0	1	3	0	0	0	0	0	0	13	0	0	0	39
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	38	77	0	12	41	0	0	0	0	0	0	67	0	9	0	245
APPROACH %'s :	0.86%	32.76%	66.38%	0.00%	22.64%	77.36%	0.00%	0.00%					88.16%	0.00%	11.84%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	20	29	0	7	22	0	0	0	0	0	0	36	0	5	0	119
PEAK HR FACTOR :	0.000	0.833	0.483	0.000	0.583	0.688	0.000	0.000	0.000	0.000	0.000	0.000	0.643	0.000	0.625	0.000	0.783
	0.583				0.659								0.641				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	5	4	0	6	5	0	0	0	0	0	0	12	0	0	0	32
4:15 PM	0	4	8	0	12	3	0	0	0	0	0	0	8	0	2	0	37
4:30 PM	0	3	7	0	5	5	0	0	0	0	0	0	14	0	1	0	35
4:45 PM	0	7	7	0	13	3	0	0	0	0	0	0	19	0	1	0	50
5:00 PM	0	9	3	0	15	2	0	0	0	0	0	0	12	0	0	0	41
5:15 PM	0	10	1	0	4	3	0	0	0	0	0	0	20	0	1	0	39
5:30 PM	0	2	0	0	3	2	0	0	0	0	0	0	14	0	0	0	21
5:45 PM	0	5	0	0	11	7	0	0	0	0	0	0	6	0	0	0	29
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	45	30	0	69	30	0	0	0	0	0	0	105	0	5	0	284
APPROACH %'s :	0.00%	60.00%	40.00%	0.00%	69.70%	30.30%	0.00%	0.00%					95.45%	0.00%	4.55%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	29	18	0	37	13	0	0	0	0	0	0	65	0	3	0	165
PEAK HR FACTOR :	0.000	0.725	0.643	0.000	0.617	0.650	0.000	0.000	0.000	0.000	0.000	0.000	0.813	0.000	0.750	0.000	0.825
	0.839				0.735								0.810				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Napa St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-033
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Napa St				Napa St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	4	0	3	14	0	0	0	0	0	0	8	0	0	0	35
7:15 AM	0	9	11	0	0	11	0	0	0	0	0	0	5	0	3	0	39
7:30 AM	0	7	9	0	0	17	0	0	0	0	0	0	7	0	1	0	41
7:45 AM	0	9	5	0	3	9	0	0	0	0	0	0	7	0	1	0	34
8:00 AM	0	12	9	0	1	10	0	0	0	0	0	0	8	0	0	0	40
8:15 AM	0	12	11	0	2	19	0	0	0	0	0	0	7	0	2	0	53
8:30 AM	1	10	8	0	6	12	0	0	0	0	0	0	3	0	1	0	41
8:45 AM	0	13	8	0	1	12	0	0	0	0	0	0	6	0	1	0	41
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	78	65	0	16	104	0	0	0	0	0	0	51	0	9	0	324
APPROACH %'s :	0.69%	54.17%	45.14%	0.00%	13.33%	86.67%	0.00%	0.00%					85.00%	0.00%	15.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	40	34	0	6	55	0	0	0	0	0	0	29	0	4	0	168
PEAK HR FACTOR :	0.000	0.833	0.773	0.000	0.500	0.724	0.000	0.000	0.000	0.000	0.000	0.000	0.906	0.000	0.500	0.000	0.792
	0.804				0.726								0.917				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	9	2	0	3	9	0	0	0	0	0	0	7	0	0	0	30
4:15 PM	0	12	2	0	0	7	0	0	0	0	0	0	1	0	2	0	24
4:30 PM	0	12	3	0	1	9	0	0	0	0	0	0	3	0	3	0	31
4:45 PM	0	10	1	0	0	8	0	0	0	0	0	0	1	0	0	0	20
5:00 PM	0	16	0	0	1	6	0	0	0	0	0	0	3	0	0	0	26
5:15 PM	0	13	2	0	1	7	0	0	0	0	0	0	3	0	1	0	27
5:30 PM	0	16	1	0	1	9	0	0	0	0	0	0	2	0	1	0	30
5:45 PM	0	19	2	0	1	9	0	0	0	0	0	0	0	0	1	0	32
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	107	13	0	8	64	0	0	0	0	0	0	20	0	8	0	220
APPROACH %'s :	0.00%	89.17%	10.83%	0.00%	11.11%	88.89%	0.00%	0.00%					71.43%	0.00%	28.57%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	51	6	0	3	30	0	0	0	0	0	0	10	0	4	0	104
PEAK HR FACTOR :	0.000	0.797	0.500	0.000	0.750	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.000	0.333	0.000	0.839
	0.891				0.825								0.583				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-034
Date: 9/9/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	134	24	0	27	223	0	0	0	0	0	0	17	0	42	0	467
7:15 AM	0	146	21	0	33	259	0	0	0	0	0	0	25	0	59	0	543
7:30 AM	0	191	21	0	33	254	0	0	0	0	0	0	39	0	50	0	588
7:45 AM	0	189	27	1	30	314	0	0	0	0	0	0	33	0	63	0	657
8:00 AM	0	179	31	0	29	262	0	0	0	0	0	0	36	0	74	0	611
8:15 AM	0	126	27	0	32	216	0	0	0	0	0	0	29	0	40	0	470
8:30 AM	0	156	31	0	27	205	0	0	0	0	0	0	20	0	33	0	472
8:45 AM	0	136	20	1	21	173	0	0	0	0	0	0	20	0	36	0	407
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1257	202	2	232	1906	0	0	0	0	0	0	219	0	397	0	4215
APPROACH %'s :	0.00%	86.04%	13.83%	0.14%	10.85%	89.15%	0.00%	0.00%					35.55%	0.00%	64.45%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	705	100	1	125	1089	0	0	0	0	0	0	133	0	246	0	2399
PEAK HR FACTOR :	0.000	0.923	0.806	0.250	0.947	0.867	0.000	0.000	0.000	0.000	0.000	0.000	0.853	0.000	0.831	0.000	0.913
	0.929				0.882								0.861				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	274	48	2	49	190	0	0	0	0	0	0	27	0	52	0	642
4:15 PM	0	280	53	0	42	190	0	0	0	0	0	0	16	0	52	0	633
4:30 PM	0	338	37	0	43	172	0	0	0	0	0	0	27	0	53	0	670
4:45 PM	0	332	50	0	51	197	0	0	0	0	0	0	12	0	72	0	714
5:00 PM	0	299	49	1	48	189	1	0	0	1	0	0	27	0	40	0	655
5:15 PM	0	340	45	0	45	173	0	0	0	0	0	0	22	0	39	0	664
5:30 PM	0	297	29	0	50	173	0	0	0	0	0	0	18	0	48	0	615
5:45 PM	0	280	35	2	40	141	0	0	0	0	0	0	16	0	28	0	542
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2440	346	5	368	1425	1	0	0	1	0	0	165	0	384	0	5135
APPROACH %'s :	0.00%	87.42%	12.40%	0.18%	20.51%	79.43%	0.06%	0.00%	0.00%	100.00%	0.00%	0.00%	30.05%	0.00%	69.95%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	1309	181	1	187	731	1	0	0	1	0	0	88	0	204	0	2703
PEAK HR FACTOR :	0.000	0.963	0.905	0.250	0.917	0.928	0.250	0.000	0.000	0.250	0.000	0.000	0.815	0.000	0.708	0.000	0.946
	0.968				0.926				0.250				0.869				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-034
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	117	19	0	27	198	0	0	0	0	0	0	15	0	41	0	417
7:15 AM	0	121	19	0	32	234	0	0	0	0	0	0	24	0	59	0	489
7:30 AM	0	166	20	0	31	227	0	0	0	0	0	0	36	0	47	0	527
7:45 AM	0	174	23	0	27	281	0	0	0	0	0	0	31	0	60	0	596
8:00 AM	0	156	28	0	28	230	0	0	0	0	0	0	33	0	72	0	547
8:15 AM	0	110	23	0	30	187	0	0	0	0	0	0	24	0	39	0	413
8:30 AM	0	129	27	0	26	162	0	0	0	0	0	0	15	0	32	0	391
8:45 AM	0	112	17	1	20	139	0	0	0	0	0	0	17	0	35	0	341
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1085	176	1	221	1658	0	0	0	0	0	0	195	0	385	0	3721
APPROACH %'s :	0.00%	85.97%	13.95%	0.08%	11.76%	88.24%	0.00%	0.00%					33.62%	0.00%	66.38%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	617	90	0	118	972	0	0	0	0	0	0	124	0	238	0	2159
PEAK HR FACTOR :	0.000	0.886	0.804	0.000	0.922	0.865	0.000	0.000	0.000	0.000	0.000	0.000	0.861	0.000	0.826	0.000	0.906
	0.897				0.885								0.862				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	248	47	2	47	167	0	0	0	0	0	0	24	0	51	0	586
4:15 PM	0	255	41	0	38	171	0	0	0	0	0	0	15	0	50	0	570
4:30 PM	0	310	37	0	42	157	0	0	0	0	0	0	26	0	52	0	624
4:45 PM	0	303	46	0	49	176	0	0	0	0	0	0	11	0	71	0	656
5:00 PM	0	276	46	1	47	162	1	0	0	1	0	0	24	0	40	0	598
5:15 PM	0	310	39	0	43	150	0	0	0	0	0	0	16	0	38	0	596
5:30 PM	0	275	27	0	49	151	0	0	0	0	0	0	15	0	48	0	565
5:45 PM	0	253	28	2	39	123	0	0	0	0	0	0	14	0	27	0	486
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2230	311	5	354	1257	1	0	0	1	0	0	145	0	377	0	4681
APPROACH %'s :	0.00%	87.59%	12.22%	0.20%	21.96%	77.98%	0.06%	0.00%	0.00%	100.00%	0.00%	0.00%	27.78%	0.00%	72.22%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	1199	168	1	181	645	1	0	0	1	0	0	77	0	201	0	2474
PEAK HR FACTOR :	0.000	0.967	0.913	0.250	0.923	0.916	0.250	0.000	0.000	0.250	0.000	0.000	0.740	0.000	0.708	0.000	0.943
	0.980				0.919				0.250				0.848				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-034
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	4	0	0	3	0	0	0	0	0	0	1	0	0	0	14
7:15 AM	0	7	0	0	1	5	0	0	0	0	0	0	0	0	0	0	13
7:30 AM	0	7	0	0	2	6	0	0	0	0	0	0	1	0	2	0	18
7:45 AM	0	2	0	0	1	8	0	0	0	0	0	0	1	0	2	0	14
8:00 AM	0	9	0	0	1	12	0	0	0	0	0	0	1	0	2	0	25
8:15 AM	0	9	1	0	0	9	0	0	0	0	0	0	1	0	0	0	20
8:30 AM	0	10	2	0	1	14	0	0	0	0	0	0	1	0	0	0	28
8:45 AM	0	9	2	0	0	5	0	0	0	0	0	0	3	0	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	59	9	0	6	62	0	0	0	0	0	0	9	0	6	0	151
APPROACH %'s :	0.00%	86.76%	13.24%	0.00%	8.82%	91.18%	0.00%	0.00%					60.00%	0.00%	40.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	25	0	0	5	31	0	0	0	0	0	0	3	0	6	0	70
PEAK HR FACTOR :	0.000	0.694	0.000	0.000	0.625	0.646	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.750	0.000	0.700
	0.694				0.692								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	6	0	0	2	4	0	0	0	0	0	0	1	0	1	0	14
4:15 PM	0	6	3	0	2	2	0	0	0	0	0	0	0	0	0	0	13
4:30 PM	0	8	0	0	0	3	0	0	0	0	0	0	0	0	1	0	12
4:45 PM	0	10	0	0	0	4	0	0	0	0	0	0	1	0	1	0	16
5:00 PM	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	10
5:15 PM	0	4	1	0	0	6	0	0	0	0	0	0	0	0	1	0	12
5:30 PM	0	7	0	0	0	4	0	0	0	0	0	0	0	0	0	0	11
5:45 PM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	52	5	0	4	30	0	0	0	0	0	0	2	0	4	0	97
APPROACH %'s :	0.00%	91.23%	8.77%	0.00%	11.76%	88.24%	0.00%	0.00%					33.33%	0.00%	66.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	27	2	0	0	17	0	0	0	0	0	0	1	0	3	0	50
PEAK HR FACTOR :	0.000	0.675	0.500	0.000	0.000	0.708	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.750	0.000	0.781
	0.725				0.708								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-034
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	1	0	0	8	0	0	0	0	0	0	0	0	0	0	15
7:15 AM	0	9	0	0	0	12	0	0	0	0	0	0	0	0	0	0	21
7:30 AM	0	8	1	0	0	7	0	0	0	0	0	0	1	0	0	0	17
7:45 AM	0	7	1	0	2	12	0	0	0	0	0	0	1	0	0	0	23
8:00 AM	0	7	1	0	0	9	0	0	0	0	0	0	0	0	0	0	17
8:15 AM	0	4	1	0	1	4	0	0	0	0	0	0	1	0	0	0	11
8:30 AM	0	4	1	0	0	12	0	0	0	0	0	0	0	0	0	0	17
8:45 AM	0	6	0	0	1	11	0	0	0	0	0	0	0	0	1	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	51	6	0	4	75	0	0	0	0	0	0	3	0	1	0	140
APPROACH %'s :	0.00%	89.47%	10.53%	0.00%	5.06%	94.94%	0.00%	0.00%					75.00%	0.00%	25.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	31	3	0	2	40	0	0	0	0	0	0	2	0	0	0	78
PEAK HR FACTOR :	0.000	0.861	0.750	0.000	0.250	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.848
	0.944				0.750								0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	5	0	0	0	6	0	0	0	0	0	0	1	0	0	0	12
4:15 PM	0	9	3	0	0	6	0	0	0	0	0	0	1	0	1	0	20
4:30 PM	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	12
4:45 PM	0	10	1	0	0	9	0	0	0	0	0	0	0	0	0	0	20
5:00 PM	0	8	0	0	0	14	0	0	0	0	0	0	1	0	0	0	23
5:15 PM	0	7	3	0	0	8	0	0	0	0	0	0	1	0	0	0	19
5:30 PM	0	5	0	0	1	11	0	0	0	0	0	0	0	0	0	0	17
5:45 PM	0	5	0	0	0	9	0	0	0	0	0	0	0	0	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	55	7	0	1	69	0	0	0	0	0	0	4	0	1	0	137
APPROACH %'s :	0.00%	88.71%	11.29%	0.00%	1.43%	98.57%	0.00%	0.00%					80.00%	0.00%	20.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	31	4	0	0	37	0	0	0	0	0	0	2	0	0	0	74
PEAK HR FACTOR :	0.000	0.775	0.333	0.000	0.000	0.661	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.804
	0.795				0.661								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-034
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	0	0	0	14	0	0	0	0	0	0	1	0	1	0	21
7:15 AM	0	9	2	0	0	8	0	0	0	0	0	0	1	0	0	0	20
7:30 AM	0	10	0	0	0	14	0	0	0	0	0	0	1	0	1	0	26
7:45 AM	0	6	3	1	0	13	0	0	0	0	0	0	0	0	1	0	24
8:00 AM	0	7	2	0	0	11	0	0	0	0	0	0	2	0	0	0	22
8:15 AM	0	3	2	0	1	16	0	0	0	0	0	0	3	0	1	0	26
8:30 AM	0	13	1	0	0	17	0	0	0	0	0	0	4	0	1	0	36
8:45 AM	0	9	1	0	0	18	0	0	0	0	0	0	0	0	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	62	11	1	1	111	0	0	0	0	0	0	12	0	5	0	203
APPROACH %'s :	0.00%	83.78%	14.86%	1.35%	0.89%	99.11%	0.00%	0.00%					70.59%	0.00%	29.41%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	32	7	1	0	46	0	0	0	0	0	0	4	0	2	0	92
PEAK HR FACTOR :	0.000	0.800	0.583	0.250	0.000	0.821	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.885
	0.909				0.821								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	15	1	0	0	13	0	0	0	0	0	0	1	0	0	0	30
4:15 PM	0	10	6	0	2	11	0	0	0	0	0	0	0	0	1	0	30
4:30 PM	0	14	0	0	1	6	0	0	0	0	0	0	1	0	0	0	22
4:45 PM	0	9	3	0	2	8	0	0	0	0	0	0	0	0	0	0	22
5:00 PM	0	10	2	0	1	9	0	0	0	0	0	0	2	0	0	0	24
5:15 PM	0	19	2	0	2	9	0	0	0	0	0	0	5	0	0	0	37
5:30 PM	0	10	2	0	0	7	0	0	0	0	0	0	3	0	0	0	22
5:45 PM	0	16	7	0	1	6	0	0	0	0	0	0	2	0	1	0	33
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	103	23	0	9	69	0	0	0	0	0	0	14	0	2	0	220
APPROACH %'s :	0.00%	81.75%	18.25%	0.00%	11.54%	88.46%	0.00%	0.00%					87.50%	0.00%	12.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	52	7	0	6	32	0	0	0	0	0	0	8	0	0	0	105
PEAK HR FACTOR :	0.000	0.684	0.583	0.000	0.750	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.400	0.000	0.000	0.000	0.709
	0.702				0.864								0.400				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Merrill Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-035
Date: 9/9/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	38	2	0	16	31	3	0	18	15	3	0	10	46	22	0	208
7:15 AM	10	27	13	0	12	37	17	0	20	33	17	0	23	49	35	0	293
7:30 AM	10	48	18	0	12	35	18	0	20	23	24	0	22	61	37	0	328
7:45 AM	18	51	19	0	16	33	20	0	27	35	6	0	15	63	47	0	350
8:00 AM	13	26	7	0	13	30	16	0	31	35	8	0	7	54	30	0	270
8:15 AM	5	23	4	0	10	24	15	0	19	30	4	0	7	26	12	0	179
8:30 AM	3	28	7	0	13	31	9	0	18	30	3	0	4	33	24	0	203
8:45 AM	6	27	3	0	9	24	17	0	4	23	5	0	8	31	25	0	182
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	69	268	73	0	101	245	115	0	157	224	70	0	96	363	232	0	2013
APPROACH %'s :	16.83%	65.37%	17.80%	0.00%	21.91%	53.15%	24.95%	0.00%	34.81%	49.67%	15.52%	0.00%	13.89%	52.53%	33.57%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	51	152	57	0	53	135	71	0	98	126	55	0	67	227	149	0	1241
PEAK HR FACTOR :	0.708	0.745	0.750	0.000	0.828	0.912	0.888	0.000	0.790	0.900	0.573	0.000	0.728	0.901	0.793	0.000	0.886
	0.739				0.938				0.943				0.886				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	55	17	0	20	41	14	0	33	54	6	0	8	24	28	0	311
4:15 PM	4	64	11	0	32	40	13	1	30	57	8	0	8	38	44	0	350
4:30 PM	7	57	9	0	31	45	10	0	29	63	10	0	9	30	25	0	325
4:45 PM	10	35	18	0	15	29	6	0	37	52	8	0	3	29	24	0	266
5:00 PM	7	55	10	0	37	49	9	0	33	49	7	0	12	47	31	0	346
5:15 PM	9	52	18	0	24	43	19	0	29	51	7	0	8	32	24	0	316
5:30 PM	9	51	8	0	39	35	15	0	39	58	4	0	8	32	26	0	324
5:45 PM	6	48	3	0	28	48	14	0	27	51	4	0	14	31	19	0	293
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	63	417	94	0	226	330	100	1	257	435	54	0	70	263	221	0	2531
APPROACH %'s :	10.98%	72.65%	16.38%	0.00%	34.40%	50.23%	15.22%	0.15%	34.45%	58.31%	7.24%	0.00%	12.64%	47.47%	39.89%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	28	211	48	0	115	163	38	1	129	221	33	0	32	144	124	0	1287
PEAK HR FACTOR :	0.700	0.824	0.667	0.000	0.777	0.832	0.731	0.250	0.872	0.877	0.825	0.000	0.667	0.766	0.705	0.000	0.919
	0.908				0.834				0.939				0.833				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Merrill Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-035
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	37	2	0	15	30	3	0	13	13	3	0	10	46	21	0	197
7:15 AM	10	26	13	0	10	37	16	0	18	32	17	0	23	46	33	0	281
7:30 AM	10	46	18	0	12	32	16	0	20	21	24	0	22	60	37	0	318
7:45 AM	18	49	18	0	16	30	19	0	26	35	6	0	15	63	46	0	341
8:00 AM	13	24	7	0	11	27	15	0	30	33	7	0	7	53	28	0	255
8:15 AM	5	21	4	0	10	21	13	0	19	30	4	0	7	26	10	0	170
8:30 AM	3	27	6	0	12	27	7	0	15	30	2	0	3	32	23	0	187
8:45 AM	6	27	3	0	8	21	16	0	4	21	5	0	8	31	21	0	171
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	69	257	71	0	94	225	105	0	145	215	68	0	95	357	219	0	1920
APPROACH %'s :	17.38%	64.74%	17.88%	0.00%	22.17%	53.07%	24.76%	0.00%	33.88%	50.23%	15.89%	0.00%	14.16%	53.20%	32.64%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	51	145	56	0	49	126	66	0	94	121	54	0	67	222	144	0	1195
PEAK HR FACTOR :	0.708	0.740	0.778	0.000	0.766	0.851	0.868	0.000	0.783	0.864	0.563	0.000	0.728	0.881	0.783	0.000	0.876
	0.741				0.927				0.961				0.873				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	54	17	0	18	39	14	0	32	50	5	0	7	23	27	0	297
4:15 PM	4	61	11	0	30	35	12	1	30	55	8	0	8	37	43	0	335
4:30 PM	6	57	9	0	31	43	10	0	29	63	10	0	9	29	24	0	320
4:45 PM	9	35	18	0	15	29	5	0	37	51	8	0	3	28	22	0	260
5:00 PM	7	54	10	0	36	47	9	0	33	49	7	0	12	46	30	0	340
5:15 PM	9	50	18	0	23	41	18	0	28	50	7	0	8	31	24	0	307
5:30 PM	9	50	8	0	39	34	15	0	38	58	4	0	8	32	25	0	320
5:45 PM	6	47	3	0	27	48	13	0	26	51	3	0	13	31	17	0	285
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	61	408	94	0	219	316	96	1	253	427	52	0	68	257	212	0	2464
APPROACH %'s :	10.83%	72.47%	16.70%	0.00%	34.65%	50.00%	15.19%	0.16%	34.56%	58.33%	7.10%	0.00%	12.66%	47.86%	39.48%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	26	207	48	0	112	154	36	1	129	218	33	0	32	140	119	0	1255
PEAK HR FACTOR :	0.722	0.848	0.667	0.000	0.778	0.819	0.750	0.250	0.872	0.865	0.825	0.000	0.667	0.761	0.692	0.000	0.923
	0.924				0.823				0.931				0.827				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Merrill Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-035
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	1	1	0	0	4	1	0	0	0	0	0	0	8
7:15 AM	0	1	0	0	2	0	0	0	1	1	0	0	0	2	1	0	8
7:30 AM	0	2	0	0	0	2	1	0	0	2	0	0	0	1	0	0	8
7:45 AM	0	0	1	0	0	2	1	0	1	0	0	0	0	0	0	0	5
8:00 AM	0	0	0	0	1	1	1	0	0	2	1	0	0	1	2	0	9
8:15 AM	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	4
8:30 AM	0	0	0	0	1	0	2	0	2	0	1	0	1	1	1	0	9
8:45 AM	0	0	0	0	1	1	1	0	0	1	0	0	0	0	4	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	1	0	6	8	7	0	8	7	2	0	1	5	9	0	59
APPROACH %'s :	0.00%	83.33%	16.67%	0.00%	28.57%	38.10%	33.33%	0.00%	47.06%	41.18%	11.76%	0.00%	6.67%	33.33%	60.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	3	1	0	3	5	3	0	2	5	1	0	0	4	3	0	30
PEAK HR FACTOR :	0.000	0.375	0.250	0.000	0.375	0.625	0.750	0.000	0.500	0.625	0.250	0.000	0.000	0.500	0.375	0.000	0.833
	0.500				0.917				0.667				0.583				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	2	2	0	0	1	4	1	0	0	0	1	0	12
4:15 PM	0	2	0	0	2	2	0	0	0	1	0	0	0	0	1	0	8
4:30 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	4
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	4
5:15 PM	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3
5:45 PM	0	0	0	0	1	0	1	0	1	0	0	0	0	0	1	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	5	0	0	7	8	2	0	2	7	1	0	0	1	6	0	40
APPROACH %'s :	16.67%	83.33%	0.00%	0.00%	41.18%	47.06%	11.76%	0.00%	20.00%	70.00%	10.00%	0.00%	0.00%	14.29%	85.71%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	2	0	0	3	5	1	0	0	2	0	0	0	1	3	0	18
PEAK HR FACTOR :	0.250	0.250	0.000	0.000	0.375	0.625	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.750	0.000	0.563
	0.375				0.563				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Merrill Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-035
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
8:30 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	1	6	1	0	1	2	0	0	0	1	3	0	16
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	12.50%	75.00%	12.50%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	1	1	1	0	0	0	0	0	0	1	2	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.500
					0.375								0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	4
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	0	0	0	3	2	0	1	0	0	0	0	5	1	0	14
APPROACH %'s :	50.00%	50.00%	0.00%	0.00%	0.00%	60.00%	40.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	1	0	0	0	2	1	0	0	0	0	0	0	3	1	0	9
PEAK HR FACTOR :	0.250	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.250	0.000	0.563
	0.500				0.375								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Merrill Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-035
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4
8:15 AM	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	0	0	0	6	2	0	3	0	0	0	0	0	1	0	18
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	4	0	0	0	3	1	0	2	0	0	0	0	0	0	0	10
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.750	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
	0.500				0.500				0.500								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:15 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	3	0	0	1	1	1	0	2	0	2	0	13
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	33.33%	33.33%	33.33%	0.00%	50.00%	0.00%	50.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	2	0	0	0	1	0	0	0	0	1	0	5
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.417
	0.250				0.250				0.250				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-036
Date: 9/9/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	101	2	0	6	199	21	0	25	23	6	0	6	41	11	0	451
7:15 AM	16	137	4	0	11	231	24	0	33	24	20	0	12	44	18	0	574
7:30 AM	9	158	8	0	9	204	33	0	48	29	10	0	9	63	25	0	605
7:45 AM	12	152	5	0	20	218	24	0	37	39	14	0	10	64	29	0	624
8:00 AM	15	180	8	0	13	171	13	0	33	56	11	0	11	47	23	0	581
8:15 AM	13	152	5	0	18	247	21	0	27	30	10	0	12	30	21	0	586
8:30 AM	6	141	5	0	21	171	17	0	35	31	9	0	4	32	13	0	485
8:45 AM	6	138	6	0	7	121	19	0	27	28	10	0	8	37	15	0	422
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	87	1159	43	0	105	1562	172	0	265	260	90	0	72	358	155	0	4328
APPROACH %'s :	6.75%	89.91%	3.34%	0.00%	5.71%	84.94%	9.35%	0.00%	43.09%	42.28%	14.63%	0.00%	12.31%	61.20%	26.50%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	49	642	26	0	60	840	91	0	145	154	45	0	42	204	98	0	2396
PEAK HR FACTOR :	0.817	0.892	0.813	0.000	0.750	0.850	0.689	0.000	0.755	0.688	0.804	0.000	0.875	0.797	0.845	0.000	0.960
	0.883				0.866				0.860				0.835				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	235	6	0	17	177	26	0	40	47	11	0	11	49	33	0	667
4:15 PM	10	179	5	0	22	163	20	0	37	69	7	0	7	50	23	0	592
4:30 PM	10	213	6	0	19	192	22	0	46	62	14	0	6	32	34	0	656
4:45 PM	19	205	8	0	27	188	27	0	41	66	8	0	3	37	23	0	652
5:00 PM	7	183	7	0	24	182	26	0	43	49	12	0	8	56	27	0	624
5:15 PM	7	253	12	0	13	162	24	0	29	61	11	0	7	56	30	0	665
5:30 PM	8	238	5	0	23	193	26	0	39	72	19	0	6	34	44	0	707
5:45 PM	18	228	10	0	18	168	22	0	27	68	11	0	7	48	32	0	657
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	94	1734	59	0	163	1425	193	0	302	494	93	0	55	362	246	0	5220
APPROACH %'s :	4.98%	91.89%	3.13%	0.00%	9.15%	80.01%	10.84%	0.00%	33.97%	55.57%	10.46%	0.00%	8.30%	54.60%	37.10%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	40	902	34	0	78	705	98	0	138	250	53	0	28	194	133	0	2653
PEAK HR FACTOR :	0.556	0.891	0.708	0.000	0.813	0.913	0.942	0.000	0.802	0.868	0.697	0.000	0.875	0.866	0.756	0.000	0.938
	0.897				0.910				0.848				0.954				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-036
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	90	1	0	6	191	21	0	25	19	6	0	5	40	9	0	422
7:15 AM	15	127	4	0	11	223	24	0	32	22	17	0	12	43	17	0	547
7:30 AM	8	148	7	0	8	191	32	0	47	29	10	0	9	62	23	0	574
7:45 AM	11	143	5	0	20	205	24	0	36	38	13	0	10	62	27	0	594
8:00 AM	14	171	8	0	13	161	13	0	33	53	10	0	10	46	23	0	555
8:15 AM	12	148	5	0	17	236	21	0	25	30	9	0	12	30	21	0	566
8:30 AM	6	135	4	0	21	160	17	0	35	30	8	0	4	31	13	0	464
8:45 AM	6	125	6	0	7	112	17	0	27	28	10	0	8	35	15	0	396
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	81	1087	40	0	103	1479	169	0	260	249	83	0	70	349	148	0	4118
APPROACH %'s :	6.71%	89.98%	3.31%	0.00%	5.88%	84.47%	9.65%	0.00%	43.92%	42.06%	14.02%	0.00%	12.35%	61.55%	26.10%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	45	610	25	0	58	793	90	0	141	150	42	0	41	200	94	0	2289
PEAK HR FACTOR :	0.804	0.892	0.781	0.000	0.725	0.840	0.703	0.000	0.750	0.708	0.808	0.000	0.854	0.806	0.870	0.000	0.963
	0.881				0.859				0.867				0.846				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	232	6	0	17	169	25	0	39	47	9	0	11	47	33	0	650
4:15 PM	10	176	4	0	22	155	20	0	37	69	6	0	6	48	23	0	576
4:30 PM	10	209	6	0	19	186	22	0	46	61	14	0	6	32	34	0	645
4:45 PM	16	199	7	0	27	184	26	0	41	66	8	0	3	36	23	0	636
5:00 PM	7	179	7	0	24	175	26	0	43	49	12	0	7	56	26	0	611
5:15 PM	7	249	12	0	13	155	23	0	29	61	11	0	7	56	30	0	653
5:30 PM	6	232	5	0	23	186	26	0	38	72	19	0	6	34	43	0	690
5:45 PM	17	227	10	0	18	164	21	0	27	68	11	0	6	46	32	0	647
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	88	1703	57	0	163	1374	189	0	300	493	90	0	52	355	244	0	5108
APPROACH %'s :	4.76%	92.15%	3.08%	0.00%	9.44%	79.61%	10.95%	0.00%	33.98%	55.83%	10.19%	0.00%	7.99%	54.53%	37.48%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	37	887	34	0	78	680	96	0	137	250	53	0	26	192	131	0	2601
PEAK HR FACTOR :	0.544	0.891	0.708	0.000	0.813	0.914	0.923	0.000	0.797	0.868	0.697	0.000	0.929	0.857	0.762	0.000	0.942
	0.894				0.909				0.853				0.938				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-036
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	1	0	0	3	0	0	0	2	0	0	1	0	2	0	15
7:15 AM	1	6	0	0	0	6	0	0	0	2	3	0	0	1	0	0	19
7:30 AM	1	4	1	0	1	3	0	0	1	0	0	0	0	1	0	0	12
7:45 AM	1	5	0	0	0	4	0	0	1	1	1	0	0	2	1	0	16
8:00 AM	1	5	0	0	0	6	0	0	0	3	0	0	1	1	0	0	17
8:15 AM	1	2	0	0	1	5	0	0	2	0	0	0	0	0	0	0	11
8:30 AM	0	4	1	0	0	5	0	0	0	0	1	0	0	1	0	0	12
8:45 AM	0	6	0	0	0	4	1	0	0	0	0	0	0	2	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	38	3	0	2	36	1	0	4	8	5	0	2	8	3	0	115
APPROACH %'s :	10.87%	82.61%	6.52%	0.00%	5.13%	92.31%	2.56%	0.00%	23.53%	47.06%	29.41%	0.00%	15.38%	61.54%	23.08%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	16	1	0	2	18	0	0	4	4	1	0	1	4	1	0	56
PEAK HR FACTOR :	1.000	0.800	0.250	0.000	0.500	0.750	0.000	0.000	0.500	0.333	0.250	0.000	0.250	0.500	0.250	0.000	0.824
	0.875				0.833				0.750				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	4	0	0	1	0	1	0	0	2	0	0	9
4:15 PM	0	1	1	0	0	5	0	0	0	0	1	0	1	2	0	0	11
4:30 PM	0	2	0	0	0	4	0	0	0	1	0	0	0	0	0	0	7
4:45 PM	1	2	1	0	0	2	0	0	0	0	0	0	0	1	0	0	7
5:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	1	0	0	0	5
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	1	4	0	0	0	4	0	0	1	0	0	0	0	0	1	0	11
5:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	1	2	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	11	2	0	0	24	1	0	2	1	2	0	3	7	1	0	56
APPROACH %'s :	13.33%	73.33%	13.33%	0.00%	0.00%	96.00%	4.00%	0.00%	40.00%	20.00%	40.00%	0.00%	27.27%	63.64%	9.09%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	5	0	0	0	9	1	0	1	0	0	0	2	2	1	0	22
PEAK HR FACTOR :	0.250	0.313	0.000	0.000	0.000	0.563	0.250	0.000	0.250	0.000	0.000	0.000	0.500	0.250	0.250	0.000	0.500
	0.300				0.625				0.250				0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-036
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	2	0	0	0	2	0	0	0	0	0	0	5
7:15 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	4
7:30 AM	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	4
7:45 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	1	0	5
8:00 AM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
8:15 AM	0	1	0	0	0	2	0	0	0	0	1	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	7	0	0	0	1	1	0	0	0	0	0	0	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	0	0	0	10	2	0	1	2	2	0	0	0	3	0	35
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	20.00%	40.00%	40.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	6	0	0	0	5	1	0	0	0	2	0	0	0	2	0	16
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.625	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.800
	0.750				0.750				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	2	1	0	0	0	0	0	0	0	0	0	5
4:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	1	3	0	0	0	2	1	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	10	0	0	0	14	3	0	0	0	0	0	0	0	0	0	28
APPROACH %'s :	9.09%	90.91%	0.00%	0.00%	0.00%	82.35%	17.65%	0.00%									
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	7	1	0	0	0	0	0	0	0	0	0	11
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.583	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.550
	0.375				0.500												

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-036
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	3	0	0	0	0	0	0	0	1	0	0	9
7:15 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	5	0	0	0	9	0	0	0	0	0	0	0	0	1	0	15
7:45 AM	0	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	9
8:00 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
8:15 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
8:30 AM	0	2	0	0	0	5	0	0	0	1	0	0	0	0	0	0	8
8:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	19	0	0	0	37	0	0	0	1	0	0	0	1	1	0	60
APPROACH %'s :	5.00%	95.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	10	0	0	0	24	0	0	0	0	0	0	0	0	1	0	35
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.583
	0.500				0.667								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3
5:15 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	10	0	0	0	13	0	0	0	0	1	0	0	0	1	0	28
APPROACH %'s :	23.08%	76.92%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	7	0	0	0	9	0	0	0	0	0	0	0	0	1	0	19
PEAK HR FACTOR :	0.500	0.583	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.792
	0.750				0.750								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-037
Date: 9/9/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	18	86	11	0	6	135	3	0	6	30	14	0	22	59	5	0	395
7:15 AM	14	122	18	0	9	154	6	0	6	56	19	0	32	90	8	0	534
7:30 AM	11	166	23	0	2	197	13	0	4	84	17	0	36	100	15	0	668
7:45 AM	19	131	20	0	10	192	11	0	12	92	23	0	35	107	12	0	664
8:00 AM	13	142	26	0	11	281	10	0	12	75	24	0	31	97	10	0	732
8:15 AM	12	120	21	0	9	195	7	0	20	86	27	0	31	61	4	0	593
8:30 AM	15	137	21	0	10	220	16	0	9	63	22	0	22	53	6	0	594
8:45 AM	13	117	21	0	10	174	9	0	14	45	37	0	31	61	16	0	548
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	115	1021	161	0	67	1548	75	0	83	531	183	0	240	628	76	0	4728
APPROACH %'s :	8.87%	78.72%	12.41%	0.00%	3.96%	91.60%	4.44%	0.00%	10.41%	66.62%	22.96%	0.00%	25.42%	66.53%	8.05%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	55	559	90	0	32	865	41	0	48	337	91	0	133	365	41	0	2657
PEAK HR FACTOR :	0.724	0.842	0.865	0.000	0.727	0.770	0.788	0.000	0.600	0.916	0.843	0.000	0.924	0.853	0.683	0.000	0.907
	0.880				0.776				0.895				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	36	204	48	0	13	173	11	0	12	112	15	0	26	74	11	0	735
4:15 PM	23	201	44	0	16	177	13	0	24	109	30	0	28	71	9	0	745
4:30 PM	29	227	34	0	16	148	14	0	18	117	25	0	26	51	14	0	719
4:45 PM	23	195	36	0	18	184	18	0	21	109	28	0	29	69	10	0	740
5:00 PM	32	179	39	0	17	196	15	0	20	89	21	0	32	72	12	2	726
5:15 PM	29	154	27	0	11	141	15	0	20	100	18	0	34	77	11	0	637
5:30 PM	23	166	33	0	17	155	12	0	8	105	27	0	24	89	12	0	671
5:45 PM	34	157	29	0	14	161	9	0	18	105	23	0	21	72	13	0	656
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	229	1483	290	0	122	1335	107	0	141	846	187	0	220	575	92	2	5629
APPROACH %'s :	11.44%	74.08%	14.49%	0.00%	7.80%	85.36%	6.84%	0.00%	12.01%	72.06%	15.93%	0.00%	24.75%	64.68%	10.35%	0.22%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	111	827	162	0	63	682	56	0	75	447	98	0	109	265	44	0	2939
PEAK HR FACTOR :	0.771	0.911	0.844	0.000	0.875	0.927	0.778	0.000	0.781	0.955	0.817	0.000	0.940	0.895	0.786	0.000	0.986
	0.948				0.910				0.951				0.941				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-037
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	14	84	11	0	6	133	3	0	6	28	13	0	21	58	5	0	382
7:15 AM	13	112	16	0	8	150	5	0	6	54	18	0	32	87	8	0	509
7:30 AM	10	163	23	0	2	194	13	0	3	82	17	0	35	97	13	0	652
7:45 AM	19	125	20	0	9	187	9	0	12	91	22	0	35	106	12	0	647
8:00 AM	12	139	25	0	11	278	10	0	12	74	23	0	31	96	9	0	720
8:15 AM	11	118	21	0	9	189	7	0	18	85	27	0	31	60	4	0	580
8:30 AM	14	133	18	0	10	215	15	0	9	62	21	0	22	50	6	0	575
8:45 AM	13	114	21	0	10	170	9	0	14	45	36	0	29	59	15	0	535
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	106	988	155	0	65	1516	71	0	80	521	177	0	236	613	72	0	4600
APPROACH %'s :	8.49%	79.10%	12.41%	0.00%	3.93%	91.77%	4.30%	0.00%	10.28%	66.97%	22.75%	0.00%	25.62%	66.56%	7.82%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	52	545	89	0	31	848	39	0	45	332	89	0	132	359	38	0	2599
PEAK HR FACTOR :	0.684	0.836	0.890	0.000	0.705	0.763	0.750	0.000	0.625	0.912	0.824	0.000	0.943	0.847	0.731	0.000	0.902
	0.875				0.768				0.896				0.864				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	35	202	48	0	13	170	11	0	12	109	15	0	26	72	8	0	721
4:15 PM	23	199	41	0	15	172	13	0	24	108	30	0	27	71	9	0	732
4:30 PM	28	225	34	0	16	146	14	0	18	116	23	0	25	50	14	0	709
4:45 PM	22	193	36	0	18	179	18	0	21	109	28	0	28	66	9	0	727
5:00 PM	32	174	38	0	14	194	14	0	20	88	21	0	31	72	12	2	712
5:15 PM	29	151	27	0	11	137	15	0	20	98	18	0	34	76	11	0	627
5:30 PM	23	165	33	0	17	155	12	0	8	105	27	0	24	89	12	0	670
5:45 PM	33	154	29	0	14	158	8	0	18	104	23	0	21	72	13	0	647
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	225	1463	286	0	118	1311	105	0	141	837	185	0	216	568	88	2	5545
APPROACH %'s :	11.40%	74.11%	14.49%	0.00%	7.69%	85.46%	6.84%	0.00%	12.12%	71.97%	15.91%	0.00%	24.71%	64.99%	10.07%	0.23%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	108	819	159	0	62	667	56	0	75	442	96	0	106	259	40	0	2889
PEAK HR FACTOR :	0.771	0.910	0.828	0.000	0.861	0.932	0.778	0.000	0.781	0.953	0.800	0.000	0.946	0.899	0.714	0.000	0.987
	0.946				0.913				0.946				0.946				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-037
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	2	0	0	0	1	0	0	0	1	0	0	1	1	0	0	8
7:15 AM	1	8	2	0	0	3	0	0	0	2	1	0	0	2	0	0	19
7:30 AM	1	3	0	0	0	2	0	0	1	2	0	0	1	1	2	0	13
7:45 AM	0	6	0	0	1	5	2	0	0	1	0	0	0	1	0	0	16
8:00 AM	0	2	1	0	0	3	0	0	0	1	1	0	0	1	1	0	10
8:15 AM	1	2	0	0	0	5	0	0	2	1	0	0	0	0	0	0	11
8:30 AM	1	4	3	0	0	3	1	0	0	0	0	0	0	3	0	0	15
8:45 AM	0	3	0	0	0	3	0	0	0	0	1	0	2	2	1	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	30	6	0	1	25	3	0	3	8	3	0	4	11	4	0	104
APPROACH %'s :	14.29%	71.43%	14.29%	0.00%	3.45%	86.21%	10.34%	0.00%	21.43%	57.14%	21.43%	0.00%	21.05%	57.89%	21.05%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	13	1	0	1	15	2	0	3	5	1	0	1	3	3	0	50
PEAK HR FACTOR :	0.500	0.542	0.250	0.000	0.250	0.750	0.250	0.000	0.375	0.625	0.250	0.000	0.250	0.750	0.375	0.000	0.781
	0.667				0.563				0.750				0.438				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	2	0	0	0	3	0	0	0	2	0	0	0	2	3	0	13
4:15 PM	0	1	3	0	1	3	0	0	0	0	0	0	1	0	0	0	9
4:30 PM	1	2	0	0	0	1	0	0	0	0	1	0	1	1	0	0	7
4:45 PM	1	2	0	0	0	4	0	0	0	0	0	0	1	2	1	0	11
5:00 PM	0	5	1	0	3	2	1	0	0	1	0	0	1	0	0	0	14
5:15 PM	0	2	0	0	0	2	0	0	0	2	0	0	0	1	0	0	7
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	1	2	0	0	0	2	1	0	0	1	0	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	17	4	0	4	17	2	0	0	6	1	0	4	6	4	0	69
APPROACH %'s :	16.00%	68.00%	16.00%	0.00%	17.39%	73.91%	8.70%	0.00%	0.00%	85.71%	14.29%	0.00%	28.57%	42.86%	28.57%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	3	7	3	0	1	11	0	0	0	2	1	0	3	5	4	0	40
PEAK HR FACTOR :	0.750	0.875	0.250	0.000	0.250	0.688	0.000	0.000	0.000	0.250	0.250	0.000	0.750	0.625	0.333	0.000	0.769
	0.813				0.750				0.375				0.600				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-037
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	0	0	0	1	3	0	0	0	2	2	0	0	4	0	0	15
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	5
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.375	0.000	0.000	0.625
	0.250								0.250				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250
									0.250								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Merrill Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-037
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Merrill Ave				Merrill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
7:15 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	4	1	0	0	0	1	0	0	0	0	0	9
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	80.00%	20.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.250				0.500												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	5	0	0	0	2	1	0	0	1	0	0	12
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	4	0	0	0	2	1	0	0	1	0	0	9
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.563
	0.250				0.500				0.750				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Fontana Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-038
Date: 9/9/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	101	9	0	2	183	19	0	16	9	3	0	9	18	4	0	375
7:15 AM	4	131	12	0	2	224	32	0	21	11	1	0	7	13	3	0	461
7:30 AM	8	161	10	0	3	195	29	0	15	16	2	0	12	24	3	0	478
7:45 AM	4	137	20	0	5	200	30	0	27	18	4	0	12	24	8	0	489
8:00 AM	6	189	21	0	6	208	22	0	24	22	3	0	24	17	9	0	551
8:15 AM	2	129	22	0	8	214	33	0	34	33	2	0	24	12	7	0	520
8:30 AM	3	147	26	0	2	161	34	0	12	22	1	0	9	15	2	0	434
8:45 AM	3	116	12	0	5	113	6	0	25	25	2	0	11	11	2	0	331
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	1111	132	0	33	1498	205	0	174	156	18	0	108	134	38	0	3639
APPROACH %'s :	2.51%	87.14%	10.35%	0.00%	1.90%	86.29%	11.81%	0.00%	50.00%	44.83%	5.17%	0.00%	38.57%	47.86%	13.57%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	20	616	73	0	22	817	114	0	100	89	11	0	72	77	27	0	2038
PEAK HR FACTOR :	0.625	0.815	0.830	0.000	0.688	0.954	0.864	0.000	0.735	0.674	0.688	0.000	0.750	0.802	0.750	0.000	0.925
	0.821				0.934				0.725				0.880				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	218	24	0	11	158	20	0	30	42	0	0	11	22	4	0	543
4:15 PM	3	167	25	0	7	143	29	0	32	50	3	0	16	26	4	0	505
4:30 PM	6	196	34	0	12	169	19	0	40	63	0	0	13	18	3	0	573
4:45 PM	6	193	13	0	13	152	26	0	32	41	2	0	12	20	4	0	514
5:00 PM	6	172	17	0	7	171	21	0	38	40	1	0	9	16	3	0	501
5:15 PM	5	229	15	1	8	143	28	0	38	49	0	0	16	23	5	0	560
5:30 PM	4	229	20	0	8	189	25	0	31	52	1	0	11	22	6	0	598
5:45 PM	2	216	17	0	10	151	29	0	26	34	6	0	6	21	6	0	524
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	1620	165	1	76	1276	197	0	267	371	13	0	94	168	35	0	4318
APPROACH %'s :	1.92%	88.96%	9.06%	0.05%	4.91%	82.38%	12.72%	0.00%	41.01%	56.99%	2.00%	0.00%	31.65%	56.57%	11.78%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	17	846	69	1	33	654	103	0	133	175	8	0	42	82	20	0	2183
PEAK HR FACTOR :	0.708	0.924	0.863	0.250	0.825	0.865	0.888	0.000	0.875	0.841	0.333	0.000	0.656	0.891	0.833	0.000	0.913
	0.922				0.890				0.908				0.818				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Fontana Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-038
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	93	9	0	2	174	18	0	12	9	3	0	9	17	3	0	351
7:15 AM	4	121	12	0	1	216	32	0	19	10	1	0	7	13	3	0	439
7:30 AM	8	151	10	0	2	184	28	0	14	15	2	0	12	24	3	0	453
7:45 AM	4	131	19	0	5	189	30	0	26	18	4	0	12	24	6	0	468
8:00 AM	6	184	19	0	5	197	20	0	22	22	3	0	22	17	7	0	524
8:15 AM	2	126	22	0	8	206	29	0	34	33	2	0	23	11	5	0	501
8:30 AM	3	140	26	0	2	153	29	0	11	22	1	0	9	14	2	0	412
8:45 AM	2	108	12	0	5	104	6	0	20	25	2	0	11	11	2	0	308
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	31	1054	129	0	30	1423	192	0	158	154	18	0	105	131	31	0	3456
APPROACH %'s :	2.55%	86.82%	10.63%	0.00%	1.82%	86.50%	11.67%	0.00%	47.88%	46.67%	5.45%	0.00%	39.33%	49.06%	11.61%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	20	592	70	0	20	776	107	0	96	88	11	0	69	76	21	0	1946
PEAK HR FACTOR :	0.625	0.804	0.795	0.000	0.625	0.942	0.892	0.000	0.706	0.667	0.688	0.000	0.750	0.792	0.750	0.000	0.928
	0.816				0.929				0.707				0.902				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	216	23	0	11	149	20	0	29	41	0	0	10	22	4	0	528
4:15 PM	3	163	25	0	6	135	26	0	32	50	3	0	16	25	4	0	488
4:30 PM	6	192	34	0	12	164	19	0	40	63	0	0	13	18	3	0	564
4:45 PM	6	183	13	0	13	150	25	0	32	41	2	0	11	20	4	0	500
5:00 PM	6	169	17	0	6	163	21	0	37	40	1	0	9	16	3	0	488
5:15 PM	5	225	15	1	8	137	27	0	37	49	0	0	16	22	5	0	547
5:30 PM	4	222	20	0	8	185	23	0	30	50	1	0	11	21	6	0	581
5:45 PM	2	214	17	0	10	147	29	0	25	32	5	0	6	21	6	0	514
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	1584	164	1	74	1230	190	0	262	366	12	0	92	165	35	0	4210
APPROACH %'s :	1.96%	88.79%	9.19%	0.06%	4.95%	82.33%	12.72%	0.00%	40.94%	57.19%	1.88%	0.00%	31.51%	56.51%	11.99%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	17	830	69	1	32	632	100	0	129	171	7	0	42	80	20	0	2130
PEAK HR FACTOR :	0.708	0.922	0.863	0.250	0.800	0.854	0.862	0.000	0.872	0.855	0.350	0.000	0.656	0.909	0.833	0.000	0.917
	0.932				0.884				0.892				0.826				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Fontana Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-038
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	0	4	0	0	3	0	0	0	0	1	1	0	12
7:15 AM	0	6	0	0	0	7	0	0	1	1	0	0	0	0	0	0	15
7:30 AM	0	4	0	0	1	3	0	0	1	1	0	0	0	0	0	0	10
7:45 AM	0	3	1	0	0	4	0	0	1	0	0	0	0	0	2	0	11
8:00 AM	0	2	2	0	1	5	1	0	1	0	0	0	2	0	2	0	16
8:15 AM	0	2	0	0	0	2	3	0	0	0	0	0	1	0	1	0	9
8:30 AM	0	5	0	0	0	2	5	0	1	0	0	0	0	1	0	0	14
8:45 AM	0	4	0	0	0	3	0	0	2	0	0	0	0	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	29	3	0	2	30	9	0	10	2	0	0	3	2	6	0	96
APPROACH %'s :	0.00%	90.63%	9.38%	0.00%	4.88%	73.17%	21.95%	0.00%	83.33%	16.67%	0.00%	0.00%	27.27%	18.18%	54.55%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	11	3	0	2	14	4	0	3	1	0	0	3	0	5	0	46
PEAK HR FACTOR :	0.000	0.688	0.375	0.000	0.500	0.700	0.333	0.000	0.750	0.250	0.000	0.000	0.375	0.000	0.625	0.000	0.719
	0.875				0.714				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	0	5	0	0	0	1	0	0	0	0	0	0	8
4:15 PM	0	2	0	0	1	5	3	0	0	0	0	0	0	1	0	0	12
4:30 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	0	1	0	0	1	5	0	0	0	0	0	0	0	0	0	0	7
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:30 PM	0	4	0	0	0	1	2	0	1	2	0	0	0	1	0	0	11
5:45 PM	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	1	0	2	21	5	0	2	4	1	0	0	3	0	0	54
APPROACH %'s :	0.00%	93.75%	6.25%	0.00%	7.14%	75.00%	17.86%	0.00%	28.57%	57.14%	14.29%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	6	0	0	1	7	2	0	2	3	1	0	0	2	0	0	24
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.250	0.350	0.250	0.000	0.500	0.375	0.250	0.000	0.000	0.500	0.000	0.000	0.545
	0.375				0.417				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Fontana Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-038
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	1	0	5
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	4	0	0	0	2	0	0	3	0	0	0	0	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	9	0	0	1	12	0	0	5	0	0	0	0	1	1	0	29
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	7.69%	92.31%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	3	0	0	0	7	0	0	1	0	0	0	0	1	1	0	13
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.583	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.650
	0.750				0.583				0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	4
4:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	1	0	0	0	3	0	0	1	0	0	0	0	0	0	0	5
5:15 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	0	0	0	12	1	0	3	1	0	0	1	0	0	0	26
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	92.31%	7.69%	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	7	0	0	2	1	0	0	0	0	0	0	11
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.583	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.550
	0.250				0.583				0.750								

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Fontana Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-038
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	0	3	1	0	1	0	0	0	0	0	0	0	9
7:15 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	5	0	0	0	7	1	0	0	0	0	0	0	0	0	0	13
7:45 AM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7
8:00 AM	0	2	0	0	0	5	1	0	0	0	0	0	0	0	0	0	8
8:15 AM	0	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	5
8:30 AM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7
8:45 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	19	0	0	0	33	4	0	1	0	0	0	0	0	0	0	58
APPROACH %'s :	5.00%	95.00%	0.00%	0.00%	0.00%	89.19%	10.81%	0.00%	100.00%	0.00%	0.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	10	0	0	0	20	3	0	0	0	0	0	0	0	0	0	33
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.714	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.635
	0.500				0.719												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	3	0	0	0	3	1	0	0	0	0	0	0	0	0	0	7
5:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	13	0	0	0	13	1	0	0	0	0	0	1	0	0	0	28
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	92.86%	7.14%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	9	0	0	0	8	1	0	0	0	0	0	0	0	0	0	18
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.667	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.643
	0.750				0.563												

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-039
Date: 9/15/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	114	21	4	22	192	0	0	0	0	0	0	41	0	17	0	412
7:15 AM	0	164	21	3	23	201	2	0	0	0	1	0	49	0	28	0	492
7:30 AM	0	184	18	2	51	265	3	0	0	0	0	0	40	0	19	0	582
7:45 AM	1	175	33	1	60	273	3	0	0	0	0	0	53	0	32	0	631
8:00 AM	0	200	23	2	20	280	1	0	0	0	0	0	53	0	26	0	605
8:15 AM	1	144	27	2	20	211	2	0	0	0	0	0	36	0	10	0	453
8:30 AM	2	178	15	2	13	182	2	0	0	0	0	0	35	0	14	0	443
8:45 AM	1	139	26	3	16	163	0	0	0	0	2	0	29	0	21	0	400
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	1298	184	19	225	1767	13	0	0	0	3	0	336	0	167	0	4018
APPROACH %'s :	0.40%	86.13%	12.21%	1.26%	11.22%	88.13%	0.65%	0.00%	0.00%	0.00%	100.00%	0.00%	66.80%	0.00%	33.20%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	723	95	8	154	1019	9	0	0	0	1	0	195	0	105	0	2310
PEAK HR FACTOR :	0.250	0.904	0.720	0.667	0.642	0.910	0.750	0.000	0.000	0.000	0.250	0.000	0.920	0.000	0.820	0.000	0.915
	0.919				0.879				0.250				0.882				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	335	47	5	46	183	0	0	1	0	3	1	38	0	26	0	686
4:15 PM	1	364	30	2	38	181	1	0	1	1	1	0	30	0	35	0	685
4:30 PM	0	291	31	3	42	194	0	0	1	0	1	0	45	0	30	0	638
4:45 PM	0	324	43	2	24	201	0	0	1	0	0	0	33	0	29	0	657
5:00 PM	1	321	38	3	30	200	0	0	0	0	2	1	31	0	24	0	651
5:15 PM	0	313	24	0	30	162	1	0	3	0	0	0	24	0	31	0	588
5:30 PM	0	299	19	2	30	159	0	0	2	0	0	1	24	0	27	0	563
5:45 PM	0	354	30	1	24	169	0	0	1	0	1	1	28	0	24	0	633
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	2601	262	18	264	1449	2	0	10	1	8	4	253	0	226	0	5101
APPROACH %'s :	0.10%	90.19%	9.08%	0.62%	15.39%	84.49%	0.12%	0.00%	43.48%	4.35%	34.78%	17.39%	52.82%	0.00%	47.18%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	1314	151	12	150	759	1	0	4	1	5	1	146	0	120	0	2666
PEAK HR FACTOR :	0.500	0.902	0.803	0.600	0.815	0.944	0.250	0.000	1.000	0.250	0.417	0.250	0.811	0.000	0.857	0.000	0.972
	0.931				0.964				0.550				0.887				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-039
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	96	18	4	20	174	0	0	0	0	0	0	37	0	16	0	366
7:15 AM	0	134	19	3	23	169	2	0	0	0	1	0	45	0	27	0	423
7:30 AM	0	161	17	2	49	233	3	0	0	0	0	0	37	0	19	0	521
7:45 AM	1	159	28	0	59	234	3	0	0	0	0	0	48	0	31	0	563
8:00 AM	0	172	23	2	20	252	1	0	0	0	0	0	50	0	26	0	546
8:15 AM	1	118	24	2	19	185	2	0	0	0	0	0	33	0	10	0	394
8:30 AM	2	140	15	1	12	156	2	0	0	0	0	0	31	0	13	0	372
8:45 AM	1	119	22	3	16	133	0	0	0	0	2	0	22	0	21	0	339
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	1099	166	17	218	1536	13	0	0	0	3	0	303	0	163	0	3524
APPROACH %'s :	0.47%	85.33%	12.89%	1.32%	12.34%	86.93%	0.74%	0.00%	0.00%	0.00%	100.00%	0.00%	65.02%	0.00%	34.98%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	626	87	7	151	888	9	0	0	0	1	0	180	0	103	0	2053
PEAK HR FACTOR :	0.250	0.910	0.777	0.583	0.640	0.881	0.750	0.000	0.000	0.000	0.250	0.000	0.900	0.000	0.831	0.000	0.912
	0.915				0.885				0.250				0.896				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	311	46	4	43	156	0	0	1	0	3	1	33	0	24	0	623
4:15 PM	1	342	27	2	35	156	0	0	1	0	1	0	25	0	32	0	622
4:30 PM	0	254	29	3	42	172	0	0	1	0	1	0	43	0	30	0	575
4:45 PM	0	302	38	2	21	182	0	0	1	0	0	0	30	0	29	0	605
5:00 PM	1	299	37	2	28	179	0	0	0	0	2	1	29	0	22	0	600
5:15 PM	0	294	24	0	29	140	1	0	3	0	0	0	22	0	31	0	544
5:30 PM	0	280	18	0	29	147	0	0	2	0	0	1	23	0	24	0	524
5:45 PM	0	324	30	1	24	151	0	0	1	0	1	1	23	0	24	0	580
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	2406	249	14	251	1283	1	0	10	0	8	4	228	0	216	0	4673
APPROACH %'s :	0.11%	90.04%	9.32%	0.52%	16.35%	83.58%	0.07%	0.00%	45.45%	0.00%	36.36%	18.18%	51.35%	0.00%	48.65%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	1209	140	11	141	666	0	0	4	0	5	1	131	0	115	0	2425
PEAK HR FACTOR :	0.500	0.884	0.761	0.688	0.820	0.915	0.000	0.000	1.000	0.000	0.417	0.250	0.762	0.000	0.898	0.000	0.973
	0.915				0.943				0.500				0.842				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-039
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	1	0	1	4	0	0	0	0	0	0	2	0	1	0	15
7:15 AM	0	8	0	0	0	9	0	0	0	0	0	0	2	0	0	0	19
7:30 AM	0	8	1	0	2	7	0	0	0	0	0	0	2	0	0	0	20
7:45 AM	0	4	0	0	1	8	0	0	0	0	0	0	2	0	0	0	15
8:00 AM	0	12	0	0	0	6	0	0	0	0	0	0	0	0	0	0	18
8:15 AM	0	7	1	0	0	4	0	0	0	0	0	0	1	0	0	0	13
8:30 AM	0	7	0	0	0	5	0	0	0	0	0	0	2	0	1	0	15
8:45 AM	0	4	2	0	0	7	0	0	0	0	0	0	1	0	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	56	5	0	4	50	0	0	0	0	0	0	12	0	2	0	129
APPROACH %'s :	0.00%	91.80%	8.20%	0.00%	7.41%	92.59%	0.00%	0.00%					85.71%	0.00%	14.29%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	32	1	0	3	30	0	0	0	0	0	0	6	0	0	0	72
PEAK HR FACTOR :	0.000	0.667	0.250	0.000	0.375	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.900
	0.688				0.917								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	7	0	0	3	7	0	0	0	0	0	0	0	0	1	0	18
4:15 PM	0	4	1	0	1	6	1	0	0	1	0	0	1	0	3	0	18
4:30 PM	0	6	1	0	0	7	0	0	0	0	0	0	0	0	0	0	14
4:45 PM	0	7	1	0	1	8	0	0	0	0	0	0	0	0	0	0	17
5:00 PM	0	6	0	0	1	3	0	0	0	0	0	0	1	0	1	0	12
5:15 PM	0	6	0	0	0	4	0	0	0	0	0	0	0	0	0	0	10
5:30 PM	0	8	0	0	1	0	0	0	0	0	0	0	0	0	3	0	12
5:45 PM	0	4	0	0	0	4	0	0	0	0	0	0	1	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	48	3	0	7	39	1	0	0	1	0	0	3	0	8	0	110
APPROACH %'s :	0.00%	94.12%	5.88%	0.00%	14.89%	82.98%	2.13%	0.00%	0.00%	100.00%	0.00%	0.00%	27.27%	0.00%	72.73%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	24	3	0	5	28	1	0	0	1	0	0	1	0	4	0	67
PEAK HR FACTOR :	0.000	0.857	0.750	0.000	0.417	0.875	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.333	0.000	0.931
	0.844				0.850				0.250				0.313				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-039
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	1	5	0	0	0	0	0	0	1	0	0	0	11
7:15 AM	0	11	2	0	0	9	0	0	0	0	0	0	0	0	0	0	22
7:30 AM	0	7	0	0	0	5	0	0	0	0	0	0	1	0	0	0	13
7:45 AM	0	6	4	1	0	8	0	0	0	0	0	0	1	0	0	0	20
8:00 AM	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	14
8:15 AM	0	9	2	0	1	6	0	0	0	0	0	0	2	0	0	0	20
8:30 AM	0	11	0	1	1	4	0	0	0	0	0	0	1	0	0	0	18
8:45 AM	0	5	0	0	0	4	0	0	0	0	0	0	4	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	60	8	2	3	48	0	0	0	0	0	0	10	0	0	0	131
APPROACH %'s :	0.00%	85.71%	11.43%	2.86%	5.88%	94.12%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	31	6	1	0	29	0	0	0	0	0	0	2	0	0	0	69
PEAK HR FACTOR :	0.000	0.705	0.375	0.250	0.000	0.806	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.784
	0.731				0.806								0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	7	1	0	0	8	0	0	0	0	0	0	3	0	0	0	19
4:15 PM	0	10	2	0	0	6	0	0	0	0	0	0	4	0	0	0	22
4:30 PM	0	4	1	0	0	5	0	0	0	0	0	0	2	0	0	0	12
4:45 PM	0	6	2	0	1	2	0	0	0	0	0	0	1	0	0	0	12
5:00 PM	0	5	1	1	1	9	0	0	0	0	0	0	1	0	1	0	19
5:15 PM	0	5	0	0	0	9	0	0	0	0	0	0	1	0	0	0	15
5:30 PM	0	5	1	1	0	4	0	0	0	0	0	0	1	0	0	0	12
5:45 PM	0	8	0	0	0	7	0	0	0	0	0	0	2	0	0	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	50	8	2	2	50	0	0	0	0	0	0	15	0	1	0	128
APPROACH %'s :	0.00%	83.33%	13.33%	3.33%	3.85%	96.15%	0.00%	0.00%					93.75%	0.00%	6.25%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	27	6	0	1	21	0	0	0	0	0	0	10	0	0	0	65
PEAK HR FACTOR :	0.000	0.675	0.750	0.000	0.250	0.656	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.739
	0.688				0.688								0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-039
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	8	2	0	0	9	0	0	0	0	0	0	1	0	0	0	20
7:15 AM	0	11	0	0	0	14	0	0	0	0	0	0	2	0	1	0	28
7:30 AM	0	8	0	0	0	20	0	0	0	0	0	0	0	0	0	0	28
7:45 AM	0	6	1	0	0	23	0	0	0	0	0	0	2	0	1	0	33
8:00 AM	0	9	0	0	0	15	0	0	0	0	0	0	3	0	0	0	27
8:15 AM	0	10	0	0	0	16	0	0	0	0	0	0	0	0	0	0	26
8:30 AM	0	20	0	0	0	17	0	0	0	0	0	0	1	0	0	0	38
8:45 AM	0	11	2	0	0	19	0	0	0	0	0	0	2	0	0	0	34
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	83	5	0	0	133	0	0	0	0	0	0	11	0	2	0	234
APPROACH %'s :	0.00%	94.32%	5.68%	0.00%	0.00%	100.00%	0.00%	0.00%					84.62%	0.00%	15.38%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	34	1	0	0	72	0	0	0	0	0	0	7	0	2	0	116
PEAK HR FACTOR :	0.000	0.773	0.250	0.000	0.000	0.783	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.500	0.000	0.879
	0.795				0.783								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	10	0	1	0	12	0	0	0	0	0	0	2	0	1	0	26
4:15 PM	0	8	0	0	2	13	0	0	0	0	0	0	0	0	0	0	23
4:30 PM	0	27	0	0	0	10	0	0	0	0	0	0	0	0	0	0	37
4:45 PM	0	9	2	0	1	9	0	0	0	0	0	0	2	0	0	0	23
5:00 PM	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0	0	20
5:15 PM	0	8	0	0	1	9	0	0	0	0	0	0	1	0	0	0	19
5:30 PM	0	6	0	1	0	8	0	0	0	0	0	0	0	0	0	0	15
5:45 PM	0	18	0	0	0	7	0	0	0	0	0	0	2	0	0	0	27
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	97	2	2	4	77	0	0	0	0	0	0	7	0	1	0	190
APPROACH %'s :	0.00%	96.04%	1.98%	1.98%	4.94%	95.06%	0.00%	0.00%					87.50%	0.00%	12.50%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	54	2	1	3	44	0	0	0	0	0	0	4	0	1	0	109
PEAK HR FACTOR :	0.000	0.500	0.250	0.250	0.375	0.846	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.736
	0.528				0.783								0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-040
Date: 9/9/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	36	5	0	1	30	5	0	5	15	2	0	1	33	11	0	148
7:15 AM	5	45	6	0	9	49	29	0	18	21	5	0	4	43	8	0	242
7:30 AM	6	66	7	0	12	47	30	0	21	19	6	0	10	48	18	0	290
7:45 AM	4	44	20	0	13	55	14	0	7	40	6	0	13	53	6	0	275
8:00 AM	2	29	8	0	7	35	9	0	6	33	1	0	4	26	7	0	167
8:15 AM	3	22	8	0	4	32	6	0	5	29	4	0	11	30	3	0	157
8:30 AM	2	26	4	0	7	27	5	0	7	18	5	0	4	32	5	0	142
8:45 AM	4	20	2	0	3	31	4	0	3	16	1	0	4	20	7	0	115
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	30	288	60	0	56	306	102	0	72	191	30	0	51	285	65	0	1536
APPROACH %'s :	7.94%	76.19%	15.87%	0.00%	12.07%	65.95%	21.98%	0.00%	24.57%	65.19%	10.24%	0.00%	12.72%	71.07%	16.21%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	17	184	41	0	41	186	82	0	52	113	18	0	31	170	39	0	974
PEAK HR FACTOR :	0.708	0.697	0.513	0.000	0.788	0.845	0.683	0.000	0.619	0.706	0.750	0.000	0.596	0.802	0.542	0.000	0.840
	0.766				0.868				0.863				0.789				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	54	10	0	13	29	9	0	15	40	3	0	2	27	20	0	226
4:15 PM	2	51	2	0	7	34	9	0	9	35	4	0	4	24	9	0	190
4:30 PM	6	60	3	0	5	45	9	0	13	36	6	0	1	29	9	0	222
4:45 PM	2	46	2	0	11	34	3	0	20	41	6	0	3	28	8	0	204
5:00 PM	1	53	5	0	10	38	11	0	15	55	4	0	4	28	10	0	234
5:15 PM	6	50	2	0	8	39	7	0	14	38	5	0	2	26	13	0	210
5:30 PM	5	54	5	0	12	28	9	0	16	38	4	0	2	28	9	0	210
5:45 PM	2	41	3	0	15	31	15	0	11	28	4	0	4	21	12	0	187
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	28	409	32	0	81	278	72	0	113	311	36	0	22	211	90	0	1683
APPROACH %'s :	5.97%	87.21%	6.82%	0.00%	18.79%	64.50%	16.71%	0.00%	24.57%	67.61%	7.83%	0.00%	6.81%	65.33%	27.86%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	15	209	12	0	34	156	30	0	62	170	21	0	10	111	40	0	870
PEAK HR FACTOR :	0.625	0.871	0.600	0.000	0.773	0.867	0.682	0.000	0.775	0.773	0.875	0.000	0.625	0.957	0.769	0.000	0.929
	0.855				0.932				0.855				0.958				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-040
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	36	5	0	1	29	5	0	5	15	2	0	1	32	10	0	144
7:15 AM	5	45	6	0	9	49	29	0	18	19	5	0	4	43	8	0	240
7:30 AM	6	64	7	0	12	45	30	0	20	19	6	0	10	48	18	0	285
7:45 AM	4	43	19	0	13	53	14	0	7	39	6	0	13	52	6	0	269
8:00 AM	2	27	8	0	6	33	9	0	5	32	1	0	4	23	7	0	157
8:15 AM	3	21	8	0	4	30	6	0	5	28	4	0	11	29	3	0	152
8:30 AM	2	25	4	0	6	23	5	0	7	17	5	0	4	28	5	0	131
8:45 AM	4	20	2	0	3	27	4	0	3	16	1	0	3	20	7	0	110
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	29	281	59	0	54	289	102	0	70	185	30	0	50	275	64	0	1488
APPROACH %'s :	7.86%	76.15%	15.99%	0.00%	12.13%	64.94%	22.92%	0.00%	24.56%	64.91%	10.53%	0.00%	12.85%	70.69%	16.45%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	17	179	40	0	40	180	82	0	50	109	18	0	31	166	39	0	951
PEAK HR FACTOR :	0.708	0.699	0.526	0.000	0.769	0.849	0.683	0.000	0.625	0.699	0.750	0.000	0.596	0.798	0.542	0.000	0.834
	0.766				0.868				0.851				0.776				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	52	10	0	11	26	9	0	15	38	3	0	2	27	20	0	217
4:15 PM	2	49	2	0	7	29	9	0	9	35	4	0	4	24	9	0	183
4:30 PM	6	60	3	0	5	44	9	0	13	36	5	0	1	28	8	0	218
4:45 PM	2	46	2	0	11	34	3	0	20	40	6	0	3	28	8	0	203
5:00 PM	1	52	5	0	10	35	11	0	15	55	4	0	4	28	9	0	229
5:15 PM	6	49	2	0	8	37	6	0	14	38	5	0	2	25	13	0	205
5:30 PM	5	53	5	0	12	27	9	0	16	38	4	0	2	28	8	0	207
5:45 PM	2	39	3	0	15	31	15	0	11	28	4	0	4	20	12	0	184
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	28	400	32	0	79	263	71	0	113	308	35	0	22	208	87	0	1646
APPROACH %'s :	6.09%	86.96%	6.96%	0.00%	19.13%	63.68%	17.19%	0.00%	24.78%	67.54%	7.68%	0.00%	6.94%	65.62%	27.44%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	15	207	12	0	34	150	29	0	62	169	20	0	10	109	38	0	855
PEAK HR FACTOR :	0.625	0.863	0.600	0.000	0.773	0.852	0.659	0.000	0.775	0.768	0.833	0.000	0.625	0.973	0.731	0.000	0.933
	0.848				0.918				0.848				0.957				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-040
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
7:45 AM	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	4
8:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	4
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	4	0	0	6
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	1	0	1	6	0	0	1	6	0	0	1	9	1	0	28
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	14.29%	85.71%	0.00%	0.00%	14.29%	85.71%	0.00%	0.00%	9.09%	81.82%	9.09%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	1	1	0	0	3	0	0	1	4	0	0	0	3	0	0	13
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.000	0.750	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.813
	0.500				0.750				0.625				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	2	2	0	0	0	2	0	0	0	0	0	0	7
4:15 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	0	0	2	8	0	0	0	2	1	0	0	2	2	0	22
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	3	0	0	0	0	1	0	0	1	1	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.500
					0.375				0.250				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-040
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	5	0	0	0	0	0	0	0	1	0	0	7
APPROACH %'s :					16.67%	83.33%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250
					0.250								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	3	1	0	0	1	0	0	0	1	1	0	8
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	2	1	0	0	1	0	0	0	1	1	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.500
					0.375				0.250				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-040
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4
8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	0	0	0	6	0	0	1	0	0	0	0	0	0	0	13
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	4	0	0	0	3	0	0	1	0	0	0	0	0	0	0	8
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.500				0.750				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375
	0.500				0.250												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fontana Ave/Catawba Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-041
Date: 9/9/2021

Data - Total

NS/EW Streets:	Fontana Ave/Catawba Ave						Fontana Ave/Catawba Ave						Randall Ave						Randall Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0											
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	5	3	17	0	9	0	9	11	3	0	6	0	0	19	7	0	7	0	0	18	1	0	5	2	13	0	1	1	0	18	8	6	8	0	177
7:15 AM	7	12	29	0	10	0	20	11	1	0	4	0	0	24	6	0	4	0	5	29	5	0	13	1	18	1	4	10	2	26	10	5	6	0	263
7:30 AM	6	11	33	0	6	1	26	19	3	0	1	0	0	26	10	0	7	0	4	39	4	0	13	2	15	0	4	7	1	28	8	13	6	3	296
7:45 AM	6	13	8	0	10	0	5	29	4	0	6	0	2	16	18	0	10	0	4	40	6	0	8	0	13	1	4	6	0	35	2	9	5	1	261
8:00 AM	11	19	11	0	25	0	6	25	0	0	4	0	3	29	9	0	14	0	5	30	3	0	17	1	17	0	4	4	0	23	2	6	6	2	276
8:15 AM	19	16	8	0	27	2	3	12	2	0	2	1	1	23	19	0	14	0	13	34	1	0	17	1	18	1	1	5	0	31	1	13	9	0	294
8:30 AM	4	11	5	0	7	0	4	4	1	0	4	0	1	17	4	0	6	0	5	29	0	0	13	0	27	0	0	4	0	31	1	6	5	0	189
8:45 AM	1	3	1	0	7	1	3	6	2	0	1	1	0	19	3	0	7	0	2	15	2	0	4	1	22	1	3	6	1	13	0	4	1	3	133
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	59	88	112	0	101	4	76	117	16	0	28	2	7	173	76	0	69	0	38	234	22	0	90	8	143	4	21	43	4	205	32	62	46	9	1889
APPROACH %'s :	16.21%	24.18%	30.77%	0.00%	27.75%	1.10%	31.80%	48.95%	6.69%	0.00%	11.72%	0.84%	2.15%	53.23%	23.38%	0.00%	21.23%	0.00%	9.69%	59.69%	5.61%	0.00%	22.96%	2.04%	66.51%	1.86%	9.77%	20.00%	1.86%	57.91%	9.04%	17.51%	12.99%	2.54%	
PEAK HR :	07:30 AM - 08:30 AM																																		TOTAL
PEAK HR VOL :	42	59	60	0	68	3	40	85	9	0	13	1	6	94	56	0	45	0	26	143	14	0	55	4	63	2	13	22	1	117	13	41	26	6	1127
PEAK HR FACTOR :	0.553	0.776	0.455	0.000	0.630	0.375	0.385	0.733	0.563	0.000	0.542	0.250	0.500	0.810	0.737	0.000	0.804	0.000	0.500	0.894	0.583	0.000	0.809	0.500	0.875	0.500	0.813	0.786	0.250	0.836	0.406	0.788	0.722	0.500	0.952
	0.806						0.755						0.882						0.917																

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	15	12	5	0	9	0	2	10	2	0	0	1	1	40	9	0	14	0	4	30	3	0	8	2	46	1	4	10	0	24	0	6	8	1	267
4:15 PM	6	22	2	0	14	0	4	12	2	0	4	0	0	30	4	0	10	0	2	19	5	0	4	0	60	3	3	11	0	22	1	13	15	0	268
4:30 PM	6	15	3	0	21	0	5	11	1	0	1	0	0	33	5	0	8	1	0	43	1	0	9	0	63	0	7	11	0	22	1	13	10	2	292
4:45 PM	10	10	6	0	8	0	2	9	0	0	2	1	0	34	5	0	8	1	3	30	1	0	13	2	62	1	2	12	0	21	1	5	5	2	256
5:00 PM	11	15	6	0	10	0	3	10	0	0	3	0	2	41	5	0	14	1	4	37	2	0	5	0	50	1	5	5	0	24	2	8	6	3	273
5:15 PM	6	10	5	0	9	0	2	12	0	0	1	3	0	32	7	0	9	1	5	29	3	0	9	3	63	1	2	11	0	24	1	13	10	0	271
5:30 PM	6	11	3	0	8	0	5	10	1	0	3	1	1	26	8	0	7	3	7	29	5	0	7	1	56	1	3	8	0	24	0	6	14	2	256
5:45 PM	4	14	11	0	7	0	1	9	1	0	2	0	1	30	4	0	10	0	4	17	3	0	6	1	39	1	5	10	0	27	1	14	9	1	232
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	64	109	41	0	86	0	24	83	7	0	16	6	5	266	47	0	80	7	29	234	23	0	61	9	439	9	31	78	0	188	7	78	77	11	2115
APPROACH %'s :	21.33%	36.33%	13.67%	0.00%	28.67%	0.00%	17.65%	61.03%	5.15%	0.00%	11.76%	4.41%	1.23%	65.68%	11.60%	0.00%	19.75%	1.73%	8.15%	65.73%	6.46%	0.00%	17.13%	2.53%	78.82%	1.62%	5.57%	14.00%	0.00%	52.08%	1.94%	21.61%	21.33%	3.05%	
PEAK HR :	04:30 PM - 05:30 PM																																		TOTAL
PEAK HR VOL :	33	50	20	0	48	0	12	42	1	0	7	4	2	140	22	0	39	4	12	139	7	0	36	5	238	3	16	39	0	91	5	39	31	7	1092
PEAK HR FACTOR :	0.750	0.833	0.833	0.000	0.571	0.000	0.600	0.875	0.250	0.000	0.583	0.333	0.250	0.854	0.786	0.000	0.696	1.000	0.600	0.808	0.583	0.000	0.692	0.417	0.944	0.750	0.571	0.813	0.000	0.948	0.625	0.750	0.775	0.583	0.935
	0.839						0.917						0.821						0.939																

	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2
AM Peak	43	60	61	0	69	4	41	86	9	0	14	1	6	95	57	0	46	0	27	146	14	0	55	4	66	2	13	23	1	123	13	45	26	6
PM Peak	33	51	20	0	48	0	12	42	1	0	7	4	2	143	22	0	39	4	12	142	7	0	39	5	240	3	16	40	0	95	5	39	31	7

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Catawba Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-041
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Fontana Ave/Catawba Ave						Fontana Ave/Catawba Ave						Randall Ave						Randall Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	5	3	17	0	8	0	9	11	3	0	6	0	0	19	7	0	7	0	0	18	1	0	5	2	12	0	1	1	0	18	8	5	7	0	173
7:15 AM	7	10	29	0	8	0	20	11	1	0	4	0	0	24	6	0	4	0	4	29	5	0	13	1	16	1	4	10	2	26	10	5	6	0	256
7:30 AM	6	11	33	0	5	1	26	18	3	0	1	0	0	26	10	0	6	0	4	39	4	0	13	2	15	0	4	7	1	28	8	12	6	3	292
7:45 AM	5	13	8	0	10	0	5	29	4	0	6	0	2	16	17	0	10	0	4	40	6	0	8	0	12	1	4	5	0	35	2	9	5	1	257
8:00 AM	11	19	10	0	25	0	6	25	0	0	3	0	3	27	9	0	14	0	5	29	3	0	17	1	15	0	4	3	0	21	2	6	6	2	266
8:15 AM	19	14	8	0	26	1	2	12	2	0	2	1	1	23	19	0	14	0	11	32	1	0	17	1	17	1	1	5	0	28	1	10	9	0	278
8:30 AM	4	11	5	0	7	0	4	4	1	0	4	0	1	15	4	0	5	0	4	28	0	0	13	0	25	0	0	4	0	29	1	2	5	0	176
8:45 AM	1	3	1	0	7	1	3	5	2	0	1	1	0	19	3	0	7	0	2	15	2	0	3	1	19	1	3	6	1	13	0	4	1	3	128
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	58	84	111	0	96	3	75	115	16	0	27	2	7	169	75	0	67	0	34	230	22	0	89	8	131	4	21	41	4	198	32	53	45	9	1826
APPROACH %'s :	16.48%	23.86%	31.53%	0.00%	27.27%	0.85%	31.91%	48.94%	6.81%	0.00%	11.49%	0.85%	2.20%	53.14%	23.58%	0.00%	21.07%	0.00%	8.88%	60.05%	5.74%	0.00%	23.24%	2.09%	65.17%	1.99%	10.45%	20.40%	1.99%	58.75%	9.50%	15.73%	13.35%	2.67%	
PEAK HR :	07:30 AM - 08:30 AM																																		TOTAL
PEAK HR VOL :	41	57	59	0	66	2	39	84	9	0	12	1	6	92	55	0	44	0	24	140	14	0	55	4	59	2	13	20	1	112	13	37	26	6	1093
PEAK HR FACTOR :	0.539	0.750	0.447	0.000	0.635	0.500	0.375	0.724	0.563	0.000	0.500	0.250	0.500	0.852	0.724	0.000	0.786	0.000	0.545	0.875	0.583	0.000	0.809	0.500	0.868	0.500	0.813	0.714	0.250	0.800	0.406	0.771	0.722	0.500	0.936
	0.827						0.755						0.864						0.956																

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	15	12	5	0	9	0	2	9	2	0	0	1	1	40	7	0	14	0	2	30	3	0	8	2	45	1	3	10	0	24	0	6	8	1	260
4:15 PM	6	22	2	0	14	0	4	11	2	0	4	0	0	30	3	0	10	0	2	19	5	0	4	0	60	3	3	11	0	21	1	10	15	0	262
4:30 PM	6	15	3	0	21	0	5	11	1	0	1	0	0	33	5	0	8	1	0	41	1	0	8	0	63	0	7	11	0	22	1	13	10	2	289
4:45 PM	10	9	6	0	8	0	2	9	0	0	2	1	0	34	5	0	8	1	3	29	1	0	13	2	62	1	2	11	0	20	1	5	5	2	252
5:00 PM	11	15	6	0	10	0	3	10	0	0	3	0	2	38	5	0	14	1	4	36	2	0	5	0	48	1	5	5	0	24	2	8	6	3	267
5:15 PM	6	10	5	0	9	0	2	12	0	0	1	3	0	32	7	0	9	1	5	29	3	0	8	3	63	1	2	11	0	22	1	13	10	0	268
5:30 PM	6	11	3	0	8	0	5	10	1	0	3	1	1	26	8	0	7	3	7	29	5	0	6	1	51	1	3	8	0	22	0	6	13	2	247
5:45 PM	4	14	11	0	7	0	1	9	1	0	2	0	1	30	4	0	10	0	4	17	3	0	6	1	38	1	5	10	0	27	1	14	9	1	231
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	64	108	41	0	86	0	24	81	7	0	16	6	5	263	44	0	80	7	27	230	23	0	58	9	430	9	30	77	0	182	7	75	76	11	2076
APPROACH %'s :	21.40%	36.12%	13.71%	0.00%	28.76%	0.00%	17.91%	60.45%	5.22%	0.00%	11.94%	4.48%	1.25%	65.91%	11.03%	0.00%	20.05%	1.75%	7.78%	66.28%	6.63%	0.00%	16.71%	2.59%	78.75%	1.65%	5.49%	14.10%	0.00%	51.85%	1.99%	21.37%	21.65%	3.13%	
PEAK HR :	04:30 PM - 05:30 PM																																		TOTAL
PEAK HR VOL :	33	49	20	0	48	0	12	42	1	0	7	4	2	137	22	0	39	4	12	135	7	0	34	5	236	3	16	38	0	88	5	39	31	7	1076
PEAK HR FACTOR :	0.750	0.817	0.833	0.000	0.571	0.000	0.600	0.875	0.250	0.000	0.583	0.333	0.250	0.901	0.786	0.000	0.696	1.000	0.600	0.823	0.583	0.000	0.654	0.417	0.937	0.750	0.571	0.864	0.000	0.917	0.625	0.750	0.775	0.583	0.931
	0.833						0.917						0.850						0.965																

AM Peak	41	57	59	0	66	2	39	84	9	0	12	1	6	92	55	0	44	0	24	140	14	0	55	4	59	2	13	20	1	112	13	37	26	6	
PM Peak	33	49	20	0	48	0	12	42	1	0	7	4	2	137	22	0	39	4	12	135	7	0	34	5	236	3	16	38	0	88	5	39	31	7	

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Catawba Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-041
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Fontana Ave/Catawba Ave						Fontana Ave/Catawba Ave						Randall Ave						Randall Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
7:15 AM	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6
7:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4
8:00 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	0	0	0	8
8:15 AM	0	2	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	10
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	1	1	0	0	0	0	2	0	0	0	0	2	0	4	0	0	13
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	4	1	0	4	1	1	1	0	0	1	0	0	4	1	0	2	0	4	2	0	0	0	0	6	0	0	2	0	4	0	6	1	0	46
APPROACH %'s :	9.09%	36.36%	9.09%	0.00%	36.36%	9.09%	33.33%	33.33%	0.00%	0.00%	33.33%	0.00%	0.00%	57.14%	14.29%	0.00%	28.57%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	0.00%	75.00%	0.00%	0.00%	25.00%	0.00%	36.36%	0.00%	54.55%	9.09%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																																		TOTAL
PEAK HR VOL :	1	2	1	0	2	1	1	1	0	0	1	0	0	2	1	0	1	0	2	1	0	0	0	0	2	0	0	2	0	2	0	2	0	0	25
PEAK HR FACTOR :	0.250	0.250	0.250	0.000	0.500	0.250	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.500	0.000	0.250	0.000	0.000	0.625
	0.438						0.750						0.500						0.375																

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	7
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	6
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	2	0	0	1	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	2	0	0	0	0	0	1	3	0	0	0	2	2	0	0	1	0	7	0	1	1	0	4	0	3	1	0	29
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	40.00%	40.00%	0.00%	0.00%	20.00%	0.00%	77.78%	0.00%	11.11%	11.11%	0.00%	50.00%	0.00%	37.50%	12.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																																		TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1	0	0	0	0	1	0	1	0	0	0	0	7
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.875
	0.250						0.000						0.250						0.750																

1.5																																			
AM Peak	2	3	2	0	3	2	2	2	0	0	2	0	0	3	2	0	2	0	3	2	0	0	0	0	3	0	0	3	0	3	0	3	0	0	
PM Peak	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	0	2	0	0	0	0	2	0	2	0	0	0	0	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fontana Ave/Catawba Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-041
Date: 9/9/2021

Data - 3axle

NS/EW Streets: Fontana Ave/Catawba Ave | Fontana Ave/Catawba Ave | Randall Ave | Randall Ave

AM

	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0 NL	1 NT	0 NR	0 NU	0 NT2	0 NU2	0 SL	1 ST	0 SR	0 SU	0 ST2	0 SU2	0 EL	1 ET	0 ER	0 EU	0 EL2	0 ER2	0 WL	1 WT	0 WR	0 WU	0 WL2	0 WR2	0 N2T	0 N2L2	0 N2T2	0 N2R2	0 N2U2	0 S2T	0 S2L2	0 S2T2	0 S2R2	0 S2U2	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	0	1	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	5	0	0	0	0	1	0	1	0	0	11
APPROACH %'s :	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%							0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																																		TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	1	0	1	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.300
																0.250																			

PM

	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																	
	0 NL	1 NT	0 NR	0 NU	0 NT2	0 NU2	0 SL	1 ST	0 SR	0 SU	0 ST2	0 SU2	0 EL	1 ET	0 ER	0 EU	0 EL2	0 ER2	0 WL	1 WT	0 WR	0 WU	0 WL2	0 WR2	0 N2T	0 N2L2	0 N2T2	0 N2R2	0 N2U2	0 S2T	0 S2L2	0 S2T2	0 S2R2	0 S2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	1	0	2	0	0	0	0	1	0	0	0	0	8
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%	0.00%	0.00%	33.33%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																																		TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	1	0	0	0	0	7
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.438
																0.250																			

2																																			
AM Peak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	2	0	2	0	0	
PM Peak	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	2	0	0	0	0	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fontana Ave/Catawba Ave & Randall Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-041
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Fontana Ave/Catawba Ave						Fontana Ave/Catawba Ave						Randall Ave						Randall Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2	0	0	6
APPROACH %'s :																			0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																																		TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.750

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
APPROACH %'s :																			0.00%	0.00%	0.00%	0.00%	100.00%	0.00%						100.00%	0.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																																		TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500

3																																			
AM Peak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	3	0	0	
PM Peak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-042
Date: 9/9/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	74	19	0	10	180	9	0	4	13	7	0	20	27	15	0	385
7:15 AM	18	110	26	0	15	191	30	0	33	24	29	0	25	32	11	0	544
7:30 AM	25	127	27	0	20	189	25	0	32	27	64	0	29	31	13	0	609
7:45 AM	22	129	50	0	31	181	7	0	32	33	35	0	36	31	17	0	604
8:00 AM	32	161	54	0	28	200	10	0	8	25	18	0	30	23	23	0	612
8:15 AM	33	145	64	0	23	222	7	0	7	24	17	0	27	21	13	0	603
8:30 AM	29	161	34	0	15	154	5	0	1	20	18	0	16	22	11	0	486
8:45 AM	8	116	21	0	5	127	2	0	6	17	9	0	11	17	3	0	342
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	174	1023	295	0	147	1444	95	0	123	183	197	0	194	204	106	0	4185
APPROACH %'s :	11.66%	68.57%	19.77%	0.00%	8.72%	85.65%	5.63%	0.00%	24.45%	36.38%	39.17%	0.00%	38.49%	40.48%	21.03%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	112	562	195	0	102	792	49	0	79	109	134	0	122	106	66	0	2428
PEAK HR FACTOR :	0.848	0.873	0.762	0.000	0.823	0.892	0.490	0.000	0.617	0.826	0.523	0.000	0.847	0.855	0.717	0.000	0.992
	0.880				0.936				0.654				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	221	36	0	12	133	6	0	8	33	14	0	12	29	20	0	537
4:15 PM	9	187	30	0	22	150	3	0	6	47	7	0	8	23	13	0	505
4:30 PM	22	200	32	0	13	149	3	0	6	31	9	0	26	29	15	0	535
4:45 PM	13	207	21	0	15	170	7	0	7	39	9	0	9	38	16	0	551
5:00 PM	15	182	20	0	19	145	0	0	5	43	11	0	16	38	16	0	510
5:15 PM	10	227	23	0	19	141	5	0	5	41	9	0	14	36	14	0	544
5:30 PM	11	230	18	0	12	155	1	0	3	40	7	0	18	33	17	0	545
5:45 PM	13	226	22	0	21	155	2	0	1	27	9	0	16	26	14	0	532
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	106	1680	202	0	133	1198	27	0	41	301	75	0	119	252	125	0	4259
APPROACH %'s :	5.33%	84.51%	10.16%	0.00%	9.79%	88.22%	1.99%	0.00%	9.83%	72.18%	17.99%	0.00%	23.99%	50.81%	25.20%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	49	846	82	0	65	611	13	0	20	163	36	0	57	145	63	0	2150
PEAK HR FACTOR :	0.817	0.920	0.891	0.000	0.855	0.899	0.464	0.000	0.714	0.948	0.818	0.000	0.792	0.954	0.926	0.000	0.975
	0.939				0.897				0.928				0.946				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-042
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	68	19	0	9	173	9	0	4	13	7	0	20	26	14	0	369
7:15 AM	18	100	25	0	14	187	29	0	32	24	29	0	24	31	11	0	524
7:30 AM	25	118	26	0	20	177	25	0	31	27	64	0	29	31	13	0	586
7:45 AM	22	122	50	0	31	172	7	0	32	32	35	0	36	31	17	0	587
8:00 AM	32	155	54	0	26	189	10	0	8	25	17	0	29	22	22	0	589
8:15 AM	32	142	64	0	23	209	6	0	7	23	17	0	27	19	13	0	582
8:30 AM	29	154	34	0	15	150	5	0	1	20	17	0	16	22	11	0	474
8:45 AM	7	108	19	0	5	117	2	0	5	16	9	0	11	16	3	0	318
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	172	967	291	0	143	1374	93	0	120	180	195	0	192	198	104	0	4029
APPROACH %'s :	12.03%	67.62%	20.35%	0.00%	8.88%	85.34%	5.78%	0.00%	24.24%	36.36%	39.39%	0.00%	38.87%	40.08%	21.05%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	111	537	194	0	100	747	48	0	78	107	133	0	121	103	65	0	2344
PEAK HR FACTOR :	0.867	0.866	0.758	0.000	0.806	0.894	0.480	0.000	0.609	0.836	0.520	0.000	0.840	0.831	0.739	0.000	0.995
	0.873				0.940				0.652				0.860				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	220	36	0	12	124	6	0	8	33	14	0	12	29	20	0	527
4:15 PM	9	182	30	0	22	141	3	0	6	47	7	0	8	21	13	0	489
4:30 PM	21	197	31	0	13	144	3	0	6	31	9	0	26	28	15	0	524
4:45 PM	12	196	21	0	15	165	7	0	7	37	9	0	9	37	16	0	531
5:00 PM	15	179	20	0	18	141	0	0	5	43	10	0	16	37	16	0	500
5:15 PM	10	224	23	0	19	134	5	0	5	40	8	0	14	35	14	0	531
5:30 PM	11	223	18	0	12	152	1	0	3	40	6	0	18	32	17	0	533
5:45 PM	13	224	22	0	21	152	2	0	1	27	9	0	16	26	14	0	527
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	104	1645	201	0	132	1153	27	0	41	298	72	0	119	245	125	0	4162
APPROACH %'s :	5.33%	84.36%	10.31%	0.00%	10.06%	87.88%	2.06%	0.00%	9.98%	72.51%	17.52%	0.00%	24.34%	50.10%	25.56%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	48	822	82	0	64	592	13	0	20	160	33	0	57	141	63	0	2095
PEAK HR FACTOR :	0.800	0.917	0.891	0.000	0.842	0.897	0.464	0.000	0.714	0.930	0.825	0.000	0.792	0.953	0.926	0.000	0.983
	0.926				0.894				0.918				0.946				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-042
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	1	0	6
7:15 AM	0	5	0	0	1	4	1	0	1	0	0	0	1	1	0	0	14
7:30 AM	0	3	1	0	0	4	0	0	1	0	0	0	0	0	0	0	9
7:45 AM	0	4	0	0	0	3	0	0	0	1	0	0	0	0	0	0	8
8:00 AM	0	2	0	0	2	4	0	0	0	0	1	0	1	1	1	0	12
8:15 AM	0	3	0	0	0	5	1	0	0	1	0	0	0	1	0	0	11
8:30 AM	0	5	0	0	0	1	0	0	0	0	1	0	0	0	0	0	7
8:45 AM	0	3	1	0	0	2	0	0	1	1	0	0	0	1	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	26	2	0	3	26	2	0	3	3	2	0	2	5	2	0	76
APPROACH %'s :	0.00%	92.86%	7.14%	0.00%	9.68%	83.87%	6.45%	0.00%	37.50%	37.50%	25.00%	0.00%	22.22%	55.56%	22.22%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	12	1	0	2	16	1	0	1	2	1	0	1	2	1	0	40
PEAK HR FACTOR :	0.000	0.750	0.250	0.000	0.250	0.800	0.250	0.000	0.250	0.500	0.250	0.000	0.250	0.500	0.250	0.000	0.833
	0.813				0.792				1.000				0.333				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
4:15 PM	0	3	0	0	0	6	0	0	0	0	0	0	0	2	0	0	11
4:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	5
4:45 PM	0	4	0	0	0	3	0	0	0	2	0	0	0	0	0	0	9
5:00 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	4
5:15 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	4
5:30 PM	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	0	0	1	19	0	0	0	3	1	0	0	5	0	0	43
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	5.00%	95.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	10	0	0	1	5	0	0	0	3	1	0	0	2	0	0	22
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.250	0.417	0.000	0.000	0.000	0.375	0.250	0.000	0.000	0.500	0.000	0.000	0.611
	0.625				0.500				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-042
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
8:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	6
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	4	1	0	0	2	0	0	0	0	0	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	9	1	0	0	12	0	0	0	0	0	0	0	1	0	0	24
APPROACH %'s :	9.09%	81.82%	9.09%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	3	0	0	0	9	0	0	0	0	0	0	0	1	0	0	14
PEAK HR FACTOR :	0.250	0.750	0.000	0.000	0.000	0.563	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.583
	1.000				0.563								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	1	4	0	0	0	1	0	0	0	0	0	0	0	1	0	0	7
5:00 PM	0	1	0	0	0	3	0	0	0	0	1	0	0	0	0	0	5
5:15 PM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	8	0	0	0	12	0	0	0	0	2	0	0	2	0	0	25
APPROACH %'s :	11.11%	88.89%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	5	0	0	0	8	0	0	0	0	2	0	0	2	0	0	18
PEAK HR FACTOR :	0.250	0.313	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.643
	0.300				0.667				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-042
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	1	3	0	0	0	0	0	0	0	0	0	0	8
7:15 AM	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	5	0	0	0	7	0	0	0	0	0	0	0	0	0	0	12
7:45 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8:00 AM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9
8:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8:45 AM	1	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	21	1	0	1	32	0	0	0	0	0	0	0	0	0	0	56
APPROACH %'s :	4.35%	91.30%	4.35%	0.00%	3.03%	96.97%	0.00%	0.00%									
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	10	0	0	0	20	0	0	0	0	0	0	0	0	0	0	30
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.714	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
	0.500				0.714												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:45 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	13	1	0	0	14	0	0	0	0	0	0	0	0	0	0	29
APPROACH %'s :	6.67%	86.67%	6.67%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	9	0	0	0	6	0	0	0	0	0	0	0	0	0	0	15
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.750				0.500												

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-043
Date: 9/15/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	110	6	0	4	140	7	0	1	19	6	0	29	36	4	0	371
7:15 AM	9	168	10	0	5	182	7	0	5	32	16	0	24	57	7	0	522
7:30 AM	11	206	12	0	9	224	8	0	7	41	21	0	32	58	18	0	647
7:45 AM	6	181	13	0	3	289	8	0	10	40	24	0	33	57	9	0	673
8:00 AM	8	169	14	0	7	269	9	0	23	50	20	0	33	40	7	0	649
8:15 AM	6	155	9	0	3	239	11	0	16	66	28	0	33	46	13	0	625
8:30 AM	10	180	11	0	8	257	10	0	17	32	24	0	23	32	10	0	614
8:45 AM	5	168	10	0	3	187	5	0	9	24	10	0	28	32	12	0	493
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	64	1337	85	0	42	1787	65	0	88	304	149	0	235	358	80	0	4594
APPROACH %'s :	4.31%	89.97%	5.72%	0.00%	2.22%	94.35%	3.43%	0.00%	16.27%	56.19%	27.54%	0.00%	34.92%	53.19%	11.89%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	31	711	48	0	22	1021	36	0	56	197	93	0	131	201	47	0	2594
PEAK HR FACTOR :	0.705	0.863	0.857	0.000	0.611	0.883	0.818	0.000	0.609	0.746	0.830	0.000	0.992	0.866	0.653	0.000	0.964
	0.862				0.899				0.786				0.877				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	271	24	0	25	197	12	0	20	63	19	0	30	44	15	0	739
4:15 PM	20	251	29	0	13	191	12	0	19	48	23	0	37	32	13	0	688
4:30 PM	12	271	26	0	11	190	21	0	19	66	11	0	22	45	15	0	709
4:45 PM	17	224	33	0	15	188	15	0	17	53	12	0	28	35	14	0	651
5:00 PM	14	258	38	0	10	212	17	0	13	53	21	0	23	26	11	0	696
5:15 PM	21	222	22	0	14	223	8	0	24	45	11	0	22	31	8	0	651
5:30 PM	12	242	20	0	12	178	11	0	24	49	8	0	25	47	15	0	643
5:45 PM	12	247	31	0	7	166	15	0	22	37	17	0	24	41	15	0	634
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	127	1986	223	0	107	1545	111	0	158	414	122	0	211	301	106	0	5411
APPROACH %'s :	5.44%	85.02%	9.55%	0.00%	6.07%	87.63%	6.30%	0.00%	22.77%	59.65%	17.58%	0.00%	34.14%	48.71%	17.15%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	68	1017	112	0	64	766	60	0	75	230	65	0	117	156	57	0	2787
PEAK HR FACTOR :	0.850	0.938	0.848	0.000	0.640	0.972	0.714	0.000	0.938	0.871	0.707	0.000	0.791	0.867	0.950	0.000	0.943
	0.953				0.951				0.907				0.927				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-043
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	100	6	0	4	136	7	0	1	17	6	0	28	36	4	0	353
7:15 AM	8	161	9	0	5	177	7	0	5	31	16	0	23	57	7	0	506
7:30 AM	11	203	12	0	9	219	8	0	7	41	21	0	29	57	17	0	634
7:45 AM	6	175	12	0	3	283	8	0	10	39	24	0	31	57	8	0	656
8:00 AM	8	162	14	0	7	261	9	0	22	49	20	0	33	39	7	0	631
8:15 AM	6	149	9	0	3	230	11	0	16	63	28	0	33	45	12	0	605
8:30 AM	9	174	11	0	8	245	9	0	17	32	24	0	23	31	10	0	593
8:45 AM	5	164	10	0	3	183	5	0	9	22	10	0	28	31	12	0	482
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	61	1288	83	0	42	1734	64	0	87	294	149	0	228	353	77	0	4460
APPROACH %'s :	4.26%	89.94%	5.80%	0.00%	2.28%	94.24%	3.48%	0.00%	16.42%	55.47%	28.11%	0.00%	34.65%	53.65%	11.70%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	31	689	47	0	22	993	36	0	55	192	93	0	126	198	44	0	2526
PEAK HR FACTOR :	0.705	0.849	0.839	0.000	0.611	0.877	0.818	0.000	0.625	0.762	0.830	0.000	0.955	0.868	0.647	0.000	0.963
	0.848				0.894				0.794				0.893				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	268	24	0	25	192	11	0	20	62	19	0	30	37	14	0	721
4:15 PM	20	247	29	0	13	186	12	0	18	48	22	0	37	31	13	0	676
4:30 PM	12	268	26	0	11	186	19	0	19	66	11	0	22	45	14	0	699
4:45 PM	17	222	33	0	15	184	15	0	17	53	12	0	28	35	14	0	645
5:00 PM	14	254	38	0	10	205	17	0	11	49	21	0	23	26	11	0	679
5:15 PM	21	220	22	0	14	220	8	0	24	44	11	0	22	31	7	0	644
5:30 PM	11	238	20	0	12	173	11	0	24	49	8	0	25	47	15	0	633
5:45 PM	12	244	31	0	7	165	15	0	22	37	17	0	24	40	15	0	629
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	126	1961	223	0	107	1511	108	0	155	408	121	0	211	292	103	0	5326
APPROACH %'s :	5.45%	84.89%	9.65%	0.00%	6.20%	87.54%	6.26%	0.00%	22.66%	59.65%	17.69%	0.00%	34.82%	48.18%	17.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	68	1005	112	0	64	748	57	0	74	229	64	0	117	148	55	0	2741
PEAK HR FACTOR :	0.850	0.938	0.848	0.000	0.640	0.974	0.750	0.000	0.925	0.867	0.727	0.000	0.791	0.822	0.982	0.000	0.950
	0.953				0.953				0.908				0.988				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-043
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	9	0	0	0	2	0	0	0	2	0	0	1	0	0	0	14
7:15 AM	1	7	0	0	0	3	0	0	0	1	0	0	1	0	0	0	13
7:30 AM	0	3	0	0	0	4	0	0	0	0	0	0	3	1	0	0	11
7:45 AM	0	6	1	0	0	3	0	0	0	1	0	0	2	0	1	0	14
8:00 AM	0	5	0	0	0	6	0	0	1	1	0	0	0	1	0	0	14
8:15 AM	0	5	0	0	0	7	0	0	0	3	0	0	0	1	1	0	17
8:30 AM	1	6	0	0	0	11	1	0	0	0	0	0	0	1	0	0	20
8:45 AM	0	3	0	0	0	4	0	0	0	0	0	0	0	1	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	44	1	0	0	40	1	0	1	8	0	0	7	5	2	0	111
APPROACH %'s :	4.26%	93.62%	2.13%	0.00%	0.00%	97.56%	2.44%	0.00%	11.11%	88.89%	0.00%	0.00%	50.00%	35.71%	14.29%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	19	1	0	0	20	0	0	1	5	0	0	5	3	2	0	56
PEAK HR FACTOR :	0.000	0.792	0.250	0.000	0.000	0.714	0.000	0.000	0.250	0.417	0.000	0.000	0.417	0.750	0.500	0.000	0.824
	0.714				0.714				0.500				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	4	1	0	0	0	0	0	0	2	1	0	11
4:15 PM	0	3	0	0	0	3	0	0	1	0	1	0	0	1	0	0	9
4:30 PM	0	3	0	0	0	2	2	0	0	0	0	0	0	0	1	0	8
4:45 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	0	3	0	0	0	6	0	0	1	4	0	0	0	0	0	0	14
5:15 PM	0	2	0	0	0	2	0	0	0	1	0	0	0	0	1	0	6
5:30 PM	1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	21	0	0	0	24	3	0	2	5	1	0	0	4	3	0	64
APPROACH %'s :	4.55%	95.45%	0.00%	0.00%	0.00%	88.89%	11.11%	0.00%	25.00%	62.50%	12.50%	0.00%	0.00%	57.14%	42.86%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	11	0	0	0	11	3	0	1	0	1	0	0	3	2	0	32
PEAK HR FACTOR :	0.000	0.917	0.000	0.000	0.000	0.688	0.375	0.000	0.250	0.000	0.250	0.000	0.000	0.375	0.500	0.000	0.727
	0.917				0.700				0.250				0.417				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-043
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	0	0	0	6	0	0	0	2	0	0	0	0	0	0	11
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.500				0.500												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	3	0	0	1	1	0	0	0	4	0	0	9
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.300
					0.250				0.250				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Randall Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-043
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Randall Ave				Randall Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	1	0	0	7	0	0	0	0	0	0	0	0	1	0	12
APPROACH %'s :	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	4	0	0	0	0	0	0	0	0	1	0	6
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500
	0.250				0.500								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	0	7	0	0	0	0	0	0	0	1	0	0	12
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	6	0	0	0	0	0	0	0	1	0	0	8
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	1.000
	0.250				0.750								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps/Ontario Mills Dr & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-044
Date: 9/9/2021

Data - Total

NS/EW Streets:	I-15 SB Ramps/Ontario Mills Dr				I-15 SB Ramps/Ontario Mills Dr				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	9	16	0	17	70	199	0	61	71	14	0	30	221	25	0	745
7:15 AM	21	5	14	0	22	55	211	0	45	77	8	0	20	229	24	0	731
7:30 AM	16	10	20	0	26	58	202	0	63	111	10	1	25	253	36	0	831
7:45 AM	29	8	17	0	25	73	268	0	47	86	10	1	38	306	29	1	938
8:00 AM	17	10	18	0	27	61	208	0	58	86	20	1	23	280	45	0	854
8:15 AM	23	15	16	0	24	53	182	0	55	78	18	2	40	249	26	0	781
8:30 AM	16	6	26	0	23	56	171	0	43	87	14	1	40	208	35	0	726
8:45 AM	23	13	29	0	21	45	165	0	50	101	23	2	28	231	49	0	780
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	157	76	156	0	185	471	1606	0	422	697	117	8	244	1977	269	1	6386
APPROACH %'s :	40.36%	19.54%	40.10%	0.00%	8.18%	20.82%	71.00%	0.00%	33.92%	56.03%	9.41%	0.64%	9.80%	79.37%	10.80%	0.04%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	85	43	71	0	102	245	860	0	223	361	58	5	126	1088	136	1	3404
PEAK HR FACTOR :	0.733	0.717	0.888	0.000	0.944	0.839	0.802	0.000	0.885	0.813	0.725	0.625	0.788	0.889	0.756	0.250	0.907
	0.921				0.824				0.874				0.903				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	17	58	111	0	20	69	124	0	169	224	28	2	34	111	84	0	1051
4:15 PM	26	52	82	0	18	58	113	0	159	232	20	2	24	126	72	0	984
4:30 PM	34	43	97	1	21	57	134	0	179	230	19	0	35	141	76	2	1069
4:45 PM	36	47	88	0	13	73	112	0	211	233	24	1	25	143	56	0	1062
5:00 PM	22	75	96	0	13	83	129	0	207	256	22	1	34	142	93	0	1173
5:15 PM	26	40	78	0	25	61	129	0	180	237	26	4	54	124	58	0	1042
5:30 PM	28	41	73	0	17	62	137	0	167	217	19	4	30	134	69	0	998
5:45 PM	36	52	92	0	27	89	158	0	137	217	27	6	58	146	49	0	1094
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	225	408	717	1	154	552	1036	0	1409	1846	185	20	294	1067	557	2	8473
APPROACH %'s :	16.65%	30.20%	53.07%	0.07%	8.84%	31.69%	59.47%	0.00%	40.72%	53.35%	5.35%	0.58%	15.31%	55.57%	29.01%	0.10%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	118	205	359	1	72	274	504	0	777	956	91	6	148	550	283	2	4346
PEAK HR FACTOR :	0.819	0.683	0.925	0.250	0.720	0.825	0.940	0.000	0.921	0.934	0.875	0.375	0.685	0.962	0.761	0.250	0.926
	0.885				0.944				0.941				0.914				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps/Ontario Mills Dr & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-044
Date: 9/9/2021

Data - Cars

NS/EW Streets:	I-15 SB Ramps/Ontario Mills Dr				I-15 SB Ramps/Ontario Mills Dr				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	9	15	0	16	70	193	0	57	65	14	0	25	211	19	0	706
7:15 AM	18	4	14	0	18	54	205	0	34	70	8	0	20	210	11	0	666
7:30 AM	16	8	18	0	20	58	198	0	53	99	9	1	24	232	22	0	758
7:45 AM	29	6	15	0	19	73	264	0	37	81	10	1	35	284	16	1	871
8:00 AM	17	9	17	0	23	60	203	0	54	75	19	1	22	255	29	0	784
8:15 AM	21	13	13	0	20	52	176	0	48	71	18	2	37	232	16	0	719
8:30 AM	16	5	23	0	13	55	167	0	30	73	14	1	40	182	22	0	641
8:45 AM	22	11	27	0	13	42	157	0	44	86	22	2	27	206	37	0	696
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	151	65	142	0	142	464	1563	0	357	620	114	8	230	1812	172	1	5841
APPROACH %'s :	42.18%	18.16%	39.66%	0.00%	6.55%	21.39%	72.06%	0.00%	32.48%	56.41%	10.37%	0.73%	10.38%	81.81%	7.77%	0.05%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	83	36	63	0	82	243	841	0	192	326	56	5	118	1003	83	1	3132
PEAK HR FACTOR :	0.716	0.692	0.875	0.000	0.891	0.832	0.796	0.000	0.889	0.823	0.737	0.625	0.797	0.883	0.716	0.250	0.899
	0.910				0.819				0.894				0.897				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	17	55	108	0	11	69	121	0	165	210	28	2	33	107	78	0	1004
4:15 PM	25	52	82	0	12	58	109	0	150	218	19	2	24	111	65	0	927
4:30 PM	34	43	97	1	18	57	128	0	174	213	19	0	35	129	71	1	1020
4:45 PM	36	46	87	0	9	69	108	0	205	223	23	1	24	131	53	0	1015
5:00 PM	22	74	96	0	9	79	124	0	202	243	21	1	34	130	89	0	1124
5:15 PM	26	39	78	0	17	61	125	0	172	224	26	4	53	119	54	0	998
5:30 PM	28	41	72	0	13	59	134	0	160	209	19	4	30	132	64	0	965
5:45 PM	35	50	89	0	20	89	151	0	132	205	27	6	58	135	45	0	1042
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	223	400	709	1	109	541	1000	0	1360	1745	182	20	291	994	519	1	8095
APPROACH %'s :	16.73%	30.01%	53.19%	0.08%	6.61%	32.79%	60.61%	0.00%	41.12%	52.77%	5.50%	0.60%	16.12%	55.07%	28.75%	0.06%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	118	202	358	1	53	266	485	0	753	903	89	6	146	509	267	1	4157
PEAK HR FACTOR :	0.819	0.682	0.923	0.250	0.736	0.842	0.947	0.000	0.918	0.929	0.856	0.375	0.689	0.971	0.750	0.250	0.925
	0.884				0.948				0.937				0.912				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps/Ontario Mills Dr & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-044
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	I-15 SB Ramps/Ontario Mills Dr				I-15 SB Ramps/Ontario Mills Dr				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	3	0	2	3	0	0	4	5	1	0	19
7:15 AM	2	1	0	0	1	1	1	0	6	3	0	0	0	4	5	0	24
7:30 AM	0	2	2	0	0	0	2	0	5	4	1	0	1	8	3	0	28
7:45 AM	0	2	1	0	0	0	1	0	3	3	0	0	1	10	2	0	23
8:00 AM	0	1	0	0	2	1	3	0	1	4	1	0	1	11	3	0	28
8:15 AM	2	1	2	0	2	1	3	0	3	4	0	0	2	5	2	0	27
8:30 AM	0	1	1	0	1	1	1	0	3	5	0	0	0	9	3	0	25
8:45 AM	0	1	1	0	0	0	4	0	1	5	1	0	0	16	3	0	32
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	9	8	0	6	4	18	0	24	31	3	0	9	68	22	0	206
APPROACH %'s :	19.05%	42.86%	38.10%	0.00%	21.43%	14.29%	64.29%	0.00%	41.38%	53.45%	5.17%	0.00%	9.09%	68.69%	22.22%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	6	5	0	4	2	9	0	12	15	2	0	5	34	10	0	106
PEAK HR FACTOR :	0.250	0.750	0.625	0.000	0.500	0.500	0.750	0.000	0.600	0.938	0.500	0.000	0.625	0.773	0.833	0.000	0.946
	0.650				0.625				0.725				0.817				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	1	0	1	0	2	0	2	7	0	0	1	1	0	0	17
4:15 PM	1	0	0	0	1	0	1	0	4	6	1	0	0	7	3	0	24
4:30 PM	0	0	0	0	0	0	2	0	2	5	0	0	0	3	2	1	15
4:45 PM	0	1	1	0	0	3	2	0	3	3	1	0	0	5	1	0	20
5:00 PM	0	1	0	0	0	2	1	0	0	3	0	0	0	3	1	0	11
5:15 PM	0	0	0	0	1	0	0	0	3	5	0	0	1	2	0	0	12
5:30 PM	0	0	0	0	1	0	0	0	2	1	0	0	0	0	1	0	5
5:45 PM	1	1	1	0	1	0	1	0	1	5	0	0	0	4	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	5	3	0	5	5	9	0	17	35	2	0	2	25	8	1	119
APPROACH %'s :	20.00%	50.00%	30.00%	0.00%	26.32%	26.32%	47.37%	0.00%	31.48%	64.81%	3.70%	0.00%	5.56%	69.44%	22.22%	2.78%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	1	0	1	5	5	0	8	16	1	0	1	13	4	1	58
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.250	0.417	0.625	0.000	0.667	0.800	0.250	0.000	0.250	0.650	0.500	0.250	0.725
	0.375				0.550				0.781				0.792				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps/Ontario Mills Dr & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-044
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	I-15 SB Ramps/Ontario Mills Dr				I-15 SB Ramps/Ontario Mills Dr				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	2	0	0	1	1	2	0	7
7:15 AM	1	0	0	0	0	0	0	0	2	3	0	0	0	1	3	0	10
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	6	1	0	11
7:45 AM	0	0	1	0	0	0	0	0	3	1	0	0	2	4	3	0	14
8:00 AM	0	0	1	0	0	0	0	0	0	4	0	0	0	6	1	0	12
8:15 AM	0	0	1	0	0	0	0	0	2	0	0	0	0	1	2	0	6
8:30 AM	0	0	2	0	1	0	2	0	2	3	0	0	0	3	1	0	14
8:45 AM	0	1	0	0	1	1	2	0	0	3	0	0	1	3	3	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	5	0	2	1	5	0	9	20	0	0	4	25	16	0	89
APPROACH %'s :	14.29%	14.29%	71.43%	0.00%	25.00%	12.50%	62.50%	0.00%	31.03%	68.97%	0.00%	0.00%	8.89%	55.56%	35.56%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	3	0	0	0	0	0	5	9	0	0	2	17	7	0	43
PEAK HR FACTOR :	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.417	0.563	0.000	0.000	0.250	0.708	0.583	0.000	0.768
	0.750				0.875								0.722				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	2	0	0	0	0	3	0	0	0	1	0	0	8
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	1	1	0	7
4:45 PM	0	0	0	0	0	1	0	0	1	5	0	0	1	1	1	0	10
5:00 PM	0	0	0	0	0	0	1	0	0	5	0	0	0	4	0	0	10
5:15 PM	0	0	0	0	2	0	0	0	1	3	0	0	0	2	1	0	9
5:30 PM	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	4
5:45 PM	0	0	1	0	2	0	0	0	1	2	0	0	0	1	2	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	3	0	6	2	1	0	3	28	0	0	1	11	6	0	61
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	66.67%	22.22%	11.11%	0.00%	9.68%	90.32%	0.00%	0.00%	5.56%	61.11%	33.33%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	1	1	0	2	18	0	0	1	8	3	0	36
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.000	0.500	0.900	0.000	0.000	0.250	0.500	0.750	0.000	0.900
					0.500				0.833				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 SB Ramps/Ontario Mills Dr & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-044
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	I-15 SB Ramps/Ontario Mills Dr				I-15 SB Ramps/Ontario Mills Dr				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	0	2	0	2	1	0	0	0	4	3	0	13
7:15 AM	0	0	0	0	3	0	5	0	3	1	0	0	0	14	5	0	31
7:30 AM	0	0	0	0	6	0	2	0	5	4	0	0	0	7	10	0	34
7:45 AM	0	0	0	0	6	0	3	0	4	1	0	0	0	8	8	0	30
8:00 AM	0	0	0	0	2	0	2	0	3	3	0	0	0	8	12	0	30
8:15 AM	0	1	0	0	2	0	3	0	2	3	0	0	1	11	6	0	29
8:30 AM	0	0	0	0	8	0	1	0	8	6	0	0	0	14	9	0	46
8:45 AM	1	0	1	0	7	2	2	0	5	7	0	0	0	6	6	0	37
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	1	0	35	2	20	0	32	26	0	0	1	72	59	0	250
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	61.40%	3.51%	35.09%	0.00%	55.17%	44.83%	0.00%	0.00%	0.76%	54.55%	44.70%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	16	0	10	0	14	11	0	0	1	34	36	0	123
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.667	0.000	0.833	0.000	0.700	0.688	0.000	0.000	0.250	0.773	0.750	0.000	0.904
	0.250				0.722				0.694				0.888				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	1.5	1.5	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	6	0	1	0	2	4	0	0	0	2	6	0	22
4:15 PM	0	0	0	0	5	0	3	0	5	5	0	0	0	7	4	0	29
4:30 PM	0	0	0	0	3	0	4	0	3	7	0	0	0	8	2	0	27
4:45 PM	0	0	0	0	4	0	2	0	2	2	0	0	0	6	1	0	17
5:00 PM	0	0	0	0	4	2	3	0	5	5	1	0	0	5	3	0	28
5:15 PM	0	1	0	0	5	0	4	0	4	5	0	0	0	1	3	0	23
5:30 PM	0	0	1	0	3	2	3	0	5	5	0	0	0	2	3	0	24
5:45 PM	0	1	1	0	4	0	6	0	3	5	0	0	0	6	2	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	2	0	34	4	26	0	29	38	1	0	0	37	24	0	198
APPROACH %'s :	0.00%	60.00%	40.00%	0.00%	53.13%	6.25%	40.63%	0.00%	42.65%	55.88%	1.47%	0.00%	0.00%	60.66%	39.34%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	1	0	0	16	2	13	0	14	19	1	0	0	20	9	0	95
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.800	0.250	0.813	0.000	0.700	0.679	0.250	0.000	0.000	0.625	0.750	0.000	0.848
	0.250				0.861				0.773				0.725				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-045
Date: 9/9/2021

Data - Total

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	6	5	0	83	19	211	0	37	52	7	0	13	78	13	0	536
7:15 AM	11	7	14	0	55	11	168	0	51	59	9	0	3	71	13	0	472
7:30 AM	7	3	9	0	62	12	220	0	58	70	6	0	6	102	11	2	568
7:45 AM	12	5	10	0	68	13	224	0	70	66	10	0	5	126	19	0	628
8:00 AM	10	4	5	0	64	11	239	0	62	73	2	0	11	114	11	0	606
8:15 AM	7	10	9	0	73	8	201	0	49	60	6	0	4	95	16	0	538
8:30 AM	11	3	6	0	69	11	189	0	43	80	11	0	11	91	12	0	537
8:45 AM	14	4	13	0	52	8	181	0	58	81	13	0	10	104	19	0	557
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	84	42	71	0	526	93	1633	0	428	541	64	0	63	781	114	2	4442
APPROACH %'s :	42.64%	21.32%	36.04%	0.00%	23.36%	4.13%	72.51%	0.00%	41.43%	52.37%	6.20%	0.00%	6.56%	81.35%	11.88%	0.21%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	36	22	33	0	267	44	884	0	239	269	24	0	26	437	57	2	2340
PEAK HR FACTOR :	0.750	0.550	0.825	0.000	0.914	0.846	0.925	0.000	0.854	0.921	0.600	0.000	0.591	0.867	0.750	0.250	0.932
	0.843				0.951				0.911				0.870				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	21	12	15	0	19	15	72	0	171	162	13	2	4	136	21	0	663
4:15 PM	18	10	9	0	16	12	67	0	155	148	24	1	11	144	31	0	646
4:30 PM	22	12	11	0	24	7	78	0	179	164	17	0	7	149	34	0	704
4:45 PM	13	15	8	0	20	8	84	0	154	161	8	0	12	140	36	0	659
5:00 PM	17	11	10	0	23	10	93	0	173	180	21	0	8	143	30	0	719
5:15 PM	22	6	13	0	15	15	74	0	158	154	16	2	10	146	18	0	649
5:30 PM	10	26	7	0	18	12	92	0	155	147	15	0	7	124	18	0	631
5:45 PM	13	11	4	0	17	8	98	0	174	150	10	1	8	146	19	0	659
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	136	103	77	0	152	87	658	0	1319	1266	124	6	67	1128	207	0	5330
APPROACH %'s :	43.04%	32.59%	24.37%	0.00%	16.95%	9.70%	73.36%	0.00%	48.58%	46.63%	4.57%	0.22%	4.78%	80.46%	14.76%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	74	44	42	0	82	40	329	0	664	659	62	2	37	578	118	0	2731
PEAK HR FACTOR :	0.841	0.733	0.808	0.000	0.854	0.667	0.884	0.000	0.927	0.915	0.738	0.250	0.771	0.970	0.819	0.000	0.950
	0.889				0.895				0.927				0.964				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-045
Date: 9/9/2021

Data - Cars

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	5	5	0	72	16	202	0	35	46	6	0	12	63	5	0	476
7:15 AM	9	6	14	0	46	11	157	0	49	50	9	0	3	57	6	0	417
7:30 AM	7	3	9	0	52	10	204	0	55	59	6	0	6	82	7	2	502
7:45 AM	9	5	10	0	56	11	212	0	66	52	10	0	4	101	10	0	546
8:00 AM	8	3	3	0	53	11	218	0	58	62	1	0	10	96	6	0	529
8:15 AM	7	9	9	0	62	8	194	0	47	47	6	0	4	73	12	0	478
8:30 AM	10	3	5	0	49	11	166	0	41	64	8	0	9	73	5	0	444
8:45 AM	12	4	12	0	39	7	167	0	53	57	12	0	10	84	14	0	471
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	71	38	67	0	429	85	1520	0	404	437	58	0	58	629	65	2	3863
APPROACH %'s :	40.34%	21.59%	38.07%	0.00%	21.09%	4.18%	74.73%	0.00%	44.94%	48.61%	6.45%	0.00%	7.69%	83.42%	8.62%	0.27%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	31	20	31	0	223	40	828	0	226	220	23	0	24	352	35	2	2055
PEAK HR FACTOR :	0.861	0.556	0.775	0.000	0.899	0.909	0.950	0.000	0.856	0.887	0.575	0.000	0.600	0.871	0.729	0.250	0.941
	0.820				0.967				0.916				0.898				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	21	12	15	0	12	15	66	0	168	141	13	2	4	127	18	0	614
4:15 PM	18	10	8	0	10	11	62	0	153	129	23	1	11	129	26	0	591
4:30 PM	22	10	10	0	16	7	70	0	175	147	16	0	7	135	29	0	644
4:45 PM	13	13	8	0	16	7	80	0	153	149	8	0	12	134	34	0	627
5:00 PM	17	11	10	0	20	10	85	0	173	162	21	0	8	133	28	0	678
5:15 PM	22	6	13	0	10	15	72	0	157	135	16	2	10	138	13	0	609
5:30 PM	10	26	7	0	11	12	90	0	152	135	15	0	7	116	16	0	597
5:45 PM	13	11	4	0	13	8	94	0	171	134	10	1	8	138	18	0	623
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	136	99	75	0	108	85	619	0	1302	1132	122	6	67	1050	182	0	4983
APPROACH %'s :	43.87%	31.94%	24.19%	0.00%	13.30%	10.47%	76.23%	0.00%	50.82%	44.18%	4.76%	0.23%	5.16%	80.83%	14.01%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	74	40	41	0	62	39	307	0	658	593	61	2	37	540	104	0	2558
PEAK HR FACTOR :	0.841	0.769	0.788	0.000	0.775	0.650	0.903	0.000	0.940	0.915	0.726	0.250	0.771	0.978	0.765	0.000	0.943
	0.923				0.887				0.923				0.946				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-045
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	1	0	3	0	1	1	1	0	0	7	2	0	18
7:15 AM	1	0	0	0	0	0	3	0	0	5	0	0	0	4	0	0	13
7:30 AM	0	0	0	0	1	1	8	0	2	2	0	0	0	5	0	0	19
7:45 AM	1	0	0	0	2	1	3	0	3	3	0	0	0	8	0	0	21
8:00 AM	0	0	2	0	3	0	9	0	1	4	1	0	1	7	0	0	28
8:15 AM	0	1	0	0	3	0	1	0	0	8	0	0	0	7	0	0	20
8:30 AM	1	0	0	0	3	0	10	0	2	2	2	0	1	4	0	0	25
8:45 AM	1	0	0	0	3	1	7	0	2	5	0	0	0	9	2	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	2	2	0	16	3	44	0	11	30	4	0	2	51	4	0	174
APPROACH %'s :	55.56%	22.22%	22.22%	0.00%	25.40%	4.76%	69.84%	0.00%	24.44%	66.67%	8.89%	0.00%	3.51%	89.47%	7.02%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	1	2	0	9	2	21	0	6	17	1	0	1	27	0	0	88
PEAK HR FACTOR :	0.250	0.250	0.250	0.000	0.750	0.500	0.583	0.000	0.500	0.531	0.250	0.000	0.250	0.844	0.000	0.000	0.786
	0.500				0.667				0.750				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	4	0	1	6	0	0	0	2	1	0	15
4:15 PM	0	0	0	0	2	1	1	0	1	8	0	0	0	6	1	0	20
4:30 PM	0	2	0	0	0	0	3	0	2	3	1	0	0	5	2	0	18
4:45 PM	0	1	0	0	0	0	2	0	1	2	0	0	0	1	0	0	7
5:00 PM	0	0	0	0	2	0	2	0	0	4	0	0	0	3	0	0	11
5:15 PM	0	0	0	0	2	0	0	0	0	4	0	0	0	2	0	0	8
5:30 PM	0	0	0	0	2	0	1	0	0	4	0	0	0	2	0	0	9
5:45 PM	0	0	0	0	0	0	1	0	0	5	0	0	0	2	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	9	1	14	0	5	36	1	0	0	23	4	0	96
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	37.50%	4.17%	58.33%	0.00%	11.90%	85.71%	2.38%	0.00%	0.00%	85.19%	14.81%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	3	0	0	4	0	7	0	3	13	1	0	0	11	2	0	44
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.500	0.000	0.583	0.000	0.375	0.813	0.250	0.000	0.000	0.550	0.250	0.000	0.611
	0.375				0.688				0.708				0.464				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-045
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	1	2	1	0	0	3	0	0	1	3	0	0	12
7:15 AM	0	1	0	0	5	0	0	0	1	1	0	0	0	3	1	0	12
7:30 AM	0	0	0	0	2	0	2	0	0	3	0	0	0	5	2	0	14
7:45 AM	0	0	0	0	2	0	3	0	0	3	0	0	1	6	2	0	17
8:00 AM	1	0	0	0	0	0	4	0	0	4	0	0	0	3	1	0	13
8:15 AM	0	0	0	0	0	0	1	0	1	1	0	0	0	1	1	0	5
8:30 AM	0	0	1	0	2	0	2	0	0	4	0	0	1	3	1	0	14
8:45 AM	0	0	1	0	1	0	3	0	0	4	1	0	0	3	1	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	1	2	0	13	2	16	0	2	23	1	0	3	27	9	0	101
APPROACH %'s :	40.00%	20.00%	40.00%	0.00%	41.94%	6.45%	51.61%	0.00%	7.69%	88.46%	3.85%	0.00%	7.69%	69.23%	23.08%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	0	0	0	4	0	10	0	1	11	0	0	1	15	6	0	49
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.500	0.000	0.625	0.000	0.250	0.688	0.000	0.000	0.250	0.625	0.750	0.000	0.721
	0.250				0.700				0.750				0.611				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	1	0	0	6	0	0	0	0	0	0	8
4:15 PM	0	0	0	0	0	0	1	0	0	4	0	0	0	1	0	0	6
4:30 PM	0	0	1	0	1	0	0	0	0	5	0	0	0	3	1	0	11
4:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5
5:00 PM	0	0	0	0	0	0	3	0	0	6	0	0	0	2	0	0	11
5:15 PM	0	0	0	0	1	0	1	0	0	5	0	0	0	1	2	0	10
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	1	0	6
5:45 PM	0	0	0	0	0	0	0	0	1	3	0	0	0	2	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	3	0	6	0	1	35	0	0	0	13	4	0	63
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	33.33%	0.00%	66.67%	0.00%	2.78%	97.22%	0.00%	0.00%	0.00%	76.47%	23.53%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	1	0	2	0	4	0	0	20	0	0	0	7	3	0	37
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.500	0.000	0.333	0.000	0.000	0.833	0.000	0.000	0.000	0.583	0.375	0.000	0.841
	0.250				0.500				0.833				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: I-15 NB Ramps & 4th St
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-045
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	I-15 NB Ramps				I-15 NB Ramps				4th St				4th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	9	1	5	0	1	2	0	0	0	5	6	0	30
7:15 AM	1	0	0	0	4	0	8	0	1	3	0	0	0	7	6	0	30
7:30 AM	0	0	0	0	7	1	6	0	1	6	0	0	0	10	2	0	33
7:45 AM	2	0	0	0	8	1	6	0	1	8	0	0	0	11	7	0	44
8:00 AM	1	1	0	0	8	0	8	0	3	3	0	0	0	8	4	0	36
8:15 AM	0	0	0	0	8	0	5	0	1	4	0	0	0	14	3	0	35
8:30 AM	0	0	0	0	15	0	11	0	0	10	1	0	0	11	6	0	54
8:45 AM	1	0	0	0	9	0	4	0	3	15	0	0	0	8	2	0	42
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	1	0	0	68	3	53	0	11	51	1	0	0	74	36	0	304
APPROACH %'s :	85.71%	14.29%	0.00%	0.00%	54.84%	2.42%	42.74%	0.00%	17.46%	80.95%	1.59%	0.00%	0.00%	67.27%	32.73%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	1	0	0	31	2	25	0	6	21	0	0	0	43	16	0	148
PEAK HR FACTOR :	0.375	0.250	0.000	0.000	0.969	0.500	0.781	0.000	0.500	0.656	0.000	0.000	0.000	0.768	0.571	0.000	0.841
	0.500				0.906				0.750				0.819				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1.5	0.5	2	0	2	3	1	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	5	0	1	0	2	9	0	0	0	7	2	0	26
4:15 PM	0	0	1	0	4	0	3	0	1	7	1	0	0	8	4	0	29
4:30 PM	0	0	0	0	7	0	5	0	2	9	0	0	0	6	2	0	31
4:45 PM	0	1	0	0	4	1	2	0	0	6	0	0	0	4	2	0	20
5:00 PM	0	0	0	0	1	0	3	0	0	8	0	0	0	5	2	0	19
5:15 PM	0	0	0	0	2	0	1	0	1	10	0	0	0	5	3	0	22
5:30 PM	0	0	0	0	5	0	1	0	3	6	0	0	0	3	1	0	19
5:45 PM	0	0	0	0	4	0	3	0	2	8	0	0	0	4	1	0	22
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	1	0	32	1	19	0	11	63	1	0	0	42	17	0	188
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	61.54%	1.92%	36.54%	0.00%	14.67%	84.00%	1.33%	0.00%	0.00%	71.19%	28.81%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	1	0	0	14	1	11	0	3	33	0	0	0	20	9	0	92
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.500	0.250	0.550	0.000	0.375	0.825	0.000	0.000	0.000	0.833	0.750	0.000	0.742
	0.250				0.542				0.818				0.906				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & 4th St/San Bernardino Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-046
Date: 9/9/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				4th St/San Bernardino Ave				4th St/San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	37	98	9	0	5	115	20	0	45	27	3	0	11	55	5	0	430
7:15 AM	31	135	9	0	6	97	19	0	30	41	13	0	13	54	10	0	458
7:30 AM	44	122	13	0	4	140	29	0	42	32	10	0	22	75	11	0	544
7:45 AM	57	131	19	0	15	135	34	0	20	28	17	0	26	67	16	0	565
8:00 AM	34	107	12	0	13	129	26	0	28	40	16	0	22	74	4	0	505
8:15 AM	44	124	13	0	14	137	21	0	25	25	15	0	17	41	5	0	481
8:30 AM	23	102	10	0	6	92	14	0	25	29	21	0	20	63	8	0	413
8:45 AM	47	103	9	0	7	96	17	0	22	42	21	0	11	42	7	0	424
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	317	922	94	0	70	941	180	0	237	264	116	0	142	471	66	0	3820
APPROACH %'s :	23.78%	69.17%	7.05%	0.00%	5.88%	79.01%	15.11%	0.00%	38.41%	42.79%	18.80%	0.00%	20.91%	69.37%	9.72%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	179	484	57	0	46	541	110	0	115	125	58	0	87	257	36	0	2095
PEAK HR FACTOR :	0.785	0.924	0.750	0.000	0.767	0.966	0.809	0.000	0.685	0.781	0.853	0.000	0.837	0.857	0.563	0.000	0.927
	0.870				0.947				0.887				0.872				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	41	135	16	0	22	158	44	0	34	122	47	0	10	44	9	0	682
4:15 PM	35	139	18	0	17	104	18	0	39	129	25	0	23	52	12	0	611
4:30 PM	40	135	17	0	21	116	37	0	43	141	40	0	38	87	18	0	733
4:45 PM	32	154	12	0	31	110	50	0	39	132	45	0	16	51	14	0	686
5:00 PM	23	181	11	0	24	166	46	0	51	126	47	0	18	43	8	0	744
5:15 PM	43	131	15	0	24	111	25	0	32	131	30	0	14	56	10	0	622
5:30 PM	39	145	14	0	27	114	22	0	32	104	40	0	29	65	9	0	640
5:45 PM	40	139	9	0	16	96	18	0	31	121	48	0	13	64	4	0	599
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	293	1159	112	0	182	975	260	0	301	1006	322	0	161	462	84	0	5317
APPROACH %'s :	18.73%	74.10%	7.16%	0.00%	12.84%	68.81%	18.35%	0.00%	18.48%	61.76%	19.77%	0.00%	22.77%	65.35%	11.88%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	138	601	55	0	100	503	158	0	165	530	162	0	86	237	50	0	2785
PEAK HR FACTOR :	0.802	0.830	0.809	0.000	0.806	0.758	0.790	0.000	0.809	0.940	0.862	0.000	0.566	0.681	0.694	0.000	0.936
	0.923				0.806				0.956				0.652				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & 4th St/San Bernardino Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-046
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				4th St/San Bernardino Ave				4th St/San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	34	69	9	0	3	79	15	0	40	21	3	0	4	46	3	0	326
7:15 AM	23	97	5	0	4	69	16	0	26	36	6	0	9	49	8	0	348
7:30 AM	31	96	10	0	3	97	21	0	36	23	8	0	13	63	10	0	411
7:45 AM	50	107	15	0	13	99	27	0	14	23	10	0	18	60	15	0	451
8:00 AM	28	84	10	0	11	104	22	0	22	36	10	0	15	63	3	0	408
8:15 AM	36	89	7	0	10	92	19	0	17	21	10	0	9	36	4	0	350
8:30 AM	18	71	9	0	5	69	13	0	19	21	11	0	9	52	6	0	303
8:45 AM	36	65	7	0	4	65	12	0	15	36	8	0	4	36	5	0	293
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	256	678	72	0	53	674	145	0	189	217	66	0	81	405	54	0	2890
APPROACH %'s :	25.45%	67.40%	7.16%	0.00%	6.08%	77.29%	16.63%	0.00%	40.04%	45.97%	13.98%	0.00%	15.00%	75.00%	10.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	145	376	42	0	37	392	89	0	89	103	38	0	55	222	32	0	1620
PEAK HR FACTOR :	0.725	0.879	0.700	0.000	0.712	0.942	0.824	0.000	0.618	0.715	0.950	0.000	0.764	0.881	0.533	0.000	0.898
	0.818				0.932				0.846				0.831				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	36	111	9	0	12	128	41	0	31	109	35	0	7	39	8	0	566
4:15 PM	26	116	13	0	11	85	18	0	32	121	17	0	18	49	7	0	513
4:30 PM	35	112	12	0	13	96	34	0	40	134	30	0	33	82	14	0	635
4:45 PM	26	131	6	0	17	98	45	0	34	126	32	0	12	46	12	0	585
5:00 PM	22	152	7	0	13	147	43	0	48	115	36	0	11	37	7	0	638
5:15 PM	40	107	10	0	10	91	25	0	31	123	21	0	13	51	4	0	526
5:30 PM	33	128	12	0	8	106	20	0	30	96	31	0	22	62	9	0	557
5:45 PM	35	116	7	0	9	82	17	0	27	114	44	0	11	61	4	0	527
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	253	973	76	0	93	833	243	0	273	938	246	0	127	427	65	0	4547
APPROACH %'s :	19.43%	74.73%	5.84%	0.00%	7.96%	71.26%	20.79%	0.00%	18.74%	64.38%	16.88%	0.00%	20.52%	68.98%	10.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	123	502	35	0	53	432	147	0	153	498	119	0	69	216	37	0	2384
PEAK HR FACTOR :	0.769	0.826	0.729	0.000	0.779	0.735	0.817	0.000	0.797	0.929	0.826	0.000	0.523	0.659	0.661	0.000	0.934
	0.912				0.778				0.944				0.624				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & 4th St/San Bernardino Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-046
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				4th St/San Bernardino Ave				4th St/San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	3	2	0	0	1	0	0	0	1	0	0	9
7:15 AM	3	2	0	0	0	2	0	0	0	1	0	0	0	3	0	0	11
7:30 AM	5	5	0	0	0	4	4	0	1	1	0	0	0	4	0	0	24
7:45 AM	2	4	0	0	0	3	1	0	0	0	1	0	0	0	0	0	11
8:00 AM	0	4	0	0	0	5	1	0	2	2	0	0	1	4	0	0	19
8:15 AM	1	1	0	0	0	6	0	0	2	2	0	0	0	2	0	0	14
8:30 AM	2	1	0	0	0	1	0	0	0	1	2	0	2	2	0	0	11
8:45 AM	6	3	0	0	0	2	0	0	1	1	1	0	2	3	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	22	0	0	0	26	8	0	6	9	4	0	5	19	0	0	118
APPROACH %'s :	46.34%	53.66%	0.00%	0.00%	0.00%	76.47%	23.53%	0.00%	31.58%	47.37%	21.05%	0.00%	20.83%	79.17%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	8	14	0	0	0	18	6	0	5	5	1	0	1	10	0	0	68
PEAK HR FACTOR :	0.400	0.700	0.000	0.000	0.000	0.750	0.375	0.000	0.625	0.625	0.250	0.000	0.250	0.625	0.000	0.000	0.708
	0.550				0.750				0.688				0.550				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	6	1	0	2	5	1	0	0	1	5	0	0	3	1	0	27
4:15 PM	3	4	0	0	0	5	0	0	1	4	2	0	0	0	2	0	21
4:30 PM	1	3	0	0	1	2	2	0	0	0	0	0	1	1	0	0	11
4:45 PM	3	1	1	0	0	0	1	0	0	3	4	0	0	2	0	0	15
5:00 PM	0	0	0	0	0	3	0	0	0	1	3	0	2	1	0	0	10
5:15 PM	1	1	0	0	0	3	0	0	0	3	1	0	0	1	2	0	12
5:30 PM	2	2	0	0	1	0	0	0	0	5	1	0	1	1	0	0	13
5:45 PM	1	3	0	0	0	1	1	0	1	3	1	0	0	1	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	20	2	0	4	19	5	0	2	20	17	0	4	10	5	0	121
APPROACH %'s :	37.14%	57.14%	5.71%	0.00%	14.29%	67.86%	17.86%	0.00%	5.13%	51.28%	43.59%	0.00%	21.05%	52.63%	26.32%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	5	5	1	0	1	8	3	0	0	7	8	0	3	5	2	0	48
PEAK HR FACTOR :	0.417	0.417	0.250	0.000	0.250	0.667	0.375	0.000	0.000	0.583	0.500	0.000	0.375	0.625	0.250	0.000	0.800
	0.550				0.600				0.536				0.833				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & 4th St/San Bernardino Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-046
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				4th St/San Bernardino Ave				4th St/San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	12	0	0	0	12	1	0	3	2	0	0	1	1	1	0	33
7:15 AM	1	13	2	0	2	9	1	0	1	1	3	0	0	1	0	0	34
7:30 AM	4	6	0	0	1	18	0	0	4	4	0	0	3	1	1	0	42
7:45 AM	1	8	0	0	1	12	2	0	4	2	2	0	1	0	0	0	33
8:00 AM	1	4	0	0	0	5	1	0	1	0	1	0	1	1	1	0	16
8:15 AM	1	18	2	0	3	11	1	0	2	1	2	0	2	1	0	0	44
8:30 AM	1	14	0	0	0	6	1	0	3	1	3	0	1	2	1	0	33
8:45 AM	1	17	0	0	2	12	4	0	1	2	5	0	2	1	2	0	49
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	92	4	0	9	85	11	0	19	13	16	0	11	8	6	0	284
APPROACH %'s :	9.43%	86.79%	3.77%	0.00%	8.57%	80.95%	10.48%	0.00%	39.58%	27.08%	33.33%	0.00%	44.00%	32.00%	24.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	7	36	2	0	5	46	4	0	11	7	5	0	7	3	2	0	135
PEAK HR FACTOR :	0.438	0.500	0.250	0.000	0.417	0.639	0.500	0.000	0.688	0.438	0.625	0.000	0.583	0.750	0.500	0.000	0.767
	0.536				0.724				0.719				0.600				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	11	1	0	4	13	1	0	0	5	1	0	0	0	0	0	37
4:15 PM	2	7	0	0	5	6	0	0	3	0	2	0	1	0	2	0	28
4:30 PM	1	9	2	0	7	7	1	0	1	3	2	0	1	1	2	0	37
4:45 PM	0	9	0	0	13	5	2	0	3	1	2	0	2	0	2	0	39
5:00 PM	0	14	1	0	11	6	2	0	2	4	2	0	2	1	1	0	46
5:15 PM	2	6	1	0	14	7	0	0	1	1	1	0	0	2	3	0	38
5:30 PM	1	1	0	0	16	3	0	0	0	1	1	0	3	1	0	0	27
5:45 PM	0	7	0	0	6	5	0	0	0	2	0	0	0	0	0	0	20
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	64	5	0	76	52	6	0	10	17	11	0	9	5	10	0	272
APPROACH %'s :	9.21%	84.21%	6.58%	0.00%	56.72%	38.81%	4.48%	0.00%	26.32%	44.74%	28.95%	0.00%	37.50%	20.83%	41.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	3	38	4	0	45	25	5	0	7	9	7	0	5	4	8	0	160
PEAK HR FACTOR :	0.375	0.679	0.500	0.000	0.804	0.893	0.625	0.000	0.583	0.563	0.875	0.000	0.625	0.500	0.667	0.000	0.870
	0.750				0.893				0.719				0.850				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & 4th St/San Bernardino Ave
City: Rancho Cucamonga
Control: Signalized

Project ID: 21-030070-046
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				4th St/San Bernardino Ave				4th St/San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	15	0	0	2	21	2	0	2	3	0	0	6	7	1	0	62
7:15 AM	4	23	2	0	0	17	2	0	3	3	4	0	4	1	2	0	65
7:30 AM	4	15	3	0	0	21	4	0	1	4	2	0	6	7	0	0	67
7:45 AM	4	12	4	0	1	21	4	0	2	3	4	0	7	7	1	0	70
8:00 AM	5	15	2	0	2	15	2	0	3	2	5	0	5	6	0	0	62
8:15 AM	6	16	4	0	1	28	1	0	4	1	3	0	6	2	1	0	73
8:30 AM	2	16	1	0	1	16	0	0	3	6	5	0	8	7	1	0	66
8:45 AM	4	18	2	0	1	17	1	0	5	3	7	0	3	2	0	0	63
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	130	18	0	8	156	16	0	23	25	30	0	45	39	6	0	528
APPROACH %'s :	17.78%	72.22%	10.00%	0.00%	4.44%	86.67%	8.89%	0.00%	29.49%	32.05%	38.46%	0.00%	50.00%	43.33%	6.67%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	19	58	13	0	4	85	11	0	10	10	14	0	24	22	2	0	272
PEAK HR FACTOR :	0.792	0.906	0.813	0.000	0.500	0.759	0.688	0.000	0.625	0.625	0.700	0.000	0.857	0.786	0.500	0.000	0.932
	0.865				0.833				0.850				0.800				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1.5	0.5	0	2	2	1	0	2	2	1	0	2	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	7	5	0	4	12	1	0	3	7	6	0	3	2	0	0	52
4:15 PM	4	12	5	0	1	8	0	0	3	4	4	0	4	3	1	0	49
4:30 PM	3	11	3	0	0	11	0	0	2	4	8	0	3	3	2	0	50
4:45 PM	3	13	5	0	1	7	2	0	2	2	7	0	2	3	0	0	47
5:00 PM	1	15	3	0	0	10	1	0	1	6	6	0	3	4	0	0	50
5:15 PM	0	17	4	0	0	10	0	0	0	4	7	0	1	2	1	0	46
5:30 PM	3	14	2	0	2	5	2	0	2	2	7	0	3	1	0	0	43
5:45 PM	4	13	2	0	1	8	0	0	3	2	3	0	2	2	0	0	40
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	102	29	0	9	71	6	0	16	31	48	0	21	20	4	0	377
APPROACH %'s :	13.25%	67.55%	19.21%	0.00%	10.47%	82.56%	6.98%	0.00%	16.84%	32.63%	50.53%	0.00%	46.67%	44.44%	8.89%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	7	56	15	0	1	38	3	0	5	16	28	0	9	12	3	0	193
PEAK HR FACTOR :	0.583	0.824	0.750	0.000	0.250	0.864	0.375	0.000	0.625	0.667	0.875	0.000	0.750	0.750	0.375	0.000	0.965
	0.929				0.955				0.875				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-047
Date: 9/9/2021

Data - Total

NS/EW Streets:	Commerce Dr				Commerce Dr				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	1	41	0	1	3	0	0	0	34	5	0	45	75	2	0	211
7:15 AM	12	0	38	0	1	1	0	0	0	33	5	0	75	106	0	0	271
7:30 AM	12	1	49	0	0	0	0	0	1	34	4	0	49	122	0	0	272
7:45 AM	7	1	38	0	0	0	0	0	0	44	2	0	37	91	0	0	220
8:00 AM	7	1	32	0	1	0	1	0	0	37	1	0	43	68	0	0	191
8:15 AM	6	1	33	0	1	0	0	0	0	25	2	0	41	69	1	0	179
8:30 AM	9	1	40	0	1	1	0	0	0	49	3	0	44	53	0	0	201
8:45 AM	6	0	33	0	2	2	0	0	0	47	4	0	29	51	3	0	177
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	63	6	304	0	7	7	1	0	1	303	26	0	363	635	6	0	1722
APPROACH %'s :	16.89%	1.61%	81.50%	0.00%	46.67%	46.67%	6.67%	0.00%	0.30%	91.82%	7.88%	0.00%	36.16%	63.25%	0.60%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	35	3	166	0	2	4	0	0	1	145	16	0	206	394	2	0	974
PEAK HR FACTOR :	0.729	0.750	0.847	0.000	0.500	0.333	0.000	0.000	0.250	0.824	0.800	0.000	0.687	0.807	0.250	0.000	0.895
	0.823				0.375				0.880				0.831				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	0	84	0	1	0	0	0	0	166	10	0	29	60	0	0	359
4:15 PM	5	0	93	0	0	0	1	0	0	193	9	0	55	83	0	0	439
4:30 PM	9	0	106	0	0	0	0	0	0	163	3	0	25	60	0	0	366
4:45 PM	9	0	92	0	3	0	0	0	0	174	11	0	22	43	1	0	355
5:00 PM	7	1	110	0	0	0	0	0	0	162	5	0	28	47	1	0	361
5:15 PM	9	0	78	0	1	2	1	0	0	178	1	0	19	64	3	0	356
5:30 PM	4	0	59	0	0	0	0	0	0	130	1	0	24	60	0	0	278
5:45 PM	4	0	51	0	5	0	2	0	0	127	6	0	14	48	0	0	257
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	56	1	673	0	10	2	4	0	0	1293	46	0	216	465	5	0	2771
APPROACH %'s :	7.67%	0.14%	92.19%	0.00%	62.50%	12.50%	25.00%	0.00%	0.00%	96.56%	3.44%	0.00%	31.49%	67.78%	0.73%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	30	1	401	0	3	0	1	0	0	692	28	0	130	233	2	0	1521
PEAK HR FACTOR :	0.833	0.250	0.911	0.000	0.250	0.000	0.250	0.000	0.000	0.896	0.636	0.000	0.591	0.702	0.500	0.000	0.866
	0.915				0.333				0.891				0.661				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-047
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Commerce Dr				Commerce Dr				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	1	38	0	1	1	0	0	0	28	2	0	41	65	2	0	182
7:15 AM	10	0	30	0	0	1	0	0	0	26	1	0	65	89	0	0	222
7:30 AM	10	1	32	0	0	0	0	0	1	27	3	0	41	111	0	0	226
7:45 AM	6	1	34	0	0	0	0	0	0	37	1	0	27	76	0	0	182
8:00 AM	4	0	25	0	0	0	1	0	0	25	0	0	27	56	0	0	138
8:15 AM	2	0	24	0	0	0	0	0	0	21	2	0	26	57	0	0	132
8:30 AM	6	0	30	0	1	0	0	0	0	35	0	0	24	39	0	0	135
8:45 AM	3	0	24	0	2	0	0	0	0	37	2	0	20	37	3	0	128
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	44	3	237	0	4	2	1	0	1	236	11	0	271	530	5	0	1345
APPROACH %'s :	15.49%	1.06%	83.45%	0.00%	57.14%	28.57%	14.29%	0.00%	0.40%	95.16%	4.44%	0.00%	33.62%	65.76%	0.62%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	29	3	134	0	1	2	0	0	1	118	7	0	174	341	2	0	812
PEAK HR FACTOR :	0.725	0.750	0.882	0.000	0.250	0.500	0.000	0.000	0.250	0.797	0.583	0.000	0.669	0.768	0.250	0.000	0.898
	0.965				0.375				0.829				0.839				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	0	71	0	1	0	0	0	0	145	9	0	27	52	0	0	309
4:15 PM	3	0	86	0	0	0	1	0	0	176	9	0	53	74	0	0	402
4:30 PM	7	0	92	0	0	0	0	0	0	142	2	0	23	53	0	0	319
4:45 PM	7	0	76	0	3	0	0	0	0	148	6	0	21	38	1	0	300
5:00 PM	5	0	88	0	0	0	0	0	0	146	2	0	26	40	1	0	308
5:15 PM	6	0	68	0	0	2	1	0	0	145	1	0	17	59	3	0	302
5:30 PM	1	0	55	0	0	0	0	0	0	110	0	0	23	57	0	0	246
5:45 PM	2	0	40	0	5	0	2	0	0	115	5	0	10	44	0	0	223
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	0	576	0	9	2	4	0	0	1127	34	0	200	417	5	0	2409
APPROACH %'s :	5.73%	0.00%	94.27%	0.00%	60.00%	13.33%	26.67%	0.00%	0.00%	97.07%	2.93%	0.00%	32.15%	67.04%	0.80%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	22	0	342	0	3	0	1	0	0	612	19	0	123	205	2	0	1329
PEAK HR FACTOR :	0.786	0.000	0.929	0.000	0.250	0.000	0.250	0.000	0.000	0.869	0.528	0.000	0.580	0.693	0.500	0.000	0.826
	0.919				0.333				0.853				0.650				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-047
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Commerce Dr				Commerce Dr				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
7:30 AM	0	0	3	0	0	0	0	0	0	2	0	0	1	1	0	0	7
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	6	0	0	8
8:00 AM	1	0	0	0	0	0	0	0	0	4	0	0	2	2	0	0	9
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	4	2	1	0	8
8:30 AM	0	0	2	0	0	0	0	0	0	2	0	0	4	5	0	0	13
8:45 AM	0	0	2	0	0	0	0	0	0	5	0	0	5	3	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	7	0	1	0	0	0	0	16	0	0	17	25	1	0	69
APPROACH %'s :	22.22%	0.00%	77.78%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	39.53%	58.14%	2.33%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	0	3	0	0	0	0	0	0	5	0	0	2	13	0	0	24
PEAK HR FACTOR :	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.500	0.542	0.000	0.000	0.750
	0.333																

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	4	0	0	0	0	0	0	7	0	0	0	2	0	0	14
4:15 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	4
4:30 PM	0	0	2	0	0	0	0	0	0	3	1	0	1	3	0	0	10
4:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	4
5:00 PM	0	0	4	0	0	0	0	0	0	3	0	0	0	3	0	0	10
5:15 PM	0	0	1	0	0	0	0	0	0	5	0	0	0	1	0	0	7
5:30 PM	0	0	1	0	0	0	0	0	0	4	0	0	1	2	0	0	8
5:45 PM	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	16	0	0	0	0	0	0	25	1	0	4	15	0	0	62
APPROACH %'s :	5.88%	0.00%	94.12%	0.00%					0.00%	96.15%	3.85%	0.00%	21.05%	78.95%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	8	0	0	0	0	0	0	8	1	0	2	9	0	0	28
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.250	0.000	0.500	0.750	0.000	0.000	0.700
	0.500									0.563				0.688			

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-047
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Commerce Dr				Commerce Dr				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
7:15 AM	0	0	2	0	0	0	0	0	0	3	0	0	3	4	0	0	12
7:30 AM	0	0	3	0	0	0	0	0	0	2	1	0	0	1	0	0	7
7:45 AM	0	0	1	0	0	0	0	0	0	3	0	0	1	2	0	0	7
8:00 AM	1	1	2	0	1	0	0	0	0	4	0	0	1	2	0	0	12
8:15 AM	1	0	4	0	0	0	0	0	0	0	0	0	1	4	0	0	10
8:30 AM	1	0	1	0	0	0	0	0	0	4	0	0	4	5	0	0	15
8:45 AM	1	0	1	0	0	1	0	0	0	2	1	0	2	3	0	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	1	14	0	1	1	0	0	0	20	2	0	12	22	0	0	77
APPROACH %'s :	21.05%	5.26%	73.68%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	90.91%	9.09%	0.00%	35.29%	64.71%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	6	0	0	0	0	0	0	10	1	0	4	8	0	0	29
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.250	0.000	0.333	0.500	0.000	0.000	0.604
	0.500				0.917								0.429				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	0	0	0	0	0	6	1	0	0	3	0	0	12
4:15 PM	0	0	3	0	0	0	0	0	0	9	0	0	1	6	0	0	19
4:30 PM	0	0	4	0	0	0	0	0	0	14	0	0	0	3	0	0	21
4:45 PM	0	0	4	0	0	0	0	0	0	15	0	0	0	3	0	0	22
5:00 PM	0	0	4	0	0	0	0	0	0	11	0	0	0	3	0	0	18
5:15 PM	0	0	4	0	1	0	0	0	0	20	0	0	0	3	0	0	28
5:30 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	12
5:45 PM	0	0	3	0	0	0	0	0	0	5	0	0	0	2	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	24	0	1	0	0	0	0	92	1	0	1	23	0	0	142
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	98.92%	1.08%	0.00%	4.17%	95.83%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	15	0	0	0	0	0	0	49	0	0	1	15	0	0	80
PEAK HR FACTOR :	0.000	0.000	0.938	0.000	0.000	0.000	0.000	0.000	0.000	0.817	0.000	0.000	0.250	0.625	0.000	0.000	0.909
	0.938								0.817				0.571				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-047
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Commerce Dr				Commerce Dr				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	3	0	0	2	0	0	0	2	3	0	4	5	0	0	20
7:15 AM	1	0	6	0	1	0	0	0	0	4	4	0	7	11	0	0	34
7:30 AM	2	0	11	0	0	0	0	0	0	3	0	0	7	9	0	0	32
7:45 AM	1	0	3	0	0	0	0	0	0	3	1	0	8	7	0	0	23
8:00 AM	1	0	5	0	0	0	0	0	0	4	1	0	13	8	0	0	32
8:15 AM	3	1	5	0	0	0	0	0	0	4	0	0	10	6	0	0	29
8:30 AM	2	1	7	0	0	1	0	0	0	8	3	0	12	4	0	0	38
8:45 AM	2	0	6	0	0	1	0	0	0	3	1	0	2	8	0	0	23
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	2	46	0	1	4	0	0	0	31	13	0	63	58	0	0	231
APPROACH %'s :	21.31%	3.28%	75.41%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	70.45%	29.55%	0.00%	52.07%	47.93%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	5	0	23	0	1	2	0	0	0	12	8	0	26	32	0	0	109
PEAK HR FACTOR :	0.625	0.000	0.523	0.000	0.250	0.250	0.000	0.000	0.000	0.750	0.500	0.000	0.813	0.727	0.000	0.000	0.801
	0.538				0.375				0.625				0.806				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	0	7	0	0	0	0	0	0	8	0	0	2	3	0	0	24
4:15 PM	2	0	3	0	0	0	0	0	0	7	0	0	1	1	0	0	14
4:30 PM	2	0	8	0	0	0	0	0	0	4	0	0	1	1	0	0	16
4:45 PM	2	0	11	0	0	0	0	0	0	10	5	0	0	1	0	0	29
5:00 PM	2	1	14	0	0	0	0	0	0	2	3	0	2	1	0	0	25
5:15 PM	3	0	5	0	0	0	0	0	0	8	0	0	2	1	0	0	19
5:30 PM	3	0	3	0	0	0	0	0	0	4	1	0	0	1	0	0	12
5:45 PM	2	0	6	0	0	0	0	0	0	6	1	0	3	1	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	1	57	0	0	0	0	0	0	49	10	0	11	10	0	0	158
APPROACH %'s :	25.64%	1.28%	73.08%	0.00%					0.00%	83.05%	16.95%	0.00%	52.38%	47.62%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	8	1	36	0	0	0	0	0	0	23	8	0	4	4	0	0	84
PEAK HR FACTOR :	1.000	0.250	0.643	0.000	0.000	0.000	0.000	0.000	0.000	0.575	0.400	0.000	0.500	1.000	0.000	0.000	0.724
	0.662								0.517				0.667				

National Data & Surveying Services Intersection Turning Movement Count

Location: Vip Rd & San Bernardino Ave
City: Fontana
Control: 1-Way Stop (SB)

Project ID: 21-030070-048
Date: 9/15/2021

Data - Total

NS/EW Streets:	Vip Rd				Vip Rd				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	78	0	0	0	120	0	0	198
7:15 AM	0	0	0	0	0	0	0	0	0	74	0	0	0	127	1	0	202
7:30 AM	0	0	0	0	0	0	1	0	0	67	0	0	0	174	0	0	242
7:45 AM	0	0	0	0	0	0	0	0	0	82	0	0	0	171	0	1	254
8:00 AM	0	0	0	0	0	0	0	0	0	82	0	0	0	140	0	0	222
8:15 AM	0	0	0	0	0	0	0	0	0	74	0	0	0	114	0	0	188
8:30 AM	0	0	0	0	0	0	0	0	0	57	0	0	0	114	0	0	171
8:45 AM	0	0	0	0	0	0	0	0	0	84	0	0	0	97	0	0	181
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	598	0	0	0	1057	1	1	1658
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	99.81%	0.09%	0.09%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	305	0	0	0	612	1	1	920
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.930	0.000	0.000	0.000	0.879	0.250	0.250	0.906
					0.250				0.930				0.882				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	224	0	0	0	91	0	0	315
4:15 PM	0	0	0	0	0	0	0	0	0	238	0	0	0	100	0	0	338
4:30 PM	0	0	0	0	0	0	0	0	0	245	0	0	0	96	0	0	341
4:45 PM	0	0	0	0	0	0	0	0	0	285	0	0	0	92	0	0	377
5:00 PM	0	0	0	0	0	0	0	0	0	272	0	0	0	92	0	0	364
5:15 PM	0	0	0	0	0	0	0	0	0	258	0	0	0	84	0	0	342
5:30 PM	0	0	0	0	0	0	0	0	0	285	0	0	0	67	0	0	352
5:45 PM	0	0	0	0	0	0	0	0	0	256	0	0	0	67	0	0	323
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	2063	0	0	0	689	0	0	2752
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1100	0	0	0	335	0	0	1435
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.965	0.000	0.000	0.000	0.910	0.000	0.000	0.952
									0.965				0.910				

National Data & Surveying Services Intersection Turning Movement Count

Location: Vip Rd & San Bernardino Ave
City: Fontana
Control: 1-Way Stop (SB)

Project ID: 21-030070-048
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Vip Rd				Vip Rd				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	61	0	0	0	100	0	0	161
7:15 AM	0	0	0	0	0	0	0	0	0	66	0	0	0	112	1	0	179
7:30 AM	0	0	0	0	0	0	0	0	0	52	0	0	0	147	0	0	199
7:45 AM	0	0	0	0	0	0	0	0	0	59	0	0	0	154	0	1	214
8:00 AM	0	0	0	0	0	0	0	0	0	68	0	0	0	114	0	0	182
8:15 AM	0	0	0	0	0	0	0	0	0	57	0	0	0	87	0	0	144
8:30 AM	0	0	0	0	0	0	0	0	0	43	0	0	0	86	0	0	129
8:45 AM	0	0	0	0	0	0	0	0	0	61	0	0	0	65	0	0	126
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	467	0	0	0	865	1	1	1334
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	99.77%	0.12%	0.12%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	245	0	0	0	527	1	1	774
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.901	0.000	0.000	0.000	0.856	0.250	0.250	0.904
										0.901				0.853			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	191	0	0	0	83	0	0	274
4:15 PM	0	0	0	0	0	0	0	0	0	208	0	0	0	86	0	0	294
4:30 PM	0	0	0	0	0	0	0	0	0	216	0	0	0	80	0	0	296
4:45 PM	0	0	0	0	0	0	0	0	0	244	0	0	0	80	0	0	324
5:00 PM	0	0	0	0	0	0	0	0	0	238	0	0	0	85	0	0	323
5:15 PM	0	0	0	0	0	0	0	0	0	219	0	0	0	71	0	0	290
5:30 PM	0	0	0	0	0	0	0	0	0	241	0	0	0	55	0	0	296
5:45 PM	0	0	0	0	0	0	0	0	0	221	0	0	0	61	0	0	282
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1778	0	0	0	601	0	0	2379
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	942	0	0	0	291	0	0	1233
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.965	0.000	0.000	0.000	0.856	0.000	0.000	0.951
										0.965				0.856			

National Data & Surveying Services Intersection Turning Movement Count

Location: Vip Rd & San Bernardino Ave
City: Fontana
Control: 1-Way Stop (SB)

Project ID: 21-030070-048
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Vip Rd				Vip Rd				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6
7:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6
8:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	0	9
8:15 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	10
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	7	0	0	8
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	21	0	0	0	38	0	0	59
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	10	0	0	0	16	0	0	26
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.571	0.000	0.000	0.722
										0.625				0.571			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	0	7
4:15 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0	10
4:30 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0	8
4:45 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	0	10
5:00 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	0	10
5:15 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	0	7
5:30 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	49	0	0	0	17	0	0	66
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	27	0	0	0	8	0	0	35
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.964	0.000	0.000	0.000	0.667	0.000	0.000	0.875
										0.964				0.667			

National Data & Surveying Services Intersection Turning Movement Count

Location: Vip Rd & San Bernardino Ave
City: Fontana
Control: 1-Way Stop (SB)

Project ID: 21-030070-048
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Vip Rd				Vip Rd				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	7	0	0	10
7:45 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0	8
8:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6
8:30 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	10
8:45 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	7	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	32	0	0	0	30	0	0	62
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	13	0	0	0	12	0	0	25
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.650	0.000	0.000	0.000	0.429	0.000	0.000	0.625
										0.650				0.429			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	11
4:15 PM	0	0	0	0	0	0	0	0	0	8	0	0	0	5	0	0	13
4:30 PM	0	0	0	0	0	0	0	0	0	19	0	0	0	6	0	0	25
4:45 PM	0	0	0	0	0	0	0	0	0	20	0	0	0	3	0	0	23
5:00 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	2	0	0	18
5:15 PM	0	0	0	0	0	0	0	0	0	19	0	0	0	4	0	0	23
5:30 PM	0	0	0	0	0	0	0	0	0	26	0	0	0	2	0	0	28
5:45 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	1	0	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	135	0	0	0	23	0	0	158
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	81	0	0	0	11	0	0	92
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.779	0.000	0.000	0.000	0.688	0.000	0.000	0.821
										0.779				0.688			

National Data & Surveying Services Intersection Turning Movement Count

Location: Vip Rd & San Bernardino Ave
City: Fontana
Control: 1-Way Stop (SB)

Project ID: 21-030070-048
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Vip Rd				Vip Rd				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	13	0	0	24
7:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	10	0	0	14
7:30 AM	0	0	0	0	0	0	1	0	0	11	0	0	0	17	0	0	29
7:45 AM	0	0	0	0	0	0	0	0	0	15	0	0	0	14	0	0	29
8:00 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	16	0	0	23
8:15 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	20	0	0	28
8:30 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	16	0	0	24
8:45 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	18	0	0	32
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	78	0	0	0	124	0	0	203
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	37	0	0	0	57	0	0	95
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.617	0.000	0.000	0.000	0.838	0.000	0.000	0.819
					0.250				0.617				0.838				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	6	0	0	23
4:15 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	5	0	0	21
4:30 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	0	12
4:45 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	6	0	0	20
5:00 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	2	0	0	13
5:15 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	8	0	0	22
5:30 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	9	0	0	20
5:45 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	4	0	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	101	0	0	0	48	0	0	149
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	50	0	0	0	25	0	0	75
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.893	0.000	0.000	0.000	0.694	0.000	0.000	0.852
									0.893				0.694				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-049
Date: 9/9/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	21	137	15	0	14	163	70	6	26	16	20	0	11	81	10	0	590
7:15 AM	18	166	17	0	18	154	69	2	39	21	15	0	22	77	11	0	629
7:30 AM	21	179	19	1	11	228	85	8	31	16	19	0	26	84	15	0	743
7:45 AM	17	209	12	0	12	212	96	3	39	17	11	0	34	91	28	0	781
8:00 AM	18	177	13	1	22	208	79	1	41	17	21	0	38	52	18	0	706
8:15 AM	18	129	13	0	10	199	65	2	36	13	20	0	26	63	17	0	611
8:30 AM	23	185	9	1	13	171	63	6	31	15	22	0	17	42	7	0	605
8:45 AM	18	153	15	0	12	166	49	4	34	32	23	0	12	34	19	0	571
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	154	1335	113	3	112	1501	576	32	277	147	151	0	186	524	125	0	5236
APPROACH %'s :	9.60%	83.18%	7.04%	0.19%	5.04%	67.58%	25.93%	1.44%	48.17%	25.57%	26.26%	0.00%	22.28%	62.75%	14.97%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	74	731	61	2	63	802	329	14	150	71	66	0	120	304	72	0	2859
PEAK HR FACTOR :	0.881	0.874	0.803	0.500	0.716	0.879	0.857	0.438	0.915	0.845	0.786	0.000	0.789	0.835	0.643	0.000	0.915
	0.912				0.910				0.908				0.810				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	234	25	0	15	181	54	2	76	102	48	0	8	34	10	0	795
4:15 PM	12	200	37	1	18	173	52	6	106	184	53	0	18	46	12	0	918
4:30 PM	10	285	20	1	13	177	66	2	104	156	53	0	12	56	15	0	970
4:45 PM	10	217	27	0	21	154	32	0	96	156	55	0	19	42	18	0	847
5:00 PM	11	217	26	0	10	172	51	0	108	142	52	0	11	26	10	0	836
5:15 PM	10	216	23	0	14	143	32	1	114	143	43	0	16	36	25	0	816
5:30 PM	10	200	32	0	21	160	37	0	99	112	60	0	11	47	14	0	803
5:45 PM	7	209	24	1	15	140	41	0	72	108	43	0	11	39	10	0	720
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	76	1778	214	3	127	1300	365	11	775	1103	407	0	106	326	114	0	6705
APPROACH %'s :	3.67%	85.85%	10.33%	0.14%	7.04%	72.10%	20.24%	0.61%	33.92%	48.27%	17.81%	0.00%	19.41%	59.71%	20.88%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	43	919	110	2	62	676	201	8	414	638	213	0	60	170	55	0	3571
PEAK HR FACTOR :	0.896	0.806	0.743	0.500	0.738	0.955	0.761	0.333	0.958	0.867	0.968	0.000	0.789	0.759	0.764	0.000	0.920
	0.850				0.918				0.922				0.858				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-049
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	121	10	0	13	144	61	6	24	15	14	0	8	66	10	0	504
7:15 AM	12	137	11	0	17	138	64	1	33	19	8	0	20	70	10	0	540
7:30 AM	14	159	11	1	8	206	77	7	25	14	10	0	22	80	12	0	646
7:45 AM	11	188	6	0	11	188	85	3	33	13	6	0	30	87	26	0	687
8:00 AM	11	147	12	0	21	185	65	0	37	16	10	0	34	47	17	0	602
8:15 AM	6	110	11	0	10	173	57	2	32	11	9	0	19	55	16	0	511
8:30 AM	15	153	8	1	8	141	48	5	23	14	14	0	10	38	6	0	484
8:45 AM	6	131	10	0	9	140	37	4	28	24	10	0	8	28	12	0	447
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	87	1146	79	2	97	1315	494	28	235	126	81	0	151	471	109	0	4421
APPROACH %'s :	6.62%	87.21%	6.01%	0.15%	5.02%	67.99%	25.54%	1.45%	53.17%	28.51%	18.33%	0.00%	20.66%	64.43%	14.91%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	48	631	40	1	57	717	291	11	128	62	34	0	106	284	65	0	2475
PEAK HR FACTOR :	0.857	0.839	0.833	0.250	0.679	0.870	0.856	0.393	0.865	0.816	0.850	0.000	0.779	0.816	0.625	0.000	0.901
	0.878				0.903				0.889				0.795				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	208	22	0	15	163	46	2	67	92	33	0	8	33	10	0	705
4:15 PM	8	181	32	1	17	151	48	6	88	174	38	0	14	41	11	0	810
4:30 PM	7	257	20	1	11	161	61	2	101	152	35	0	10	52	14	0	884
4:45 PM	7	205	19	0	20	141	28	0	87	152	36	0	18	41	17	0	771
5:00 PM	8	193	23	0	10	156	45	0	101	138	29	0	8	23	10	0	744
5:15 PM	6	197	21	0	13	126	27	1	106	138	26	0	14	34	22	0	731
5:30 PM	8	185	29	0	21	134	29	0	83	111	25	0	9	46	12	0	692
5:45 PM	3	185	22	1	14	118	37	0	64	103	28	0	9	38	9	0	631
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	53	1611	188	3	121	1150	321	11	697	1060	250	0	90	308	105	0	5968
APPROACH %'s :	2.86%	86.85%	10.13%	0.16%	7.55%	71.74%	20.02%	0.69%	34.73%	52.82%	12.46%	0.00%	17.89%	61.23%	20.87%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	30	836	94	2	58	609	182	8	377	616	138	0	50	157	52	0	3209
PEAK HR FACTOR :	0.938	0.813	0.734	0.500	0.725	0.946	0.746	0.333	0.933	0.885	0.908	0.000	0.694	0.755	0.765	0.000	0.908
	0.844				0.912				0.943				0.852				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-049
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	6	4	0	0	5	1	0	2	1	0	0	0	6	0	0	26
7:15 AM	0	5	0	0	0	1	3	1	2	1	1	0	0	2	1	0	17
7:30 AM	0	8	1	0	2	6	1	1	0	1	1	0	1	1	2	0	25
7:45 AM	1	10	0	0	0	9	1	0	0	1	2	0	0	1	1	0	26
8:00 AM	1	13	0	1	0	8	3	1	1	1	1	0	0	2	0	0	32
8:15 AM	1	11	0	0	0	7	4	0	1	1	3	0	1	1	0	0	30
8:30 AM	2	12	1	0	1	12	3	1	2	0	0	0	2	2	1	0	39
8:45 AM	2	12	1	0	0	8	3	0	3	2	0	0	1	2	3	0	37
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	77	7	1	3	56	19	4	11	8	8	0	5	17	8	0	232
APPROACH %'s :	8.60%	82.80%	7.53%	1.08%	3.66%	68.29%	23.17%	4.88%	40.74%	29.63%	29.63%	0.00%	16.67%	56.67%	26.67%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	36	1	1	2	24	8	3	3	4	5	0	1	6	4	0	100
PEAK HR FACTOR :	0.500	0.692	0.250	0.250	0.250	0.667	0.667	0.750	0.375	1.000	0.625	0.000	0.250	0.750	0.500	0.000	0.781
	0.667				0.771				0.750				0.688				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	8	1	0	0	4	2	0	5	3	2	0	0	1	0	0	26
4:15 PM	0	5	0	0	0	2	1	0	5	3	2	0	0	1	0	0	19
4:30 PM	0	11	0	0	1	4	0	0	0	2	3	0	1	2	1	0	25
4:45 PM	0	1	0	0	0	2	0	0	1	1	1	0	1	0	0	0	7
5:00 PM	0	6	0	0	0	0	2	0	1	1	7	0	0	2	0	0	19
5:15 PM	0	2	0	0	0	5	1	0	2	2	5	0	0	0	1	0	18
5:30 PM	0	3	0	0	0	7	0	0	7	0	7	0	1	1	0	0	26
5:45 PM	2	5	0	0	1	6	0	0	3	3	0	0	0	1	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	41	1	0	2	30	6	0	24	15	27	0	3	8	2	0	161
APPROACH %'s :	4.55%	93.18%	2.27%	0.00%	5.26%	78.95%	15.79%	0.00%	36.36%	22.73%	40.91%	0.00%	23.08%	61.54%	15.38%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	23	0	0	1	8	3	0	7	7	13	0	2	5	1	0	70
PEAK HR FACTOR :	0.000	0.523	0.000	0.000	0.250	0.500	0.375	0.000	0.350	0.583	0.464	0.000	0.500	0.625	0.250	0.000	0.700
	0.523				0.600				0.675				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-049
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	7	0	0	0	4	3	0	0	0	0	0	0	0	0	0	17
7:15 AM	3	6	2	0	0	11	1	0	3	1	1	0	0	1	0	0	29
7:30 AM	2	6	2	0	0	6	3	0	3	0	1	0	1	1	1	0	26
7:45 AM	4	3	2	0	0	6	2	0	1	2	0	0	1	1	0	0	22
8:00 AM	6	8	1	0	0	9	4	0	2	0	3	0	2	0	0	0	35
8:15 AM	4	3	0	0	0	4	0	0	1	0	5	0	1	1	1	0	20
8:30 AM	5	7	0	0	3	6	5	0	3	0	3	0	2	1	0	0	35
8:45 AM	7	6	1	0	3	11	6	0	1	2	5	0	1	2	1	0	46
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	34	46	8	0	6	57	24	0	14	5	18	0	8	7	3	0	230
APPROACH %'s :	38.64%	52.27%	9.09%	0.00%	6.90%	65.52%	27.59%	0.00%	37.84%	13.51%	48.65%	0.00%	44.44%	38.89%	16.67%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	15	23	7	0	0	32	10	0	9	3	5	0	4	3	1	0	112
PEAK HR FACTOR :	0.625	0.719	0.875	0.000	0.000	0.727	0.625	0.000	0.750	0.375	0.417	0.000	0.500	0.750	0.250	0.000	0.800
	0.750				0.808				0.850				0.667				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	0	0	0	5	1	0	3	0	9	0	0	0	0	0	22
4:15 PM	1	7	2	0	0	6	2	0	5	1	8	0	0	1	1	0	34
4:30 PM	2	6	0	0	0	3	3	0	2	2	10	0	0	2	0	0	30
4:45 PM	2	6	0	0	1	3	3	0	1	1	15	0	0	1	1	0	34
5:00 PM	1	11	0	0	0	11	2	0	2	1	9	0	2	1	0	0	40
5:15 PM	2	3	2	0	0	5	2	0	1	1	11	0	1	1	1	0	30
5:30 PM	1	5	0	0	0	10	5	0	4	0	17	0	0	0	1	0	43
5:45 PM	1	5	1	0	0	8	1	0	1	1	11	0	1	0	0	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	47	5	0	1	51	19	0	19	7	90	0	4	6	4	0	263
APPROACH %'s :	16.13%	75.81%	8.06%	0.00%	1.41%	71.83%	26.76%	0.00%	16.38%	6.03%	77.59%	0.00%	28.57%	42.86%	28.57%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	6	30	2	0	1	23	10	0	10	5	42	0	2	5	2	0	138
PEAK HR FACTOR :	0.750	0.682	0.250	0.000	0.250	0.523	0.833	0.000	0.500	0.625	0.700	0.000	0.250	0.625	0.500	0.000	0.863
	0.792				0.654				0.838				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-049
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	3	1	0	1	10	5	0	0	0	6	0	3	9	0	0	43
7:15 AM	3	18	4	0	1	4	1	0	1	0	5	0	2	4	0	0	43
7:30 AM	5	6	5	0	1	10	4	0	3	1	7	0	2	2	0	0	46
7:45 AM	1	8	4	0	1	9	8	0	5	1	3	0	3	2	1	0	46
8:00 AM	0	9	0	0	1	6	7	0	1	0	7	0	2	3	1	0	37
8:15 AM	7	5	2	0	0	15	4	0	2	1	3	0	5	6	0	0	50
8:30 AM	1	13	0	0	1	12	7	0	3	1	5	0	3	1	0	0	47
8:45 AM	3	4	3	0	0	7	3	0	2	4	8	0	2	2	3	0	41
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	25	66	19	0	6	73	39	0	17	8	44	0	22	29	5	0	353
APPROACH %'s :	22.73%	60.00%	17.27%	0.00%	5.08%	61.86%	33.05%	0.00%	24.64%	11.59%	63.77%	0.00%	39.29%	51.79%	8.93%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	9	41	13	0	4	29	20	0	10	2	22	0	9	11	2	0	172
PEAK HR FACTOR :	0.450	0.569	0.650	0.000	1.000	0.725	0.625	0.000	0.500	0.500	0.786	0.000	0.750	0.688	0.500	0.000	0.935
	0.630				0.736				0.773				0.917				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	14	2	0	0	9	5	0	1	7	4	0	0	0	0	0	42
4:15 PM	3	7	3	0	1	14	1	0	8	6	5	0	4	3	0	0	55
4:30 PM	1	11	0	0	1	9	2	0	1	0	5	0	1	0	0	0	31
4:45 PM	1	5	8	0	0	8	1	0	7	2	3	0	0	0	0	0	35
5:00 PM	2	7	3	0	0	5	2	0	4	2	7	0	1	0	0	0	33
5:15 PM	2	14	0	0	1	7	2	0	5	2	1	0	1	1	1	0	37
5:30 PM	1	7	3	0	0	9	3	0	5	1	11	0	1	0	1	0	42
5:45 PM	1	14	1	0	0	8	3	0	4	1	4	0	1	0	1	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	79	20	0	3	69	19	0	35	21	40	0	9	4	3	0	313
APPROACH %'s :	10.00%	71.82%	18.18%	0.00%	3.30%	75.82%	20.88%	0.00%	36.46%	21.88%	41.67%	0.00%	56.25%	25.00%	18.75%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	7	30	14	0	2	36	6	0	20	10	20	0	6	3	0	0	154
PEAK HR FACTOR :	0.583	0.682	0.438	0.000	0.500	0.643	0.750	0.000	0.625	0.417	0.714	0.000	0.375	0.250	0.000	0.000	0.700
	0.911				0.688				0.658				0.321				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-050
Date: 9/9/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	20	2	0	5	27	8	0	5	20	0	0	1	51	3	0	143
7:15 AM	4	33	2	0	7	22	19	0	7	47	4	0	2	65	10	0	222
7:30 AM	8	36	0	0	15	25	15	0	12	50	6	0	0	97	27	0	291
7:45 AM	8	29	0	0	12	46	30	0	4	69	2	0	3	114	21	0	338
8:00 AM	5	17	3	0	9	31	8	0	7	43	4	0	2	51	8	0	188
8:15 AM	2	18	3	0	16	25	10	0	3	32	4	0	4	53	8	0	178
8:30 AM	1	24	3	0	8	25	3	0	4	19	1	0	0	43	5	0	136
8:45 AM	2	13	2	0	3	23	7	0	8	38	5	0	0	33	5	0	139
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	31	190	15	0	75	224	100	0	50	318	26	0	12	507	87	0	1635
APPROACH %'s :	13.14%	80.51%	6.36%	0.00%	18.80%	56.14%	25.06%	0.00%	12.69%	80.71%	6.60%	0.00%	1.98%	83.66%	14.36%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	25	115	5	0	43	124	72	0	30	209	16	0	7	327	66	0	1039
PEAK HR FACTOR :	0.781	0.799	0.417	0.000	0.717	0.674	0.600	0.000	0.625	0.757	0.667	0.000	0.583	0.717	0.611	0.000	0.768
	0.824				0.679				0.850				0.725				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	46	3	0	4	28	4	0	22	94	5	0	2	48	4	0	264
4:15 PM	5	27	6	0	8	17	10	0	23	146	3	0	2	52	11	0	310
4:30 PM	2	48	6	0	13	25	7	0	21	142	1	0	3	58	11	0	337
4:45 PM	3	32	6	0	6	19	11	0	13	146	4	0	4	57	9	0	310
5:00 PM	7	34	2	0	11	25	6	0	17	108	2	0	3	44	9	0	268
5:15 PM	2	39	10	0	9	22	8	0	17	141	5	0	2	57	6	0	318
5:30 PM	4	37	4	0	5	25	8	0	12	114	2	0	3	50	12	0	276
5:45 PM	5	35	8	0	5	35	7	0	7	102	7	0	0	46	12	0	269
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	298	45	0	61	196	61	0	132	993	29	0	19	412	74	0	2352
APPROACH %'s :	8.53%	79.47%	12.00%	0.00%	19.18%	61.64%	19.18%	0.00%	11.44%	86.05%	2.51%	0.00%	3.76%	81.58%	14.65%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	14	153	24	0	39	91	32	0	68	537	12	0	12	216	35	0	1233
PEAK HR FACTOR :	0.500	0.797	0.600	0.000	0.750	0.910	0.727	0.000	0.810	0.920	0.600	0.000	0.750	0.931	0.795	0.000	0.915
	0.853				0.900				0.941				0.913				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-050
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	19	2	0	5	27	7	0	5	16	0	0	1	49	3	0	135
7:15 AM	4	32	1	0	7	22	18	0	7	45	4	0	2	59	10	0	211
7:30 AM	8	34	0	0	15	24	15	0	12	48	6	0	0	93	27	0	282
7:45 AM	7	27	0	0	12	44	30	0	4	67	2	0	3	109	21	0	326
8:00 AM	4	15	3	0	9	30	6	0	7	41	4	0	2	48	8	0	177
8:15 AM	2	18	3	0	16	23	10	0	2	29	4	0	4	51	8	0	170
8:30 AM	1	22	3	0	8	21	3	0	4	18	1	0	0	40	5	0	126
8:45 AM	2	13	2	0	3	21	7	0	8	36	5	0	0	30	5	0	132
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	29	180	14	0	75	212	96	0	49	300	26	0	12	479	87	0	1559
APPROACH %'s :	13.00%	80.72%	6.28%	0.00%	19.58%	55.35%	25.07%	0.00%	13.07%	80.00%	6.93%	0.00%	2.08%	82.87%	15.05%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	23	108	4	0	43	120	69	0	30	201	16	0	7	309	66	0	996
PEAK HR FACTOR :	0.719	0.794	0.333	0.000	0.717	0.682	0.575	0.000	0.625	0.750	0.667	0.000	0.583	0.709	0.611	0.000	0.764
	0.804				0.674				0.846				0.718				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	44	2	0	4	24	4	0	22	89	5	0	2	47	4	0	251
4:15 PM	5	25	6	0	8	15	10	0	23	145	3	0	2	48	11	0	301
4:30 PM	0	48	6	0	13	22	7	0	21	140	1	0	3	56	11	0	328
4:45 PM	3	32	6	0	6	18	10	0	13	141	4	0	4	55	9	0	301
5:00 PM	6	33	2	0	11	23	6	0	17	106	2	0	2	38	9	0	255
5:15 PM	1	37	9	0	9	20	7	0	17	138	5	0	2	54	6	0	305
5:30 PM	4	36	4	0	5	25	8	0	12	114	2	0	3	48	12	0	273
5:45 PM	4	32	8	0	5	35	6	0	7	98	7	0	0	44	12	0	258
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	287	43	0	61	182	58	0	132	971	29	0	18	390	74	0	2272
APPROACH %'s :	7.56%	80.39%	12.04%	0.00%	20.27%	60.47%	19.27%	0.00%	11.66%	85.78%	2.56%	0.00%	3.73%	80.91%	15.35%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	10	150	23	0	39	83	30	0	68	525	12	0	11	203	35	0	1189
PEAK HR FACTOR :	0.417	0.781	0.639	0.000	0.750	0.902	0.750	0.000	0.810	0.931	0.600	0.000	0.688	0.906	0.795	0.000	0.906
	0.847				0.905				0.934				0.889				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-050
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	4
7:15 AM	0	0	1	0	0	0	1	0	0	2	0	0	0	4	0	0	8
7:30 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	4	0	0	7
7:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	3	0	0	6
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
8:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	4
8:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	2	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	1	0	0	4	2	0	0	12	0	0	0	21	0	0	44
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	2	1	0	0	2	2	0	0	5	0	0	0	14	0	0	26
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.000	0.250	0.500	0.000	0.000	0.625	0.000	0.000	0.000	0.875	0.000	0.000	0.813
	0.375				0.500				0.625				0.875				

NS/EW Streets:	Beech Ave				Beech Ave				San Bernardino Ave				San Bernardino Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	0	3	0	0	0	4	0	0	0	1	0	0	10
4:15 PM	0	2	0	0	0	2	0	0	0	1	0	0	0	1	0	0	6
4:30 PM	2	0	0	0	0	1	0	0	0	2	0	0	0	2	0	0	7
4:45 PM	0	0	0	0	0	1	0	0	0	4	0	0	0	1	0	0	6
5:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	1	4	0	0	7
5:15 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	5
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:45 PM	0	2	0	0	0	0	1	0	0	3	0	0	0	2	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	6	2	0	0	9	1	0	0	16	0	0	1	14	0	0	51
APPROACH %'s :	20.00%	60.00%	20.00%	0.00%	0.00%	90.00%	10.00%	0.00%	0.00%	100.00%	0.00%	0.00%	6.67%	93.33%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	0	1	0	0	4	0	0	0	8	0	0	1	9	0	0	25
PEAK HR FACTOR :	0.250	0.000	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.563	0.000	0.000	0.893
	0.375				0.500				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-050
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	3	0	0	0	5	0	0	0	2	0	0	10
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.375
									0.500				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
5:15 PM	1	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	2	0	0	0	1	1	0	0	4	0	0	0	4	0	0	15
APPROACH %'s :	60.00%	40.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	1	0	0	0	1	1	0	0	3	0	0	0	2	0	0	10
PEAK HR FACTOR :	0.500	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.500
	0.375				0.250				0.750				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-050
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
7:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
7:45 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
8:00 AM	1	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
8:15 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	6	0	0	0	5	2	0	1	1	0	0	0	5	0	0	22
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	0.00%	71.43%	28.57%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	5	0	0	0	2	1	0	0	1	0	0	0	3	0	0	14
PEAK HR FACTOR :	0.500	0.625	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.375	0.000	0.000	0.700
	0.583				0.375				0.250				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	4	1	0	0	2	0	0	0	4	0	0	14
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	80.00%	20.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	3	1	0	0	1	0	0	0	2	0	0	9
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.375	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.750
	0.500				0.500				0.250				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Elm Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-051
Date: 9/9/2021

Data - Total

NS/EW Streets: Fontana Ave/Elm Ave | Fontana Ave/Elm Ave | San Bernardino Ave | San Bernardino Ave

AM

	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0											
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	8	3	2	0	1	0	7	6	5	0	6	0	5	61	5	0	13	1	0	63	2	0	2	3	3	0	3	5	1	29	1	4	17	0	256
7:15 AM	4	4	2	0	2	1	16	10	6	0	8	0	0	52	2	0	8	0	1	34	2	0	2	0	12	0	2	6	0	17	0	2	24	1	218
7:30 AM	4	3	1	0	3	0	8	4	2	0	5	0	1	28	3	0	6	0	0	37	6	0	1	1	3	0	1	0	0	26	0	3	18	0	164
7:45 AM	2	4	2	0	3	0	9	11	2	0	2	0	2	15	1	0	12	3	0	28	1	0	4	2	16	0	4	1	0	18	2	3	18	1	166
8:00 AM	0	5	0	0	2	0	4	6	0	0	3	0	1	28	0	0	9	3	0	16	3	0	2	0	8	1	2	0	0	12	2	1	6	0	114
8:15 AM	3	1	0	0	2	0	4	7	0	0	2	0	1	36	2	0	13	0	0	20	0	0	0	1	8	0	0	3	0	6	1	4	5	0	119
8:30 AM	0	4	0	0	0	0	0	2	1	0	2	0	1	26	3	0	5	0	0	23	1	0	2	3	10	0	0	2	0	11	0	3	5	3	107
8:45 AM	1	2	0	0	4	0	0	3	0	0	4	0	0	25	1	0	4	1	0	33	1	0	0	1	6	0	1	0	2	13	0	3	6	1	112
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	22	26	7	0	17	1	48	49	16	0	32	0	11	271	17	0	70	8	1	254	16	0	13	11	66	1	13	17	3	132	6	23	99	6	1256
APPROACH %'s :	30.14%	35.62%	9.59%	0.00%	23.29%	1.37%	33.10%	33.79%	11.03%	0.00%	22.07%	0.00%	2.92%	71.88%	4.51%	0.00%	18.57%	2.12%	0.34%	86.10%	5.42%	0.00%	4.41%	3.73%	66.00%	1.00%	13.00%	17.00%	3.00%	49.62%	2.26%	8.65%	37.22%	2.26%	
PEAK HR :	07:00 AM - 08:00 AM																																		TOTAL
PEAK HR VOL :	18	14	7	0	9	1	40	31	15	0	21	0	8	156	11	0	39	4	1	162	11	0	9	6	34	0	10	12	1	90	3	12	77	2	804
PEAK HR FACTOR :	0.563	0.875	0.875	0.000	0.750	0.250	0.625	0.705	0.625	0.000	0.656	0.000	0.400	0.639	0.550	0.000	0.750	0.333	0.250	0.643	0.458	0.000	0.563	0.500	0.531	0.000	0.625	0.500	0.250	0.776	0.375	0.750	0.802	0.500	0.785
	0.875						0.669						0.641						0.675																

PM

	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																	
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	3	18	0	0	4	1	3	4	2	0	2	0	1	112	5	0	33	0	2	51	4	0	5	3	35	1	3	4	2	9	3	2	15	0	327
4:15 PM	4	11	2	0	9	0	5	4	3	0	3	0	1	94	5	0	29	0	4	36	5	0	2	3	43	1	4	2	0	15	1	1	19	1	307
4:30 PM	4	10	0	0	4	1	3	5	1	0	1	0	1	99	6	0	32	0	0	49	5	0	2	1	40	0	3	4	1	16	0	1	13	0	302
4:45 PM	6	14	1	0	8	0	3	9	6	0	2	0	5	93	2	0	31	1	0	42	2	0	3	1	31	3	6	2	0	11	0	3	11	1	297
5:00 PM	2	9	2	0	7	0	2	5	2	0	2	0	4	73	4	0	16	2	1	33	2	0	1	2	32	2	3	6	0	12	0	2	11	0	237
5:15 PM	6	13	1	0	3	0	2	5	2	0	2	0	4	65	3	0	21	0	0	34	3	0	1	0	25	0	7	1	0	10	2	3	9	0	222
5:30 PM	5	7	0	0	5	0	6	10	0	0	1	1	3	67	5	0	23	1	0	23	2	0	1	0	17	1	2	4	0	14	1	2	7	1	209
5:45 PM	5	7	1	0	3	0	8	6	0	0	3	1	0	48	6	0	17	1	0	29	6	0	2	1	22	1	0	4	1	13	1	2	9	1	198
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	35	89	7	0	43	2	32	48	16	0	16	2	19	651	36	0	202	5	7	297	29	0	17	11	245	9	28	27	4	100	8	16	94	4	2099
APPROACH %'s :	19.89%	50.57%	3.98%	0.00%	24.43%	1.14%	28.07%	42.11%	14.04%	0.00%	14.04%	1.75%	2.08%	71.30%	3.94%	0.00%	22.12%	0.55%	1.94%	82.27%	8.03%	0.00%	4.71%	3.05%	78.27%	2.88%	8.95%	8.63%	1.28%	45.05%	3.60%	7.21%	42.34%	1.80%	
PEAK HR :	04:00 PM - 05:00 PM																																		TOTAL
PEAK HR VOL :	17	53	3	0	25	2	14	22	12	0	8	0	8	398	18	0	125	1	6	178	16	0	12	8	149	5	16	12	3	51	4	7	58	2	1233
PEAK HR FACTOR :	0.708	0.736	0.375	0.000	0.694	0.500	0.700	0.611	0.500	0.000	0.667	0.000	0.400	0.888	0.750	0.000	0.947	0.250	0.375	0.873	0.800	0.000	0.600	0.667	0.866	0.417	0.667	0.750	0.375	0.797	0.333	0.583	0.763	0.500	0.943
	0.862						0.700						0.911						0.846																

	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2
AM Peak	21	14	8	0	9	1	42	34	15	0	21	0	9	159	11	0	42	5	1	169	11	0	9	6	36	0	10	12	1	94	3	14	78	2
PM Peak	19	54	3	0	26	5	14	23	12	0	8	0	8	402	18	0	128	1	6	184	18	0	12	9	152	7	16	12	4	52	4	7	62	2

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Elm Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-051
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Fontana Ave/Elm Ave						Fontana Ave/Elm Ave						San Bernardino Ave						San Bernardino Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2						SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	7	3	1	0	1	0	7	6	5	0	6	0	4	60	5	0	12	0	0	60	2	0	2	3	3	0	3	5	1	28	1	4	17	0	246
7:15 AM	4	4	2	0	2	1	16	9	6	0	8	0	0	49	2	0	7	0	1	33	2	0	2	0	11	0	2	6	0	16	0	2	24	1	210
7:30 AM	3	3	1	0	3	0	7	3	2	0	5	0	1	27	3	0	6	0	0	36	6	0	1	1	3	0	1	0	0	25	0	2	16	0	155
7:45 AM	2	4	2	0	3	0	9	11	2	0	2	0	2	15	1	0	10	3	0	24	1	0	4	2	15	0	4	1	0	17	2	3	18	1	158
8:00 AM	0	5	0	0	2	0	4	6	0	0	3	0	1	27	0	0	8	3	0	16	3	0	2	0	6	1	2	0	0	12	2	1	6	0	110
8:15 AM	3	1	0	0	2	0	4	7	0	0	2	0	1	35	2	0	11	0	0	19	0	0	0	1	8	0	0	3	0	6	1	4	5	0	115
8:30 AM	0	4	0	0	0	0	0	2	0	0	2	0	1	22	2	0	5	0	0	22	1	0	2	3	9	0	0	2	0	11	0	3	5	3	99
8:45 AM	1	2	0	0	4	0	0	3	0	0	4	0	0	24	1	0	3	1	0	31	1	0	0	1	4	0	1	0	2	13	0	3	6	1	106
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	20	26	6	0	17	1	47	47	15	0	32	0	10	259	16	0	62	7	1	241	16	0	13	11	59	1	13	17	3	128	6	22	97	6	1199
APPROACH % 's :	28.57%	37.14%	8.57%	0.00%	24.29%	1.43%	33.33%	33.33%	10.64%	0.00%	22.70%	0.00%	2.82%	73.16%	4.52%	0.00%	17.51%	1.98%	0.35%	85.46%	5.67%	0.00%	4.61%	3.90%	63.44%	1.08%	13.98%	18.28%	3.23%	49.42%	2.32%	8.49%	37.45%	2.32%	
PEAK HR :	07:00 AM - 08:00 AM																																		TOTAL
PEAK HR VOL :	16	14	6	0	9	1	39	29	15	0	21	0	7	151	11	0	35	3	1	153	11	0	9	6	32	0	10	12	1	86	3	11	75	2	769
PEAK HR FACTOR :	0.571	0.875	0.750	0.000	0.750	0.250	0.609	0.659	0.625	0.000	0.656	0.000	0.438	0.629	0.550	0.000	0.729	0.250	0.250	0.638	0.458	0.000	0.563	0.500	0.533	0.000	0.625	0.500	0.250	0.768	0.375	0.688	0.781	0.500	0.782
	0.885						0.667						0.639						0.672																

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	3	18	0	0	4	0	3	4	2	0	2	0	1	110	5	0	32	0	2	50	3	0	5	2	34	0	3	4	1	9	3	2	14	0	316
4:15 PM	3	11	2	0	9	0	5	3	3	0	3	0	1	92	5	0	28	0	4	33	4	0	2	3	42	1	4	2	0	15	1	1	18	1	296
4:30 PM	4	10	0	0	4	0	3	5	1	0	1	0	1	98	6	0	31	0	0	48	5	0	2	1	40	0	3	4	0	14	0	1	11	0	293
4:45 PM	6	13	1	0	7	0	3	9	6	0	2	0	5	93	2	0	30	1	0	41	2	0	3	1	28	3	6	2	0	11	0	3	11	1	290
5:00 PM	2	9	2	0	7	0	2	5	2	0	2	0	4	71	4	0	14	2	1	32	2	0	1	2	32	2	3	6	0	12	0	2	11	0	232
5:15 PM	6	13	1	0	3	0	2	5	2	0	2	0	4	63	3	0	21	0	0	33	3	0	1	0	24	0	7	1	0	10	2	2	9	0	217
5:30 PM	5	7	0	0	5	0	6	10	0	0	1	1	3	65	5	0	23	1	0	22	2	0	1	0	17	1	1	4	0	14	1	2	5	1	203
5:45 PM	5	7	1	0	3	0	8	6	0	0	2	1	0	48	6	0	15	1	0	27	6	0	2	1	20	1	0	4	1	13	1	2	9	1	191
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	34	88	7	0	42	0	32	47	16	0	15	2	19	640	36	0	194	5	7	286	27	0	17	10	237	8	27	27	2	98	8	15	88	4	2038
APPROACH % 's :	19.88%	51.46%	4.09%	0.00%	24.56%	0.00%	28.57%	41.96%	14.29%	0.00%	13.39%	1.79%	2.13%	71.59%	4.03%	0.00%	21.70%	0.56%	2.02%	82.42%	7.78%	0.00%	4.90%	2.88%	78.74%	2.66%	8.97%	8.97%	0.66%	46.01%	3.76%	7.04%	41.31%	1.88%	
PEAK HR :	04:00 PM - 05:00 PM																																		TOTAL
PEAK HR VOL :	16	52	3	0	24	0	14	21	12	0	8	0	8	393	18	0	121	1	6	172	14	0	12	7	144	4	16	12	1	49	4	7	54	2	1195
PEAK HR FACTOR :	0.667	0.722	0.375	0.000	0.667	0.000	0.700	0.583	0.500	0.000	0.667	0.000	0.400	0.893	0.750	0.000	0.945	0.250	0.375	0.860	0.700	0.000	0.600	0.583	0.857	0.333	0.667	0.750	0.250	0.817	0.333	0.583	0.750	0.500	0.945
	0.880						0.688						0.914						0.851																

AM Peak	16	14	6	0	9	1	39	29	15	0	21	0	7	151	11	0	35	3	1	153	11	0	9	6	32	0	10	12	1	86	3	11	75	2	
PM Peak	16	52	3	0	24	0	14	21	12	0	8	0	8	393	18	0	121	1	6	172	14	0	12	7	144	4	16	12	1	49	4	7	54	2	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fontana Ave/Elm Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-051
Date: 9/9/2021

Data - 2axle

AM

NS/EW Streets:	Fontana Ave/Elm Ave						Fontana Ave/Elm Ave						San Bernardino Ave						San Bernardino Ave																
	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2						SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	6
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	7
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	0	0	1	1	0	0	0	0	11	1	0	4	0	0	10	0	0	0	0	3	0	0	0	0	2	0	0	2	0	37
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	68.75%	6.25%	0.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	50.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																																		TOTAL
PEAK HR VOL :	1	0	1	0	0	0	0	1	0	0	0	0	0	5	0	0	3	0	0	7	0	0	0	0	1	0	0	0	0	2	0	0	2	0	23
PEAK HR FACTOR :	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.000	0.375	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.821
	0.500						0.250						0.500						0.583																

PM

	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	1	0	0	1	1	0	0	0	1	0	0	0	0	0	8
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	1	0	8
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	1	0	0	0	0	0	9	0	0	6	0	0	7	1	0	0	1	7	0	0	0	2	2	0	0	3	0	41
APPROACH %'s :	0.00%	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.00%	0.00%	0.00%	40.00%	0.00%	0.00%	77.78%	11.11%	0.00%	0.00%	11.11%	77.78%	0.00%	0.00%	0.00%	22.22%	40.00%	0.00%	0.00%	60.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																																		TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	1	0	0	0	0	0	4	0	0	3	0	0	4	1	0	0	1	4	0	0	0	2	2	0	0	2	0	26
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.750	0.000	0.000	1.000	0.250	0.000	0.000	0.250	0.333	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.500	0.000	0.813
	0.500						0.250						0.583						0.500																

1.5																																			
AM Peak	2	0	2	0	0	0	0	2	0	0	0	0	0	8	0	0	5	0	0	11	0	0	0	0	2	0	0	0	0	3	0	0	3	0	
PM Peak	0	2	0	0	0	2	0	2	0	0	0	0	0	6	0	0	5	0	0	6	2	0	0	2	6	0	0	0	3	3	0	0	3	0	

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Elm Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-051
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Fontana Ave/Elm Ave						Fontana Ave/Elm Ave						San Bernardino Ave						San Bernardino Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	1	0	2	0	0	0	0	4	0	0	0	0	1	0	0	0	0	12
APPROACH % 's													20.00%	0.00%	0.00%	0.00%	60.00%	20.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																																		TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500
				0.000									0.250			0.000					0.000														

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																	
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	2	0	7
APPROACH % 's	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%							0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																																		TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	5
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.417
				0.250												0.250					0.250														

2																																			
AM Peak	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	
PM Peak	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	2	0	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fontana Ave/Elm Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-051
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Fontana Ave/Elm Ave						Fontana Ave/Elm Ave						San Bernardino Ave						San Bernardino Ave																
AM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND						NORTHBOUND2					SOUTHBOUND2					
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	8
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%						50.00%	0.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																																		TOTAL
PEAK HR VOL :	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	6
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.500
	0.250						0.250						0.000						0.250																

PM	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND																
	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	NT2	NU2	SL	ST	SR	SU	ST2	SU2	EL	ET	ER	EU	EL2	ER2	WL	WT	WR	WU	WL2	WR2	N2T	N2L2	N2T2	N2R2	N2U2	S2T	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	1	0	0	3	0	0	0	0	0	1	1	0	0	0	0	1	1	0	13
APPROACH %'s :	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	66.67%	0.00%	0.00%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																																		TOTAL
PEAK HR VOL :	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	1	0	7
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.438
	0.500						0.000						0.250						0.250																

3																																			
AM Peak	3	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3	0	0	
PM Peak	3	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	6	0	0	0	0	0	3	0	0	0	0	0	0	3	0	

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-052
Date: 9/15/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	130	12	0	7	171	5	0	7	22	6	0	20	27	16	0	442
7:15 AM	39	151	24	0	19	184	14	0	18	24	16	0	30	35	20	0	574
7:30 AM	45	150	63	0	21	197	15	0	11	25	20	0	39	35	32	0	653
7:45 AM	38	150	61	0	18	183	17	0	27	37	19	0	33	42	55	0	680
8:00 AM	12	137	23	0	29	161	10	0	52	29	14	0	19	25	84	0	595
8:15 AM	20	125	11	0	32	191	21	0	44	24	11	0	16	25	88	0	608
8:30 AM	15	117	7	0	21	159	5	0	16	23	13	0	13	26	31	0	446
8:45 AM	9	124	9	0	14	120	4	0	8	29	9	0	7	20	15	0	368
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	197	1084	210	0	161	1366	91	0	183	213	108	0	177	235	341	0	4366
APPROACH %'s :	13.21%	72.70%	14.08%	0.00%	9.95%	84.43%	5.62%	0.00%	36.31%	42.26%	21.43%	0.00%	23.51%	31.21%	45.29%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	115	562	158	0	100	732	63	0	134	115	64	0	107	127	259	0	2536
PEAK HR FACTOR :	0.639	0.937	0.627	0.000	0.781	0.929	0.750	0.000	0.644	0.777	0.800	0.000	0.686	0.756	0.736	0.000	0.932
	0.809				0.917				0.824				0.948				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	17	205	12	0	32	180	6	0	20	79	12	0	18	41	17	0	639
4:15 PM	14	223	13	0	11	156	8	0	15	76	11	0	8	33	18	0	586
4:30 PM	17	205	15	0	18	136	10	0	18	65	17	0	15	39	18	0	573
4:45 PM	42	206	12	0	11	130	6	0	7	90	12	0	26	44	21	0	607
5:00 PM	33	195	15	0	10	137	6	0	18	72	19	0	8	37	14	0	564
5:15 PM	47	242	12	0	11	120	7	0	9	81	19	0	13	63	25	0	649
5:30 PM	40	247	8	0	11	152	5	0	14	82	16	0	13	51	14	0	653
5:45 PM	48	254	12	0	16	148	7	0	12	67	9	0	10	58	17	0	658
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	258	1777	99	0	120	1159	55	0	113	612	115	0	111	366	144	0	4929
APPROACH %'s :	12.09%	83.27%	4.64%	0.00%	9.00%	86.88%	4.12%	0.00%	13.45%	72.86%	13.69%	0.00%	17.87%	58.94%	23.19%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	168	938	47	0	48	557	25	0	53	302	63	0	44	209	70	0	2524
PEAK HR FACTOR :	0.875	0.923	0.783	0.000	0.750	0.916	0.893	0.000	0.736	0.921	0.829	0.000	0.846	0.829	0.700	0.000	0.959
	0.918				0.921				0.933				0.800				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-052
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	18	122	12	0	7	163	5	0	7	19	4	0	20	24	16	0	417
7:15 AM	36	142	24	0	18	179	13	0	18	24	16	0	30	34	19	0	553
7:30 AM	44	141	63	0	21	188	15	0	11	23	18	0	39	34	32	0	629
7:45 AM	37	145	61	0	18	172	17	0	27	36	19	0	33	40	55	0	660
8:00 AM	12	133	22	0	29	148	10	0	52	28	14	0	19	24	84	0	575
8:15 AM	20	119	11	0	32	183	21	0	43	23	10	0	16	24	86	0	588
8:30 AM	12	107	7	0	21	151	5	0	14	23	11	0	13	24	31	0	419
8:45 AM	8	117	9	0	14	111	4	0	8	28	9	0	7	20	15	0	350
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	187	1026	209	0	160	1295	90	0	180	204	101	0	177	224	338	0	4191
APPROACH %'s :	13.15%	72.15%	14.70%	0.00%	10.36%	83.82%	5.83%	0.00%	37.11%	42.06%	20.82%	0.00%	23.95%	30.31%	45.74%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	113	538	157	0	100	691	63	0	133	110	61	0	107	122	257	0	2452
PEAK HR FACTOR :	0.642	0.928	0.623	0.000	0.781	0.919	0.750	0.000	0.639	0.764	0.803	0.000	0.686	0.763	0.747	0.000	0.929
	0.815				0.905				0.809				0.949				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	17	202	12	0	32	169	6	0	19	78	12	0	17	37	17	0	618
4:15 PM	14	215	12	0	10	146	7	0	15	74	10	0	8	30	17	0	558
4:30 PM	17	198	15	0	18	130	9	0	18	63	17	0	15	36	18	0	554
4:45 PM	42	200	12	0	11	124	6	0	7	89	11	0	26	43	21	0	592
5:00 PM	30	192	15	0	10	135	6	0	18	71	18	0	8	37	14	0	554
5:15 PM	47	239	12	0	11	117	7	0	9	80	19	0	13	62	24	0	640
5:30 PM	40	242	8	0	11	147	5	0	14	78	16	0	13	51	14	0	639
5:45 PM	46	251	12	0	16	143	7	0	12	67	9	0	10	56	17	0	646
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	253	1739	98	0	119	1111	53	0	112	600	112	0	110	352	142	0	4801
APPROACH %'s :	12.11%	83.21%	4.69%	0.00%	9.28%	86.59%	4.13%	0.00%	13.59%	72.82%	13.59%	0.00%	18.21%	58.28%	23.51%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	163	924	47	0	48	542	25	0	53	296	62	0	44	206	69	0	2479
PEAK HR FACTOR :	0.867	0.920	0.783	0.000	0.750	0.922	0.893	0.000	0.736	0.925	0.816	0.000	0.846	0.831	0.719	0.000	0.959
	0.917				0.926				0.951				0.806				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-052
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	0	2	0	0	0	3	1	0	0	2	0	0	12
7:15 AM	3	4	0	0	1	4	1	0	0	0	0	0	0	1	1	0	15
7:30 AM	1	2	0	0	0	2	0	0	0	2	1	0	0	1	0	0	9
7:45 AM	1	4	0	0	0	3	0	0	0	1	0	0	0	1	0	0	10
8:00 AM	0	2	1	0	0	7	0	0	0	1	0	0	0	1	0	0	12
8:15 AM	0	2	0	0	0	2	0	0	1	1	1	0	0	1	1	0	9
8:30 AM	2	7	0	0	0	4	0	0	1	0	1	0	0	1	0	0	16
8:45 AM	1	1	0	0	0	3	0	0	0	1	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	26	1	0	1	27	1	0	2	9	4	0	0	8	2	0	89
APPROACH %'s :	22.86%	74.29%	2.86%	0.00%	3.45%	93.10%	3.45%	0.00%	13.33%	60.00%	26.67%	0.00%	0.00%	80.00%	20.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	10	1	0	0	14	0	0	1	5	2	0	0	4	1	0	40
PEAK HR FACTOR :	0.500	0.625	0.250	0.000	0.000	0.500	0.000	0.000	0.250	0.625	0.500	0.000	0.000	1.000	0.250	0.000	0.833
	0.650				0.500				0.667				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	5	0	0	1	1	0	0	1	3	0	0	11
4:15 PM	0	5	1	0	1	6	0	0	0	2	1	0	0	2	0	0	18
4:30 PM	0	5	0	0	0	3	1	0	0	1	0	0	0	3	0	0	13
4:45 PM	0	5	0	0	0	2	0	0	0	1	1	0	0	1	0	0	10
5:00 PM	1	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	3
5:30 PM	0	2	0	0	0	2	0	0	0	4	0	0	0	0	0	0	8
5:45 PM	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	18	1	0	1	21	1	0	1	11	3	0	1	11	0	0	71
APPROACH %'s :	9.52%	85.71%	4.76%	0.00%	4.35%	91.30%	4.35%	0.00%	6.67%	73.33%	20.00%	0.00%	8.33%	91.67%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	3	0	0	0	5	0	0	0	6	1	0	0	2	0	0	19
PEAK HR FACTOR :	0.500	0.375	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.375	0.250	0.000	0.000	0.500	0.000	0.000	0.594
	0.625				0.625				0.438				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-052
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3
8:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	1	0	8
8:30 AM	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	4
8:45 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	0	0	0	12	0	0	1	0	1	0	0	2	1	0	29
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	66.67%	33.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	6	0	0	0	8	0	0	0	0	0	0	0	1	1	0	16
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.500
	0.500				0.500								0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
4:15 PM	0	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	5
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	8	0	0	0	9	1	0	0	0	0	0	0	2	2	0	24
APPROACH %'s :	20.00%	80.00%	0.00%	0.00%	0.00%	90.00%	10.00%	0.00%					0.00%	50.00%	50.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	6	0	0	0	5	0	0	0	0	0	0	0	0	1	0	14
PEAK HR FACTOR :	0.500	0.750	0.000	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.700
	0.667				0.417								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-052
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	3	0	0	0	0	0	0	0	1	0	0	9
7:15 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	5	0	0	0	6	0	0	0	0	1	0	0	0	0	0	12
7:45 AM	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7
8:00 AM	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6
8:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	1	1	0	0	0	4	0	0	0	0	1	0	0	0	0	0	7
8:45 AM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	20	0	0	0	32	0	0	0	0	2	0	0	1	0	0	57
APPROACH %'s :	9.09%	90.91%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	8	0	0	0	19	0	0	0	0	1	0	0	0	0	0	28
PEAK HR FACTOR :	0.000	0.400	0.000	0.000	0.000	0.792	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.583
		0.400				0.792				0.250							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8
4:15 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	0	2	0	0	0	2	0	0	0	1	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
5:00 PM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	12	0	0	0	18	0	0	0	1	0	0	0	1	0	0	33
APPROACH %'s :	7.69%	92.31%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	12
PEAK HR FACTOR :	0.250	0.625	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.750
		0.750				0.625								0.250			

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-053
Date: 9/9/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	140	31	2	3	184	7	0	8	21	21	0	63	79	9	0	573
7:15 AM	15	198	37	2	9	274	11	0	9	42	19	0	80	94	10	0	800
7:30 AM	8	192	30	1	7	276	18	0	6	39	17	0	62	77	8	0	741
7:45 AM	6	172	42	3	10	286	15	0	5	45	21	0	59	67	7	0	738
8:00 AM	10	155	50	4	14	301	22	0	7	50	25	0	53	65	13	0	769
8:15 AM	9	173	49	7	6	258	11	0	10	36	16	0	58	46	6	0	685
8:30 AM	4	209	36	9	12	241	14	0	10	18	25	0	62	27	20	0	687
8:45 AM	14	203	43	9	8	207	12	0	13	24	25	0	43	24	16	0	641
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	71	1442	318	37	69	2027	110	0	68	275	169	0	480	479	89	0	5634
APPROACH %'s :	3.80%	77.19%	17.02%	1.98%	3.13%	91.89%	4.99%	0.00%	13.28%	53.71%	33.01%	0.00%	45.80%	45.71%	8.49%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	39	717	159	10	40	1137	66	0	27	176	82	0	254	303	38	0	3048
PEAK HR FACTOR :	0.650	0.905	0.795	0.625	0.714	0.944	0.750	0.000	0.750	0.880	0.820	0.000	0.794	0.806	0.731	0.000	0.953
	0.918				0.922				0.869				0.808				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	21	261	85	22	14	215	15	0	25	64	24	0	60	76	23	0	905
4:15 PM	31	271	85	29	18	201	8	0	13	86	38	0	49	48	20	0	897
4:30 PM	18	235	76	25	23	218	13	0	30	88	33	0	68	73	17	0	917
4:45 PM	18	182	121	17	12	225	18	0	24	98	40	0	53	75	14	0	897
5:00 PM	15	223	114	9	16	248	17	0	18	75	22	0	49	73	19	0	898
5:15 PM	19	185	113	17	11	207	17	0	15	74	25	0	58	90	13	0	844
5:30 PM	24	202	104	16	13	201	17	0	22	64	26	0	53	73	20	0	835
5:45 PM	24	304	135	30	12	198	12	0	24	56	21	0	56	51	11	0	934
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	170	1863	833	165	119	1713	117	0	171	605	229	0	446	559	137	0	7127
APPROACH %'s :	5.61%	61.46%	27.48%	5.44%	6.11%	87.89%	6.00%	0.00%	17.01%	60.20%	22.79%	0.00%	39.05%	48.95%	12.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	88	949	367	93	67	859	54	0	92	336	135	0	230	272	74	0	3616
PEAK HR FACTOR :	0.710	0.875	0.758	0.802	0.728	0.954	0.750	0.000	0.767	0.857	0.844	0.000	0.846	0.895	0.804	0.000	0.986
	0.900				0.961				0.869				0.906				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-053
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	124	30	2	3	179	7	0	8	21	21	0	62	79	9	0	550
7:15 AM	15	194	36	2	9	268	11	0	9	41	18	0	78	91	10	0	782
7:30 AM	8	185	30	1	7	270	18	0	6	39	17	0	61	77	8	0	727
7:45 AM	6	165	42	3	10	278	15	0	5	44	21	0	59	66	7	0	721
8:00 AM	10	151	49	4	14	293	21	0	7	50	25	0	51	63	13	0	751
8:15 AM	7	165	49	7	6	250	11	0	10	36	16	0	57	45	6	0	665
8:30 AM	3	204	34	9	12	234	14	0	10	18	25	0	62	27	20	0	672
8:45 AM	14	197	42	9	8	201	12	0	13	23	25	0	43	24	15	0	626
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	68	1385	312	37	69	1973	109	0	68	272	168	0	473	472	88	0	5494
APPROACH %'s :	3.77%	76.86%	17.31%	2.05%	3.21%	91.72%	5.07%	0.00%	13.39%	53.54%	33.07%	0.00%	45.79%	45.69%	8.52%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	39	695	157	10	40	1109	65	0	27	174	81	0	249	297	38	0	2981
PEAK HR FACTOR :	0.650	0.896	0.801	0.625	0.714	0.946	0.774	0.000	0.750	0.870	0.810	0.000	0.798	0.816	0.731	0.000	0.953
	0.912				0.925				0.860				0.816				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	256	85	22	14	206	15	0	25	61	24	0	59	74	22	0	883
4:15 PM	30	269	84	29	18	198	8	0	13	86	38	0	48	47	20	0	888
4:30 PM	18	233	76	25	23	210	13	0	30	85	33	0	67	70	17	0	900
4:45 PM	18	177	121	17	12	223	18	0	24	98	40	0	53	70	14	0	885
5:00 PM	15	218	113	9	16	241	17	0	18	74	22	0	47	72	19	0	881
5:15 PM	18	184	113	16	11	205	16	0	15	73	25	0	58	89	13	0	836
5:30 PM	23	197	104	16	13	196	17	0	22	64	26	0	51	73	20	0	822
5:45 PM	24	299	135	30	12	197	12	0	24	54	21	0	56	51	11	0	926
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	166	1833	831	164	119	1676	116	0	171	595	229	0	439	546	136	0	7021
APPROACH %'s :	5.54%	61.22%	27.76%	5.48%	6.23%	87.70%	6.07%	0.00%	17.19%	59.80%	23.02%	0.00%	39.16%	48.71%	12.13%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	86	935	366	93	67	837	54	0	92	330	135	0	227	261	73	0	3556
PEAK HR FACTOR :	0.717	0.869	0.756	0.802	0.728	0.938	0.750	0.000	0.767	0.842	0.844	0.000	0.847	0.882	0.830	0.000	0.988
	0.898				0.947				0.860				0.905				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-053
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	14	0	0	0	3	0	0	0	0	0	0	1	0	0	0	18
7:15 AM	0	4	0	0	0	5	0	0	0	1	1	0	1	3	0	0	15
7:30 AM	0	6	0	0	0	4	0	0	0	0	0	0	1	0	0	0	11
7:45 AM	0	5	0	0	0	6	0	0	0	1	0	0	0	1	0	0	13
8:00 AM	0	4	1	0	0	7	0	0	0	0	0	0	2	2	0	0	16
8:15 AM	1	8	0	0	0	6	0	0	0	0	0	0	1	1	0	0	17
8:30 AM	1	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11
8:45 AM	0	4	1	0	0	5	0	0	0	1	0	0	0	0	1	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	50	2	0	0	41	0	0	0	3	1	0	6	7	1	0	113
APPROACH %'s :	3.70%	92.59%	3.70%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	42.86%	50.00%	7.14%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	19	1	0	0	22	0	0	0	2	1	0	4	6	0	0	55
PEAK HR FACTOR :	0.000	0.792	0.250	0.000	0.000	0.786	0.000	0.000	0.000	0.500	0.250	0.000	0.500	0.500	0.000	0.000	0.859
	0.833				0.786				0.375				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	4	0	0	0	6	0	0	0	3	0	0	1	2	1	0	18
4:15 PM	1	2	1	0	0	2	0	0	0	0	0	0	1	1	0	0	8
4:30 PM	0	2	0	0	0	6	0	0	0	2	0	0	1	3	0	0	14
4:45 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	2	0	0	7
5:00 PM	0	4	0	0	0	7	0	0	0	1	0	0	1	1	0	0	14
5:15 PM	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	5
5:30 PM	1	3	0	0	0	5	0	0	0	0	0	0	2	0	0	0	11
5:45 PM	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	25	1	0	0	27	0	0	0	9	0	0	6	10	1	0	83
APPROACH %'s :	13.33%	83.33%	3.33%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	35.29%	58.82%	5.88%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	13	1	0	0	14	0	0	0	5	0	0	3	8	1	0	47
PEAK HR FACTOR :	0.500	0.650	0.250	0.000	0.000	0.583	0.000	0.000	0.000	0.417	0.000	0.000	0.750	0.667	0.250	0.000	0.653
	0.800				0.583				0.417				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-053
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	3	2	0	0	6	1	0	0	0	0	0	0	0	0	0	13
APPROACH %'s :	16.67%	50.00%	33.33%	0.00%	0.00%	85.71%	14.29%	0.00%									
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	2	1	0	0	0	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
	0.500				0.750												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	1	0	4	0	0	0	1	0	0	0	1	0	0	8
APPROACH %'s :	0.00%	50.00%	0.00%	50.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.500
					0.250				0.250				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & San Bernardino Ave
City: Fontana
Control: Signalized

Project ID: 21-030070-053
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				San Bernardino Ave				San Bernardino Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
7:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	2	0	0	7	0	0	0	0	0	0	1	0	0	0	14
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	1	1	0	0	4	0	0	0	0	0	0	1	0	0	0	7
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.875
	0.500				0.500								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
5:00 PM	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	1	0	0	6	1	0	0	0	0	0	1	2	0	0	15
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	0.00%	85.71%	14.29%	0.00%					33.33%	66.67%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	6	0	0	0	0	0	0	0	2	0	0	9
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.563
	0.250				0.750								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Fontana Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-054
Date: 9/9/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	13	2	0	0	24	6	0	4	12	0	0	2	24	0	0	89
7:15 AM	0	24	1	0	1	15	12	0	10	7	5	0	2	23	2	0	102
7:30 AM	2	34	1	0	1	28	7	0	4	8	2	0	2	44	1	0	134
7:45 AM	3	32	3	0	2	34	9	1	5	12	0	0	7	36	3	0	147
8:00 AM	1	15	2	0	3	32	14	0	3	9	0	0	9	31	0	0	119
8:15 AM	0	13	2	0	1	23	10	0	5	13	0	0	2	30	3	0	102
8:30 AM	0	21	0	0	0	26	6	0	5	16	0	0	0	28	3	0	105
8:45 AM	1	12	4	0	0	17	7	0	4	13	0	0	0	17	0	0	75
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	164	15	0	8	199	71	1	40	90	7	0	24	233	12	0	873
APPROACH %'s :	4.79%	87.23%	7.98%	0.00%	2.87%	71.33%	25.45%	0.36%	29.20%	65.69%	5.11%	0.00%	8.92%	86.62%	4.46%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	94	8	0	7	117	40	1	17	42	2	0	20	141	7	0	502
PEAK HR FACTOR :	0.500	0.691	0.667	0.000	0.583	0.860	0.714	0.250	0.850	0.808	0.250	0.000	0.556	0.801	0.583	0.000	0.854
	0.711				0.842				0.847				0.894				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	50	11	0	2	15	9	0	3	36	1	0	4	19	1	0	151
4:15 PM	1	31	19	0	0	18	2	0	8	23	0	0	2	25	1	0	130
4:30 PM	0	42	19	0	2	21	12	0	8	36	0	0	1	11	1	0	153
4:45 PM	1	27	23	0	1	17	5	0	13	35	0	0	5	17	1	0	145
5:00 PM	0	38	21	0	0	26	6	0	4	23	0	0	1	15	4	0	138
5:15 PM	0	37	13	0	1	19	5	0	11	34	0	0	1	19	1	0	141
5:30 PM	0	38	15	0	1	23	6	0	10	37	1	0	1	23	4	0	159
5:45 PM	0	43	12	0	2	25	4	0	13	32	0	0	3	16	3	0	153
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	306	133	0	9	164	49	0	70	256	2	0	18	145	16	0	1170
APPROACH %'s :	0.45%	69.39%	30.16%	0.00%	4.05%	73.87%	22.07%	0.00%	21.34%	78.05%	0.61%	0.00%	10.06%	81.01%	8.94%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	156	61	0	4	93	21	0	38	126	1	0	6	73	12	0	591
PEAK HR FACTOR :	0.000	0.907	0.726	0.000	0.500	0.894	0.875	0.000	0.731	0.851	0.250	0.000	0.500	0.793	0.750	0.000	0.929
	0.919				0.922				0.859				0.813				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Fontana Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-054
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	13	2	0	0	24	6	0	4	10	0	0	1	24	0	0	86
7:15 AM	0	24	1	0	1	14	12	0	10	6	5	0	2	23	2	0	100
7:30 AM	2	33	1	0	1	27	7	0	4	8	2	0	2	44	1	0	132
7:45 AM	3	30	3	0	2	33	8	1	4	12	0	0	7	35	3	0	141
8:00 AM	1	13	2	0	3	31	12	0	2	8	0	0	8	29	0	0	109
8:15 AM	0	13	2	0	1	21	10	0	5	13	0	0	2	28	3	0	98
8:30 AM	0	19	0	0	0	22	3	0	5	16	0	0	0	27	3	0	95
8:45 AM	1	12	4	0	0	16	7	0	4	11	0	0	0	15	0	0	70
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	157	15	0	8	188	65	1	38	84	7	0	22	225	12	0	831
APPROACH %'s :	4.97%	86.74%	8.29%	0.00%	3.05%	71.76%	24.81%	0.38%	29.46%	65.12%	5.43%	0.00%	8.49%	86.87%	4.63%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	89	8	0	7	112	37	1	15	41	2	0	19	136	7	0	480
PEAK HR FACTOR :	0.500	0.674	0.667	0.000	0.583	0.848	0.771	0.250	0.750	0.788	0.250	0.000	0.594	0.773	0.583	0.000	0.851
	0.715				0.853				0.806				0.862				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	48	11	0	2	14	6	0	3	34	1	0	4	19	1	0	143
4:15 PM	0	28	19	0	0	15	2	0	7	23	0	0	2	24	1	0	121
4:30 PM	0	40	19	0	1	20	11	0	7	36	0	0	1	11	1	0	147
4:45 PM	1	27	22	0	1	15	5	0	13	33	0	0	5	17	1	0	140
5:00 PM	0	38	19	0	0	24	4	0	3	23	0	0	1	15	4	0	131
5:15 PM	0	34	13	0	1	18	5	0	9	33	0	0	1	18	1	0	133
5:30 PM	0	36	15	0	1	20	6	0	10	36	1	0	1	20	4	0	150
5:45 PM	0	40	11	0	2	23	4	0	12	30	0	0	2	16	3	0	143
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	291	129	0	8	149	43	0	64	248	2	0	17	140	16	0	1108
APPROACH %'s :	0.24%	69.12%	30.64%	0.00%	4.00%	74.50%	21.50%	0.00%	20.38%	78.98%	0.64%	0.00%	9.83%	80.92%	9.25%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	148	58	0	4	85	19	0	34	122	1	0	5	69	12	0	557
PEAK HR FACTOR :	0.000	0.925	0.763	0.000	0.500	0.885	0.792	0.000	0.708	0.847	0.250	0.000	0.625	0.863	0.750	0.000	0.928
	0.904				0.931				0.835				0.860				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Fontana Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-054
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
8:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	3	2	0	0	2	0	0	2	4	0	0	15
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	60.00%	40.00%	0.00%	0.00%	100.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	2	1	0	0	1	0	0	1	2	0	0	8
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.000	0.000	0.667
	0.250				0.375				0.250				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	2	0	0	1	0	0	0	0	0	0	5
4:15 PM	0	2	0	0	0	2	0	0	1	0	0	0	0	1	0	0	6
4:30 PM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
5:00 PM	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0	4
5:30 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	4
5:45 PM	0	2	0	0	0	1	0	0	1	0	0	0	1	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	10	1	0	0	8	4	0	3	4	0	0	1	3	0	0	34
APPROACH %'s :	0.00%	90.91%	9.09%	0.00%	0.00%	66.67%	33.33%	0.00%	42.86%	57.14%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	4	1	0	0	4	1	0	2	2	0	0	1	2	0	0	17
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.000	0.500	0.250	0.000	0.500	0.500	0.000	0.000	0.250	0.500	0.000	0.000	0.850
	0.625				0.417				0.500				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Fontana Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-054
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	3	1	0	0	3	0	0	0	2	0	0	10
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.750
	0.250				0.250								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
5:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	2	0	0	2	2	0	1	1	0	0	0	1	0	0	12
APPROACH %'s :	0.00%	60.00%	40.00%	0.00%	0.00%	50.00%	50.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	2	0	0	2	1	0	1	1	0	0	0	1	0	0	10
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.000	0.500	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.833
	1.000				0.750				0.500				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Fontana Ave
City: Fontana
Control: 4-Way Stop

Project ID: 21-030070-054
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Fontana Ave				Fontana Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3
8:00 AM	0	2	0	0	0	1	2	0	1	0	0	0	0	0	0	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	0	5	3	0	2	1	0	0	0	2	0	0	17
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	62.50%	37.50%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	3	0	0	0	2	2	0	2	0	0	0	0	2	0	0	11
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.500	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.458
	0.375				0.333				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
4:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	3
4:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
5:45 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	1	0	1	5	0	0	2	3	0	0	0	1	0	0	16
APPROACH %'s :	25.00%	50.00%	25.00%	0.00%	16.67%	83.33%	0.00%	0.00%	40.00%	60.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	2	0	0	1	1	0	0	0	1	0	0	7
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.583
	0.500				0.500				0.500				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy
City: Fontana
Control: Signalized

Project ID: 21-030070-055
Date: 9/9/2021

Data - Total

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Valley Blvd/Ontario Mills Pkwy				Valley Blvd/Ontario Mills Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	39	145	11	0	2	117	6	0	2	9	15	0	22	37	11	0	416
7:15 AM	59	151	12	2	4	118	7	0	2	10	17	0	23	27	15	0	447
7:30 AM	59	197	10	0	5	167	10	0	7	3	18	0	31	46	14	0	567
7:45 AM	79	184	11	0	9	161	10	0	4	9	23	0	23	46	17	0	576
8:00 AM	52	172	14	1	6	160	8	0	2	10	17	0	32	25	10	0	509
8:15 AM	56	152	7	0	5	150	6	0	4	12	21	0	14	12	7	0	446
8:30 AM	56	152	13	1	3	128	8	0	1	8	33	0	21	18	6	0	448
8:45 AM	65	149	9	2	6	136	6	0	1	11	26	0	20	21	10	0	462
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	465	1302	87	6	40	1137	61	0	23	72	170	0	186	232	90	0	3871
APPROACH %'s :	25.00%	70.00%	4.68%	0.32%	3.23%	91.84%	4.93%	0.00%	8.68%	27.17%	64.15%	0.00%	36.61%	45.67%	17.72%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	249	704	47	3	24	606	35	0	15	32	75	0	109	144	56	0	2099
PEAK HR FACTOR :	0.788	0.893	0.839	0.375	0.667	0.907	0.875	0.000	0.536	0.800	0.815	0.000	0.852	0.783	0.824	0.000	0.911
	0.915				0.913				0.847				0.849				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	42	167	20	1	12	177	8	0	11	50	72	0	27	18	5	0	610
4:15 PM	38	165	14	0	11	149	7	0	17	57	58	0	16	31	14	0	577
4:30 PM	46	197	18	1	3	196	10	2	16	47	67	0	23	19	20	0	665
4:45 PM	43	179	23	2	9	194	5	0	16	55	79	0	29	21	16	0	671
5:00 PM	53	190	18	1	15	191	6	0	13	69	86	0	18	24	16	0	700
5:15 PM	67	178	11	1	15	181	4	0	14	53	70	0	26	22	15	0	657
5:30 PM	67	174	12	0	3	163	4	0	12	47	76	0	35	17	7	0	617
5:45 PM	56	185	15	1	8	172	7	0	12	44	77	0	25	30	13	0	645
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	412	1435	131	7	76	1423	51	2	111	422	585	0	199	182	106	0	5142
APPROACH %'s :	20.76%	72.29%	6.60%	0.35%	4.90%	91.69%	3.29%	0.13%	9.93%	37.75%	52.33%	0.00%	40.86%	37.37%	21.77%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	209	744	70	5	42	762	25	2	59	224	302	0	96	86	67	0	2693
PEAK HR FACTOR :	0.780	0.944	0.761	0.625	0.700	0.972	0.625	0.250	0.922	0.812	0.878	0.000	0.828	0.896	0.838	0.000	0.962
	0.981				0.980				0.871				0.943				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy
City: Fontana
Control: Signalized

Project ID: 21-030070-055
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Valley Blvd/Ontario Mills Pkwy				Valley Blvd/Ontario Mills Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	35	110	8	0	2	79	6	0	2	8	9	0	13	33	7	0	312
7:15 AM	54	107	10	2	1	80	6	0	1	6	10	0	18	25	10	0	330
7:30 AM	53	153	6	0	4	115	8	0	2	2	10	0	24	45	11	0	433
7:45 AM	74	153	7	0	6	116	8	0	3	8	15	0	13	42	15	0	460
8:00 AM	44	128	7	1	3	126	7	0	2	7	8	0	21	21	10	0	385
8:15 AM	43	114	1	0	4	105	4	0	2	10	14	0	9	10	3	0	319
8:30 AM	45	105	10	1	2	94	6	0	1	7	17	0	13	16	4	0	321
8:45 AM	59	98	6	1	3	80	5	0	0	6	13	0	11	19	7	0	308
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	407	968	55	5	25	795	50	0	13	54	96	0	122	211	67	0	2868
APPROACH %'s :	28.36%	67.46%	3.83%	0.35%	2.87%	91.38%	5.75%	0.00%	7.98%	33.13%	58.90%	0.00%	30.50%	52.75%	16.75%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	225	541	30	3	14	437	29	0	8	23	43	0	76	133	46	0	1608
PEAK HR FACTOR :	0.760	0.884	0.750	0.375	0.583	0.867	0.906	0.000	0.667	0.719	0.717	0.000	0.792	0.739	0.767	0.000	0.874
	0.854				0.882				0.712				0.797				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	38	134	11	1	10	135	8	0	10	48	66	0	20	17	5	0	503
4:15 PM	30	132	10	0	9	122	7	0	16	53	50	0	13	25	12	0	479
4:30 PM	43	168	13	1	0	164	8	2	12	45	61	0	18	19	18	0	572
4:45 PM	40	143	14	2	9	165	5	0	13	53	74	0	23	21	14	0	576
5:00 PM	45	158	9	1	12	162	5	0	13	63	79	0	11	23	13	0	594
5:15 PM	55	147	5	1	7	154	4	0	12	45	64	0	16	20	9	0	539
5:30 PM	54	149	7	0	3	142	4	0	11	45	67	0	22	16	6	0	526
5:45 PM	53	155	11	1	6	147	7	0	12	43	71	0	20	29	9	0	564
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	358	1186	80	7	56	1191	48	2	99	395	532	0	143	170	86	0	4353
APPROACH %'s :	21.95%	72.72%	4.90%	0.43%	4.32%	91.83%	3.70%	0.15%	9.65%	38.50%	51.85%	0.00%	35.84%	42.61%	21.55%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	183	616	41	5	28	645	22	2	50	206	278	0	68	83	54	0	2281
PEAK HR FACTOR :	0.832	0.917	0.732	0.625	0.583	0.977	0.688	0.250	0.962	0.817	0.880	0.000	0.739	0.902	0.750	0.000	0.960
	0.939				0.973				0.861				0.884				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy
City: Fontana
Control: Signalized

Project ID: 21-030070-055
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Valley Blvd/Ontario Mills Pkwy				Valley Blvd/Ontario Mills Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	8	1	0	0	3	0	0	0	0	0	0	2	2	1	0	17
7:15 AM	2	8	0	0	1	4	0	0	0	0	2	0	1	0	3	0	21
7:30 AM	2	12	0	0	0	8	0	0	2	1	2	0	2	0	0	0	29
7:45 AM	0	4	0	0	1	5	0	0	0	0	1	0	2	0	1	0	14
8:00 AM	1	7	0	0	0	5	0	0	0	1	0	0	0	2	0	0	16
8:15 AM	3	2	3	0	0	5	0	0	0	1	3	0	1	1	2	0	21
8:30 AM	4	8	1	0	0	3	0	0	0	0	5	0	1	1	2	0	25
8:45 AM	1	11	0	0	1	9	0	0	0	1	3	0	2	0	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	60	5	0	3	42	0	0	2	4	16	0	11	6	9	0	171
APPROACH %'s :	16.67%	76.92%	6.41%	0.00%	6.67%	93.33%	0.00%	0.00%	9.09%	18.18%	72.73%	0.00%	42.31%	23.08%	34.62%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	5	31	0	0	2	22	0	0	2	2	5	0	5	2	4	0	80
PEAK HR FACTOR :	0.625	0.646	0.000	0.000	0.500	0.688	0.000	0.000	0.250	0.500	0.625	0.000	0.625	0.250	0.333	0.000	0.690
	0.643				0.750				0.450				0.688				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	6	3	0	0	8	0	0	1	0	0	0	2	1	0	0	22
4:15 PM	1	8	0	0	0	7	0	0	0	0	2	0	0	0	0	0	18
4:30 PM	2	1	0	0	0	5	0	0	1	0	2	0	1	0	0	0	12
4:45 PM	1	8	1	0	0	4	0	0	0	0	1	0	1	0	0	0	16
5:00 PM	0	1	1	0	0	6	1	0	0	0	1	0	3	0	0	0	13
5:15 PM	2	3	0	0	2	1	0	0	0	1	1	0	0	0	1	0	11
5:30 PM	2	4	1	0	0	4	0	0	0	0	1	0	5	1	0	0	18
5:45 PM	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	36	6	0	2	38	1	0	2	1	8	0	12	2	1	0	118
APPROACH %'s :	17.65%	70.59%	11.76%	0.00%	4.88%	92.68%	2.44%	0.00%	18.18%	9.09%	72.73%	0.00%	80.00%	13.33%	6.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	5	13	2	0	2	16	1	0	1	1	5	0	5	0	1	0	52
PEAK HR FACTOR :	0.625	0.406	0.500	0.000	0.250	0.667	0.250	0.000	0.250	0.250	0.625	0.000	0.417	0.000	0.250	0.000	0.813
	0.500				0.679				0.583				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy
City: Fontana
Control: Signalized

Project ID: 21-030070-055
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Valley Blvd/Ontario Mills Pkwy				Valley Blvd/Ontario Mills Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	13	0	0	0	9	0	0	0	0	0	0	1	1	1	0	25
7:15 AM	1	12	0	0	0	11	1	0	0	2	0	0	1	0	1	0	29
7:30 AM	0	9	1	0	0	19	2	0	1	0	2	0	0	0	0	0	34
7:45 AM	0	10	2	0	0	11	1	0	0	0	2	0	1	1	1	0	29
8:00 AM	0	12	0	0	0	13	0	0	0	0	0	0	1	1	0	0	27
8:15 AM	1	20	0	0	0	12	1	0	1	0	1	0	1	0	2	0	39
8:30 AM	0	18	0	0	0	9	0	0	0	0	0	0	0	0	0	0	27
8:45 AM	0	17	2	0	0	12	1	0	0	2	1	0	0	0	3	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	111	5	0	0	96	6	0	2	4	6	0	5	3	8	0	248
APPROACH %'s :	1.69%	94.07%	4.24%	0.00%	0.00%	94.12%	5.88%	0.00%	16.67%	33.33%	50.00%	0.00%	31.25%	18.75%	50.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	43	3	0	0	54	4	0	1	2	4	0	3	2	2	0	119
PEAK HR FACTOR :	0.250	0.896	0.375	0.000	0.000	0.711	0.500	0.000	0.250	0.250	0.500	0.000	0.750	0.500	0.500	0.000	0.875
	0.904				0.690				0.583				0.583				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	15	1	0	0	19	0	0	0	0	3	0	1	0	0	0	39
4:15 PM	0	11	1	0	0	9	0	0	0	0	0	0	1	3	0	0	25
4:30 PM	0	12	1	0	1	7	0	0	0	0	0	0	2	0	1	0	24
4:45 PM	0	11	0	0	0	12	0	0	1	0	0	0	2	0	0	0	26
5:00 PM	1	10	2	0	1	5	0	0	0	1	1	0	1	0	2	0	24
5:15 PM	1	11	1	0	3	8	0	0	0	2	2	0	4	1	1	0	34
5:30 PM	0	1	0	0	0	9	0	0	0	0	2	0	2	0	1	0	15
5:45 PM	0	8	0	0	2	7	0	0	0	0	1	0	3	0	3	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	79	6	0	7	76	0	0	1	3	9	0	16	4	8	0	211
APPROACH %'s :	2.30%	90.80%	6.90%	0.00%	8.43%	91.57%	0.00%	0.00%	7.69%	23.08%	69.23%	0.00%	57.14%	14.29%	28.57%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	44	4	0	5	32	0	0	1	3	3	0	9	1	4	0	108
PEAK HR FACTOR :	0.500	0.917	0.500	0.000	0.417	0.667	0.000	0.000	0.250	0.375	0.375	0.000	0.563	0.250	0.500	0.000	0.794
	0.962				0.771				0.438				0.583				

National Data & Surveying Services Intersection Turning Movement Count

Location: Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy
City: Fontana
Control: Signalized

Project ID: 21-030070-055
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Etiwanda Ave				Etiwanda Ave				Valley Blvd/Ontario Mills Pkwy				Valley Blvd/Ontario Mills Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	14	2	0	0	26	0	0	0	1	6	0	6	1	2	0	62
7:15 AM	2	24	2	0	2	23	0	0	1	2	5	0	3	2	1	0	67
7:30 AM	4	23	3	0	1	25	0	0	2	0	4	0	5	1	3	0	71
7:45 AM	5	17	2	0	2	29	1	0	1	1	5	0	7	3	0	0	73
8:00 AM	7	25	7	0	3	16	1	0	0	2	9	0	10	1	0	0	81
8:15 AM	9	16	3	0	1	28	1	0	1	1	3	0	3	1	0	0	67
8:30 AM	7	21	2	0	1	22	2	0	0	1	11	0	7	1	0	0	75
8:45 AM	5	23	1	1	2	35	0	0	1	2	9	0	7	2	0	0	88
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	43	163	22	1	12	204	5	0	6	10	52	0	48	12	6	0	584
APPROACH %'s :	18.78%	71.18%	9.61%	0.44%	5.43%	92.31%	2.26%	0.00%	8.82%	14.71%	76.47%	0.00%	72.73%	18.18%	9.09%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	18	89	14	0	8	93	2	0	4	5	23	0	25	7	4	0	292
PEAK HR FACTOR :	0.643	0.890	0.500	0.000	0.667	0.802	0.500	0.000	0.500	0.625	0.639	0.000	0.625	0.583	0.333	0.000	0.901
	0.776				0.805				0.727				0.818				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2.5	0.5	0	1	3	0	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	12	5	0	2	15	0	0	0	2	3	0	4	0	0	0	46
4:15 PM	7	14	3	0	2	11	0	0	1	4	6	0	2	3	2	0	55
4:30 PM	1	16	4	0	2	20	2	0	3	2	4	0	2	0	1	0	57
4:45 PM	2	17	8	0	0	13	0	0	2	2	4	0	3	0	2	0	53
5:00 PM	7	21	6	0	2	18	0	0	0	5	5	0	3	1	1	0	69
5:15 PM	9	17	5	0	3	18	0	0	2	5	3	0	6	1	4	0	73
5:30 PM	11	20	4	0	0	8	0	0	1	2	6	0	6	0	0	0	58
5:45 PM	3	17	4	0	0	15	0	0	0	1	5	0	2	1	1	0	49
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	43	134	39	0	11	118	2	0	9	23	36	0	28	6	11	0	460
APPROACH %'s :	19.91%	62.04%	18.06%	0.00%	8.40%	90.08%	1.53%	0.00%	13.24%	33.82%	52.94%	0.00%	62.22%	13.33%	24.44%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	19	71	23	0	7	69	2	0	7	14	16	0	14	2	8	0	252
PEAK HR FACTOR :	0.528	0.845	0.719	0.000	0.583	0.863	0.250	0.000	0.583	0.700	0.800	0.000	0.583	0.500	0.500	0.000	0.863
	0.831				0.813				0.925				0.545				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr/I-10 Ramps & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-056
Date: 9/15/2021

Data - Total

NS/EW Streets:	Commerce Dr/I-10 Ramps				Commerce Dr/I-10 Ramps				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	37	71	1	2	57	10	0	1	14	1	2	56	70	4	0	330
7:15 AM	3	44	71	0	1	57	10	0	4	26	1	0	53	62	3	0	335
7:30 AM	13	39	74	1	1	41	12	0	1	15	1	1	58	66	6	0	329
7:45 AM	18	44	59	4	2	50	6	0	1	22	7	1	45	56	5	0	320
8:00 AM	7	52	67	0	3	43	10	0	2	22	2	0	43	52	7	0	310
8:15 AM	13	37	63	0	3	38	5	0	1	20	3	1	37	52	9	0	282
8:30 AM	15	51	69	1	2	47	4	0	1	29	3	1	43	33	6	0	305
8:45 AM	13	35	81	3	2	32	7	0	3	25	6	0	40	44	9	0	300
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	86	339	555	10	16	365	64	0	14	173	24	6	375	435	49	0	2511
APPROACH %'s :	8.69%	34.24%	56.06%	1.01%	3.60%	82.02%	14.38%	0.00%	6.45%	79.72%	11.06%	2.76%	43.66%	50.64%	5.70%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	38	164	275	6	6	205	38	0	7	77	10	4	212	254	18	0	1314
PEAK HR FACTOR :	0.528	0.932	0.929	0.375	0.750	0.899	0.792	0.000	0.438	0.740	0.357	0.500	0.914	0.907	0.750	0.000	0.981
	0.951				0.902				0.790				0.931				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	73	118	0	5	29	8	0	8	65	4	1	60	47	3	0	424
4:15 PM	5	78	119	0	1	26	2	0	19	85	4	1	47	38	6	1	432
4:30 PM	5	83	117	0	2	43	5	0	6	85	4	0	77	74	7	0	508
4:45 PM	6	73	131	0	1	53	6	0	13	88	3	0	138	93	10	0	615
5:00 PM	2	88	127	0	2	61	1	0	8	102	6	2	142	101	15	0	657
5:15 PM	8	77	133	1	1	68	4	0	4	93	7	0	166	99	10	0	671
5:30 PM	5	78	120	0	4	44	8	0	9	88	3	0	149	92	21	0	621
5:45 PM	5	72	139	0	3	48	8	0	4	60	4	0	139	104	8	0	594
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	39	622	1004	1	19	372	42	0	71	666	35	4	918	648	80	1	4522
APPROACH %'s :	2.34%	37.33%	60.26%	0.06%	4.39%	85.91%	9.70%	0.00%	9.15%	85.82%	4.51%	0.52%	55.74%	39.34%	4.86%	0.06%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	21	316	511	1	8	226	19	0	34	371	19	2	595	385	56	0	2564
PEAK HR FACTOR :	0.656	0.898	0.961	0.250	0.500	0.831	0.594	0.000	0.654	0.909	0.679	0.250	0.896	0.953	0.667	0.000	0.955
	0.969				0.866				0.903				0.942				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr/I-10 Ramps & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-056
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Commerce Dr/I-10 Ramps				Commerce Dr/I-10 Ramps				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	29	43	1	1	42	9	0	1	10	0	1	25	56	1	0	223
7:15 AM	2	37	49	0	1	41	9	0	2	20	0	0	24	52	2	0	239
7:30 AM	12	33	61	1	1	32	11	0	1	12	0	0	32	54	4	0	254
7:45 AM	13	35	46	4	2	35	6	0	0	16	4	1	22	49	2	0	235
8:00 AM	5	47	42	0	1	34	9	0	2	13	1	0	25	37	3	0	219
8:15 AM	12	24	47	0	1	33	3	0	1	12	1	1	21	38	3	0	197
8:30 AM	8	38	35	1	1	30	3	0	0	22	1	0	29	24	3	0	195
8:45 AM	8	25	49	3	2	21	6	0	3	14	2	0	21	30	4	0	188
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	64	268	372	10	10	268	56	0	10	119	9	3	199	340	22	0	1750
APPROACH %'s :	8.96%	37.54%	52.10%	1.40%	2.99%	80.24%	16.77%	0.00%	7.09%	84.40%	6.38%	2.13%	35.47%	60.61%	3.92%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	31	134	199	6	5	150	35	0	4	58	4	2	103	211	9	0	951
PEAK HR FACTOR :	0.596	0.905	0.816	0.375	0.625	0.893	0.795	0.000	0.500	0.725	0.250	0.500	0.805	0.942	0.563	0.000	0.936
	0.864				0.913				0.773				0.897				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	62	97	0	5	26	7	0	6	54	1	1	51	36	2	0	349
4:15 PM	3	57	85	0	1	21	2	0	19	73	3	0	25	30	6	1	326
4:30 PM	2	69	83	0	1	41	4	0	6	73	2	0	67	66	7	0	421
4:45 PM	4	66	103	0	1	50	5	0	12	79	1	0	119	82	8	0	530
5:00 PM	1	76	101	0	1	55	1	0	8	91	6	2	121	90	9	0	562
5:15 PM	6	68	101	1	0	61	4	0	3	78	6	0	148	85	8	0	569
5:30 PM	5	70	97	0	4	42	6	0	9	77	3	0	131	85	18	0	547
5:45 PM	4	61	108	0	3	44	8	0	3	49	2	0	122	95	6	0	505
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	26	529	775	1	16	340	37	0	66	574	24	3	784	569	64	1	3809
APPROACH %'s :	1.95%	39.74%	58.23%	0.08%	4.07%	86.51%	9.41%	0.00%	9.90%	86.06%	3.60%	0.45%	55.29%	40.13%	4.51%	0.07%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	16	280	402	1	6	208	16	0	32	325	16	2	519	342	43	0	2208
PEAK HR FACTOR :	0.667	0.921	0.976	0.250	0.375	0.852	0.667	0.000	0.667	0.893	0.667	0.250	0.877	0.950	0.597	0.000	0.970
	0.982				0.885				0.876				0.938				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr/I-10 Ramps & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-056
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Commerce Dr/I-10 Ramps				Commerce Dr/I-10 Ramps				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	3	0	0	0	0	0	0	1	0	0	5	3	0	0	12
7:15 AM	0	1	3	0	0	0	1	0	0	0	0	0	5	1	1	0	12
7:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	2	2	0	0	6
7:45 AM	1	1	3	0	0	2	0	0	0	1	1	0	3	2	0	0	14
8:00 AM	0	1	1	0	0	0	0	0	0	2	0	0	3	3	0	0	10
8:15 AM	0	1	3	0	0	2	0	0	0	1	0	0	4	1	1	0	13
8:30 AM	1	1	8	0	0	2	0	0	0	1	0	0	2	1	0	0	16
8:45 AM	1	1	3	0	0	0	0	0	0	3	0	0	5	4	1	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	6	25	0	0	6	1	0	0	10	1	0	29	17	3	0	101
APPROACH %'s :	8.82%	17.65%	73.53%	0.00%	0.00%	85.71%	14.29%	0.00%	0.00%	90.91%	9.09%	0.00%	59.18%	34.69%	6.12%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	2	10	0	0	2	1	0	0	3	1	0	15	8	1	0	44
PEAK HR FACTOR :	0.250	0.500	0.833	0.000	0.000	0.250	0.250	0.000	0.000	0.750	0.250	0.000	0.750	0.667	0.250	0.000	0.786
	0.650				0.375				0.500				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	4	0	0	1	0	0	0	2	0	0	2	0	0	0	9
4:15 PM	1	5	9	0	0	0	0	0	0	3	0	0	2	1	0	0	21
4:30 PM	0	1	6	0	0	0	0	0	0	1	0	0	1	2	0	0	11
4:45 PM	0	2	6	0	0	1	0	0	0	3	0	0	3	2	1	0	18
5:00 PM	0	4	4	0	1	1	0	0	0	1	0	0	2	2	0	0	15
5:15 PM	0	3	8	0	0	2	0	0	0	1	1	0	2	3	0	0	20
5:30 PM	0	2	3	0	0	0	0	0	0	3	0	0	1	0	1	0	10
5:45 PM	0	3	2	0	0	1	0	0	0	0	1	0	1	1	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	20	42	0	1	6	0	0	0	14	2	0	14	11	2	0	113
APPROACH %'s :	1.59%	31.75%	66.67%	0.00%	14.29%	85.71%	0.00%	0.00%	0.00%	87.50%	12.50%	0.00%	51.85%	40.74%	7.41%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	11	21	0	1	4	0	0	0	8	1	0	8	7	2	0	63
PEAK HR FACTOR :	0.000	0.688	0.656	0.000	0.250	0.500	0.000	0.000	0.000	0.667	0.250	0.000	0.667	0.583	0.500	0.000	0.788
	0.727				0.625				0.750				0.708				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr/I-10 Ramps & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-056
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Commerce Dr/I-10 Ramps				Commerce Dr/I-10 Ramps				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	7	0	0	2	1	0	0	1	0	1	2	3	3	0	20
7:15 AM	0	2	2	0	0	1	0	0	1	1	0	0	5	1	0	0	13
7:30 AM	0	2	1	0	0	1	0	0	0	1	0	0	3	3	0	0	11
7:45 AM	1	2	4	0	0	1	0	0	1	1	0	0	4	1	2	0	17
8:00 AM	0	1	3	0	1	0	0	0	0	1	0	0	1	2	3	0	12
8:15 AM	1	1	4	0	1	0	0	0	0	1	0	0	0	5	2	0	15
8:30 AM	2	0	7	0	0	0	0	0	0	1	0	0	0	1	1	0	12
8:45 AM	0	2	3	0	0	1	0	0	0	3	0	0	2	3	1	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	10	31	0	2	6	1	0	2	10	0	1	17	19	12	0	115
APPROACH %'s :	8.89%	22.22%	68.89%	0.00%	22.22%	66.67%	11.11%	0.00%	15.38%	76.92%	0.00%	7.69%	35.42%	39.58%	25.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	6	14	0	0	5	1	0	2	4	0	1	14	8	5	0	61
PEAK HR FACTOR :	0.250	0.750	0.500	0.000	0.000	0.625	0.250	0.000	0.500	1.000	0.000	0.250	0.700	0.667	0.417	0.000	0.763
	0.750				0.500				0.875				0.844				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	4	0	0	0	0	0	0	4	0	0	1	8	0	0	18
4:15 PM	0	3	2	0	0	0	0	0	0	3	0	0	6	4	0	0	18
4:30 PM	0	1	3	0	1	1	0	0	0	3	0	0	2	1	0	0	12
4:45 PM	0	1	9	0	0	0	0	0	0	1	1	0	4	4	1	0	21
5:00 PM	0	0	6	0	0	0	0	0	0	3	0	0	4	8	3	0	24
5:15 PM	0	0	6	0	0	2	0	0	0	3	0	0	6	4	2	0	23
5:30 PM	0	0	4	0	0	0	0	0	0	1	0	0	3	2	2	0	12
5:45 PM	0	3	2	0	0	1	0	0	0	3	0	0	5	3	1	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	9	36	0	1	4	0	0	0	21	1	0	31	34	9	0	146
APPROACH %'s :	0.00%	20.00%	80.00%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	95.45%	4.55%	0.00%	41.89%	45.95%	12.16%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	25	0	0	2	0	0	0	8	1	0	17	18	8	0	80
PEAK HR FACTOR :	0.000	0.250	0.694	0.000	0.000	0.250	0.000	0.000	0.000	0.667	0.250	0.000	0.708	0.563	0.667	0.000	0.833
	0.650				0.250				0.750				0.717				

National Data & Surveying Services Intersection Turning Movement Count

Location: Commerce Dr/I-10 Ramps & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-056
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Commerce Dr/I-10 Ramps				Commerce Dr/I-10 Ramps				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	8	18	0	1	13	0	0	0	2	1	0	24	8	0	0	75
7:15 AM	1	4	17	0	0	15	0	0	1	5	1	0	19	8	0	0	71
7:30 AM	1	4	11	0	0	8	1	0	0	1	1	1	21	7	2	0	58
7:45 AM	3	6	6	0	0	12	0	0	0	4	2	0	16	4	1	0	54
8:00 AM	2	3	21	0	1	9	1	0	0	6	1	0	14	10	1	0	69
8:15 AM	0	11	9	0	1	3	2	0	0	6	2	0	12	8	3	0	57
8:30 AM	4	12	19	0	1	15	1	0	1	5	2	1	12	7	2	0	82
8:45 AM	4	7	26	0	0	10	1	0	0	5	4	0	12	7	3	0	79
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	15	55	127	0	4	85	6	0	2	34	14	2	130	59	12	0	545
APPROACH %'s :	7.61%	27.92%	64.47%	0.00%	4.21%	89.47%	6.32%	0.00%	3.85%	65.38%	26.92%	3.85%	64.68%	29.35%	5.97%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	5	22	52	0	1	48	1	0	1	12	5	1	80	27	3	0	258
PEAK HR FACTOR :	0.417	0.688	0.722	0.000	0.250	0.800	0.250	0.000	0.250	0.600	0.625	0.250	0.833	0.844	0.375	0.000	0.860
	0.760				0.833				0.679				0.859				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	1	1	0	1	1.5	0.5	0	1	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	10	13	0	0	2	1	0	2	5	3	0	6	3	1	0	48
4:15 PM	1	13	23	0	0	5	0	0	0	6	1	1	14	3	0	0	67
4:30 PM	3	12	25	0	0	1	1	0	0	8	2	0	7	5	0	0	64
4:45 PM	2	4	13	0	0	2	1	0	1	5	1	0	12	5	0	0	46
5:00 PM	1	8	16	0	0	5	0	0	0	7	0	0	15	1	3	0	56
5:15 PM	2	6	18	0	1	3	0	0	1	11	0	0	10	7	0	0	59
5:30 PM	0	6	16	0	0	2	2	0	0	7	0	0	14	5	0	0	52
5:45 PM	1	5	27	0	0	2	0	0	1	8	1	0	11	5	1	0	62
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	64	151	0	1	22	5	0	5	57	8	1	89	34	5	0	454
APPROACH %'s :	5.29%	28.19%	66.52%	0.00%	3.57%	78.57%	17.86%	0.00%	7.04%	80.28%	11.27%	1.41%	69.53%	26.56%	3.91%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	5	24	63	0	1	12	3	0	2	30	1	0	51	18	3	0	213
PEAK HR FACTOR :	0.625	0.750	0.875	0.000	0.250	0.600	0.375	0.000	0.500	0.682	0.250	0.000	0.850	0.643	0.250	0.000	0.903
	0.885				0.800				0.688				0.947				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-057
Date: 9/9/2021

Data - Total

NS/EW Streets:	Cherry Ave				Cherry Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	81	165	48	0	15	166	10	0	12	26	21	0	79	101	14	0	738
7:15 AM	83	177	63	0	21	167	11	0	9	12	27	0	90	60	10	0	730
7:30 AM	81	173	67	0	27	186	15	0	12	16	33	0	98	52	13	0	773
7:45 AM	109	227	67	0	15	232	13	0	14	30	26	0	104	112	14	0	963
8:00 AM	100	233	78	0	27	243	8	0	18	20	36	0	118	68	11	0	960
8:15 AM	90	191	64	0	23	246	12	0	12	14	45	0	125	50	13	0	885
8:30 AM	87	193	105	1	21	202	16	0	15	26	50	0	83	38	19	0	856
8:45 AM	74	188	84	2	24	176	13	0	16	34	47	0	66	48	20	0	792
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	705	1547	576	3	173	1618	98	0	108	178	285	0	763	529	114	0	6697
APPROACH %'s :	24.90%	54.65%	20.35%	0.11%	9.16%	85.65%	5.19%	0.00%	18.91%	31.17%	49.91%	0.00%	54.27%	37.62%	8.11%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	386	844	314	1	86	923	49	0	59	90	157	0	430	268	57	0	3664
PEAK HR FACTOR :	0.885	0.906	0.748	0.250	0.796	0.938	0.766	0.000	0.819	0.750	0.785	0.000	0.860	0.598	0.750	0.000	0.951
	0.940				0.941				0.841				0.821				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	44	213	163	1	15	205	11	0	41	105	68	0	75	47	15	0	1003
4:15 PM	41	210	144	0	25	204	11	0	33	103	77	0	70	46	18	0	982
4:30 PM	52	197	172	0	29	179	12	0	40	100	54	0	94	50	15	0	994
4:45 PM	49	198	152	1	17	216	17	0	44	117	69	0	80	55	17	0	1032
5:00 PM	37	184	134	0	27	187	14	0	36	117	69	0	72	52	22	0	951
5:15 PM	46	180	134	0	27	185	11	0	48	116	51	0	96	53	18	0	965
5:30 PM	44	194	124	2	31	182	13	1	34	104	62	0	80	46	23	0	940
5:45 PM	57	185	127	0	24	196	13	0	26	99	45	0	61	55	12	0	900
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	370	1561	1150	4	195	1554	102	1	302	861	495	0	628	404	140	0	7767
APPROACH %'s :	11.99%	50.60%	37.28%	0.13%	10.53%	83.91%	5.51%	0.05%	18.21%	51.93%	29.86%	0.00%	53.58%	34.47%	11.95%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	186	818	631	2	86	804	51	0	158	425	268	0	319	198	65	0	4011
PEAK HR FACTOR :	0.894	0.960	0.917	0.500	0.741	0.931	0.750	0.000	0.898	0.908	0.870	0.000	0.848	0.900	0.903	0.000	0.972
	0.972				0.941				0.925				0.915				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-057
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Cherry Ave				Cherry Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	70	140	38	0	13	138	7	0	7	20	11	0	69	95	12	0	620
7:15 AM	68	156	56	0	20	134	8	0	4	10	13	0	81	53	8	0	611
7:30 AM	72	152	53	0	23	161	11	0	9	11	17	0	78	41	11	0	639
7:45 AM	97	198	55	0	14	194	10	0	9	23	14	0	93	105	13	0	825
8:00 AM	86	204	70	0	25	209	5	0	8	11	16	0	108	57	8	0	807
8:15 AM	72	156	57	0	20	212	11	0	10	13	25	0	111	44	9	0	740
8:30 AM	71	159	91	1	20	156	7	0	11	21	24	0	68	29	15	0	673
8:45 AM	56	156	71	2	19	138	9	0	11	28	23	0	52	42	17	0	624
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	592	1321	491	3	154	1342	68	0	69	137	143	0	660	466	93	0	5539
APPROACH %'s :	24.59%	54.88%	20.40%	0.12%	9.85%	85.81%	4.35%	0.00%	19.77%	39.26%	40.97%	0.00%	54.14%	38.23%	7.63%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	326	717	273	1	79	771	33	0	38	68	79	0	380	235	45	0	3045
PEAK HR FACTOR :	0.840	0.879	0.750	0.250	0.790	0.909	0.750	0.000	0.864	0.739	0.790	0.000	0.856	0.560	0.750	0.000	0.923
	0.915				0.908				0.826				0.782				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	36	186	153	1	13	181	8	0	36	95	53	0	62	41	12	0	877
4:15 PM	31	185	134	0	23	179	8	0	31	100	61	0	57	40	15	0	864
4:30 PM	43	177	157	0	26	149	8	0	37	96	39	0	83	37	13	0	865
4:45 PM	35	175	140	1	14	190	10	0	38	110	56	0	67	48	12	0	896
5:00 PM	25	161	120	0	21	165	8	0	33	108	58	0	55	43	19	0	816
5:15 PM	35	155	129	0	24	157	8	0	41	105	41	0	86	41	14	0	836
5:30 PM	27	173	116	2	27	153	9	1	30	96	50	0	69	35	20	0	808
5:45 PM	43	162	118	0	19	165	7	0	21	92	34	0	55	47	10	0	773
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	275	1374	1067	4	167	1339	66	1	267	802	392	0	534	332	115	0	6735
APPROACH %'s :	10.11%	50.51%	39.23%	0.15%	10.62%	85.12%	4.20%	0.06%	18.28%	54.89%	26.83%	0.00%	54.43%	33.84%	11.72%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	145	723	584	2	76	699	34	0	142	401	209	0	269	166	52	0	3502
PEAK HR FACTOR :	0.843	0.972	0.930	0.500	0.731	0.920	0.850	0.000	0.934	0.911	0.857	0.000	0.810	0.865	0.867	0.000	0.977
	0.964				0.945				0.922				0.915				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-057
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	7	2	0	1	5	2	0	1	2	2	0	0	2	0	0	26
7:15 AM	3	8	1	0	0	5	1	0	2	1	3	0	1	3	1	0	29
7:30 AM	3	5	2	0	1	6	0	0	1	1	3	0	2	5	1	0	30
7:45 AM	2	9	2	0	1	10	2	0	2	3	1	0	0	4	0	0	36
8:00 AM	4	6	1	0	1	5	1	0	3	2	3	0	3	3	1	0	33
8:15 AM	4	12	1	0	2	5	0	0	1	1	6	0	4	2	2	0	40
8:30 AM	3	10	3	0	1	14	3	0	1	2	6	0	5	2	1	0	51
8:45 AM	8	12	1	0	1	10	2	0	1	1	3	0	3	3	1	0	46
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	29	69	13	0	8	60	11	0	12	13	27	0	18	24	7	0	291
APPROACH %'s :	26.13%	62.16%	11.71%	0.00%	10.13%	75.95%	13.92%	0.00%	23.08%	25.00%	51.92%	0.00%	36.73%	48.98%	14.29%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	13	37	7	0	5	34	6	0	7	8	16	0	12	11	4	0	160
PEAK HR FACTOR :	0.813	0.771	0.583	0.000	0.625	0.607	0.500	0.000	0.583	0.667	0.667	0.000	0.600	0.688	0.500	0.000	0.784
	0.838				0.625				0.861				0.844				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	6	3	0	0	6	2	0	2	1	2	0	4	2	1	0	32
4:15 PM	2	5	2	0	1	4	1	0	1	1	2	0	4	1	2	0	26
4:30 PM	2	4	4	0	1	4	2	0	2	2	3	0	1	2	1	0	28
4:45 PM	1	6	3	0	1	4	3	0	1	2	1	0	1	2	1	0	26
5:00 PM	3	5	5	0	2	4	0	0	1	2	1	0	3	3	1	0	30
5:15 PM	2	4	1	0	1	3	1	0	3	3	2	0	1	2	1	0	24
5:30 PM	3	3	1	0	1	8	2	0	1	2	5	0	3	3	1	0	33
5:45 PM	1	6	1	0	1	6	1	0	0	1	2	0	2	2	1	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	39	20	0	8	39	12	0	11	14	18	0	19	17	9	0	223
APPROACH %'s :	22.37%	51.32%	26.32%	0.00%	13.56%	66.10%	20.34%	0.00%	25.58%	32.56%	41.86%	0.00%	42.22%	37.78%	20.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	8	21	12	0	3	18	8	0	6	6	8	0	10	7	5	0	112
PEAK HR FACTOR :	0.667	0.875	0.750	0.000	0.750	0.750	0.667	0.000	0.750	0.750	0.667	0.000	0.625	0.875	0.625	0.000	0.875
	0.854				0.906				0.714				0.786				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-057
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	7	4	0	0	10	1	0	1	1	1	0	1	1	1	0	31
7:15 AM	7	3	1	0	1	9	1	0	0	0	2	0	1	3	0	0	28
7:30 AM	2	4	4	0	2	6	3	0	1	1	5	0	7	1	0	0	36
7:45 AM	4	7	5	0	0	11	0	0	1	1	2	0	1	1	1	0	34
8:00 AM	5	9	4	0	1	9	1	0	2	4	8	0	2	7	1	0	53
8:15 AM	8	7	2	0	1	7	0	0	1	0	4	0	2	2	1	0	35
8:30 AM	5	8	5	0	0	11	2	0	1	1	8	0	1	3	1	0	46
8:45 AM	4	9	7	0	2	10	2	0	1	1	5	0	4	1	0	0	46
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	38	54	32	0	7	73	10	0	8	9	35	0	19	19	5	0	309
APPROACH %'s :	30.65%	43.55%	25.81%	0.00%	7.78%	81.11%	11.11%	0.00%	15.38%	17.31%	67.31%	0.00%	44.19%	44.19%	11.63%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	22	31	16	0	2	38	3	0	5	6	22	0	6	13	4	0	168
PEAK HR FACTOR :	0.688	0.861	0.800	0.000	0.500	0.864	0.375	0.000	0.625	0.375	0.688	0.000	0.750	0.464	1.000	0.000	0.792
	0.958				0.827				0.589				0.575				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	2	3	1	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	7	1	0	1	8	1	0	1	7	5	0	3	3	1	0	39
4:15 PM	2	8	3	0	1	9	1	0	0	1	7	0	1	4	0	0	37
4:30 PM	2	6	4	0	1	12	1	0	0	1	5	0	1	3	0	0	36
4:45 PM	6	5	3	0	1	10	3	0	2	3	3	0	4	2	1	0	43
5:00 PM	5	7	2	0	3	8	5	0	2	2	3	0	5	1	0	0	43
5:15 PM	4	8	3	0	1	11	1	0	1	1	2	0	2	4	1	0	39
5:30 PM	3	7	3	0	2	5	1	0	1	0	2	0	4	3	1	0	32
5:45 PM	4	5	2	0	2	12	4	0	0	2	4	0	1	2	0	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	53	21	0	12	75	17	0	7	17	31	0	21	22	4	0	307
APPROACH %'s :	26.73%	52.48%	20.79%	0.00%	11.54%	72.12%	16.35%	0.00%	12.73%	30.91%	56.36%	0.00%	44.68%	46.81%	8.51%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	11	26	11	0	4	39	6	0	3	12	20	0	9	12	2	0	155
PEAK HR FACTOR :	0.458	0.813	0.688	0.000	1.000	0.813	0.500	0.000	0.375	0.429	0.714	0.000	0.563	0.750	0.500	0.000	0.901
	0.857				0.875				0.673				0.821				

National Data & Surveying Services Intersection Turning Movement Count

Location: Cherry Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-057
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Cherry Ave				Cherry Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	TOTAL
7:00 AM	6	11	4	0	1	13	0	0	3	3	7	0	9	3	1	0	61
7:15 AM	5	10	5	0	0	19	1	0	3	1	9	0	7	1	1	0	62
7:30 AM	4	12	8	0	1	13	1	0	1	3	8	0	11	5	1	0	68
7:45 AM	6	13	5	0	0	17	1	0	2	3	9	0	10	2	0	0	68
8:00 AM	5	14	3	0	0	20	1	0	5	3	9	0	5	1	1	0	67
8:15 AM	6	16	4	0	0	22	1	0	0	0	10	0	8	2	1	0	70
8:30 AM	8	16	6	0	0	21	4	0	2	2	12	0	9	4	2	0	86
8:45 AM	6	11	5	0	2	18	0	0	3	4	16	0	7	2	2	0	76
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	46	103	40	0	4	143	9	0	19	19	80	0	66	20	9	0	558
APPROACH %'s :	24.34%	54.50%	21.16%	0.00%	2.56%	91.67%	5.77%	0.00%	16.10%	16.10%	67.80%	0.00%	69.47%	21.05%	9.47%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	25	59	18	0	0	80	7	0	9	8	40	0	32	9	4	0	291
PEAK HR FACTOR :	0.781	0.922	0.750	0.000	0.000	0.909	0.438	0.000	0.450	0.667	0.833	0.000	0.800	0.563	0.500	0.000	0.846
	0.850				0.870				0.838				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	TOTAL
4:00 PM	4	14	6	0	1	10	0	0	2	2	8	0	6	1	1	0	55
4:15 PM	6	12	5	0	0	12	1	0	1	1	7	0	8	1	1	0	55
4:30 PM	5	10	7	0	1	14	1	0	1	1	7	0	9	8	1	0	65
4:45 PM	7	12	6	0	1	12	1	0	3	2	9	0	8	3	3	0	67
5:00 PM	4	11	7	0	1	10	1	0	0	5	7	0	9	5	2	0	62
5:15 PM	5	13	1	0	1	14	1	0	3	7	6	0	7	6	2	0	66
5:30 PM	11	11	4	0	1	16	1	0	2	6	5	0	4	5	1	0	67
5:45 PM	9	12	6	0	2	13	1	0	5	4	5	0	3	4	1	0	65
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	51	95	42	0	8	101	7	0	17	28	54	0	54	33	12	0	502
APPROACH %'s :	27.13%	50.53%	22.34%	0.00%	6.90%	87.07%	6.03%	0.00%	17.17%	28.28%	54.55%	0.00%	54.55%	33.33%	12.12%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	22	48	24	0	3	48	3	0	7	6	31	0	31	13	6	0	242
PEAK HR FACTOR :	0.786	0.857	0.857	0.000	0.750	0.857	0.750	0.000	0.583	0.750	0.861	0.000	0.861	0.406	0.500	0.000	0.903
	0.940				0.844				0.786				0.694				

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Hemlock Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-058
Date: 9/9/2021

Data - Total

NS/EW Streets:	Fontana Ave/Hemlock Ave					Fontana Ave/Hemlock Ave					Valley Blvd					Valley Blvd									
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2				
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0					
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	1	2	6	0	1	14	1	5	0	0	7	40	3	0	19	1	87	5	0	4	2	2	30	0	230
7:15 AM	4	0	8	0	3	22	0	9	0	0	7	69	5	0	14	4	106	12	0	5	1	0	40	0	309
7:30 AM	2	5	3	0	0	19	1	18	0	1	3	63	2	0	11	6	158	13	0	6	1	4	48	0	364
7:45 AM	1	1	4	0	0	15	2	14	0	0	13	78	1	0	13	0	115	11	0	4	2	3	52	0	329
8:00 AM	1	3	4	0	1	15	2	7	0	0	0	63	2	0	16	4	100	11	0	1	2	2	40	1	275
8:15 AM	1	1	1	0	2	15	1	6	0	0	5	74	6	0	9	3	73	4	0	5	4	1	37	0	248
8:30 AM	3	1	1	0	2	8	0	5	0	1	9	79	4	0	19	3	79	11	1	7	2	1	31	0	267
8:45 AM	1	0	1	0	5	6	0	2	0	0	0	105	2	0	8	0	88	6	0	3	3	0	29	0	259
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	14	13	28	0	14	114	7	66	0	2	44	571	25	0	109	21	806	73	1	35	17	13	307	1	2281
APPROACH %'s :	20.29%	18.84%	40.58%	0.00%	20.29%	60.32%	3.70%	34.92%	0.00%	1.06%	5.87%	76.23%	3.34%	0.00%	14.55%	2.24%	86.11%	7.80%	0.11%	3.74%	5.03%	3.85%	90.83%	0.30%	
PEAK HR :	07:15 AM - 08:15 AM																								TOTAL
PEAK HR VOL :	8	9	19	0	4	71	5	48	0	1	23	273	10	0	54	14	479	47	0	16	6	9	180	1	1277
PEAK HR FACTOR :	0.500	0.450	0.594	0.000	0.333	0.807	0.625	0.667	0.000	0.250	0.442	0.875	0.500	0.000	0.844	0.583	0.758	0.904	0.000	0.667	0.750	0.563	0.865	0.250	0.877
			0.667					0.801					0.857					0.760							

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	6	1	4	0	3	11	0	5	0	1	14	247	5	0	31	2	79	18	0	5	1	1	22	0	456
4:15 PM	1	2	2	0	1	11	2	4	0	1	3	235	0	0	43	2	100	10	0	6	1	4	23	2	453
4:30 PM	4	2	4	0	0	14	1	3	0	1	11	272	5	0	35	0	112	15	0	4	2	0	22	0	507
4:45 PM	0	0	6	0	0	9	0	3	0	0	8	237	3	0	36	5	111	8	0	6	0	1	22	0	455
5:00 PM	3	1	4	0	3	16	0	6	0	0	11	203	3	0	33	6	87	15	0	6	3	4	20	0	424
5:15 PM	5	0	3	0	4	14	1	7	0	0	8	201	5	0	39	6	86	19	0	8	1	2	19	2	430
5:30 PM	3	1	2	0	3	5	0	9	0	1	4	204	5	0	39	3	82	16	0	1	0	1	23	0	402
5:45 PM	3	2	0	0	3	17	0	5	0	0	3	146	5	0	43	0	87	15	0	9	2	2	17	0	359
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	25	9	25	0	17	97	4	42	0	4	62	1745	31	0	299	24	744	116	0	45	10	15	168	4	3486
APPROACH %'s :	32.89%	11.84%	32.89%	0.00%	22.37%	65.99%	2.72%	28.57%	0.00%	2.72%	2.90%	81.66%	1.45%	0.00%	13.99%	2.58%	80.09%	12.49%	0.00%	4.84%	5.08%	7.61%	85.28%	2.03%	
PEAK HR :	04:00 PM - 05:00 PM																								TOTAL
PEAK HR VOL :	11	5	16	0	4	45	3	15	0	3	36	991	13	0	145	9	402	51	0	21	4	6	89	2	1871
PEAK HR FACTOR :	0.458	0.625	0.667	0.000	0.333	0.804	0.375	0.750	0.000	0.750	0.643	0.911	0.650	0.000	0.843	0.450	0.897	0.708	0.000	0.875	0.500	0.375	0.967	0.250	0.923
			0.643					0.868					0.917					0.922							

	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	
AM Peak	8	9	23	0	4	73	5	50	0	1	26	314	11	0	56	16	545	49	0	18	10	9	194	1	
PM Peak	15	5	23	0	4	46	4	21	0	3	43	1081	15	0	157	10	487	53	0	23	5	6	94	2	

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Hemlock Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-058
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Fontana Ave/Hemlock Ave					Fontana Ave/Hemlock Ave					Valley Blvd					Valley Blvd									
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2				
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	1	2	5	0	1	12	1	5	0	0	6	34	2	0	17	1	75	5	0	4	2	2	28	0	203
7:15 AM	4	0	8	0	3	22	0	9	0	0	6	62	4	0	13	4	91	12	0	5	1	0	39	0	283
7:30 AM	2	5	3	0	0	19	1	18	0	1	3	58	2	0	11	5	144	12	0	5	0	4	46	0	339
7:45 AM	1	1	4	0	0	14	2	13	0	0	12	66	1	0	12	0	107	11	0	4	1	3	50	0	302
8:00 AM	1	3	2	0	1	13	2	7	0	0	0	52	2	0	16	4	83	11	0	1	1	2	37	1	239
8:15 AM	1	1	1	0	2	14	1	5	0	0	5	65	5	0	8	3	64	4	0	5	4	1	35	0	224
8:30 AM	2	1	1	0	2	7	0	5	0	1	9	69	4	0	19	3	69	10	1	6	2	1	23	0	235
8:45 AM	1	0	1	0	4	5	0	2	0	0	0	85	1	0	7	0	75	6	0	2	3	0	27	0	219
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	13	13	25	0	13	106	7	64	0	2	41	491	21	0	103	20	708	71	1	32	14	13	285	1	2044
APPROACH %'s :	20.31%	20.31%	39.06%	0.00%	20.31%	59.22%	3.91%	35.75%	0.00%	1.12%	6.25%	74.85%	3.20%	0.00%	15.70%	2.40%	85.10%	8.53%	0.12%	3.85%	4.47%	4.15%	91.05%	0.32%	
PEAK HR :	07:15 AM - 08:15 AM																								TOTAL
PEAK HR VOL :	8	9	17	0	4	68	5	47	0	1	21	238	9	0	52	13	425	46	0	15	3	9	172	1	1163
PEAK HR FACTOR :	0.500	0.450	0.531	0.000	0.333	0.773	0.625	0.653	0.000	0.250	0.438	0.902	0.563	0.000	0.813	0.650	0.738	0.958	0.000	0.750	0.750	0.563	0.860	0.250	0.858
			0.633					0.776					0.879					0.752							

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	5	1	3	0	3	10	0	3	0	1	12	229	5	0	29	2	63	17	0	5	1	1	19	0	409
4:15 PM	1	2	1	0	1	11	1	2	0	1	2	218	0	0	41	1	89	10	0	6	1	4	22	2	416
4:30 PM	2	2	3	0	0	14	1	3	0	1	9	253	4	0	33	0	95	15	0	4	1	0	21	0	461
4:45 PM	0	0	5	0	0	9	0	3	0	0	8	224	2	0	33	5	96	7	0	5	0	1	21	0	419
5:00 PM	2	1	3	0	3	16	0	4	0	0	8	185	3	0	32	6	74	15	0	5	3	4	17	0	381
5:15 PM	5	0	2	0	4	14	1	5	0	0	8	192	5	0	37	5	75	19	0	5	1	2	18	2	400
5:30 PM	3	1	2	0	3	5	0	9	0	1	4	196	5	0	37	3	74	16	0	1	0	1	19	0	380
5:45 PM	3	2	0	0	3	17	0	5	0	0	3	138	5	0	42	0	79	15	0	9	2	2	17	0	342
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	21	9	19	0	17	96	3	34	0	4	54	1635	29	0	284	22	645	114	0	40	9	15	154	4	3208
APPROACH %'s :	31.82%	13.64%	28.79%	0.00%	25.76%	70.07%	2.19%	24.82%	0.00%	2.92%	2.70%	81.67%	1.45%	0.00%	14.19%	2.68%	78.56%	13.89%	0.00%	4.87%	4.95%	8.24%	84.62%	2.20%	
PEAK HR :	04:00 PM - 05:00 PM																								TOTAL
PEAK HR VOL :	8	5	12	0	4	44	2	11	0	3	31	924	11	0	136	8	343	49	0	20	3	6	83	2	1705
PEAK HR FACTOR :	0.400	0.625	0.600	0.000	0.333	0.786	0.500	0.917	0.000	0.750	0.646	0.913	0.550	0.000	0.829	0.400	0.893	0.721	0.000	0.833	0.750	0.375	0.943	0.250	0.925
			0.604					0.789					0.921					0.921							

AM Peak	8	9	17	0	4	68	5	47	0	1	21	238	9	0	52	13	425	46	0	15	3	9	172	1	1163
PM Peak	8	5	12	0	4	44	2	11	0	3	31	924	11	0	136	8	343	49	0	20	3	6	83	2	1705

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Hemlock Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-058
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Fontana Ave/Hemlock Ave					Fontana Ave/Hemlock Ave					Valley Blvd					Valley Blvd									
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2				
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	1	0	0	2	0	0	0	0	1	1	0	0	0	0	4	0	0	0	0	0	0	0	9
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	1	0	4	0	0	0	0	0	0	0	10
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	1	0	0	0	6
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	9
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	5	0	0	0	0	0	1	0	12
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	2	0	7
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	2	0	6
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	5	0	0	0	0	1	23	0	0	1	0	26	0	0	0	1	0	5	0	63
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	4.00%	92.00%	0.00%	0.00%	4.00%	0.00%	100.00%	0.00%	0.00%	0.00%	16.67%	0.00%	83.33%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																								TOTAL
PEAK HR VOL :	0	0	0	0	0	3	0	0	0	0	0	15	0	0	1	0	16	0	0	0	1	0	1	0	37
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.800	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.771
								0.375					0.667					0.800							

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	6	0	0	1	0	3	0	0	0	0	0	2	0	13
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3	0	0	0	0	0	1	0	7
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	3	0	0	0	1	0	0	0	10
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	1	0	5
5:00 PM	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0	8
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	0	0	1	24	0	0	5	0	18	0	0	1	1	0	8	0	59
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%						3.33%	80.00%	0.00%	0.00%	16.67%	0.00%	94.74%	0.00%	0.00%	5.26%	11.11%	0.00%	88.89%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	1	16	0	0	2	0	11	0	0	0	1	0	4	0	35
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.667	0.000	0.000	0.500	0.000	0.917	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.673
													0.594					0.917							

1.5																									
AM Peak	0	0	0	0	0	5	0	0	0	0	0	23	0	0	2	0	24	0	0	0	2	0	2	0	56
PM Peak	0	0	0	0	0	0	0	0	0	0	2	24	0	0	3	0	17	0	0	0	2	0	6	0	53

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Hemlock Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-058
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Fontana Ave/Hemlock Ave					Fontana Ave/Hemlock Ave					Valley Blvd					Valley Blvd									
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2				
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	1	0	6
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	6	0	0	0	0	0	1	0	8
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	0	3	0	0	0	0	0	0	0	8
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	6	0	0	0	1	0	0	0	10
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	9
8:30 AM	1	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	2	1	0	1	0	0	2	0	13
8:45 AM	0	0	0	0	1	1	0	0	0	0	0	8	1	0	1	0	5	0	0	1	0	0	0	0	18
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	0	0	0	1	3	0	0	0	0	1	27	3	0	2	0	30	1	0	2	1	0	4	0	76
APPROACH %'s :	50.00%	0.00%	0.00%	0.00%	50.00%	100.00%	0.00%	0.00%	0.00%	0.00%	3.03%	81.82%	9.09%	0.00%	6.06%	0.00%	90.91%	3.03%	0.00%	6.06%	20.00%	0.00%	80.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	1	7	1	0	1	0	18	0	0	0	1	0	1	0	30
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.583	0.250	0.000	0.250	0.000	0.750	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.750
													0.500					0.750							

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	1	0	0	0	0	1	0	1	0	0	1	5	0	0	0	0	3	1	0	0	0	0	0	0	13
4:15 PM	0	0	0	0	0	0	1	1	0	0	0	5	0	0	0	1	5	0	0	0	0	0	0	0	13
4:30 PM	1	0	1	0	0	0	0	0	0	0	1	5	1	0	0	0	7	0	0	0	0	0	1	0	17
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	5	1	0	3	0	2	1	0	0	0	0	0	0	12
5:00 PM	0	0	0	0	0	0	0	1	0	0	1	3	0	0	1	0	5	0	0	0	0	0	1	0	12
5:15 PM	0	0	1	0	0	0	0	1	0	0	0	3	0	0	1	0	3	0	0	2	0	0	0	0	11
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	4	0	0	0	0	0	1	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	2	0	2	0	0	1	1	4	0	0	3	30	2	0	5	1	29	2	0	2	0	0	3	0	87
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	0.00%	16.67%	16.67%	66.67%	0.00%	0.00%	7.50%	75.00%	5.00%	0.00%	12.50%	2.94%	85.29%	5.88%	0.00%	5.88%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																								TOTAL
PEAK HR VOL :	2	0	1	0	0	1	1	2	0	0	2	20	2	0	3	1	17	2	0	0	0	0	1	0	55
PEAK HR FACTOR :	0.500	0.000	0.250	0.000	0.000	0.250	0.250	0.500	0.000	0.000	0.500	1.000	0.500	0.000	0.250	0.250	0.607	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.809
			0.375					0.500					0.750					0.714							

2																									
AM Peak	0	0	0	0	0	0	0	0	0	0	2	14	2	0	2	0	36	0	0	0	2	0	2	0	60
PM Peak	4	0	2	0	0	2	2	4	0	0	4	40	4	0	6	2	34	4	0	0	0	0	2	0	110

National Data & Surveying Services Intersection Turning Movement Count

Location: Fontana Ave/Hemlock Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-058
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Fontana Ave/Hemlock Ave					Fontana Ave/Hemlock Ave					Valley Blvd					Valley Blvd									
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2				
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	7	0	0	0	0	0	1	0	12
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	8	0	0	0	0	0	1	0	12
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	5	1	0	1	0	0	1	0	11
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	5	0	0	0	0	1	0	0	0	1	0	2	0	10
8:00 AM	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	6	0	0	0	0	0	2	0	14
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	3	0	0	1	0	4	0	0	0	0	0	2	0	11
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	4	0	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	7	0	0	0	0	0	0	0	16
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	0	0	2	0	0	0	0	2	0	0	1	30	1	0	3	1	42	1	0	1	1	0	13	0	98
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	2.86%	85.71%	2.86%	0.00%	8.57%	2.22%	93.33%	2.22%	0.00%	2.22%	7.14%	0.00%	92.86%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																								TOTAL
PEAK HR VOL :	0	0	2	0	0	0	0	1	0	0	1	13	0	0	0	1	20	1	0	1	1	0	6	0	47
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.650	0.000	0.000	0.000	0.250	0.625	0.250	0.000	0.250	0.250	0.000	0.750	0.000	0.839
			0.250					0.250					0.700					0.719							

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	0	1	0	0	0	0	1	0	0	0	1	2	0	0	0	1	2.5	0.5	0	0	0	0	0	0	
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
4:00 PM	0	0	1	0	0	0	0	1	0	0	0	7	0	0	1	0	10	0	0	0	0	0	1	0	21
4:15 PM	0	0	1	0	0	0	0	1	0	0	1	10	0	0	1	0	3	0	0	0	0	0	0	0	17
4:30 PM	1	0	0	0	0	0	0	0	0	0	1	8	0	0	2	0	7	0	0	0	0	0	0	0	19
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	6	0	0	0	0	11	0	0	1	0	0	0	0	19
5:00 PM	0	0	1	0	0	0	0	1	0	0	2	10	0	0	0	0	6	0	0	1	0	0	2	0	23
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	5	0	0	0	1	7	0	0	0	0	0	0	0	14
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	3	0	0	0	0	0	0	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	1	0	5	0	0	0	0	0	0	0	11
	NL	NT	NR	NU	NT2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	EL2	WL	WT	WR	WU	WR2	S2L2	S2T2	S2R2	S2U2	TOTAL
TOTAL VOLUMES :	1	0	4	0	0	0	0	4	0	0	4	56	0	0	5	1	52	0	0	2	0	0	3	0	132
APPROACH %'s :	20.00%	0.00%	80.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	6.15%	86.15%	0.00%	0.00%	7.69%	1.82%	94.55%	0.00%	0.00%	3.64%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																								TOTAL
PEAK HR VOL :	1	0	3	0	0	0	0	2	0	0	2	31	0	0	4	0	31	0	0	1	0	0	1	0	76
PEAK HR FACTOR :	0.250	0.000	0.750	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.775	0.000	0.000	0.500	0.000	0.705	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.905
			1.000					0.500					0.771					0.667							

3																									
AM Peak	0	0	6	0	0	0	0	3	0	0	3	39	0	0	0	3	60	3	0	3	3	0	18	0	141
PM Peak	3	0	9	0	0	0	0	6	0	0	6	93	0	0	12	0	93	0	0	3	0	0	3	0	228

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Valley Blvd
City: Fontana
Control: 2-Way Stop (NB/SB)

Project ID: 21-030070-059
Date: 9/9/2021

Data - Total

NS/EW Streets:	Beech Ave				Beech Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	1	0	20	1	2	0	3	56	0	0	1	93	14	0	192
7:15 AM	1	0	4	0	15	0	2	0	5	94	0	0	3	123	16	0	263
7:30 AM	0	0	7	0	18	1	10	0	4	79	0	0	4	181	14	0	318
7:45 AM	0	1	4	0	24	1	11	0	2	97	1	0	5	123	19	0	288
8:00 AM	2	0	3	0	28	1	6	0	3	82	5	0	2	108	17	0	257
8:15 AM	0	0	3	0	22	0	3	0	2	89	0	0	1	86	12	0	218
8:30 AM	1	0	2	0	23	0	2	0	4	83	0	0	5	87	17	0	224
8:45 AM	1	1	1	0	17	0	2	0	2	111	2	0	2	94	13	0	246
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	2	25	0	167	4	38	0	25	691	8	0	23	895	122	0	2006
APPROACH %'s :	18.18%	6.06%	75.76%	0.00%	79.90%	1.91%	18.18%	0.00%	3.45%	95.44%	1.10%	0.00%	2.21%	86.06%	11.73%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	3	1	18	0	85	3	29	0	14	352	6	0	14	535	66	0	1126
PEAK HR FACTOR :	0.375	0.250	0.643	0.000	0.759	0.750	0.659	0.000	0.700	0.907	0.300	0.000	0.700	0.739	0.868	0.000	0.885
	0.786				0.813				0.930				0.773				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	18	0	3	0	19	237	1	0	1	97	40	0	417
4:15 PM	0	0	1	0	12	0	5	0	24	222	0	1	3	110	24	0	402
4:30 PM	2	1	6	0	18	0	5	0	38	250	2	0	0	111	25	0	458
4:45 PM	0	0	10	0	19	0	4	0	30	213	0	0	2	115	30	0	423
5:00 PM	0	1	3	0	27	0	1	0	24	197	1	0	4	106	23	0	387
5:15 PM	0	0	6	0	16	0	2	0	28	200	2	0	2	117	21	0	394
5:30 PM	1	1	5	0	21	0	3	0	31	188	0	0	1	93	27	0	371
5:45 PM	0	0	5	0	14	0	4	0	20	149	1	0	3	111	28	0	335
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	4	36	0	145	0	27	0	214	1656	7	1	16	860	218	0	3187
APPROACH %'s :	6.98%	9.30%	83.72%	0.00%	84.30%	0.00%	15.70%	0.00%	11.40%	88.18%	0.37%	0.05%	1.46%	78.61%	19.93%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	2	17	0	67	0	17	0	111	922	3	1	6	433	119	0	1700
PEAK HR FACTOR :	0.250	0.500	0.425	0.000	0.882	0.000	0.850	0.000	0.730	0.922	0.375	0.250	0.500	0.941	0.744	0.000	0.928
	0.525				0.913				0.894				0.949				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Valley Blvd
City: Fontana
Control: 2-Way Stop (NB/SB)

Project ID: 21-030070-059
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Beech Ave				Beech Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	1	0	20	1	1	0	3	47	0	0	0	84	14	0	172
7:15 AM	0	0	4	0	14	0	2	0	5	87	0	0	3	107	16	0	238
7:30 AM	0	0	5	0	17	1	10	0	4	74	0	0	4	166	13	0	294
7:45 AM	0	1	4	0	22	1	11	0	2	84	0	0	5	111	18	0	259
8:00 AM	1	0	3	0	25	1	6	0	3	69	3	0	2	94	15	0	222
8:15 AM	0	0	2	0	21	0	2	0	2	76	0	0	1	78	12	0	194
8:30 AM	1	0	2	0	21	0	2	0	3	74	0	0	5	76	16	0	200
8:45 AM	0	1	1	0	16	0	2	0	2	92	1	0	2	80	11	0	208
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	2	22	0	156	4	36	0	24	603	4	0	22	796	115	0	1787
APPROACH %'s :	11.11%	7.41%	81.48%	0.00%	79.59%	2.04%	18.37%	0.00%	3.80%	95.56%	0.63%	0.00%	2.36%	85.32%	12.33%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	1	16	0	78	3	29	0	14	314	3	0	14	478	62	0	1013
PEAK HR FACTOR :	0.250	0.250	0.800	0.000	0.780	0.750	0.659	0.000	0.700	0.902	0.250	0.000	0.700	0.720	0.861	0.000	0.861
	0.900				0.809				0.899				0.757				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	17	0	2	0	18	220	0	0	0	80	38	0	376
4:15 PM	0	0	1	0	10	0	4	0	23	207	0	1	3	101	23	0	373
4:30 PM	1	1	6	0	15	0	5	0	36	234	0	0	0	96	25	0	419
4:45 PM	0	0	9	0	18	0	4	0	29	201	0	0	2	100	27	0	390
5:00 PM	0	1	3	0	24	0	1	0	23	184	0	0	4	93	23	0	356
5:15 PM	0	0	6	0	14	0	2	0	26	191	2	0	2	102	20	0	365
5:30 PM	1	1	5	0	20	0	3	0	31	180	0	0	1	86	25	0	353
5:45 PM	0	0	3	0	13	0	4	0	19	142	1	0	3	102	26	0	313
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	4	33	0	131	0	25	0	205	1559	3	1	15	760	207	0	2945
APPROACH %'s :	5.13%	10.26%	84.62%	0.00%	83.97%	0.00%	16.03%	0.00%	11.60%	88.18%	0.17%	0.06%	1.53%	77.39%	21.08%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	2	16	0	60	0	15	0	106	862	0	1	5	377	113	0	1558
PEAK HR FACTOR :	0.250	0.500	0.444	0.000	0.833	0.000	0.750	0.000	0.736	0.921	0.000	0.250	0.417	0.933	0.743	0.000	0.930
	0.528				0.852				0.897				0.959				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Valley Blvd
City: Fontana
Control: 2-Way Stop (NB/SB)

Project ID: 21-030070-059
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Beech Ave				Beech Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	3	0	0	0	2	0	0	6
7:15 AM	0	0	0	0	1	0	0	0	0	5	0	0	0	6	0	0	12
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	1	0	6
7:45 AM	0	0	0	0	1	0	0	0	0	3	1	0	0	3	0	0	8
8:00 AM	1	0	0	0	2	0	0	0	0	4	1	0	0	3	0	0	11
8:15 AM	0	0	1	0	0	0	0	0	0	6	0	0	0	2	0	0	9
8:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	5	0	0	7
8:45 AM	0	0	0	0	1	0	0	0	0	4	0	0	0	1	1	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	1	0	5	0	1	0	1	28	2	0	0	25	2	0	66
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	83.33%	0.00%	16.67%	0.00%	3.23%	90.32%	6.45%	0.00%	0.00%	92.59%	7.41%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	0	0	0	4	0	0	0	0	14	2	0	0	15	1	0	37
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.700	0.500	0.000	0.000	0.625	0.250	0.000	0.771
	0.250				0.500				0.800				0.667				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	0	0	1	4	0	0	1	6	1	0	14
4:15 PM	0	0	0	0	1	0	0	0	1	1	0	0	0	2	0	0	5
4:30 PM	0	0	0	0	2	0	0	0	1	6	0	0	0	5	0	0	14
4:45 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	1	2	0	6
5:00 PM	0	0	0	0	3	0	0	0	0	4	0	0	0	3	0	0	10
5:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	3
5:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	4	2	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	10	0	0	0	4	18	0	0	1	23	6	0	63
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	18.18%	81.82%	0.00%	0.00%	3.33%	76.67%	20.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	5	0	0	0	3	13	0	0	1	14	3	0	39
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.750	0.542	0.000	0.000	0.250	0.583	0.375	0.000	0.696
					0.625				0.571				0.563				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Valley Blvd
City: Fontana
Control: 2-Way Stop (NB/SB)

Project ID: 21-030070-059
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Beech Ave				Beech Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	1	1	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
7:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	8	0	0	10
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
8:00 AM	0	0	0	0	1	0	0	0	0	4	1	0	0	7	1	0	14
8:15 AM	0	0	0	0	0	0	1	0	0	5	0	0	0	1	0	0	7
8:30 AM	0	0	0	0	1	0	0	0	0	3	0	0	0	3	0	0	7
8:45 AM	0	0	0	0	0	0	0	0	0	7	1	0	0	7	1	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	2	0	1	0	0	28	2	0	1	34	2	0	71
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	66.67%	0.00%	33.33%	0.00%	0.00%	93.33%	6.67%	0.00%	2.70%	91.89%	5.41%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	1	0	1	0	0	0	0	8	1	0	0	22	1	0	34
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.688	0.250	0.000	0.607
	0.250				0.250				0.450				0.719				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	4	1	0	11
4:15 PM	0	0	0	0	0	0	1	0	0	5	0	0	0	4	0	0	10
4:30 PM	0	0	0	0	0	0	0	0	1	3	2	0	0	5	0	0	11
4:45 PM	0	0	1	0	0	0	0	0	0	6	0	0	0	2	1	0	10
5:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	4	0	0	6
5:15 PM	0	0	0	0	1	0	0	0	1	3	0	0	0	6	0	0	11
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
5:45 PM	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	2	0	1	0	1	0	3	29	2	0	0	29	2	0	69
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	50.00%	0.00%	50.00%	0.00%	8.82%	85.29%	5.88%	0.00%	0.00%	93.55%	6.45%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	1	0	1	20	2	0	0	15	2	0	42
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.833	0.250	0.000	0.000	0.750	0.500	0.000	0.955
	0.250				0.250				0.958				0.850				

National Data & Surveying Services Intersection Turning Movement Count

Location: Beech Ave & Valley Blvd
City: Fontana
Control: 2-Way Stop (NB/SB)

Project ID: 21-030070-059
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Beech Ave				Beech Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	7
7:15 AM	1	0	0	0	0	0	0	0	0	2	0	0	0	7	0	0	10
7:30 AM	0	0	1	0	1	0	0	0	0	2	0	0	0	4	0	0	8
7:45 AM	0	0	0	0	1	0	0	0	0	7	0	0	0	5	1	0	14
8:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	4	1	0	10
8:15 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	5	0	0	8
8:30 AM	0	0	0	0	1	0	0	0	0	5	0	0	0	3	1	0	10
8:45 AM	1	0	0	0	0	0	0	0	0	8	0	0	0	6	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	1	0	4	0	0	0	0	32	0	0	0	40	3	0	82
APPROACH %'s :	66.67%	0.00%	33.33%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	93.02%	6.98%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	0	1	0	2	0	0	0	0	16	0	0	0	20	2	0	42
PEAK HR FACTOR :	0.250	0.000	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.571	0.000	0.000	0.000	0.714	0.500	0.000	0.750
	0.500				0.500				0.571				0.786				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	0	7	1	0	0	7	0	0	16
4:15 PM	0	0	0	0	1	0	0	0	0	9	0	0	0	3	1	0	14
4:30 PM	1	0	0	0	1	0	0	0	0	7	0	0	0	5	0	0	14
4:45 PM	0	0	0	0	0	0	0	0	1	4	0	0	0	12	0	0	17
5:00 PM	0	0	0	0	0	0	0	0	0	8	1	0	0	6	0	0	15
5:15 PM	0	0	0	0	1	0	0	0	0	5	0	0	0	8	1	0	15
5:30 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	2	1	0	9
5:45 PM	0	0	0	0	0	0	0	0	1	4	0	0	0	5	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	3	0	1	0	2	50	2	0	0	48	3	0	110
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	75.00%	0.00%	25.00%	0.00%	3.70%	92.59%	3.70%	0.00%	0.00%	94.12%	5.88%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	2	0	1	0	1	27	1	0	0	27	1	0	61
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.250	0.750	0.250	0.000	0.000	0.563	0.250	0.000	0.897
	0.250				0.750				0.806				0.583				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-060
Date: 9/15/2021

Data - Total

NS/EW Streets:	Citrus Ave				Citrus Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	76	126	25	19	14	175	8	0	3	29	104	0	64	74	16	0	733
7:15 AM	81	131	20	2	6	177	4	0	8	40	97	0	56	87	24	0	733
7:30 AM	105	179	29	1	13	222	6	0	9	51	85	0	59	76	22	0	857
7:45 AM	97	115	25	3	24	154	2	0	11	78	114	0	72	111	26	0	832
8:00 AM	104	118	36	0	22	166	8	0	6	66	119	0	55	85	14	0	799
8:15 AM	76	130	39	3	17	175	9	0	5	73	101	0	62	85	17	0	792
8:30 AM	79	123	27	4	26	142	2	0	2	72	76	0	35	73	18	0	679
8:45 AM	61	112	40	1	19	149	13	0	10	55	69	0	40	61	12	0	642
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	679	1034	241	33	141	1360	52	0	54	464	765	0	443	652	149	0	6067
APPROACH %'s :	34.17%	52.04%	12.13%	1.66%	9.08%	87.57%	3.35%	0.00%	4.21%	36.17%	59.63%	0.00%	35.61%	52.41%	11.98%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	382	542	129	7	76	717	25	0	31	268	419	0	248	357	79	0	3280
PEAK HR FACTOR :	0.910	0.757	0.827	0.583	0.792	0.807	0.694	0.000	0.705	0.859	0.880	0.000	0.861	0.804	0.760	0.000	0.957
	0.844				0.849				0.884				0.818				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	90	187	62	1	25	162	7	0	22	164	95	0	50	127	29	0	1021
4:15 PM	94	215	61	7	31	172	7	0	17	129	97	0	43	100	25	0	998
4:30 PM	85	159	63	1	21	135	8	0	22	152	93	0	30	118	38	0	925
4:45 PM	103	242	64	1	19	156	8	0	17	122	87	0	40	150	37	0	1046
5:00 PM	115	212	68	0	26	128	9	0	17	177	97	0	47	172	39	0	1107
5:15 PM	109	229	82	0	19	121	12	0	24	186	100	0	49	211	52	0	1194
5:30 PM	138	267	61	0	25	144	8	0	13	143	73	0	31	154	45	0	1102
5:45 PM	131	243	62	0	24	131	11	0	16	144	93	0	28	183	44	0	1110
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	865	1754	523	10	190	1149	70	0	148	1217	735	0	318	1215	309	0	8503
APPROACH %'s :	27.44%	55.65%	16.59%	0.32%	13.48%	81.55%	4.97%	0.00%	7.05%	57.95%	35.00%	0.00%	17.26%	65.96%	16.78%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	493	951	273	0	94	524	40	0	70	650	363	0	155	720	180	0	4513
PEAK HR FACTOR :	0.893	0.890	0.832	0.000	0.904	0.910	0.833	0.000	0.729	0.874	0.908	0.000	0.791	0.853	0.865	0.000	0.945
	0.921				0.929				0.873				0.845				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-060
Date: 9/15/2021

Data - Cars

NS/EW Streets:	Citrus Ave				Citrus Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	72	120	23	19	14	164	8	0	3	27	97	0	60	72	15	0	694
7:15 AM	75	128	20	1	5	173	4	0	8	39	85	0	53	84	23	0	698
7:30 AM	96	168	29	1	13	212	4	0	9	49	82	0	56	73	22	0	814
7:45 AM	91	108	24	2	23	149	2	0	9	73	104	0	67	106	25	0	783
8:00 AM	93	110	35	0	20	158	7	0	6	59	108	0	50	80	13	0	739
8:15 AM	66	126	37	3	15	165	8	0	3	72	93	0	60	80	17	0	745
8:30 AM	63	108	25	3	24	131	2	0	2	69	57	0	32	69	17	0	602
8:45 AM	55	104	39	1	19	133	11	0	9	55	56	0	37	60	11	0	590
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	611	972	232	30	133	1285	46	0	49	443	682	0	415	624	143	0	5665
APPROACH %'s :	33.12%	52.68%	12.57%	1.63%	9.08%	87.77%	3.14%	0.00%	4.17%	37.73%	58.09%	0.00%	35.11%	52.79%	12.10%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	346	512	125	6	71	684	21	0	27	253	387	0	233	339	77	0	3081
PEAK HR FACTOR :	0.901	0.762	0.845	0.500	0.772	0.807	0.656	0.000	0.750	0.866	0.896	0.000	0.869	0.800	0.770	0.000	0.946
	0.841				0.847				0.897				0.819				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	79	184	59	1	25	153	6	0	22	155	85	0	47	123	29	0	968
4:15 PM	85	210	56	7	31	163	7	0	16	122	92	0	43	94	23	0	949
4:30 PM	76	157	60	1	20	132	7	0	22	149	85	0	29	114	35	0	887
4:45 PM	91	238	60	1	19	152	6	0	16	115	78	0	37	142	36	0	991
5:00 PM	104	208	67	0	24	125	9	0	17	171	88	0	45	165	38	0	1061
5:15 PM	101	225	79	0	19	119	11	0	24	184	90	0	49	204	51	0	1156
5:30 PM	128	263	61	0	24	139	7	0	13	142	68	0	30	149	44	0	1068
5:45 PM	122	239	59	0	24	127	11	0	16	141	83	0	28	177	44	0	1071
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	786	1724	501	10	186	1110	64	0	146	1179	669	0	308	1168	300	0	8151
APPROACH %'s :	26.02%	57.07%	16.58%	0.33%	13.68%	81.62%	4.71%	0.00%	7.32%	59.13%	33.55%	0.00%	17.34%	65.77%	16.89%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	455	935	266	0	91	510	38	0	70	638	329	0	152	695	177	0	4356
PEAK HR FACTOR :	0.889	0.889	0.842	0.000	0.948	0.917	0.864	0.000	0.729	0.867	0.914	0.000	0.776	0.852	0.868	0.000	0.942
	0.916				0.940				0.870				0.842				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-060
Date: 9/15/2021

Data - 2axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	3	1	0	0	6	0	0	0	0	1	0	1	1	0	0	14
7:15 AM	1	1	0	1	1	1	0	0	0	1	3	0	1	2	1	0	13
7:30 AM	3	5	0	0	0	5	1	0	0	1	0	0	1	1	0	0	17
7:45 AM	1	1	0	1	0	2	0	0	1	3	3	0	2	2	1	0	17
8:00 AM	3	2	1	0	0	2	0	0	0	4	1	0	2	2	0	0	17
8:15 AM	2	2	0	0	0	4	0	0	1	1	3	0	1	2	0	0	16
8:30 AM	5	10	1	1	2	2	0	0	0	2	7	0	0	1	0	0	31
8:45 AM	1	2	0	0	0	6	1	0	1	0	3	0	1	1	1	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	26	3	3	3	28	2	0	3	12	21	0	9	12	3	0	142
APPROACH %'s :	34.69%	53.06%	6.12%	6.12%	9.09%	84.85%	6.06%	0.00%	8.33%	33.33%	58.33%	0.00%	37.50%	50.00%	12.50%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	10	1	1	0	13	1	0	2	9	7	0	6	7	1	0	67
PEAK HR FACTOR :	0.750	0.500	0.250	0.250	0.000	0.650	0.250	0.000	0.500	0.563	0.583	0.000	0.750	0.875	0.250	0.000	0.985
	0.656				0.583				0.643				0.700				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	1	2	0	0	2	1	0	0	2	2	0	1	3	0	0	20
4:15 PM	4	3	3	0	0	6	0	0	1	3	0	0	0	3	1	0	24
4:30 PM	2	2	2	0	1	2	1	0	0	2	3	0	1	0	2	0	18
4:45 PM	2	3	0	0	0	1	0	0	1	4	3	0	1	1	1	0	17
5:00 PM	2	1	0	0	2	1	0	0	0	1	2	0	1	1	1	0	12
5:15 PM	1	1	0	0	0	0	1	0	0	2	1	0	0	0	0	0	6
5:30 PM	1	2	0	0	1	2	1	0	0	1	1	0	0	2	0	0	11
5:45 PM	3	2	0	0	0	1	0	0	0	0	4	0	0	4	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	21	15	7	0	4	15	4	0	2	15	16	0	4	14	5	0	122
APPROACH %'s :	48.84%	34.88%	16.28%	0.00%	17.39%	65.22%	17.39%	0.00%	6.06%	45.45%	48.48%	0.00%	17.39%	60.87%	21.74%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	7	6	0	0	3	4	2	0	0	4	8	0	1	7	1	0	43
PEAK HR FACTOR :	0.583	0.750	0.000	0.000	0.375	0.500	0.500	0.000	0.000	0.500	0.500	0.000	0.250	0.438	0.250	0.000	0.768
	0.650				0.563				0.750				0.563				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-060
Date: 9/15/2021

Data - 3axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	2	1	0	0	1	0	0	0	2	1	0	1	1	0	0	11
7:15 AM	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	4
7:30 AM	3	4	0	0	0	1	0	0	0	1	1	0	1	1	0	0	12
7:45 AM	0	1	0	0	1	0	0	0	0	1	1	0	1	3	0	0	8
8:00 AM	2	1	0	0	1	1	0	0	0	2	4	0	1	2	0	0	14
8:15 AM	4	0	0	0	0	3	1	0	1	0	3	0	1	1	0	0	14
8:30 AM	6	2	0	0	0	2	0	0	0	0	5	0	0	3	0	0	18
8:45 AM	2	1	0	0	0	1	0	0	0	0	4	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	11	1	0	2	10	1	0	1	6	20	0	5	12	0	0	89
APPROACH %'s :	62.50%	34.38%	3.13%	0.00%	15.38%	76.92%	7.69%	0.00%	3.70%	22.22%	74.07%	0.00%	29.41%	70.59%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	6	0	0	2	5	1	0	1	4	9	0	4	7	0	0	48
PEAK HR FACTOR :	0.563	0.375	0.000	0.000	0.500	0.417	0.250	0.000	0.250	0.500	0.563	0.000	1.000	0.583	0.000	0.000	0.857
	0.536				0.500				0.583				0.688				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	0	0	0	0	1	0	0	0	3	3	0	1	1	0	0	12
4:15 PM	4	0	1	0	0	1	0	0	0	3	0	0	0	3	1	0	13
4:30 PM	4	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	7
4:45 PM	4	0	0	0	0	0	1	0	0	1	1	0	1	4	0	0	12
5:00 PM	0	2	0	0	0	1	0	0	0	2	4	0	1	3	0	0	13
5:15 PM	1	0	0	0	0	1	0	0	0	0	5	0	0	3	1	0	11
5:30 PM	2	1	0	0	0	2	0	0	0	0	1	0	1	0	1	0	8
5:45 PM	3	1	2	0	0	2	0	0	0	3	4	0	0	1	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	21	4	3	0	0	8	1	0	0	12	20	0	4	16	3	0	92
APPROACH %'s :	75.00%	14.29%	10.71%	0.00%	0.00%	88.89%	11.11%	0.00%	0.00%	37.50%	62.50%	0.00%	17.39%	69.57%	13.04%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	6	4	2	0	0	6	0	0	0	5	14	0	2	7	2	0	48
PEAK HR FACTOR :	0.500	0.500	0.250	0.000	0.000	0.750	0.000	0.000	0.000	0.417	0.700	0.000	0.500	0.583	0.500	0.000	0.750
	0.500				0.750				0.679				0.688				

National Data & Surveying Services Intersection Turning Movement Count

Location: Citrus Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-060
Date: 9/15/2021

Data - 4axle

NS/EW Streets:	Citrus Ave				Citrus Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	0	4	0	0	0	0	5	0	2	0	1	0	14
7:15 AM	4	2	0	0	0	2	0	0	0	0	8	0	2	0	0	0	18
7:30 AM	3	2	0	0	0	4	1	0	0	0	2	0	1	1	0	0	14
7:45 AM	5	5	1	0	0	3	0	0	1	1	6	0	2	0	0	0	24
8:00 AM	6	5	0	0	1	5	1	0	0	1	6	0	2	1	1	0	29
8:15 AM	4	2	2	0	2	3	0	0	0	0	2	0	0	2	0	0	17
8:30 AM	5	3	1	0	0	7	0	0	0	1	7	0	3	0	1	0	28
8:45 AM	3	5	1	0	0	9	1	0	0	0	6	0	2	0	0	0	27
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	31	25	5	0	3	37	3	0	1	3	42	0	14	4	3	0	171
APPROACH %'s :	50.82%	40.98%	8.20%	0.00%	6.98%	86.05%	6.98%	0.00%	2.17%	6.52%	91.30%	0.00%	66.67%	19.05%	14.29%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	18	14	3	0	3	15	2	0	1	2	16	0	5	4	1	0	84
PEAK HR FACTOR :	0.750	0.700	0.375	0.000	0.375	0.750	0.500	0.000	0.250	0.500	0.667	0.000	0.625	0.500	0.250	0.000	0.724
	0.795				0.714				0.594				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	2	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	2	1	0	0	6	0	0	0	4	5	0	1	0	0	0	21
4:15 PM	1	2	1	0	0	2	0	0	0	1	5	0	0	0	0	0	12
4:30 PM	3	0	1	0	0	1	0	0	0	1	3	0	0	3	1	0	13
4:45 PM	6	1	4	0	0	3	1	0	0	2	5	0	1	3	0	0	26
5:00 PM	9	1	1	0	0	1	0	0	0	3	3	0	0	3	0	0	21
5:15 PM	6	3	3	0	0	1	0	0	0	0	4	0	0	4	0	0	21
5:30 PM	7	1	0	0	0	1	0	0	0	0	3	0	0	3	0	0	15
5:45 PM	3	1	1	0	0	1	0	0	0	0	2	0	0	1	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	37	11	12	0	0	16	1	0	0	11	30	0	2	17	1	0	138
APPROACH %'s :	61.67%	18.33%	20.00%	0.00%	0.00%	94.12%	5.88%	0.00%	0.00%	26.83%	73.17%	0.00%	10.00%	85.00%	5.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	25	6	5	0	0	4	0	0	0	3	12	0	0	11	0	0	66
PEAK HR FACTOR :	0.694	0.500	0.417	0.000	0.000	1.000	0.000	0.000	0.000	0.250	0.750	0.000	0.000	0.688	0.000	0.000	0.786
	0.750				1.000				0.625				0.688				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-061
Date: 9/9/2021

Data - Total

NS/EW Streets:	Sierra Ave				Sierra Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	36	193	118	0	18	251	9	0	11	18	35	0	133	57	9	0	888
7:15 AM	43	203	102	1	7	280	5	1	12	25	36	1	124	63	11	0	914
7:30 AM	37	261	124	0	9	313	15	1	26	42	45	1	127	81	10	0	1092
7:45 AM	51	274	120	0	12	362	26	1	29	52	26	0	126	78	15	0	1172
8:00 AM	28	297	151	0	21	369	27	9	37	56	35	2	127	140	23	0	1322
8:15 AM	42	298	190	0	25	312	19	0	46	68	41	2	124	90	28	0	1285
8:30 AM	42	338	203	1	38	326	23	1	54	72	43	0	122	95	20	0	1378
8:45 AM	38	296	159	0	30	276	23	7	41	74	41	1	96	50	26	0	1158
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	317	2160	1167	2	160	2489	147	20	256	407	302	7	979	654	142	0	9209
APPROACH %'s :	8.69%	59.24%	32.01%	0.05%	5.68%	88.39%	5.22%	0.71%	26.34%	41.87%	31.07%	0.72%	55.15%	36.85%	8.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	163	1207	664	1	96	1369	95	11	166	248	145	4	499	403	86	0	5157
PEAK HR FACTOR :	0.799	0.893	0.818	0.250	0.632	0.928	0.880	0.306	0.769	0.861	0.843	0.500	0.982	0.720	0.768	0.000	0.936
	0.871				0.922				0.833				0.852				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	54	301	185	0	41	276	27	0	89	209	20	3	149	114	27	0	1495
4:15 PM	70	333	189	1	34	290	23	0	65	202	34	1	127	129	20	0	1518
4:30 PM	39	289	158	1	39	276	28	2	69	239	59	2	149	146	19	0	1515
4:45 PM	68	265	171	1	34	269	18	3	62	199	61	5	171	151	25	0	1503
5:00 PM	49	281	168	1	38	342	17	2	60	197	58	1	140	151	41	0	1546
5:15 PM	54	268	157	0	31	282	18	0	55	190	33	6	177	189	22	0	1482
5:30 PM	49	309	147	2	33	346	22	0	62	171	62	0	152	156	19	0	1530
5:45 PM	54	294	157	0	26	289	17	0	58	180	53	1	150	140	40	0	1459
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	437	2340	1332	6	276	2370	170	7	520	1587	380	19	1215	1176	213	0	12048
APPROACH %'s :	10.62%	56.87%	32.37%	0.15%	9.78%	83.95%	6.02%	0.25%	20.75%	63.33%	15.16%	0.76%	46.66%	45.16%	8.18%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	226	1168	686	4	145	1177	86	7	256	837	212	9	587	577	105	0	6082
PEAK HR FACTOR :	0.807	0.877	0.907	1.000	0.929	0.860	0.768	0.583	0.928	0.876	0.869	0.450	0.858	0.955	0.640	0.000	0.984
	0.879				0.887				0.890				0.914				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-061
Date: 9/9/2021

Data - Cars

NS/EW Streets:	Sierra Ave				Sierra Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	33	185	117	0	17	247	9	0	11	15	33	0	124	55	9	0	855
7:15 AM	41	201	100	1	7	279	5	1	12	24	34	1	122	60	9	0	897
7:30 AM	35	256	120	0	8	311	14	1	25	42	45	1	115	80	6	0	1059
7:45 AM	50	271	118	0	11	355	26	1	29	48	26	0	116	74	14	0	1139
8:00 AM	27	294	147	0	20	365	25	9	37	53	33	2	120	132	21	0	1285
8:15 AM	36	295	187	0	25	305	19	0	46	66	40	2	114	88	24	0	1247
8:30 AM	39	335	200	1	38	321	21	1	54	70	41	0	112	89	19	0	1341
8:45 AM	35	292	153	0	29	269	23	7	39	68	39	1	85	46	26	0	1112
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	296	2129	1142	2	155	2452	142	20	253	386	291	7	908	624	128	0	8935
APPROACH %'s :	8.29%	59.65%	32.00%	0.06%	5.60%	88.55%	5.13%	0.72%	27.00%	41.20%	31.06%	0.75%	54.70%	37.59%	7.71%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	152	1195	652	1	94	1346	91	11	166	237	140	4	462	383	78	0	5012
PEAK HR FACTOR :	0.760	0.892	0.815	0.250	0.618	0.922	0.875	0.306	0.769	0.846	0.854	0.500	0.963	0.725	0.813	0.000	0.934
	0.870				0.920				0.829				0.845				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	52	298	180	0	39	273	26	0	86	198	20	3	144	105	26	0	1450
4:15 PM	68	325	175	1	34	285	22	0	65	196	33	1	111	120	19	0	1455
4:30 PM	39	289	152	1	38	268	28	2	69	230	57	2	146	137	19	0	1477
4:45 PM	66	265	165	1	34	263	18	3	61	193	60	5	162	143	24	0	1463
5:00 PM	48	279	162	1	36	333	17	2	59	195	56	1	136	132	41	0	1498
5:15 PM	53	264	151	0	30	278	18	0	54	187	33	6	170	179	22	0	1445
5:30 PM	47	307	138	2	33	340	22	0	61	163	59	0	149	143	18	0	1482
5:45 PM	53	292	155	0	26	285	17	0	57	176	52	1	147	132	38	0	1431
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	426	2319	1278	6	270	2325	168	7	512	1538	370	19	1165	1091	207	0	11701
APPROACH %'s :	10.57%	57.56%	31.72%	0.15%	9.75%	83.94%	6.06%	0.25%	20.99%	63.06%	15.17%	0.78%	47.30%	44.30%	8.40%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	221	1158	654	4	142	1149	85	7	254	814	206	9	555	532	103	0	5893
PEAK HR FACTOR :	0.813	0.891	0.934	1.000	0.934	0.863	0.759	0.583	0.920	0.885	0.858	0.450	0.856	0.930	0.628	0.000	0.983
	0.895				0.891				0.896				0.904				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-061
Date: 9/9/2021

Data - 2axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	6	1	0	1	3	0	0	0	1	1	0	4	1	0	0	21
7:15 AM	2	2	2	0	0	1	0	0	0	0	2	0	0	2	0	0	11
7:30 AM	0	4	3	0	0	1	1	0	1	0	0	0	3	0	4	0	17
7:45 AM	0	2	2	0	0	7	0	0	0	3	0	0	3	3	1	0	21
8:00 AM	0	3	2	0	1	4	1	0	0	1	0	0	3	6	2	0	23
8:15 AM	2	2	2	0	0	5	0	0	0	2	1	0	2	1	1	0	18
8:30 AM	0	2	2	0	0	3	2	0	0	1	2	0	4	4	1	0	21
8:45 AM	2	4	2	0	1	5	0	0	2	0	2	0	6	0	0	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	25	16	0	3	29	4	0	3	8	8	0	25	17	9	0	156
APPROACH %'s :	18.00%	50.00%	32.00%	0.00%	8.33%	80.56%	11.11%	0.00%	15.79%	42.11%	42.11%	0.00%	49.02%	33.33%	17.65%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	2	9	8	0	1	19	3	0	0	7	3	0	12	14	5	0	83
PEAK HR FACTOR :	0.250	0.750	1.000	0.000	0.250	0.679	0.375	0.000	0.000	0.583	0.375	0.000	0.750	0.583	0.625	0.000	0.902
	0.792				0.821				0.833				0.705				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	3	0	2	3	1	0	3	6	0	0	4	2	1	0	29
4:15 PM	1	6	1	0	0	5	1	0	0	1	0	0	3	3	1	0	22
4:30 PM	0	0	4	0	0	6	0	0	0	3	0	0	0	5	0	0	18
4:45 PM	1	0	2	0	0	3	0	0	0	4	0	0	3	2	1	0	16
5:00 PM	0	2	2	0	2	6	0	0	1	0	2	0	0	5	0	0	20
5:15 PM	1	4	1	0	1	1	0	0	1	0	0	0	1	1	0	0	11
5:30 PM	0	0	2	0	0	4	0	0	0	5	1	0	2	2	0	0	16
5:45 PM	0	1	0	0	0	3	0	0	1	1	0	0	0	1	2	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	16	15	0	5	31	2	0	6	20	3	0	13	21	5	0	141
APPROACH %'s :	11.43%	45.71%	42.86%	0.00%	13.16%	81.58%	5.26%	0.00%	20.69%	68.97%	10.34%	0.00%	33.33%	53.85%	12.82%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	8	9	0	2	20	1	0	1	8	2	0	6	15	2	0	76
PEAK HR FACTOR :	0.500	0.333	0.563	0.000	0.250	0.833	0.250	0.000	0.250	0.500	0.250	0.000	0.500	0.750	0.500	0.000	0.864
	0.594				0.719				0.688				0.821				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-061
Date: 9/9/2021

Data - 3axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	1	1	0	2	1	0	0	6
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	4
7:30 AM	2	0	0	0	1	1	0	0	0	0	0	0	6	0	0	0	10
7:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	4	1	0	0	7
8:00 AM	1	0	0	0	0	0	1	0	0	0	0	0	2	1	0	0	5
8:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	2	1	1	0	6
8:30 AM	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	4
8:45 AM	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	1	2	0	2	4	1	0	0	4	1	0	18	6	2	0	46
APPROACH %'s :	62.50%	12.50%	25.00%	0.00%	28.57%	57.14%	14.29%	0.00%	0.00%	80.00%	20.00%	0.00%	69.23%	23.08%	7.69%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	3	1	1	0	1	1	1	0	0	1	0	0	9	3	1	0	22
PEAK HR FACTOR :	0.750	0.250	0.250	0.000	0.250	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.563	0.750	0.250	0.000	0.786
	0.625				0.750				0.250				0.650				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	0	0	0	0	3	0	0	1	3	0	0	8
4:15 PM	0	0	7	0	0	0	0	0	0	3	1	0	6	1	0	0	18
4:30 PM	0	0	2	0	1	1	0	0	0	3	0	0	0	2	0	0	9
4:45 PM	1	0	0	0	0	0	0	0	1	1	1	0	3	1	0	0	8
5:00 PM	0	0	1	0	0	1	0	0	0	1	0	0	0	3	0	0	6
5:15 PM	0	0	1	0	0	0	0	0	0	1	0	0	2	1	0	0	5
5:30 PM	1	1	0	0	0	0	0	0	0	1	0	0	0	4	0	0	7
5:45 PM	0	1	2	0	0	1	0	0	0	1	1	0	1	2	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	2	13	0	1	3	0	0	1	14	3	0	13	17	0	0	70
APPROACH %'s :	16.67%	11.11%	72.22%	0.00%	25.00%	75.00%	0.00%	0.00%	5.56%	77.78%	16.67%	0.00%	43.33%	56.67%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	0	10	0	1	2	0	0	1	8	2	0	9	7	0	0	41
PEAK HR FACTOR :	0.250	0.000	0.357	0.000	0.250	0.500	0.000	0.000	0.250	0.667	0.500	0.000	0.375	0.583	0.000	0.000	0.569
	0.393				0.375				0.688				0.571				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Ave & Valley Blvd
City: Fontana
Control: Signalized

Project ID: 21-030070-061
Date: 9/9/2021

Data - 4axle

NS/EW Streets:	Sierra Ave				Sierra Ave				Valley Blvd				Valley Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	0	0	0	0	1	0	0	3	0	0	0	6
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
7:30 AM	0	1	1	0	0	0	0	0	0	0	0	0	3	1	0	0	6
7:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	3	0	0	0	5
8:00 AM	0	0	2	0	0	0	0	0	0	2	2	0	2	1	0	0	9
8:15 AM	4	1	0	0	0	1	0	0	0	0	0	0	6	0	2	0	14
8:30 AM	2	0	1	0	0	2	0	0	0	0	0	0	5	2	0	0	12
8:45 AM	1	0	3	0	0	1	0	0	0	5	0	0	5	3	0	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	5	7	0	0	4	0	0	0	9	2	0	28	7	3	0	72
APPROACH %'s :	36.84%	26.32%	36.84%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	81.82%	18.18%	0.00%	73.68%	18.42%	7.89%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	6	2	3	0	0	3	0	0	0	3	2	0	16	3	2	0	40
PEAK HR FACTOR :	0.375	0.500	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.375	0.250	0.000	0.667	0.375	0.250	0.000	0.714
	0.550				0.375				0.313				0.656				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	3	0	0	2	3	0	0	2	2	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	0	0	0	0	0	2	0	0	0	4	0	0	8
4:15 PM	1	2	6	0	0	0	0	0	0	2	0	0	7	5	0	0	23
4:30 PM	0	0	0	0	0	1	0	0	0	3	2	0	3	2	0	0	11
4:45 PM	0	0	4	0	0	3	0	0	0	1	0	0	3	5	0	0	16
5:00 PM	1	0	3	0	0	2	0	0	0	1	0	0	4	11	0	0	22
5:15 PM	0	0	4	0	0	3	0	0	0	2	0	0	4	8	0	0	21
5:30 PM	1	1	7	0	0	2	0	0	1	2	2	0	1	7	1	0	25
5:45 PM	1	0	0	0	0	0	0	0	0	2	0	0	2	5	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	3	26	0	0	11	0	0	1	15	4	0	24	47	1	0	136
APPROACH %'s :	12.12%	9.09%	78.79%	0.00%	0.00%	100.00%	0.00%	0.00%	5.00%	75.00%	20.00%	0.00%	33.33%	65.28%	1.39%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	2	13	0	0	6	0	0	0	7	2	0	17	23	0	0	72
PEAK HR FACTOR :	0.500	0.250	0.542	0.000	0.000	0.500	0.000	0.000	0.000	0.583	0.250	0.000	0.607	0.523	0.000	0.000	0.783
	0.472				0.500				0.450				0.667				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	89	58	147	100	0	100	200	0	101	45	146	0	0	0	0	493
07:15 AM	0	116	43	159	102	0	115	217	0	116	59	175	0	0	0	0	551
07:30 AM	0	150	59	209	107	0	136	243	0	137	73	210	0	0	0	0	662
07:45 AM	0	154	71	225	109	0	122	231	0	128	71	199	0	0	0	0	655
Total	0	509	231	740	418	0	473	891	0	482	248	730	0	0	0	0	2361
08:00 AM	0	152	58	210	83	0	88	171	0	148	51	199	0	0	0	0	580
08:15 AM	0	114	74	188	68	0	85	153	0	115	72	187	0	0	0	0	528
08:30 AM	0	105	61	166	65	0	60	125	0	121	62	183	0	0	0	0	474
08:45 AM	0	93	60	153	71	0	122	193	0	113	58	171	0	0	0	0	517
Total	0	464	253	717	287	0	355	642	0	497	243	740	0	0	0	0	2099
Grand Total	0	973	484	1457	705	0	828	1533	0	979	491	1470	0	0	0	0	4460
Apprch %	0	66.8	33.2		46	0	54		0	66.6	33.4		0	0	0		
Total %	0	21.8	10.9	32.7	15.8	0	18.6	34.4	0	22	11	33	0	0	0	0	
Passenger Vehicles	0	719	202	921	577	0	728	1305	0	660	232	892	0	0	0	0	3118
% Passenger Vehicles	0	73.9	41.7	63.2	81.8	0	87.9	85.1	0	67.4	47.3	60.7	0	0	0	0	69.9
Large 2 Axle Vehicles	0	45	30	75	23	0	25	48	0	45	52	97	0	0	0	0	220
% Large 2 Axle Vehicles	0	4.6	6.2	5.1	3.3	0	3	3.1	0	4.6	10.6	6.6	0	0	0	0	4.9
3 Axle Vehicles	0	69	81	150	17	0	19	36	0	103	48	151	0	0	0	0	337
% 3 Axle Vehicles	0	7.1	16.7	10.3	2.4	0	2.3	2.3	0	10.5	9.8	10.3	0	0	0	0	7.6
4+ Axle Trucks	0	140	171	311	88	0	56	144	0	171	159	330	0	0	0	0	785
% 4+ Axle Trucks	0	14.4	35.3	21.3	12.5	0	6.8	9.4	0	17.5	32.4	22.4	0	0	0	0	17.6

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	116	43	159	102	0	115	217	0	116	59	175	0	0	0	0	551
07:30 AM	0	150	59	209	107	0	**136**	**243**	0	137	**73**	**210**	0	0	0	0	**662**
07:45 AM	0	**154**	**71**	**225**	**109**	0	122	231	0	128	71	199	0	0	0	0	655
08:00 AM	0	152	58	210	83	0	88	171	0	**148**	51	199	0	0	0	0	580
Total Volume	0	572	231	803	401	0	461	862	0	529	254	783	0	0	0	0	2448
% App. Total	0	71.2	28.8		46.5	0	53.5		0	67.6	32.4		0	0	0		
PHF	.000	.929	.813	.892	.920	.000	.847	.887	.000	.894	.870	.932	.000	.000	.000	.000	.924

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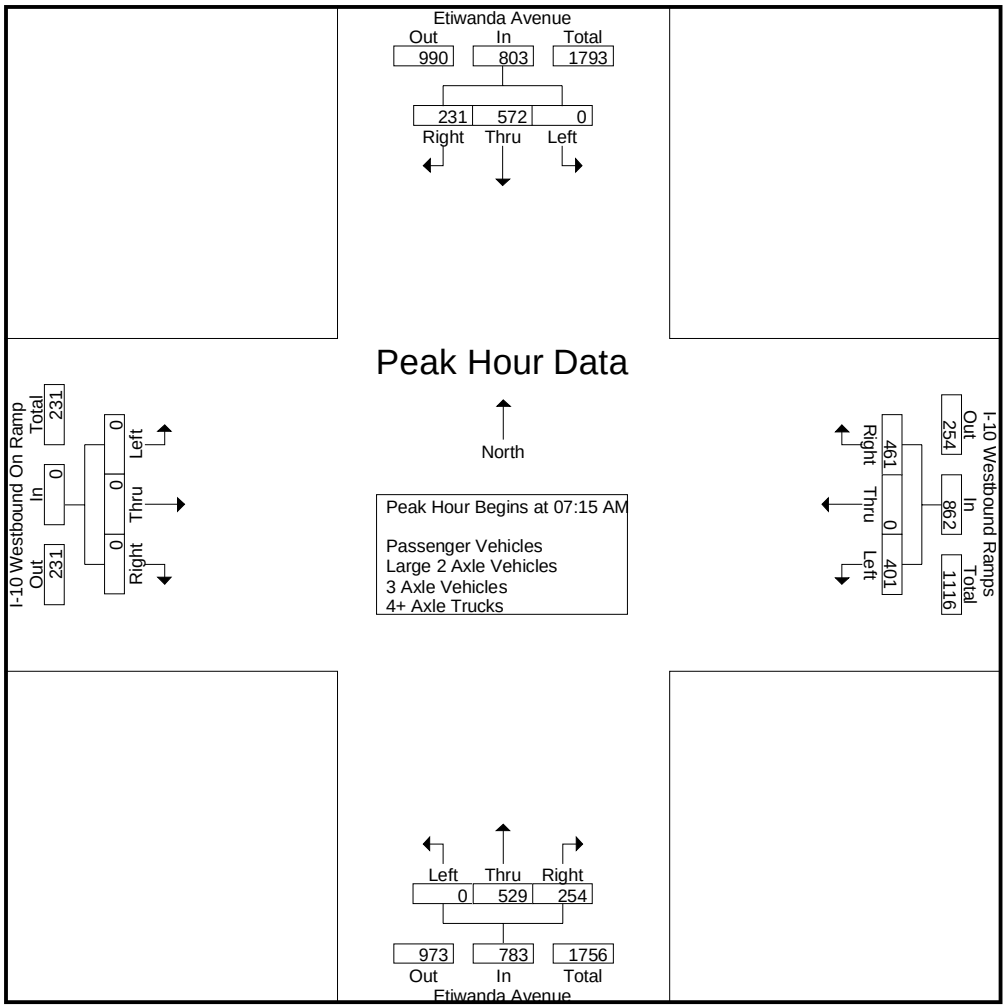
City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:30 AM				07:00 AM			
+0 mins.	0	150	59	209	100	0	100	200	0	137	**73**	**210**	0	0	0	0
+15 mins.	0	**154**	71	**225**	102	0	115	217	0	128	71	199	0	0	0	0
+30 mins.	0	152	58	210	107	0	**136**	**243**	0	**148**	51	199	0	0	0	0
+45 mins.	0	114	**74**	188	**109**	0	122	231	0	115	72	187	0	0	0	0
Total Volume	0	570	262	832	418	0	473	891	0	528	267	795	0	0	0	0
% App. Total	0	68.5	31.5		46.9	0	53.1		0	66.4	33.6		0	0	0	
PHF	.000	.925	.885	.924	.959	.000	.869	.917	.000	.892	.914	.946	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	63	19	82	80	0	91	171	0	69	15	84	0	0	0	0	337
07:15 AM	0	85	18	103	85	0	104	189	0	85	27	112	0	0	0	0	404
07:30 AM	0	108	31	139	92	0	124	216	0	100	41	141	0	0	0	0	496
07:45 AM	0	124	41	165	104	0	115	219	0	95	34	129	0	0	0	0	513
Total	0	380	109	489	361	0	434	795	0	349	117	466	0	0	0	0	1750
08:00 AM	0	115	27	142	64	0	72	136	0	95	26	121	0	0	0	0	399
08:15 AM	0	88	29	117	48	0	72	120	0	77	44	121	0	0	0	0	358
08:30 AM	0	79	18	97	47	0	48	95	0	73	26	99	0	0	0	0	291
08:45 AM	0	57	19	76	57	0	102	159	0	66	19	85	0	0	0	0	320
Total	0	339	93	432	216	0	294	510	0	311	115	426	0	0	0	0	1368
Grand Total	0	719	202	921	577	0	728	1305	0	660	232	892	0	0	0	0	3118
Apprch %	0	78.1	21.9		44.2	0	55.8		0	74	26		0	0	0		
Total %	0	23.1	6.5	29.5	18.5	0	23.3	41.9	0	21.2	7.4	28.6	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	85	18	103	85	0	104	189	0	85	27	112	0	0	0	0	404
07:30 AM	0	108	31	139	92	0	**124**	216	0	**100**	**41**	**141**	0	0	0	0	496
07:45 AM	0	**124**	**41**	**165**	**104**	0	115	**219**	0	95	34	129	0	0	0	0	**513**
08:00 AM	0	115	27	142	64	0	72	136	0	95	26	121	0	0	0	0	399
Total Volume	0	432	117	549	345	0	415	760	0	375	128	503	0	0	0	0	1812
% App. Total	0	78.7	21.3		45.4	0	54.6		0	74.6	25.4		0	0	0		
PHF	.000	.871	.713	.832	.829	.000	.837	.868	.000	.938	.780	.892	.000	.000	.000	.000	.883

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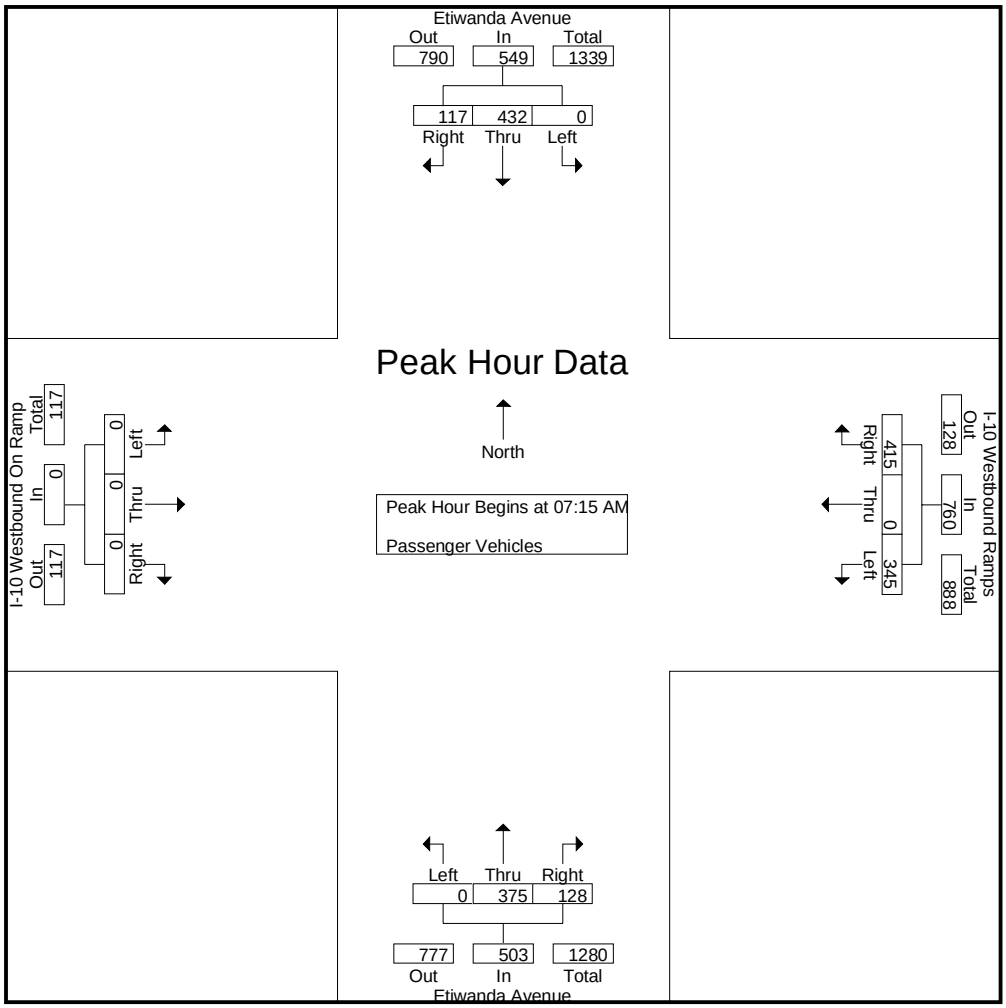
City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	85	18	103	85	0	104	189	0	85	27	112	0	0	0	0
+15 mins.	0	108	31	139	92	0	**124**	216	0	**100**	**41**	**141**	0	0	0	0
+30 mins.	0	**124**	**41**	**165**	**104**	0	115	**219**	0	95	34	129	0	0	0	0
+45 mins.	0	115	27	142	64	0	72	136	0	95	26	121	0	0	0	0
Total Volume	0	432	117	549	345	0	415	760	0	375	128	503	0	0	0	0
% App. Total	0	78.7	21.3		45.4	0	54.6		0	74.6	25.4		0	0	0	
PHF	.000	.871	.713	.832	.829	.000	.837	.868	.000	.938	.780	.892	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	6	7	1	0	1	2	0	7	3	10	0	0	0	0	19
07:15 AM	0	5	2	7	3	0	1	4	0	6	6	12	0	0	0	0	23
07:30 AM	0	14	2	16	1	0	2	3	0	4	6	10	0	0	0	0	29
07:45 AM	0	6	3	9	1	0	3	4	0	3	8	11	0	0	0	0	24
Total	0	26	13	39	6	0	7	13	0	20	23	43	0	0	0	0	95
08:00 AM	0	5	4	9	5	0	5	10	0	4	5	9	0	0	0	0	28
08:15 AM	0	3	5	8	4	0	3	7	0	8	4	12	0	0	0	0	27
08:30 AM	0	5	2	7	4	0	4	8	0	4	10	14	0	0	0	0	29
08:45 AM	0	6	6	12	4	0	6	10	0	9	10	19	0	0	0	0	41
Total	0	19	17	36	17	0	18	35	0	25	29	54	0	0	0	0	125
Grand Total	0	45	30	75	23	0	25	48	0	45	52	97	0	0	0	0	220
Apprch %	0	60	40		47.9	0	52.1		0	46.4	53.6		0	0	0		
Total %	0	20.5	13.6	34.1	10.5	0	11.4	21.8	0	20.5	23.6	44.1	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	5	2	7	3	0	1	4	0	**6**	6	**12**	0	0	0	0	23
07:30 AM	0	**14**	2	**16**	1	0	2	3	0	4	6	10	0	0	0	0	**29**
07:45 AM	0	6	3	9	1	0	3	4	0	3	**8**	11	0	0	0	0	24
08:00 AM	0	5	**4**	9	**5**	0	**5**	**10**	0	4	5	9	0	0	0	0	28
Total Volume	0	30	11	41	10	0	11	21	0	17	25	42	0	0	0	0	104
% App. Total	0	73.2	26.8		47.6	0	52.4		0	40.5	59.5		0	0	0		
PHF	.000	.536	.688	.641	.500	.000	.550	.525	.000	.708	.781	.875	.000	.000	.000	.000	.897

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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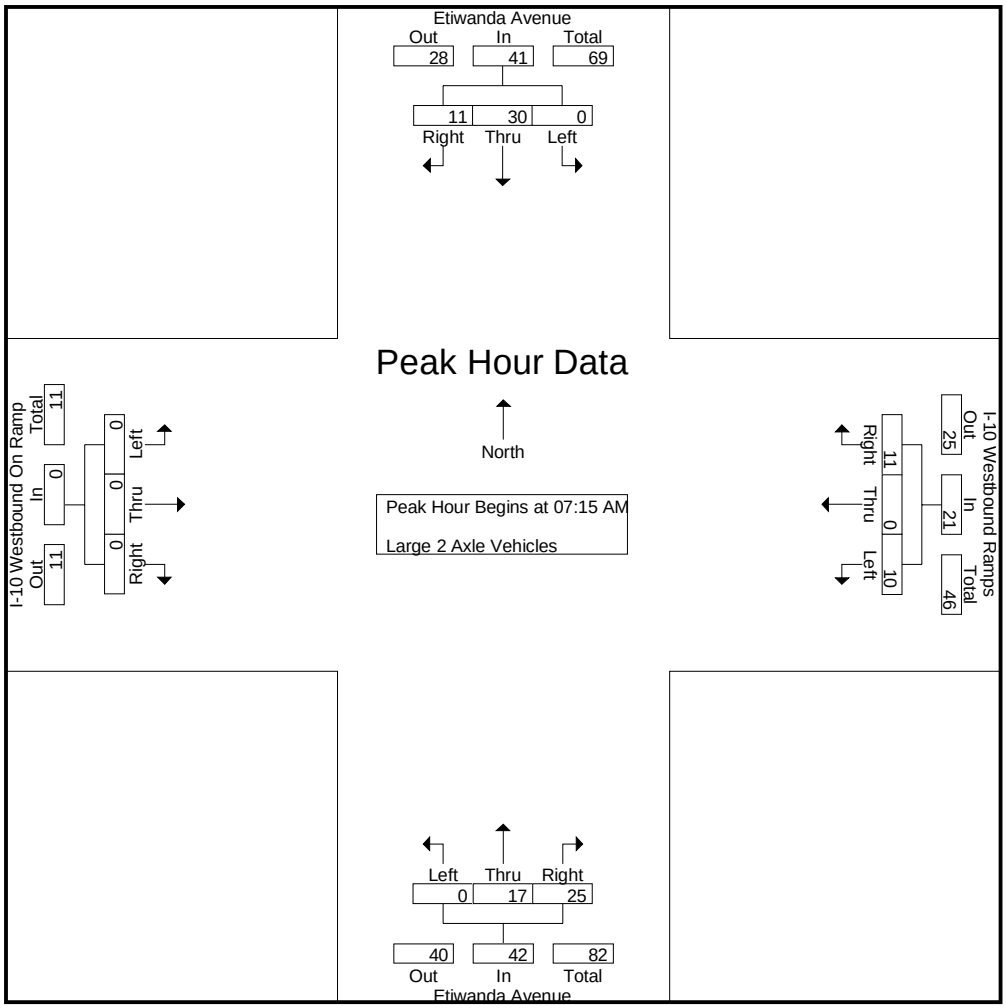

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	5	2	7	3	0	1	4	0	**6**	6	**12**	0	0	0	0
+15 mins.	0	**14**	2	**16**	1	0	2	3	0	4	6	10	0	0	0	0
+30 mins.	0	6	3	9	1	0	3	4	0	3	**8**	11	0	0	0	0
+45 mins.	0	5	**4**	9	**5**	0	**5**	**10**	0	4	5	9	0	0	0	0
Total Volume	0	30	11	41	10	0	11	21	0	17	25	42	0	0	0	0
% App. Total	0	73.2	26.8		47.6	0	52.4		0	40.5	59.5		0	0	0	
PHF	.000	.536	.688	.641	.500	.000	.550	.525	.000	.708	.781	.875	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- 3 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	10	12	22	3	0	2	5	0	10	5	15	0	0	0	0	42
07:15 AM	0	8	8	16	1	0	1	2	0	4	8	12	0	0	0	0	30
07:30 AM	0	10	7	17	3	0	1	4	0	13	9	22	0	0	0	0	43
07:45 AM	0	5	12	17	1	0	1	2	0	12	2	14	0	0	0	0	33
Total	0	33	39	72	8	0	5	13	0	39	24	63	0	0	0	0	148
08:00 AM	0	10	8	18	3	0	3	6	0	21	5	26	0	0	0	0	50
08:15 AM	0	9	10	19	1	0	4	5	0	14	7	21	0	0	0	0	45
08:30 AM	0	5	13	18	3	0	2	5	0	14	8	22	0	0	0	0	45
08:45 AM	0	12	11	23	2	0	5	7	0	15	4	19	0	0	0	0	49
Total	0	36	42	78	9	0	14	23	0	64	24	88	0	0	0	0	189
Grand Total	0	69	81	150	17	0	19	36	0	103	48	151	0	0	0	0	337
Apprch %	0	46	54		47.2	0	52.8		0	68.2	31.8		0	0	0		
Total %	0	20.5	24	44.5	5	0	5.6	10.7	0	30.6	14.2	44.8	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	8	8	16	1	0	1	2	0	4	8	12	0	0	0	0	30
07:30 AM	0	**10**	7	17	**3**	0	1	4	0	13	**9**	22	0	0	0	0	43
07:45 AM	0	5	**12**	17	1	0	1	2	0	12	2	14	0	0	0	0	33
08:00 AM	0	10	8	**18**	3	0	**3**	**6**	0	**21**	5	**26**	0	0	0	0	**50**
Total Volume	0	33	35	68	8	0	6	14	0	50	24	74	0	0	0	0	156
% App. Total	0	48.5	51.5		57.1	0	42.9		0	67.6	32.4		0	0	0		
PHF	.000	.825	.729	.944	.667	.000	.500	.583	.000	.595	.667	.712	.000	.000	.000	.000	.780

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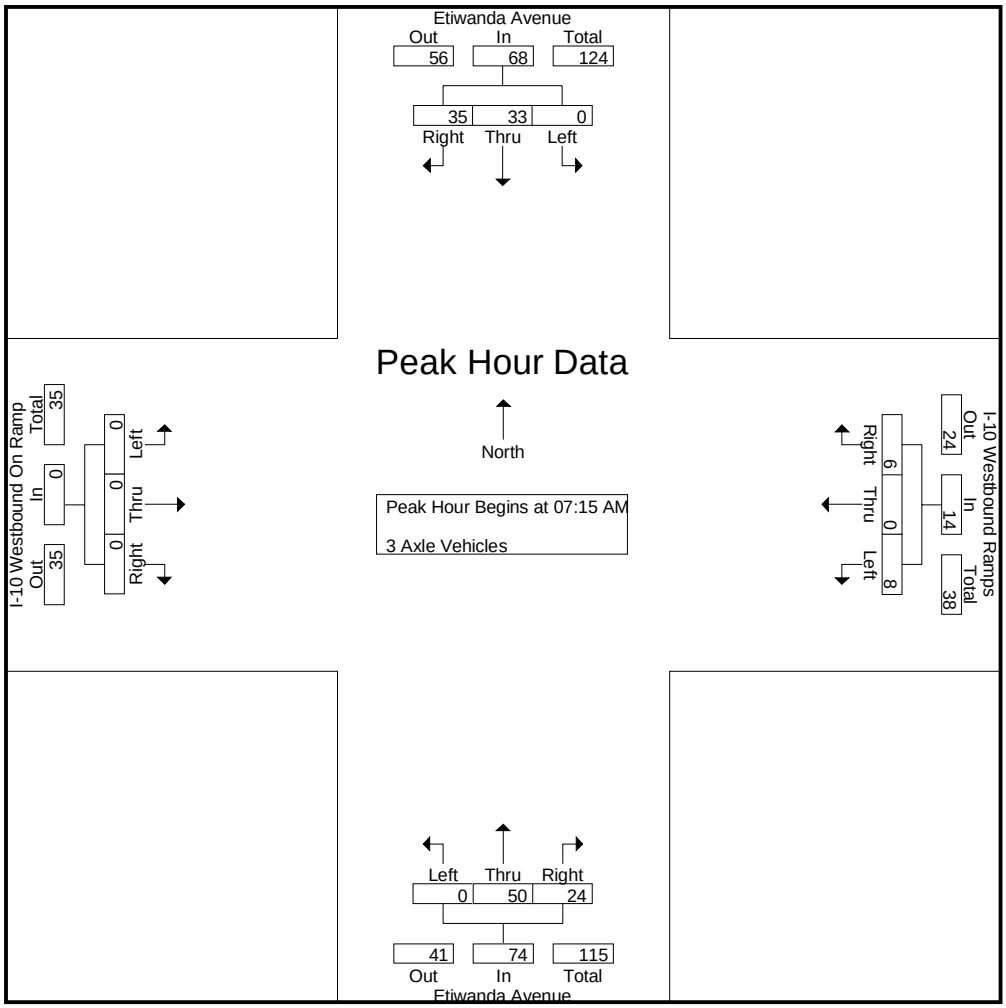
City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	8	8	16	1	0	1	2	0	4	8	12	0	0	0	0
+15 mins.	0	**10**	7	17	**3**	0	1	4	0	13	**9**	22	0	0	0	0
+30 mins.	0	5	**12**	17	1	0	1	2	0	12	2	14	0	0	0	0
+45 mins.	0	10	8	**18**	3	0	**3**	**6**	0	**21**	5	**26**	0	0	0	0
Total Volume	0	33	35	68	8	0	6	14	0	50	24	74	0	0	0	0
% App. Total	0	48.5	51.5		57.1	0	42.9		0	67.6	32.4		0	0	0	
PHF	.000	.825	.729	.944	.667	.000	.500	.583	.000	.595	.667	.712	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	15	21	36	16	0	6	22	0	15	22	37	0	0	0	0	95
07:15 AM	0	18	15	33	13	0	9	22	0	21	18	39	0	0	0	0	94
07:30 AM	0	18	19	37	11	0	9	20	0	20	17	37	0	0	0	0	94
07:45 AM	0	19	15	34	3	0	3	6	0	18	27	45	0	0	0	0	85
Total	0	70	70	140	43	0	27	70	0	74	84	158	0	0	0	0	368
08:00 AM	0	22	19	41	11	0	8	19	0	28	15	43	0	0	0	0	103
08:15 AM	0	14	30	44	15	0	6	21	0	16	17	33	0	0	0	0	98
08:30 AM	0	16	28	44	11	0	6	17	0	30	18	48	0	0	0	0	109
08:45 AM	0	18	24	42	8	0	9	17	0	23	25	48	0	0	0	0	107
Total	0	70	101	171	45	0	29	74	0	97	75	172	0	0	0	0	417
Grand Total	0	140	171	311	88	0	56	144	0	171	159	330	0	0	0	0	785
Apprch %	0	45	55		61.1	0	38.9		0	51.8	48.2		0	0	0		
Total %	0	17.8	21.8	39.6	11.2	0	7.1	18.3	0	21.8	20.3	42	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	18	15	33	**13**	0	**9**	**22**	0	21	18	39	0	0	0	0	94
07:30 AM	0	18	**19**	37	11	0	9	20	0	20	17	37	0	0	0	0	94
07:45 AM	0	19	15	34	3	0	3	6	0	18	**27**	**45**	0	0	0	0	85
08:00 AM	0	**22**	19	**41**	11	0	8	19	0	**28**	15	43	0	0	0	0	**103**
Total Volume	0	77	68	145	38	0	29	67	0	87	77	164	0	0	0	0	376
% App. Total	0	53.1	46.9		56.7	0	43.3		0	53	47		0	0	0		
PHF	.000	.875	.895	.884	.731	.000	.806	.761	.000	.777	.713	.911	.000	.000	.000	.000	.913

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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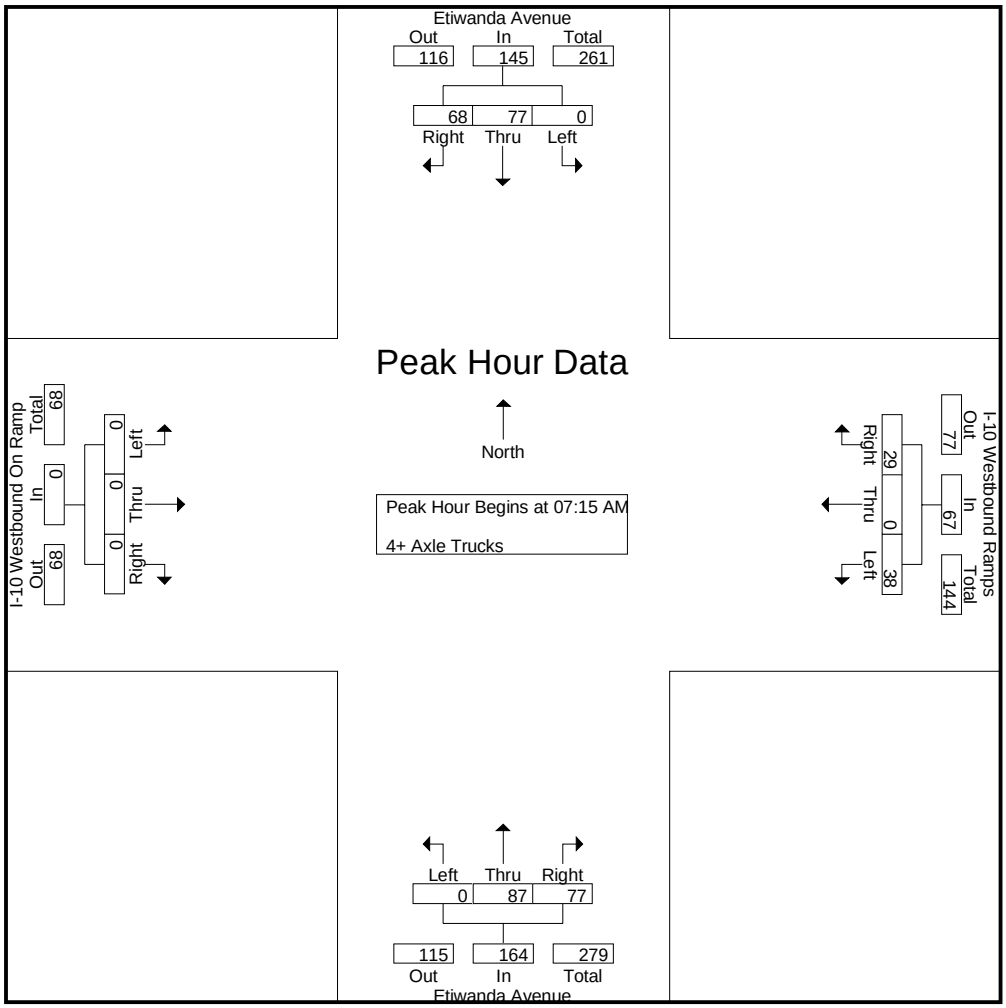

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	18	15	33	**13**	0	**9**	**22**	0	21	18	39	0	0	0	0
+15 mins.	0	18	**19**	37	11	0	9	20	0	20	17	37	0	0	0	0
+30 mins.	0	19	15	34	3	0	3	6	0	18	**27**	**45**	0	0	0	0
+45 mins.	0	**22**	19	**41**	11	0	8	19	0	**28**	15	43	0	0	0	0
Total Volume	0	77	68	145	38	0	29	67	0	87	77	164	0	0	0	0
% App. Total	0	53.1	46.9		56.7	0	43.3		0	53	47		0	0	0	
PHF	.000	.875	.895	.884	.731	.000	.806	.761	.000	.777	.713	.911	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
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Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	226	64	290	71	0	87	158	0	181	111	292	0	0	0	0	740
04:15 PM	0	176	76	252	51	0	82	133	0	192	108	300	0	0	0	0	685
04:30 PM	0	218	105	323	58	0	77	135	0	185	140	325	0	0	0	0	783
04:45 PM	0	243	71	314	71	0	100	171	0	194	117	311	0	0	0	0	796
Total	0	863	316	1179	251	0	346	597	0	752	476	1228	0	0	0	0	3004
05:00 PM	0	223	54	277	76	0	107	183	0	189	139	328	0	0	0	0	788
05:15 PM	0	225	49	274	73	0	96	169	0	156	80	236	0	0	0	0	679
05:30 PM	0	177	51	228	62	0	103	165	0	166	97	263	0	0	0	0	656
05:45 PM	0	168	35	203	61	0	89	150	0	172	94	266	0	0	0	0	619
Total	0	793	189	982	272	0	395	667	0	683	410	1093	0	0	0	0	2742
Grand Total	0	1656	505	2161	523	0	741	1264	0	1435	886	2321	0	0	0	0	5746
Apprch %	0	76.6	23.4		41.4	0	58.6		0	61.8	38.2		0	0	0		
Total %	0	28.8	8.8	37.6	9.1	0	12.9	22	0	25	15.4	40.4	0	0	0	0	
Passenger Vehicles	0	1408	381	1789	384	0	657	1041	0	1144	744	1888	0	0	0	0	4718
% Passenger Vehicles	0	85	75.4	82.8	73.4	0	88.7	82.4	0	79.7	84	81.3	0	0	0	0	82.1
Large 2 Axle Vehicles	0	54	22	76	28	0	16	44	0	33	25	58	0	0	0	0	178
% Large 2 Axle Vehicles	0	3.3	4.4	3.5	5.4	0	2.2	3.5	0	2.3	2.8	2.5	0	0	0	0	3.1
3 Axle Vehicles	0	68	34	102	26	0	17	43	0	98	16	114	0	0	0	0	259
% 3 Axle Vehicles	0	4.1	6.7	4.7	5	0	2.3	3.4	0	6.8	1.8	4.9	0	0	0	0	4.5
4+ Axle Trucks	0	126	68	194	85	0	51	136	0	160	101	261	0	0	0	0	591
% 4+ Axle Trucks	0	7.6	13.5	9	16.3	0	6.9	10.8	0	11.1	11.4	11.2	0	0	0	0	10.3

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	176	76	252	51	0	82	133	0	192	108	300	0	0	0	0	685
04:30 PM	0	218	**105**	**323**	58	0	77	135	0	185	**140**	325	0	0	0	0	783
04:45 PM	0	**243**	71	314	71	0	100	171	0	**194**	117	311	0	0	0	0	**796**
05:00 PM	0	223	54	277	**76**	0	**107**	**183**	0	189	139	**328**	0	0	0	0	788
Total Volume	0	860	306	1166	256	0	366	622	0	760	504	1264	0	0	0	0	3052
% App. Total	0	73.8	26.2		41.2	0	58.8		0	60.1	39.9		0	0	0		
PHF	.000	.885	.729	.902	.842	.000	.855	.850	.000	.979	.900	.963	.000	.000	.000	.000	.959

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
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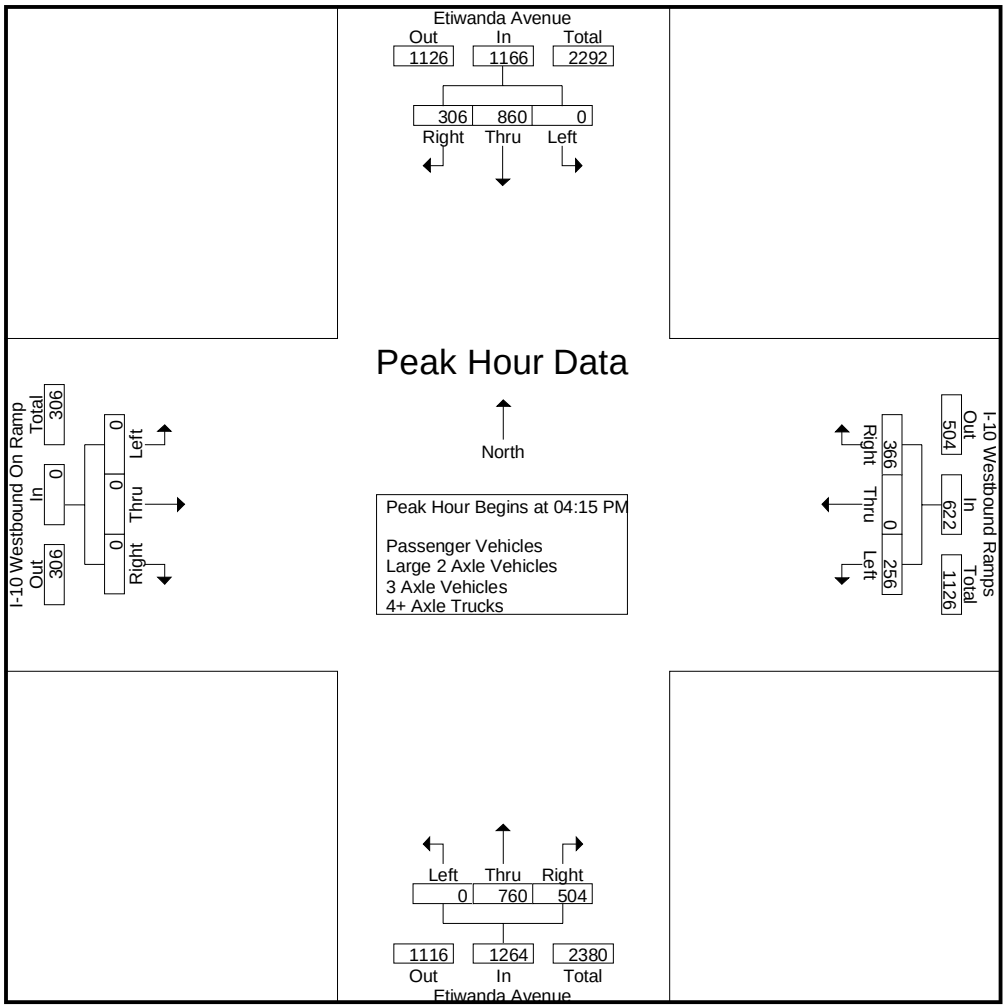

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				04:15 PM				04:00 PM			
+0 mins.	0	218	**105**	**323**	71	0	100	171	0	192	108	300	0	0	0	0
+15 mins.	0	**243**	71	314	**76**	0	**107**	**183**	0	185	**140**	325	0	0	0	0
+30 mins.	0	223	54	277	73	0	96	169	0	**194**	117	311	0	0	0	0
+45 mins.	0	225	49	274	62	0	103	165	0	189	139	**328**	0	0	0	0
Total Volume	0	909	279	1188	282	0	406	688	0	760	504	1264	0	0	0	0
% App. Total	0	76.5	23.5		41	0	59		0	60.1	39.9		0	0	0	
PHF	.000	.935	.664	.920	.928	.000	.949	.940	.000	.979	.900	.963	.000	.000	.000	.000

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City of Fontana
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File Name : 07_FON_Etiwanda_10W PM
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Groups Printed- Passenger Vehicles

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	199	47	246	53	0	74	127	0	131	90	221	0	0	0	0	594
04:15 PM	0	157	55	212	37	0	70	107	0	146	87	233	0	0	0	0	552
04:30 PM	0	189	79	268	41	0	70	111	0	146	123	269	0	0	0	0	648
04:45 PM	0	205	53	258	57	0	90	147	0	161	101	262	0	0	0	0	667
Total	0	750	234	984	188	0	304	492	0	584	401	985	0	0	0	0	2461
05:00 PM	0	185	39	224	55	0	93	148	0	154	117	271	0	0	0	0	643
05:15 PM	0	185	38	223	52	0	89	141	0	131	63	194	0	0	0	0	558
05:30 PM	0	149	41	190	49	0	91	140	0	141	83	224	0	0	0	0	554
05:45 PM	0	139	29	168	40	0	80	120	0	134	80	214	0	0	0	0	502
Total	0	658	147	805	196	0	353	549	0	560	343	903	0	0	0	0	2257
Grand Total	0	1408	381	1789	384	0	657	1041	0	1144	744	1888	0	0	0	0	4718
Apprch %	0	78.7	21.3		36.9	0	63.1		0	60.6	39.4		0	0	0		
Total %	0	29.8	8.1	37.9	8.1	0	13.9	22.1	0	24.2	15.8	40	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	157	55	212	37	0	70	107	0	146	87	233	0	0	0	0	552
04:30 PM	0	189	**79**	**268**	41	0	70	111	0	146	**123**	269	0	0	0	0	648
04:45 PM	0	**205**	53	258	**57**	0	90	147	0	**161**	101	262	0	0	0	0	**667**
05:00 PM	0	185	39	224	55	0	**93**	**148**	0	154	117	**271**	0	0	0	0	643
Total Volume	0	736	226	962	190	0	323	513	0	607	428	1035	0	0	0	0	2510
% App. Total	0	76.5	23.5		37	0	63		0	58.6	41.4		0	0	0		
PHF	.000	.898	.715	.897	.833	.000	.868	.867	.000	.943	.870	.955	.000	.000	.000	.000	.941

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
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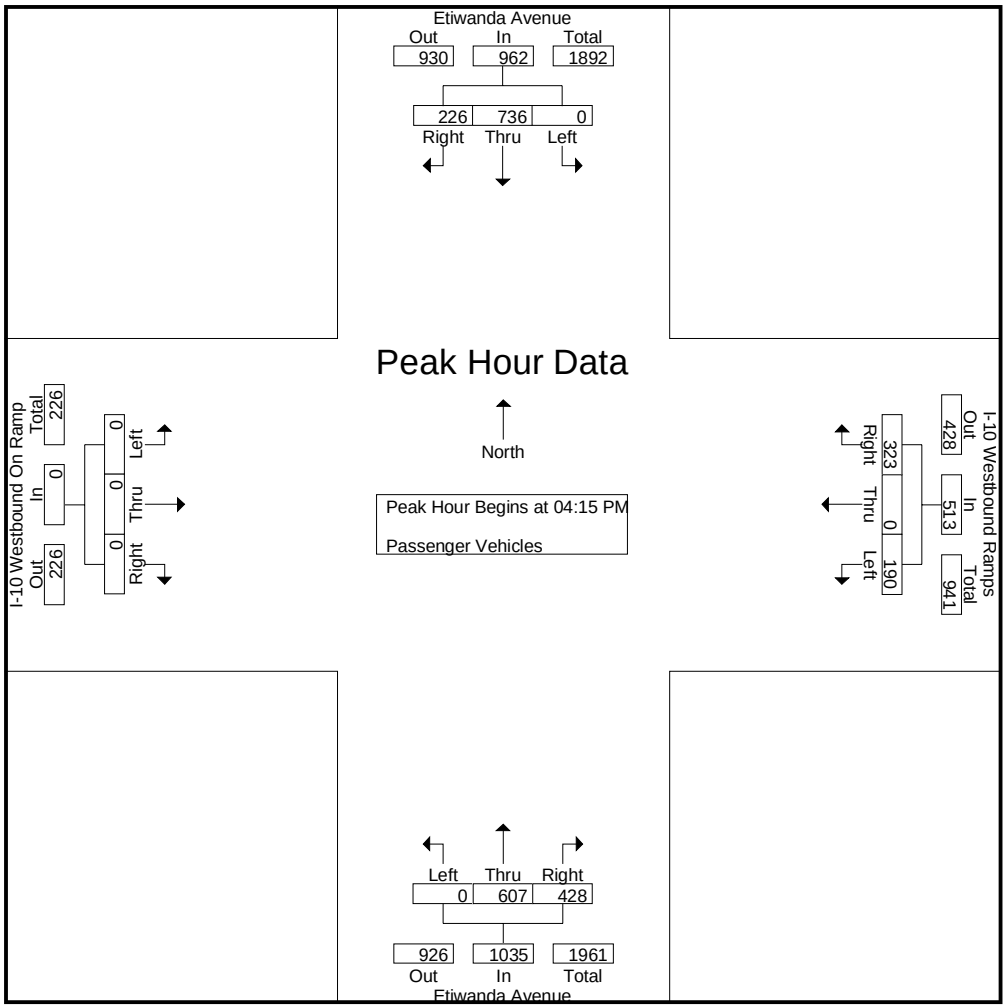

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	157	55	212	37	0	70	107	0	146	87	233	0	0	0	0
+15 mins.	0	189	**79**	**268**	41	0	70	111	0	146	**123**	269	0	0	0	0
+30 mins.	0	**205**	53	258	**57**	0	90	147	0	**161**	101	262	0	0	0	0
+45 mins.	0	185	39	224	55	0	**93**	**148**	0	154	117	**271**	0	0	0	0
Total Volume	0	736	226	962	190	0	323	513	0	607	428	1035	0	0	0	0
% App. Total	0	76.5	23.5		37	0	63		0	58.6	41.4		0	0	0	
PHF	.000	.898	.715	.897	.833	.000	.868	.867	.000	.943	.870	.955	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
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File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
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Groups Printed- Large 2 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	10	4	14	4	0	2	6	0	7	4	11	0	0	0	0	31
04:15 PM	0	6	3	9	5	0	2	7	0	6	4	10	0	0	0	0	26
04:30 PM	0	7	7	14	5	0	1	6	0	9	4	13	0	0	0	0	33
04:45 PM	0	10	3	13	5	0	3	8	0	1	4	5	0	0	0	0	26
Total	0	33	17	50	19	0	8	27	0	23	16	39	0	0	0	0	116
05:00 PM	0	9	1	10	4	0	3	7	0	3	4	7	0	0	0	0	24
05:15 PM	0	8	2	10	3	0	3	6	0	2	2	4	0	0	0	0	20
05:30 PM	0	1	0	1	2	0	1	3	0	1	3	4	0	0	0	0	8
05:45 PM	0	3	2	5	0	0	1	1	0	4	0	4	0	0	0	0	10
Total	0	21	5	26	9	0	8	17	0	10	9	19	0	0	0	0	62
Grand Total	0	54	22	76	28	0	16	44	0	33	25	58	0	0	0	0	178
Apprch %	0	71.1	28.9		63.6	0	36.4		0	56.9	43.1		0	0	0		
Total %	0	30.3	12.4	42.7	15.7	0	9	24.7	0	18.5	14	32.6	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	6	3	9	**5**	0	2	7	0	6	**4**	10	0	0	0	0	26
04:30 PM	0	7	**7**	**14**	5	0	1	6	0	**9**	4	**13**	0	0	0	0	**33**
04:45 PM	0	**10**	3	13	5	0	**3**	**8**	0	1	4	5	0	0	0	0	26
05:00 PM	0	9	1	10	4	0	3	7	0	3	4	7	0	0	0	0	24
Total Volume	0	32	14	46	19	0	9	28	0	19	16	35	0	0	0	0	109
% App. Total	0	69.6	30.4		67.9	0	32.1		0	54.3	45.7		0	0	0		
PHF	.000	.800	.500	.821	.950	.000	.750	.875	.000	.528	1.00	.673	.000	.000	.000	.000	.826

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City of Fontana
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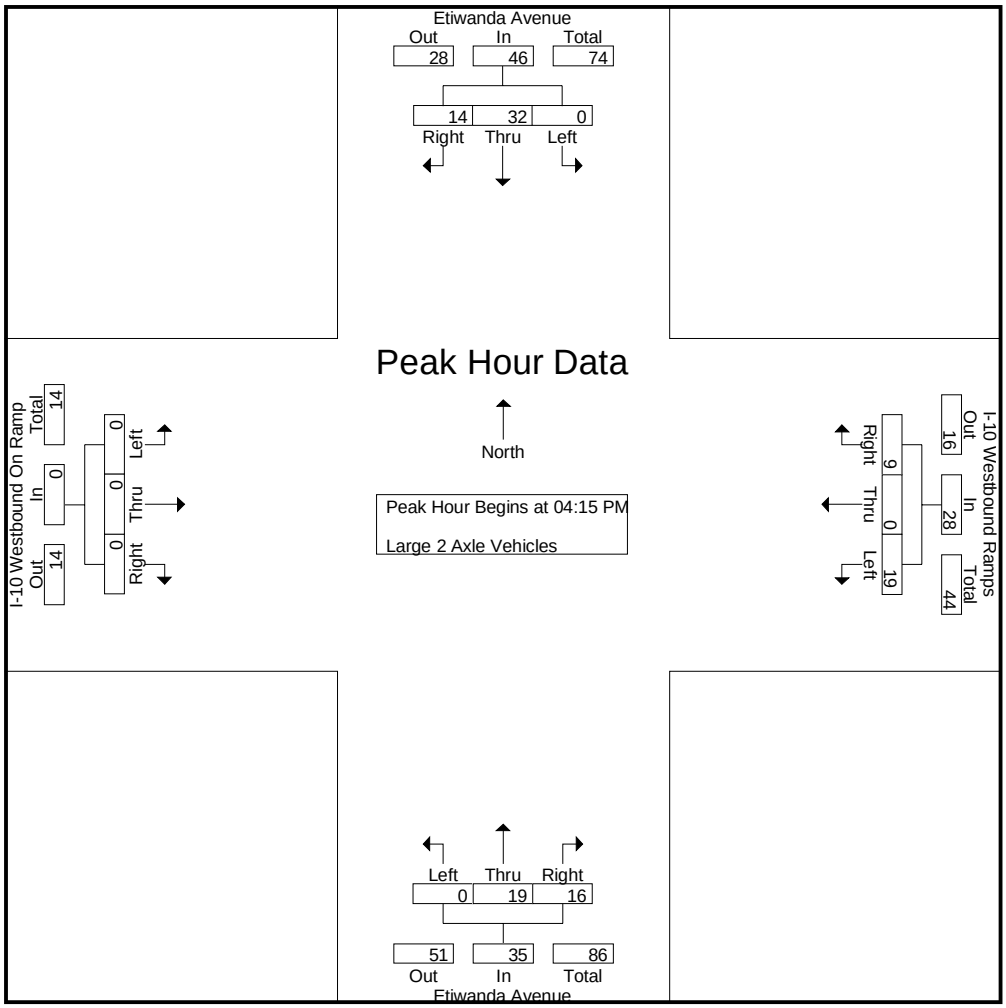

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	6	3	9	**5**	0	2	7	0	6	**4**	10	0	0	0	0
+15 mins.	0	7	**7**	**14**	5	0	1	6	0	**9**	4	**13**	0	0	0	0
+30 mins.	0	**10**	3	13	5	0	**3**	**8**	0	1	4	5	0	0	0	0
+45 mins.	0	9	1	10	4	0	3	7	0	3	4	7	0	0	0	0
Total Volume	0	32	14	46	19	0	9	28	0	19	16	35	0	0	0	0
% App. Total	0	69.6	30.4		67.9	0	32.1		0	54.3	45.7		0	0	0	
PHF	.000	.800	.500	.821	.950	.000	.750	.875	.000	.528	1.000	.673	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
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Groups Printed- 3 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	4	3	7	3	0	4	7	0	25	2	27	0	0	0	0	41
04:15 PM	0	3	8	11	0	0	2	2	0	21	4	25	0	0	0	0	38
04:30 PM	0	4	6	10	4	0	0	4	0	10	2	12	0	0	0	0	26
04:45 PM	0	10	5	15	4	0	1	5	0	13	1	14	0	0	0	0	34
Total	0	21	22	43	11	0	7	18	0	69	9	78	0	0	0	0	139
05:00 PM	0	10	4	14	5	0	4	9	0	8	3	11	0	0	0	0	34
05:15 PM	0	14	4	18	3	0	0	3	0	4	2	6	0	0	0	0	27
05:30 PM	0	12	3	15	1	0	2	3	0	7	1	8	0	0	0	0	26
05:45 PM	0	11	1	12	6	0	4	10	0	10	1	11	0	0	0	0	33
Total	0	47	12	59	15	0	10	25	0	29	7	36	0	0	0	0	120
Grand Total	0	68	34	102	26	0	17	43	0	98	16	114	0	0	0	0	259
Apprch %	0	66.7	33.3		60.5	0	39.5		0	86	14		0	0	0		
Total %	0	26.3	13.1	39.4	10	0	6.6	16.6	0	37.8	6.2	44	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	3	**8**	11	0	0	2	2	0	**21**	**4**	**25**	0	0	0	0	**38**
04:30 PM	0	4	6	10	4	0	0	4	0	10	2	12	0	0	0	0	26
04:45 PM	0	**10**	5	**15**	4	0	1	5	0	13	1	14	0	0	0	0	34
05:00 PM	0	10	4	14	**5**	0	**4**	**9**	0	8	3	11	0	0	0	0	34
Total Volume	0	27	23	50	13	0	7	20	0	52	10	62	0	0	0	0	132
% App. Total	0	54	46		65	0	35		0	83.9	16.1		0	0	0		
PHF	.000	.675	.719	.833	.650	.000	.438	.556	.000	.619	.625	.620	.000	.000	.000	.000	.868

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
Start Date : 9/28/2021
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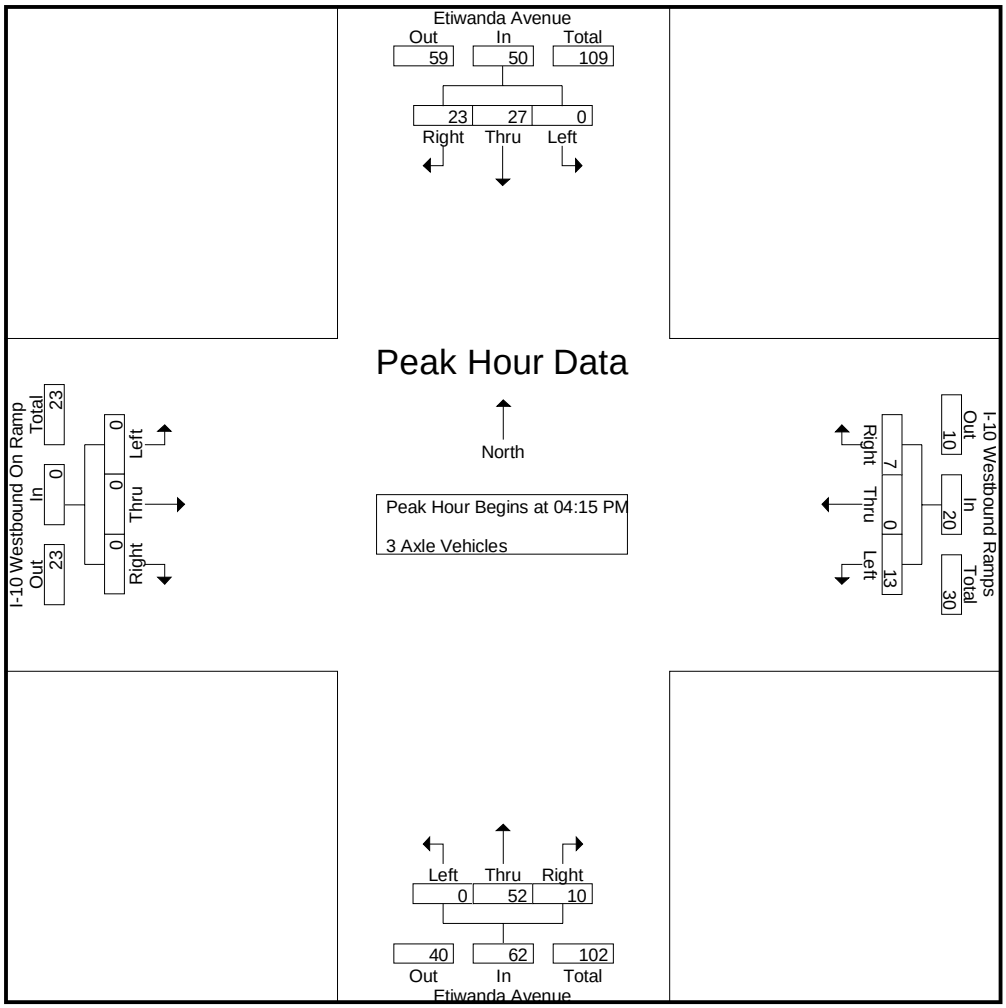

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	3	**8**	11	0	0	2	2	0	**21**	**4**	**25**	0	0	0	0
+15 mins.	0	4	6	10	4	0	0	4	0	10	2	12	0	0	0	0
+30 mins.	0	**10**	5	**15**	4	0	1	5	0	13	1	14	0	0	0	0
+45 mins.	0	10	4	14	**5**	0	**4**	**9**	0	8	3	11	0	0	0	0
Total Volume	0	27	23	50	13	0	7	20	0	52	10	62	0	0	0	0
% App. Total	0	54	46		65	0	35		0	83.9	16.1		0	0	0	
PHF	.000	.675	.719	.833	.650	.000	.438	.556	.000	.619	.625	.620	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	13	10	23	11	0	7	18	0	18	15	33	0	0	0	0	74
04:15 PM	0	10	10	20	9	0	8	17	0	19	13	32	0	0	0	0	69
04:30 PM	0	18	13	31	8	0	6	14	0	20	11	31	0	0	0	0	76
04:45 PM	0	18	10	28	5	0	6	11	0	19	11	30	0	0	0	0	69
Total	0	59	43	102	33	0	27	60	0	76	50	126	0	0	0	0	288
05:00 PM	0	19	10	29	12	0	7	19	0	24	15	39	0	0	0	0	87
05:15 PM	0	18	5	23	15	0	4	19	0	19	13	32	0	0	0	0	74
05:30 PM	0	15	7	22	10	0	9	19	0	17	10	27	0	0	0	0	68
05:45 PM	0	15	3	18	15	0	4	19	0	24	13	37	0	0	0	0	74
Total	0	67	25	92	52	0	24	76	0	84	51	135	0	0	0	0	303
Grand Total	0	126	68	194	85	0	51	136	0	160	101	261	0	0	0	0	591
Apprch %	0	64.9	35.1		62.5	0	37.5		0	61.3	38.7		0	0	0		
Total %	0	21.3	11.5	32.8	14.4	0	8.6	23	0	27.1	17.1	44.2	0	0	0	0	

	Etiwanda Avenue Southbound				I-10 Westbound Ramps Westbound				Etiwanda Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	10	10	20	9	0	**8**	17	0	19	13	32	0	0	0	0	69
04:30 PM	0	18	**13**	**31**	8	0	6	14	0	20	11	31	0	0	0	0	76
04:45 PM	0	18	10	28	5	0	6	11	0	19	11	30	0	0	0	0	69
05:00 PM	0	**19**	10	29	**12**	0	7	**19**	0	**24**	**15**	**39**	0	0	0	0	**87**
Total Volume	0	65	43	108	34	0	27	61	0	82	50	132	0	0	0	0	301
% App. Total	0	60.2	39.8		55.7	0	44.3		0	62.1	37.9		0	0	0		
PHF	.000	.855	.827	.871	.708	.000	.844	.803	.000	.854	.833	.846	.000	.000	.000	.000	.865

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 07_FON_Etiwanda_10W PM
Site Code : 10821516
Start Date : 9/28/2021
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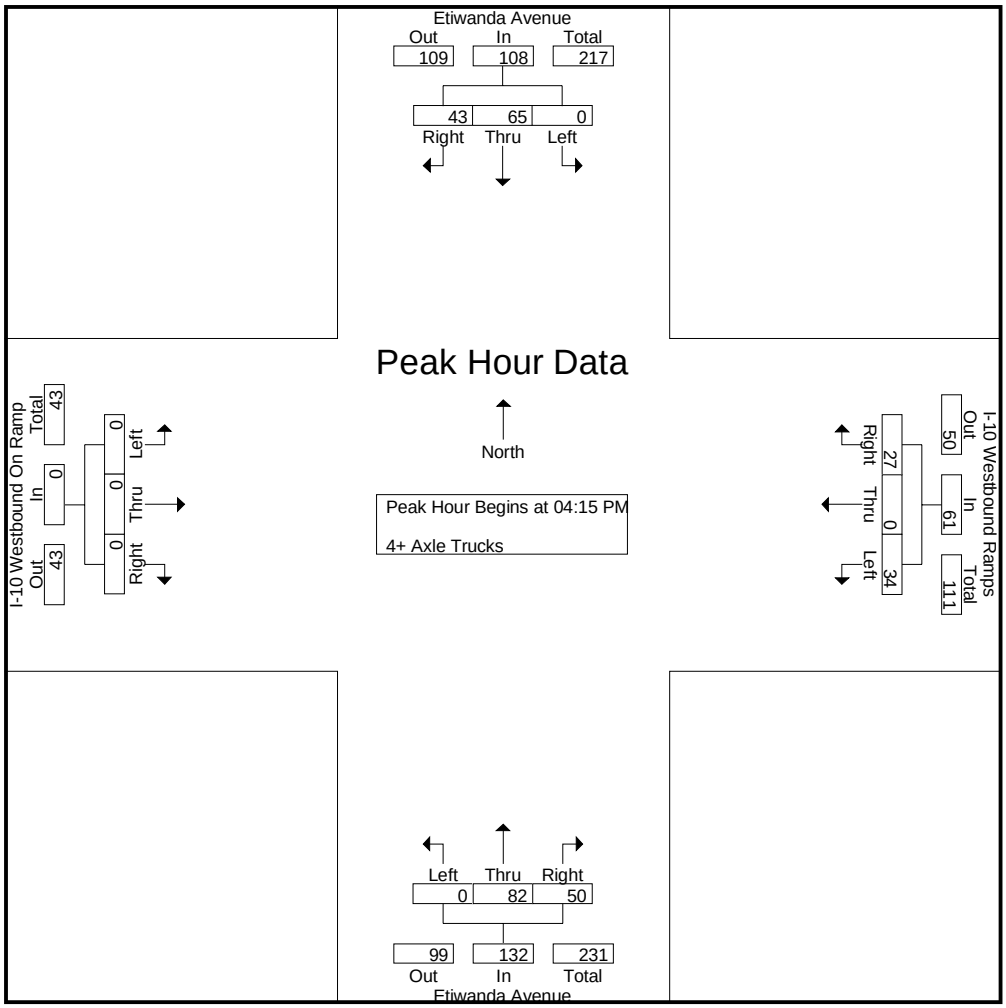

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	10	10	20	9	0	**8**	17	0	19	13	32	0	0	0	0
+15 mins.	0	18	**13**	**31**	8	0	6	14	0	20	11	31	0	0	0	0
+30 mins.	0	18	10	28	5	0	6	11	0	19	11	30	0	0	0	0
+45 mins.	0	**19**	10	29	**12**	0	7	**19**	0	**24**	**15**	**39**	0	0	0	0
Total Volume	0	65	43	108	34	0	27	61	0	82	50	132	0	0	0	0
% App. Total	0	60.2	39.8		55.7	0	44.3		0	62.1	37.9		0	0	0	
PHF	.000	.855	.827	.871	.708	.000	.844	.803	.000	.854	.833	.846	.000	.000	.000	.000

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	269	269	131	131	262	182	75	257	788
07:15 AM	0	301	301	148	126	274	193	103	296	871
07:30 AM	0	312	312	165	126	291	205	78	283	886
07:45 AM	0	379	379	170	152	322	214	101	315	1016
Total	0	1261	1261	614	535	1149	794	357	1151	3561
08:00 AM	0	354	354	128	126	254	230	86	316	924
08:15 AM	0	333	333	79	101	180	217	92	309	822
08:30 AM	0	294	294	89	113	202	248	81	329	825
08:45 AM	0	258	258	85	137	222	198	79	277	757
Total	0	1239	1239	381	477	858	893	338	1231	3328
Grand Total	0	2500	2500	995	1012	2007	1687	695	2382	6889
Apprch %	0	100		49.6	50.4		70.8	29.2		
Total %	0	36.3	36.3	14.4	14.7	29.1	24.5	10.1	34.6	
Passenger Vehicles	0	1906	1906	839	825	1664	1391	477	1868	5438
% Passenger Vehicles	0	76.2	76.2	84.3	81.5	82.9	82.5	68.6	78.4	78.9
Large 2 Axle Vehicles	0	152	152	30	46	76	79	16	95	323
% Large 2 Axle Vehicles	0	6.1	6.1	3	4.5	3.8	4.7	2.3	4	4.7
3 Axle Vehicles	0	139	139	34	54	88	88	30	118	345
% 3 Axle Vehicles	0	5.6	5.6	3.4	5.3	4.4	5.2	4.3	5	5
4+ Axle Trucks	0	303	303	92	87	179	129	172	301	783
% 4+ Axle Trucks	0	12.1	12.1	9.2	8.6	8.9	7.6	24.7	12.6	11.4

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	301	301	148	126	274	193	**103**	296	871
07:30 AM	0	312	312	165	126	291	205	78	283	886
07:45 AM	0	**379**	**379**	**170**	**152**	**322**	214	101	315	**1016**
08:00 AM	0	354	354	128	126	254	**230**	86	**316**	924
Total Volume	0	1346	1346	611	530	1141	842	368	1210	3697
% App. Total	0	100		53.5	46.5		69.6	30.4		
PHF	.000	.888	.888	.899	.872	.886	.915	.893	.957	.910

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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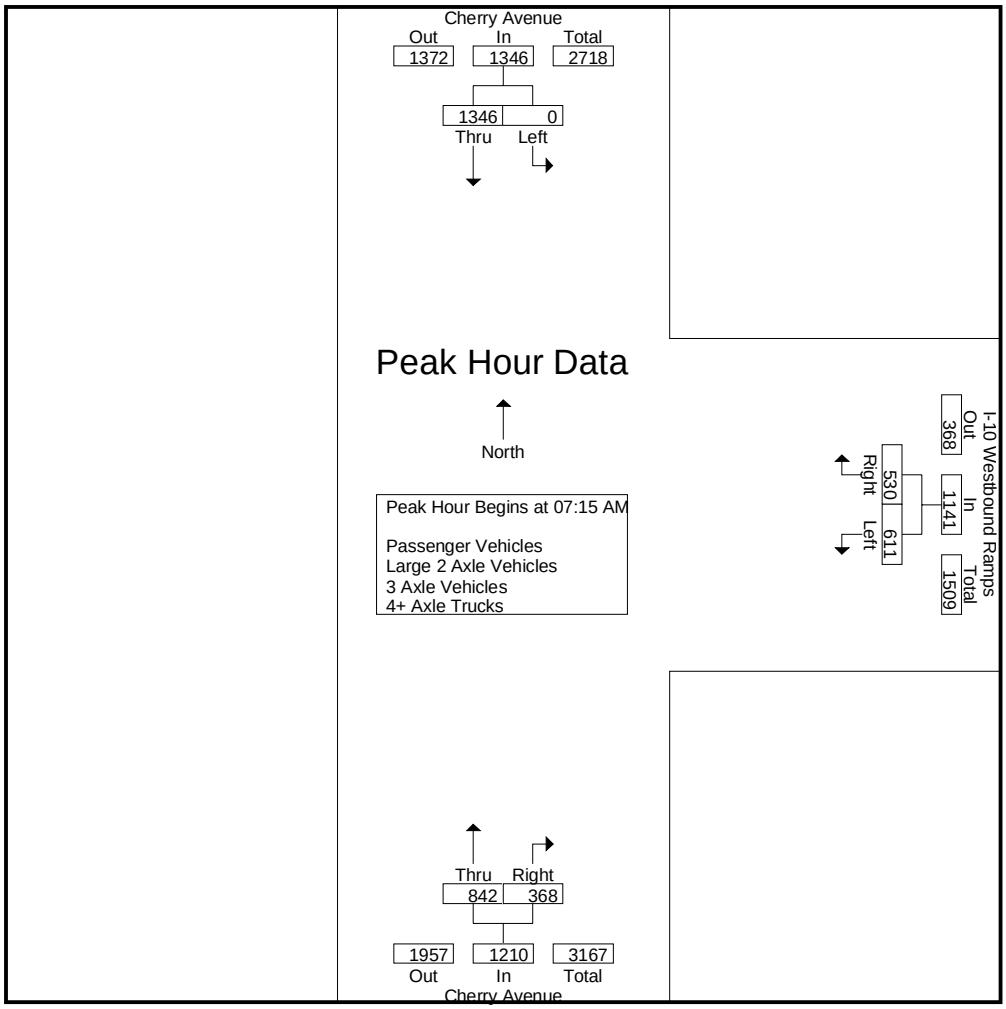

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:45 AM		
+0 mins.	0	312	312	131	131	262	214	**101**	315
+15 mins.	0	**379**	**379**	148	126	274	230	86	316
+30 mins.	0	354	354	165	126	291	217	92	309
+45 mins.	0	333	333	**170**	**152**	**322**	**248**	81	**329**
Total Volume	0	1378	1378	614	535	1149	909	360	1269
% App. Total	0	100		53.4	46.6		71.6	28.4	
PHF	.000	.909	.909	.903	.880	.892	.916	.891	.964

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	217	217	115	105	220	151	53	204	641
07:15 AM	0	222	222	132	109	241	167	76	243	706
07:30 AM	0	248	248	152	109	261	173	55	228	737
07:45 AM	0	322	322	147	133	280	184	69	253	855
Total	0	1009	1009	546	456	1002	675	253	928	2939
08:00 AM	0	266	266	95	97	192	193	66	259	717
08:15 AM	0	256	256	61	84	145	177	57	234	635
08:30 AM	0	204	204	70	84	154	202	56	258	616
08:45 AM	0	171	171	67	104	171	144	45	189	531
Total	0	897	897	293	369	662	716	224	940	2499
Grand Total	0	1906	1906	839	825	1664	1391	477	1868	5438
Apprch %	0	100		50.4	49.6		74.5	25.5		
Total %	0	35	35	15.4	15.2	30.6	25.6	8.8	34.4	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	222	222	132	109	241	167	**76**	243	706
07:30 AM	0	248	248	**152**	109	261	173	55	228	737
07:45 AM	0	**322**	**322**	147	**133**	**280**	184	69	253	**855**
08:00 AM	0	266	266	95	97	192	**193**	66	**259**	717
Total Volume	0	1058	1058	526	448	974	717	266	983	3015
% App. Total	0	100		54	46		72.9	27.1		
PHF	.000	.821	.821	.865	.842	.870	.929	.875	.949	.882

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City of Fontana
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E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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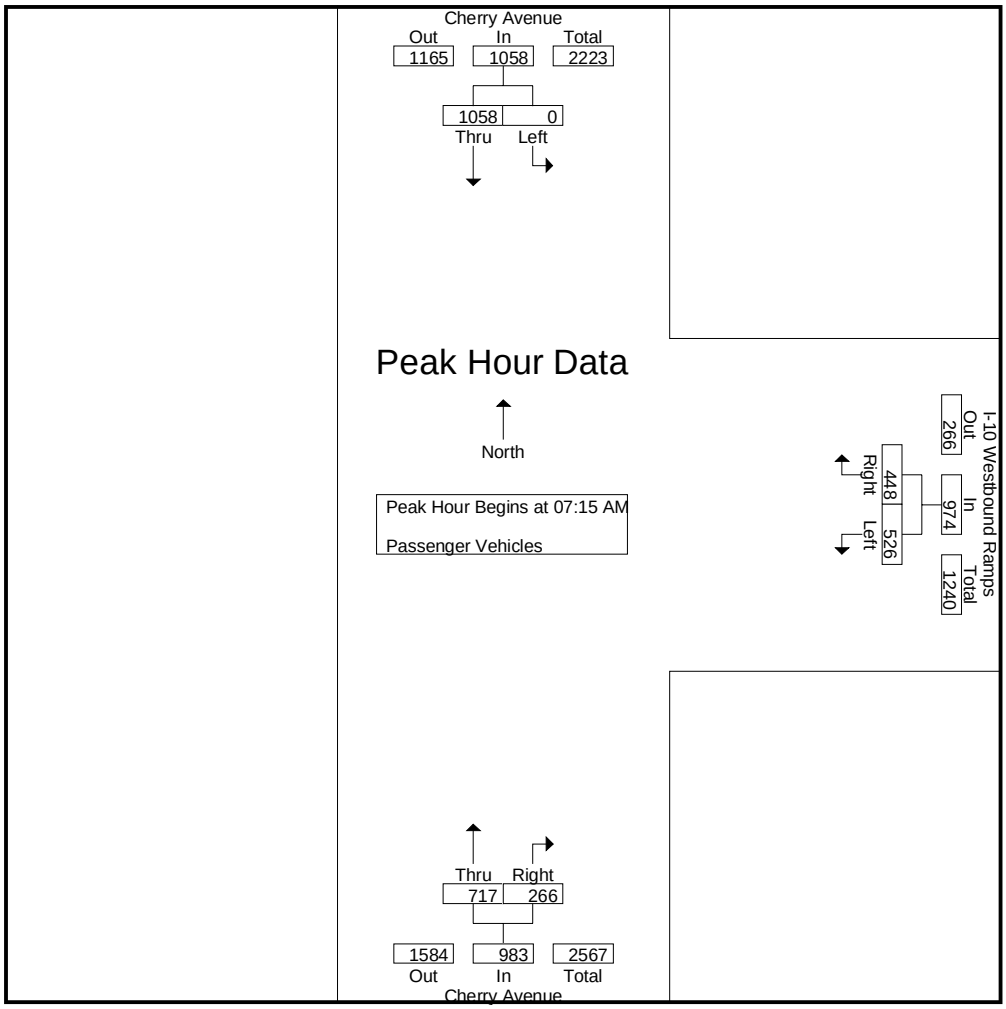

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	222	222	132	109	241	167	**76**	243
+15 mins.	0	248	248	**152**	109	261	173	55	228
+30 mins.	0	**322**	**322**	147	**133**	**280**	184	69	253
+45 mins.	0	266	266	95	97	192	**193**	66	**259**
Total Volume	0	1058	1058	526	448	974	717	266	983
% App. Total	0	100		54	46		72.9	27.1	
PHF	.000	.821	.821	.865	.842	.870	.929	.875	.949

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
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Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	9	9	1	4	5	9	3	12	26
07:15 AM	0	19	19	1	2	3	8	5	13	35
07:30 AM	0	16	16	4	5	9	11	0	11	36
07:45 AM	0	14	14	2	4	6	7	2	9	29
Total	0	58	58	8	15	23	35	10	45	126
08:00 AM	0	23	23	6	11	17	10	2	12	52
08:15 AM	0	23	23	7	4	11	11	1	12	46
08:30 AM	0	23	23	5	8	13	9	0	9	45
08:45 AM	0	25	25	4	8	12	14	3	17	54
Total	0	94	94	22	31	53	44	6	50	197
Grand Total	0	152	152	30	46	76	79	16	95	323
Apprch %	0	100		39.5	60.5		83.2	16.8		
Total %	0	47.1	47.1	9.3	14.2	23.5	24.5	5	29.4	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	19	19	1	2	3	8	**5**	**13**	35
07:30 AM	0	16	16	4	5	9	**11**	0	11	36
07:45 AM	0	14	14	2	4	6	7	2	9	29
08:00 AM	0	**23**	**23**	**6**	**11**	**17**	10	2	12	**52**
Total Volume	0	72	72	13	22	35	36	9	45	152
% App. Total	0	100		37.1	62.9		80	20		
PHF	.000	.783	.783	.542	.500	.515	.818	.450	.865	.731

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File Name : 05_FON_Cherry_10W AM
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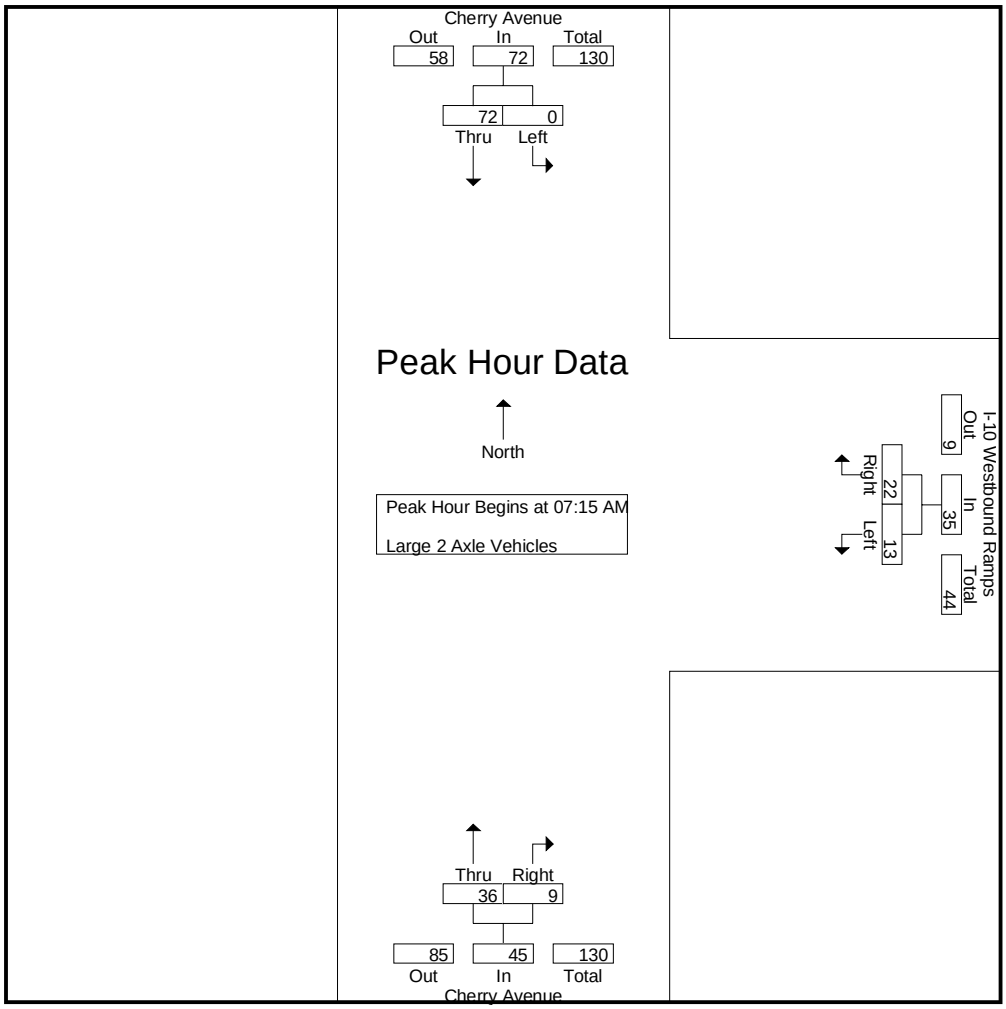

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	19	19	1	2	3	8	**5**	**13**
+15 mins.	0	16	16	4	5	9	**11**	0	11
+30 mins.	0	14	14	2	4	6	7	2	9
+45 mins.	0	**23**	**23**	**6**	**11**	**17**	10	2	12
Total Volume	0	72	72	13	22	35	36	9	45
% App. Total	0	100		37.1	62.9		80	20	
PHF	.000	.783	.783	.542	.500	.515	.818	.450	.865

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	9	9	5	6	11	7	2	9	29
07:15 AM	0	27	27	7	6	13	12	4	16	56
07:30 AM	0	13	13	2	5	7	8	2	10	30
07:45 AM	0	10	10	7	6	13	11	7	18	41
Total	0	59	59	21	23	44	38	15	53	156
08:00 AM	0	16	16	8	7	15	14	3	17	48
08:15 AM	0	18	18	1	6	7	12	6	18	43
08:30 AM	0	26	26	3	9	12	12	2	14	52
08:45 AM	0	20	20	1	9	10	12	4	16	46
Total	0	80	80	13	31	44	50	15	65	189
Grand Total	0	139	139	34	54	88	88	30	118	345
Apprch %	0	100		38.6	61.4		74.6	25.4		
Total %	0	40.3	40.3	9.9	15.7	25.5	25.5	8.7	34.2	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	**27**	**27**	7	6	13	12	4	16	**56**
07:30 AM	0	13	13	2	5	7	8	2	10	30
07:45 AM	0	10	10	7	6	13	11	**7**	**18**	41
08:00 AM	0	16	16	**8**	**7**	**15**	**14**	3	17	48
Total Volume	0	66	66	24	24	48	45	16	61	175
% App. Total	0	100		50	50		73.8	26.2		
PHF	.000	.611	.611	.750	.857	.800	.804	.571	.847	.781

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
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File Name : 05_FON_Cherry_10W AM
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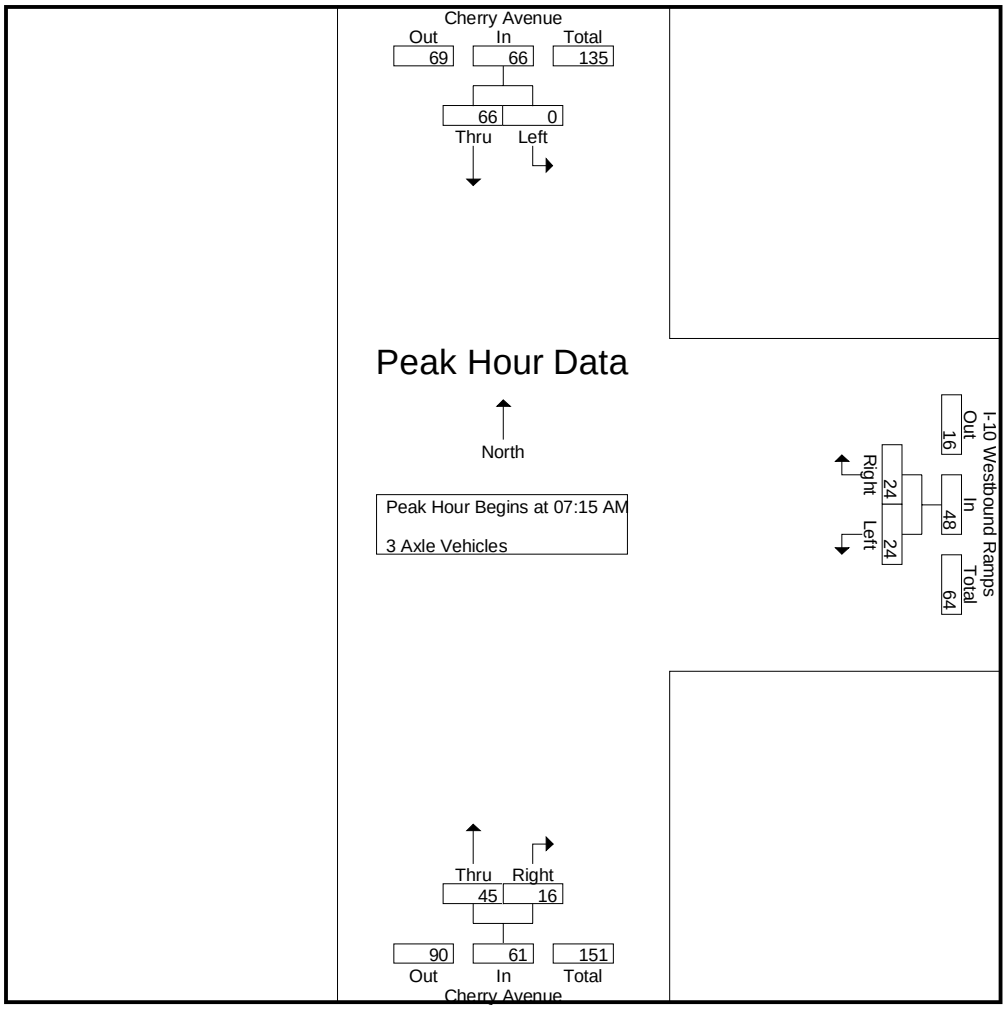

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	**27**	**27**	7	6	13	12	4	16
+15 mins.	0	13	13	2	5	7	8	2	10
+30 mins.	0	10	10	7	6	13	11	**7**	**18**
+45 mins.	0	16	16	**8**	**7**	**15**	**14**	3	17
Total Volume	0	66	66	24	24	48	45	16	61
% App. Total	0	100		50	50		73.8	26.2	
PHF	.000	.611	.611	.750	.857	.800	.804	.571	.847

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 05_FON_Cherry_10W AM
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	34	34	10	16	26	15	17	32	92
07:15 AM	0	33	33	8	9	17	6	18	24	74
07:30 AM	0	35	35	7	7	14	13	21	34	83
07:45 AM	0	33	33	14	9	23	12	23	35	91
Total	0	135	135	39	41	80	46	79	125	340
08:00 AM	0	49	49	19	11	30	13	15	28	107
08:15 AM	0	36	36	10	7	17	17	28	45	98
08:30 AM	0	41	41	11	12	23	25	23	48	112
08:45 AM	0	42	42	13	16	29	28	27	55	126
Total	0	168	168	53	46	99	83	93	176	443
Grand Total	0	303	303	92	87	179	129	172	301	783
Apprch %	0	100		51.4	48.6		42.9	57.1		
Total %	0	38.7	38.7	11.7	11.1	22.9	16.5	22	38.4	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	33	33	8	9	17	6	18	24	74
07:30 AM	0	35	35	7	7	14	**13**	21	34	83
07:45 AM	0	33	33	14	9	23	12	**23**	**35**	91
08:00 AM	0	**49**	**49**	**19**	**11**	**30**	13	15	28	**107**
Total Volume	0	150	150	48	36	84	44	77	121	355
% App. Total	0	100		57.1	42.9		36.4	63.6		
PHF	.000	.765	.765	.632	.818	.700	.846	.837	.864	.829

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File Name : 05_FON_Cherry_10W AM
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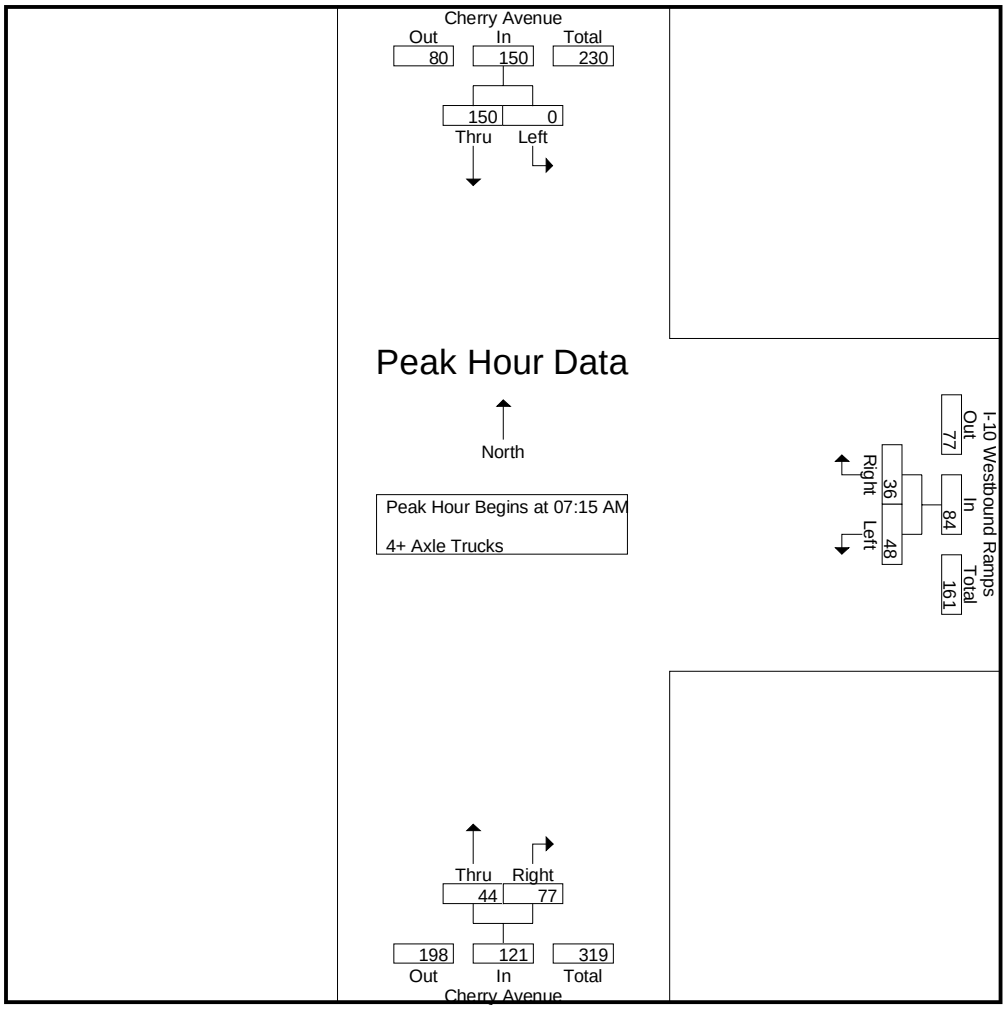

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	33	33	8	9	17	6	18	24
+15 mins.	0	35	35	7	7	14	**13**	21	34
+30 mins.	0	33	33	14	9	23	12	**23**	**35**
+45 mins.	0	**49**	**49**	**19**	**11**	**30**	13	15	28
Total Volume	0	150	150	48	36	84	44	77	121
% App. Total	0	100		57.1	42.9		36.4	63.6	
PHF	.000	.765	.765	.632	.818	.700	.846	.837	.864

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City of Fontana
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Weather: Clear

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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	371	371	97	92	189	283	60	343	903
04:15 PM	0	353	353	99	92	191	286	68	354	898
04:30 PM	0	414	414	105	98	203	294	73	367	984
04:45 PM	0	370	370	97	108	205	295	82	377	952
Total	0	1508	1508	398	390	788	1158	283	1441	3737
05:00 PM	0	345	345	103	85	188	287	78	365	898
05:15 PM	0	315	315	84	114	198	281	88	369	882
05:30 PM	0	334	334	98	101	199	283	76	359	892
05:45 PM	0	294	294	108	98	206	249	57	306	806
Total	0	1288	1288	393	398	791	1100	299	1399	3478
Grand Total	0	2796	2796	791	788	1579	2258	582	2840	7215
Apprch %	0	100		50.1	49.9		79.5	20.5		
Total %	0	38.8	38.8	11	10.9	21.9	31.3	8.1	39.4	
Passenger Vehicles	0	2374	2374	636	641	1277	2020	463	2483	6134
% Passenger Vehicles	0	84.9	84.9	80.4	81.3	80.9	89.5	79.6	87.4	85
Large 2 Axle Vehicles	0	86	86	26	27	53	43	12	55	194
% Large 2 Axle Vehicles	0	3.1	3.1	3.3	3.4	3.4	1.9	2.1	1.9	2.7
3 Axle Vehicles	0	135	135	35	39	74	71	23	94	303
% 3 Axle Vehicles	0	4.8	4.8	4.4	4.9	4.7	3.1	4	3.3	4.2
4+ Axle Trucks	0	201	201	94	81	175	124	84	208	584
% 4+ Axle Trucks	0	7.2	7.2	11.9	10.3	11.1	5.5	14.4	7.3	8.1

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	371	371	97	92	189	283	60	343	903
04:15 PM	0	353	353	99	92	191	286	68	354	898
04:30 PM	0	**414**	**414**	**105**	98	203	294	73	367	**984**
04:45 PM	0	370	370	97	**108**	**205**	**295**	**82**	**377**	952
Total Volume	0	1508	1508	398	390	788	1158	283	1441	3737
% App. Total	0	100		50.5	49.5		80.4	19.6		
PHF	.000	.911	.911	.948	.903	.961	.981	.863	.956	.949

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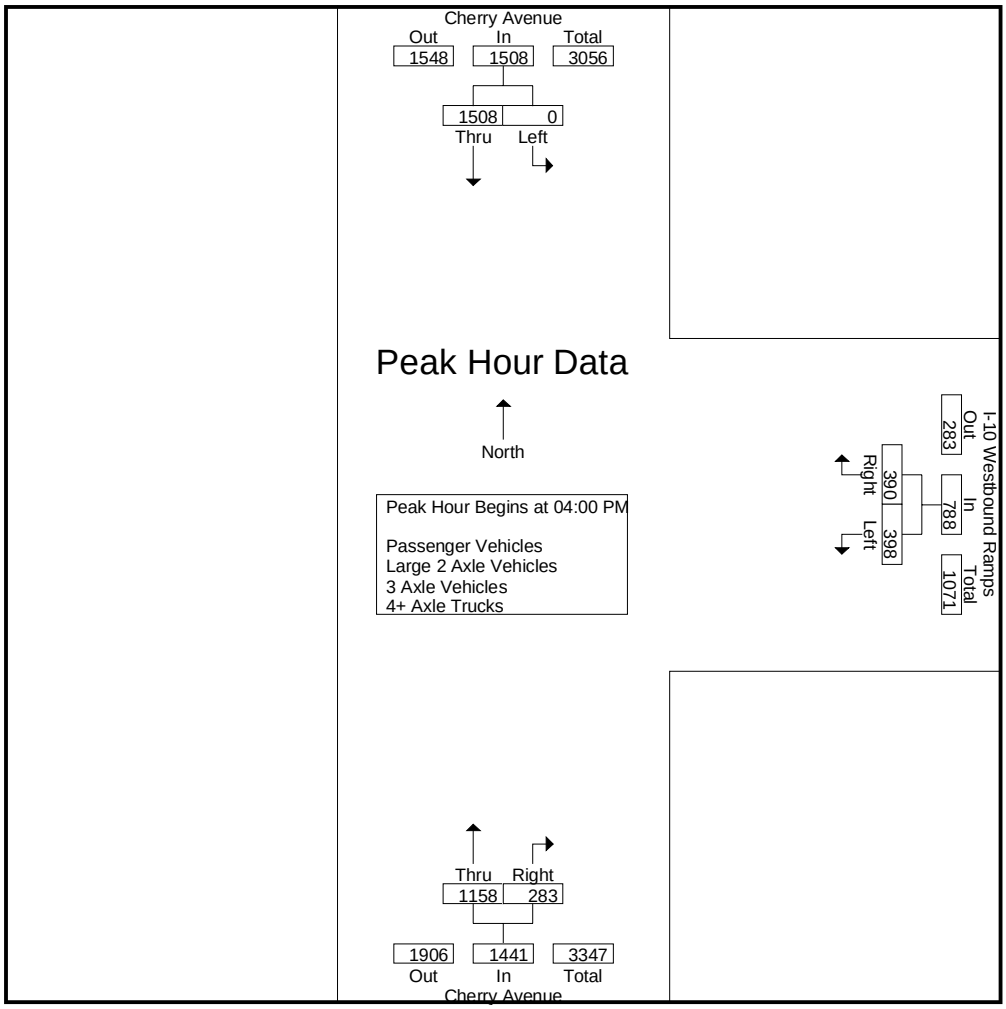

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:30 PM			04:30 PM		
+0 mins.	0	371	371	**105**	98	203	294	73	367
+15 mins.	0	353	353	97	108	**205**	**295**	82	**377**
+30 mins.	0	**414**	**414**	103	85	188	287	78	365
+45 mins.	0	370	370	84	**114**	198	281	**88**	369
Total Volume	0	1508	1508	389	405	794	1157	321	1478
% App. Total	0	100		49	51		78.3	21.7	
PHF	.000	.911	.911	.926	.888	.968	.981	.912	.980

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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	306	306	68	80	148	252	41	293	747
04:15 PM	0	298	298	85	66	151	264	55	319	768
04:30 PM	0	350	350	80	78	158	253	59	312	820
04:45 PM	0	329	329	89	98	187	258	65	323	839
Total	0	1283	1283	322	322	644	1027	220	1247	3174
05:00 PM	0	296	296	76	65	141	254	63	317	754
05:15 PM	0	261	261	61	95	156	260	70	330	747
05:30 PM	0	279	279	84	86	170	259	62	321	770
05:45 PM	0	255	255	93	73	166	220	48	268	689
Total	0	1091	1091	314	319	633	993	243	1236	2960
Grand Total	0	2374	2374	636	641	1277	2020	463	2483	6134
Apprch %	0	100		49.8	50.2		81.4	18.6		
Total %	0	38.7	38.7	10.4	10.4	20.8	32.9	7.5	40.5	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	306	306	68	80	148	252	41	293	747
04:15 PM	0	298	298	85	66	151	**264**	55	319	768
04:30 PM	0	**350**	**350**	80	78	158	253	59	312	820
04:45 PM	0	329	329	**89**	**98**	**187**	258	**65**	**323**	**839**
Total Volume	0	1283	1283	322	322	644	1027	220	1247	3174
% App. Total	0	100		50	50		82.4	17.6		
PHF	.000	.916	.916	.904	.821	.861	.973	.846	.965	.946

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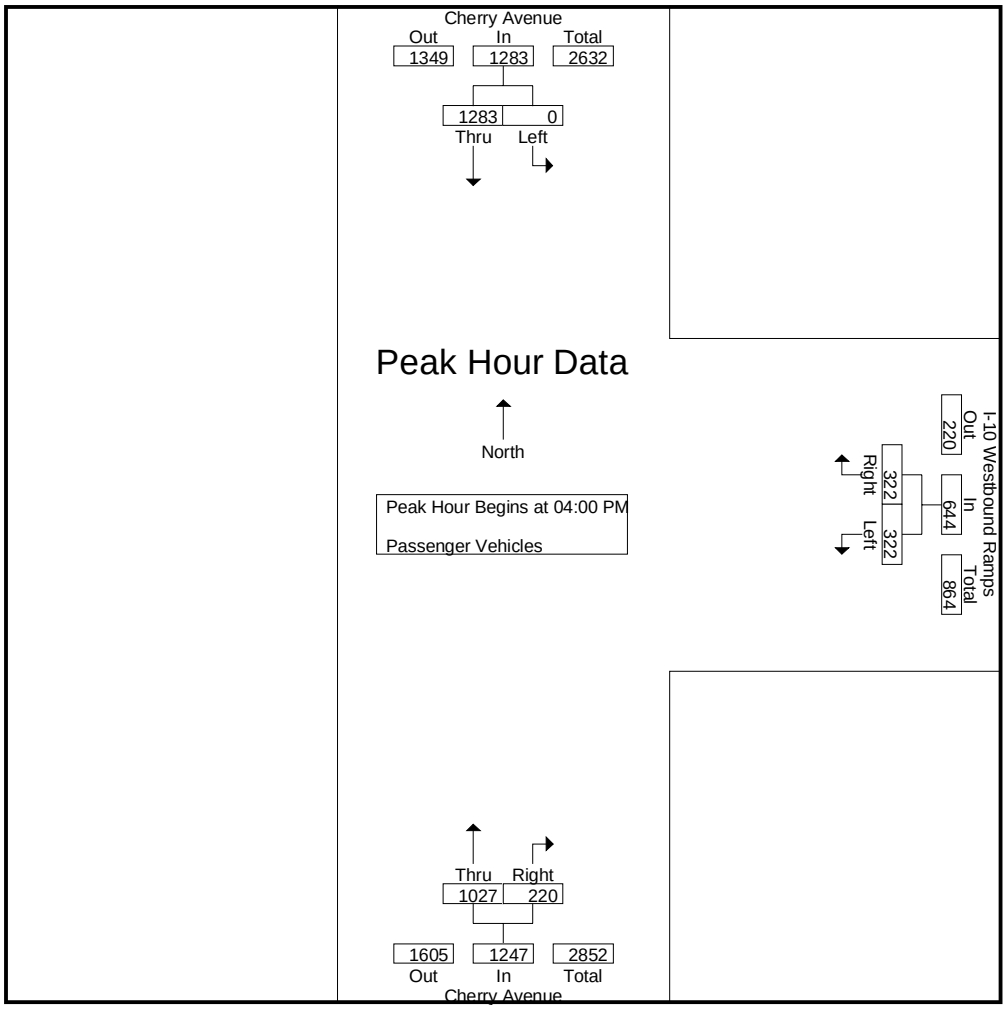

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	306	306	68	80	148	252	41	293
+15 mins.	0	298	298	85	66	151	**264**	55	319
+30 mins.	0	**350**	**350**	80	78	158	253	59	312
+45 mins.	0	329	329	**89**	**98**	**187**	258	**65**	**323**
Total Volume	0	1283	1283	322	322	644	1027	220	1247
% App. Total	0	100		50	50		82.4	17.6	
PHF	.000	.916	.916	.904	.821	.861	.973	.846	.965

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City of Fontana
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Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	13	13	4	1	5	7	3	10	28
04:15 PM	0	17	17	3	6	9	3	1	4	30
04:30 PM	0	9	9	3	2	5	8	0	8	22
04:45 PM	0	14	14	2	2	4	8	2	10	28
Total	0	53	53	12	11	23	26	6	32	108
05:00 PM	0	9	9	7	5	12	4	2	6	27
05:15 PM	0	9	9	3	6	9	4	2	6	24
05:30 PM	0	11	11	2	2	4	6	1	7	22
05:45 PM	0	4	4	2	3	5	3	1	4	13
Total	0	33	33	14	16	30	17	6	23	86
Grand Total	0	86	86	26	27	53	43	12	55	194
Apprch %	0	100		49.1	50.9		78.2	21.8		
Total %	0	44.3	44.3	13.4	13.9	27.3	22.2	6.2	28.4	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	13	13	**4**	1	5	7	**3**	**10**	28
04:15 PM	0	**17**	**17**	3	**6**	**9**	3	1	4	**30**
04:30 PM	0	9	9	3	2	5	**8**	0	8	22
04:45 PM	0	14	14	2	2	4	8	2	10	28
Total Volume	0	53	53	12	11	23	26	6	32	108
% App. Total	0	100		52.2	47.8		81.2	18.8		
PHF	.000	.779	.779	.750	.458	.639	.813	.500	.800	.900

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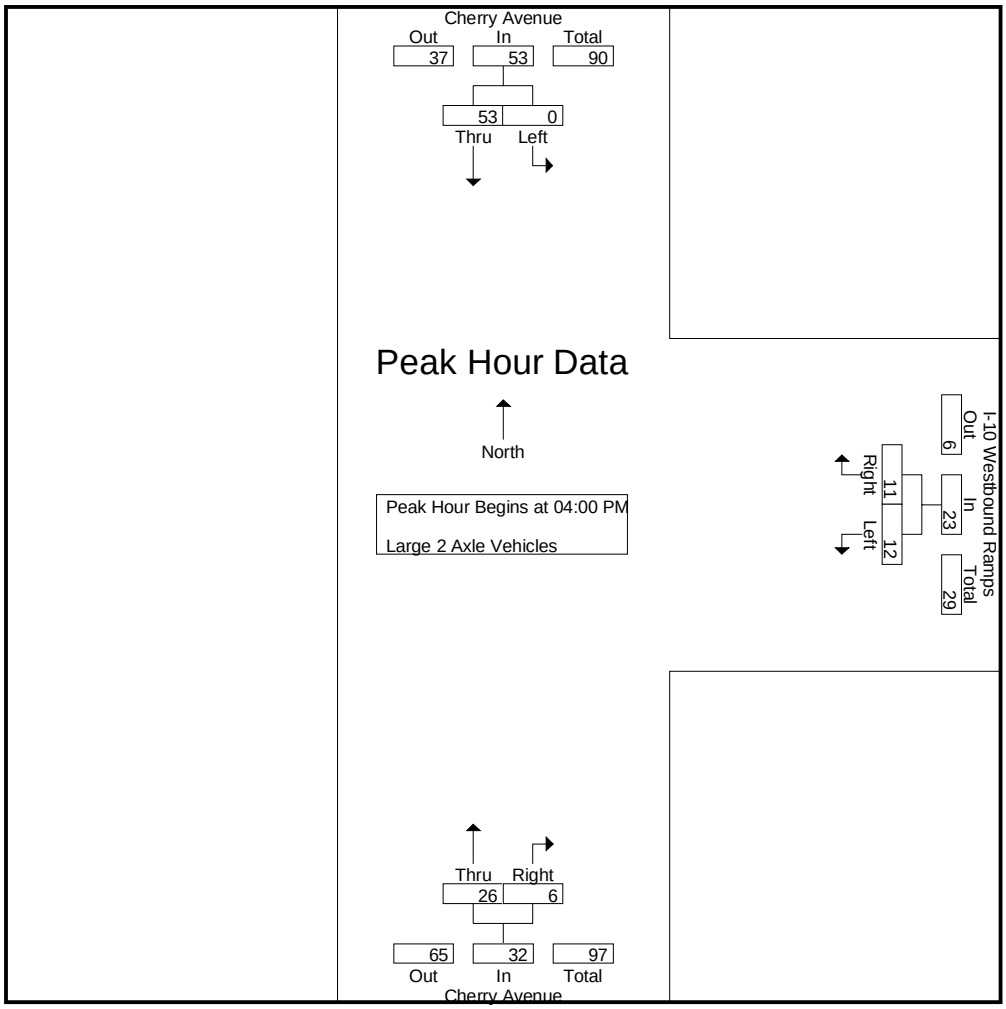

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	13	13	**4**	1	5	7	**3**	**10**
+15 mins.	0	**17**	**17**	3	**6**	**9**	3	1	4
+30 mins.	0	9	9	3	2	5	**8**	0	8
+45 mins.	0	14	14	2	2	4	8	2	10
Total Volume	0	53	53	12	11	23	26	6	32
% App. Total	0	100		52.2	47.8		81.2	18.8	
PHF	.000	.779	.779	.750	.458	.639	.813	.500	.800

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Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	21	21	7	1	8	9	4	13	42
04:15 PM	0	21	21	3	7	10	11	3	14	45
04:30 PM	0	22	22	4	7	11	13	0	13	46
04:45 PM	0	10	10	0	3	3	9	4	13	26
Total	0	74	74	14	18	32	42	11	53	159
05:00 PM	0	14	14	5	7	12	9	3	12	38
05:15 PM	0	18	18	9	3	12	5	3	8	38
05:30 PM	0	19	19	3	4	7	6	3	9	35
05:45 PM	0	10	10	4	7	11	9	3	12	33
Total	0	61	61	21	21	42	29	12	41	144
Grand Total	0	135	135	35	39	74	71	23	94	303
Apprch %	0	100		47.3	52.7		75.5	24.5		
Total %	0	44.6	44.6	11.6	12.9	24.4	23.4	7.6	31	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	21	21	**7**	1	8	9	**4**	13	42
04:15 PM	0	21	21	3	**7**	10	11	3	**14**	45
04:30 PM	0	**22**	**22**	4	7	**11**	**13**	0	13	**46**
04:45 PM	0	10	10	0	3	3	9	4	13	26
Total Volume	0	74	74	14	18	32	42	11	53	159
% App. Total	0	100		43.8	56.2		79.2	20.8		
PHF	.000	.841	.841	.500	.643	.727	.808	.688	.946	.864

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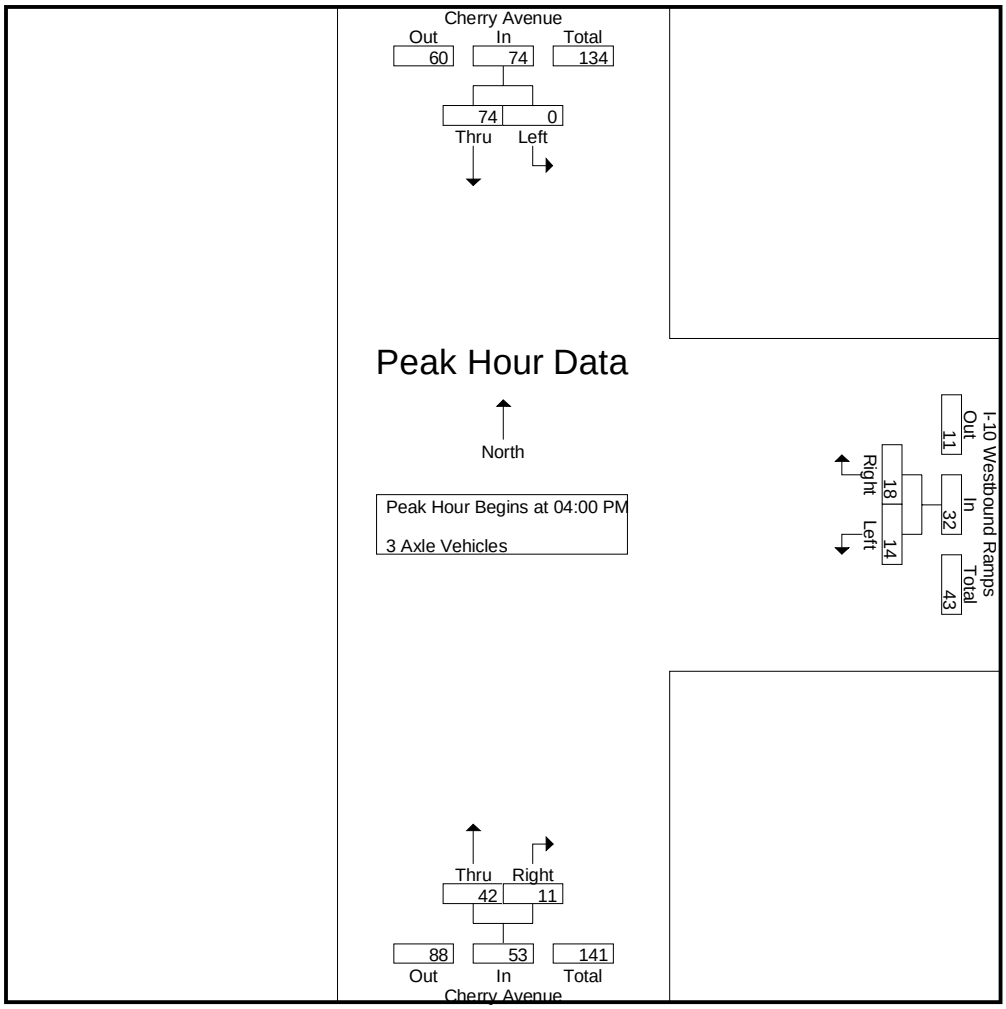

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	21	21	**7**	1	8	9	**4**	13
+15 mins.	0	21	21	3	**7**	10	11	3	**14**
+30 mins.	0	**22**	**22**	4	7	**11**	**13**	0	13
+45 mins.	0	10	10	0	3	3	9	4	13
Total Volume	0	74	74	14	18	32	42	11	53
% App. Total	0	100		43.8	56.2		79.2	20.8	
PHF	.000	.841	.841	.500	.643	.727	.808	.688	.946

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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	31	31	18	10	28	15	12	27	86
04:15 PM	0	17	17	8	13	21	8	9	17	55
04:30 PM	0	33	33	18	11	29	20	14	34	96
04:45 PM	0	17	17	6	5	11	20	11	31	59
Total	0	98	98	50	39	89	63	46	109	296
05:00 PM	0	26	26	15	8	23	20	10	30	79
05:15 PM	0	27	27	11	10	21	12	13	25	73
05:30 PM	0	25	25	9	9	18	12	10	22	65
05:45 PM	0	25	25	9	15	24	17	5	22	71
Total	0	103	103	44	42	86	61	38	99	288
Grand Total	0	201	201	94	81	175	124	84	208	584
Apprch %	0	100		53.7	46.3		59.6	40.4		
Total %	0	34.4	34.4	16.1	13.9	30	21.2	14.4	35.6	

	Cherry Avenue Southbound			I-10 Westbound Ramps Westbound			Cherry Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	31	31	**18**	10	28	15	12	27	86
04:15 PM	0	17	17	8	**13**	21	8	9	17	55
04:30 PM	0	**33**	**33**	18	11	**29**	**20**	**14**	**34**	**96**
04:45 PM	0	17	17	6	5	11	20	11	31	59
Total Volume	0	98	98	50	39	89	63	46	109	296
% App. Total	0	100		56.2	43.8		57.8	42.2		
PHF	.000	.742	.742	.694	.750	.767	.788	.821	.801	.771

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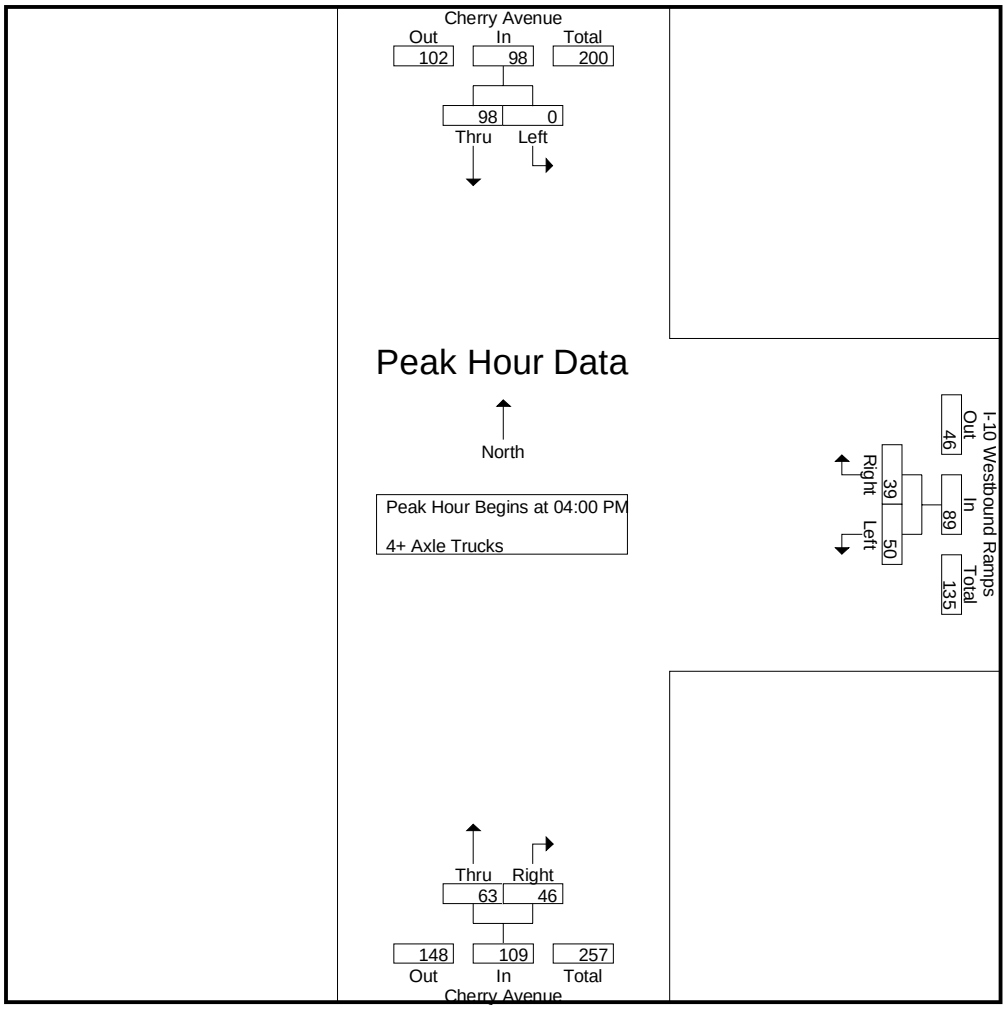

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	31	31	**18**	10	28	15	12	27
+15 mins.	0	17	17	8	**13**	21	8	9	17
+30 mins.	0	**33**	**33**	18	11	**29**	**20**	**14**	**34**
+45 mins.	0	17	17	6	5	11	20	11	31
Total Volume	0	98	98	50	39	89	63	46	109
% App. Total	0	100		56.2	43.8		57.8	42.2	
PHF	.000	.742	.742	.694	.750	.767	.788	.821	.801

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	154	127	281	64	0	113	177	0	128	45	173	0	0	0	0	631
07:15 AM	0	201	118	319	82	0	127	209	0	151	54	205	0	0	0	0	733
07:30 AM	0	245	105	350	77	0	112	189	0	162	60	222	0	0	0	0	761
07:45 AM	0	242	108	350	93	0	120	213	0	147	53	200	0	0	0	0	763
Total	0	842	458	1300	316	0	472	788	0	588	212	800	0	0	0	0	2888
08:00 AM	0	233	102	335	71	0	68	139	0	156	42	198	0	0	0	0	672
08:15 AM	0	233	98	331	69	0	75	144	0	186	67	253	0	0	0	0	728
08:30 AM	0	148	93	241	60	0	85	145	0	150	52	202	0	0	0	0	588
08:45 AM	0	160	97	257	77	0	100	177	0	127	51	178	0	0	0	0	612
Total	0	774	390	1164	277	0	328	605	0	619	212	831	0	0	0	0	2600
Grand Total	0	1616	848	2464	593	0	800	1393	0	1207	424	1631	0	0	0	0	5488
Apprch %	0	65.6	34.4		42.6	0	57.4		0	74	26		0	0	0		
Total %	0	29.4	15.5	44.9	10.8	0	14.6	25.4	0	22	7.7	29.7	0	0	0	0	
Passenger Vehicles	0	1498	796	2294	532	0	748	1280	0	1133	344	1477	0	0	0	0	5051
% Passenger Vehicles	0	92.7	93.9	93.1	89.7	0	93.5	91.9	0	93.9	81.1	90.6	0	0	0	0	92
Large 2 Axle Vehicles	0	40	22	62	17	0	21	38	0	39	14	53	0	0	0	0	153
% Large 2 Axle Vehicles	0	2.5	2.6	2.5	2.9	0	2.6	2.7	0	3.2	3.3	3.2	0	0	0	0	2.8
3 Axle Vehicles	0	29	7	36	10	0	20	30	0	9	15	24	0	0	0	0	90
% 3 Axle Vehicles	0	1.8	0.8	1.5	1.7	0	2.5	2.2	0	0.7	3.5	1.5	0	0	0	0	1.6
4+ Axle Trucks	0	49	23	72	34	0	11	45	0	26	51	77	0	0	0	0	194
% 4+ Axle Trucks	0	3	2.7	2.9	5.7	0	1.4	3.2	0	2.2	12	4.7	0	0	0	0	3.5

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	201	**118**	319	82	0	**127**	209	0	151	54	205	0	0	0	0	733
07:30 AM	0	**245**	105	**350**	77	0	112	189	0	**162**	**60**	**222**	0	0	0	0	761
07:45 AM	0	242	108	350	**93**	0	120	**213**	0	147	53	200	0	0	0	0	**763**
08:00 AM	0	233	102	335	71	0	68	139	0	156	42	198	0	0	0	0	672
Total Volume	0	921	433	1354	323	0	427	750	0	616	209	825	0	0	0	0	2929
% App. Total	0	68	32		43.1	0	56.9		0	74.7	25.3		0	0	0		
PHF	.000	.940	.917	.967	.868	.000	.841	.880	.000	.951	.871	.929	.000	.000	.000	.000	.960

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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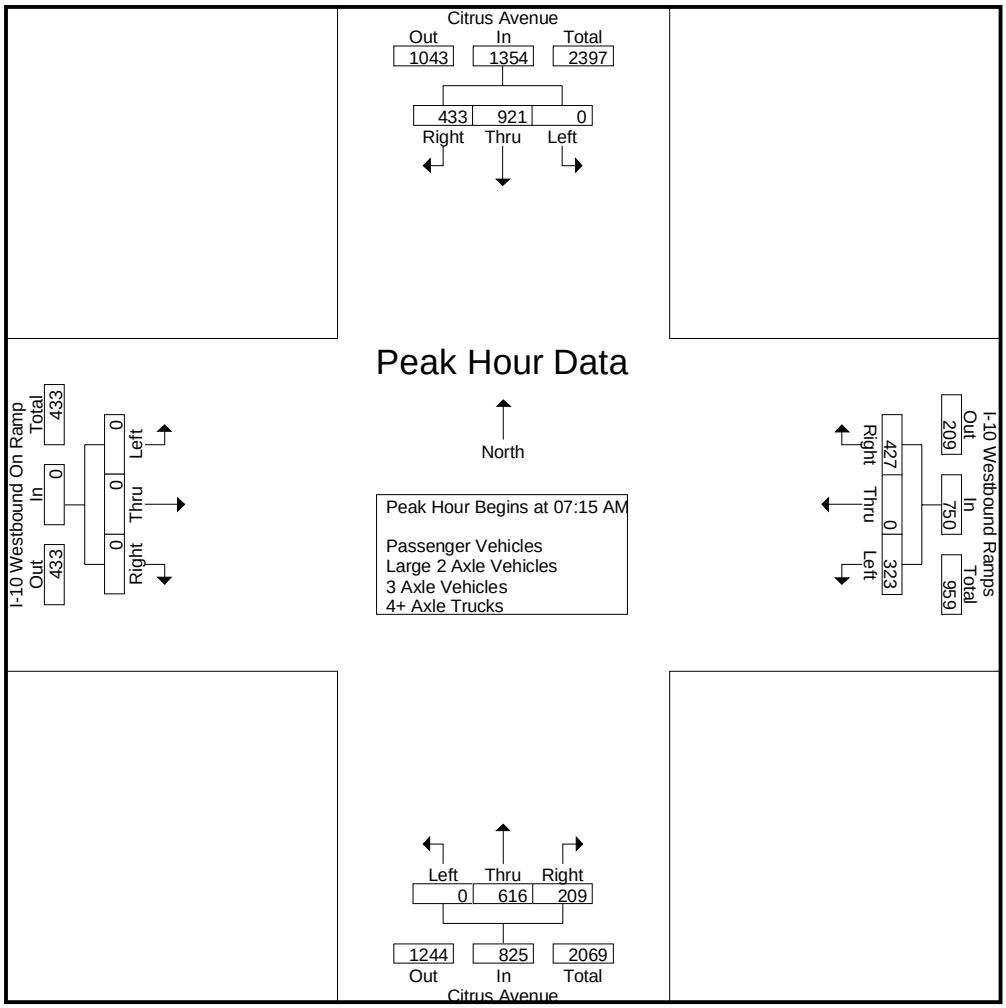

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:30 AM				07:00 AM			
+0 mins.	0	**245**	105	**350**	64	0	113	177	0	162	60	222	0	0	0	0
+15 mins.	0	242	**108**	350	82	0	**127**	209	0	147	53	200	0	0	0	0
+30 mins.	0	233	102	335	77	0	112	189	0	156	42	198	0	0	0	0
+45 mins.	0	233	98	331	**93**	0	120	**213**	0	**186**	**67**	**253**	0	0	0	0
Total Volume	0	953	413	1366	316	0	472	788	0	651	222	873	0	0	0	0
% App. Total	0	69.8	30.2		40.1	0	59.9		0	74.6	25.4		0	0	0	
PHF	.000	.972	.956	.976	.849	.000	.929	.925	.000	.875	.828	.863	.000	.000	.000	.000

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Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	144	122	266	60	0	106	166	0	119	41	160	0	0	0	0	592
07:15 AM	0	190	114	304	73	0	122	195	0	145	49	194	0	0	0	0	693
07:30 AM	0	232	100	332	70	0	106	176	0	153	45	198	0	0	0	0	706
07:45 AM	0	225	97	322	88	0	115	203	0	142	40	182	0	0	0	0	707
Total	0	791	433	1224	291	0	449	740	0	559	175	734	0	0	0	0	2698
08:00 AM	0	221	98	319	66	0	61	127	0	142	34	176	0	0	0	0	622
08:15 AM	0	220	88	308	64	0	73	137	0	175	58	233	0	0	0	0	678
08:30 AM	0	126	86	212	50	0	76	126	0	135	43	178	0	0	0	0	516
08:45 AM	0	140	91	231	61	0	89	150	0	122	34	156	0	0	0	0	537
Total	0	707	363	1070	241	0	299	540	0	574	169	743	0	0	0	0	2353
Grand Total	0	1498	796	2294	532	0	748	1280	0	1133	344	1477	0	0	0	0	5051
Apprch %	0	65.3	34.7		41.6	0	58.4		0	76.7	23.3		0	0	0		
Total %	0	29.7	15.8	45.4	10.5	0	14.8	25.3	0	22.4	6.8	29.2	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	190	**114**	304	73	0	**122**	195	0	145	**49**	194	0	0	0	0	693
07:30 AM	0	**232**	100	**332**	70	0	106	176	0	**153**	45	**198**	0	0	0	0	706
07:45 AM	0	225	97	322	**88**	0	115	**203**	0	142	40	182	0	0	0	0	**707**
08:00 AM	0	221	98	319	66	0	61	127	0	142	34	176	0	0	0	0	622
Total Volume	0	868	409	1277	297	0	404	701	0	582	168	750	0	0	0	0	2728
% App. Total	0	68	32		42.4	0	57.6		0	77.6	22.4		0	0	0		
PHF	.000	.935	.897	.962	.844	.000	.828	.863	.000	.951	.857	.947	.000	.000	.000	.000	.965

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File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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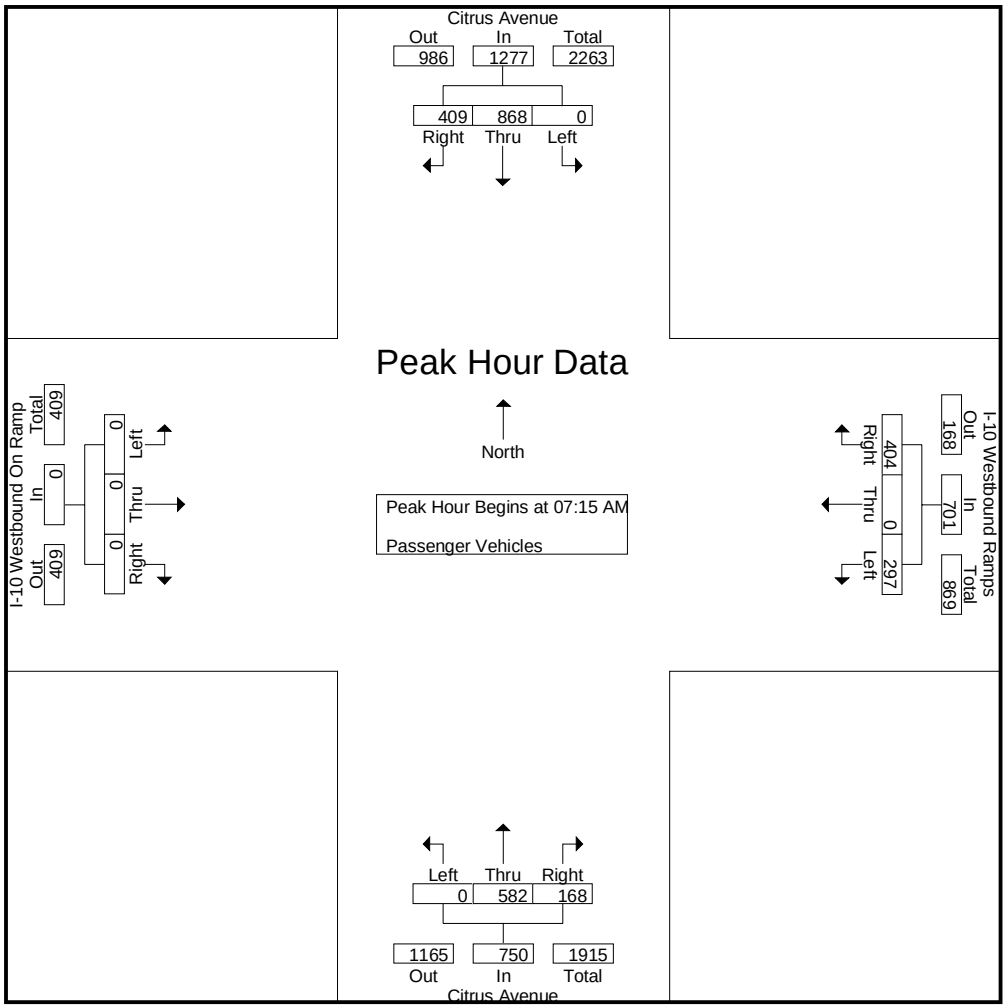

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	190	**114**	304	73	0	**122**	195	0	145	**49**	194	0	0	0	0
+15 mins.	0	**232**	100	**332**	70	0	106	176	0	**153**	45	**198**	0	0	0	0
+30 mins.	0	225	97	322	**88**	0	115	**203**	0	142	40	182	0	0	0	0
+45 mins.	0	221	98	319	66	0	61	127	0	142	34	176	0	0	0	0
Total Volume	0	868	409	1277	297	0	404	701	0	582	168	750	0	0	0	0
% App. Total	0	68	32		42.4	0	57.6		0	77.6	22.4		0	0	0	
PHF	.000	.935	.897	.962	.844	.000	.828	.863	.000	.951	.857	.947	.000	.000	.000	.000

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	4	7	1	0	2	3	0	5	0	5	0	0	0	0	15
07:15 AM	0	5	2	7	1	0	1	2	0	3	2	5	0	0	0	0	14
07:30 AM	0	5	1	6	0	0	3	3	0	4	2	6	0	0	0	0	15
07:45 AM	0	6	4	10	3	0	1	4	0	4	0	4	0	0	0	0	18
Total	0	19	11	30	5	0	7	12	0	16	4	20	0	0	0	0	62
08:00 AM	0	4	1	5	1	0	5	6	0	7	2	9	0	0	0	0	20
08:15 AM	0	4	4	8	1	0	1	2	0	6	3	9	0	0	0	0	19
08:30 AM	0	4	3	7	4	0	4	8	0	6	3	9	0	0	0	0	24
08:45 AM	0	9	3	12	6	0	4	10	0	4	2	6	0	0	0	0	28
Total	0	21	11	32	12	0	14	26	0	23	10	33	0	0	0	0	91
Grand Total	0	40	22	62	17	0	21	38	0	39	14	53	0	0	0	0	153
Apprch %	0	64.5	35.5		44.7	0	55.3		0	73.6	26.4		0	0	0		
Total %	0	26.1	14.4	40.5	11.1	0	13.7	24.8	0	25.5	9.2	34.6	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	5	2	7	1	0	1	2	0	3	**2**	5	0	0	0	0	14
07:30 AM	0	5	1	6	0	0	3	3	0	4	2	6	0	0	0	0	15
07:45 AM	0	**6**	**4**	**10**	**3**	0	1	4	0	4	0	4	0	0	0	0	18
08:00 AM	0	4	1	5	1	0	**5**	**6**	0	**7**	2	**9**	0	0	0	0	**20**
Total Volume	0	20	8	28	5	0	10	15	0	18	6	24	0	0	0	0	67
% App. Total	0	71.4	28.6		33.3	0	66.7		0	75	25		0	0	0		
PHF	.000	.833	.500	.700	.417	.000	.500	.625	.000	.643	.750	.667	.000	.000	.000	.000	.838

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City of Fontana
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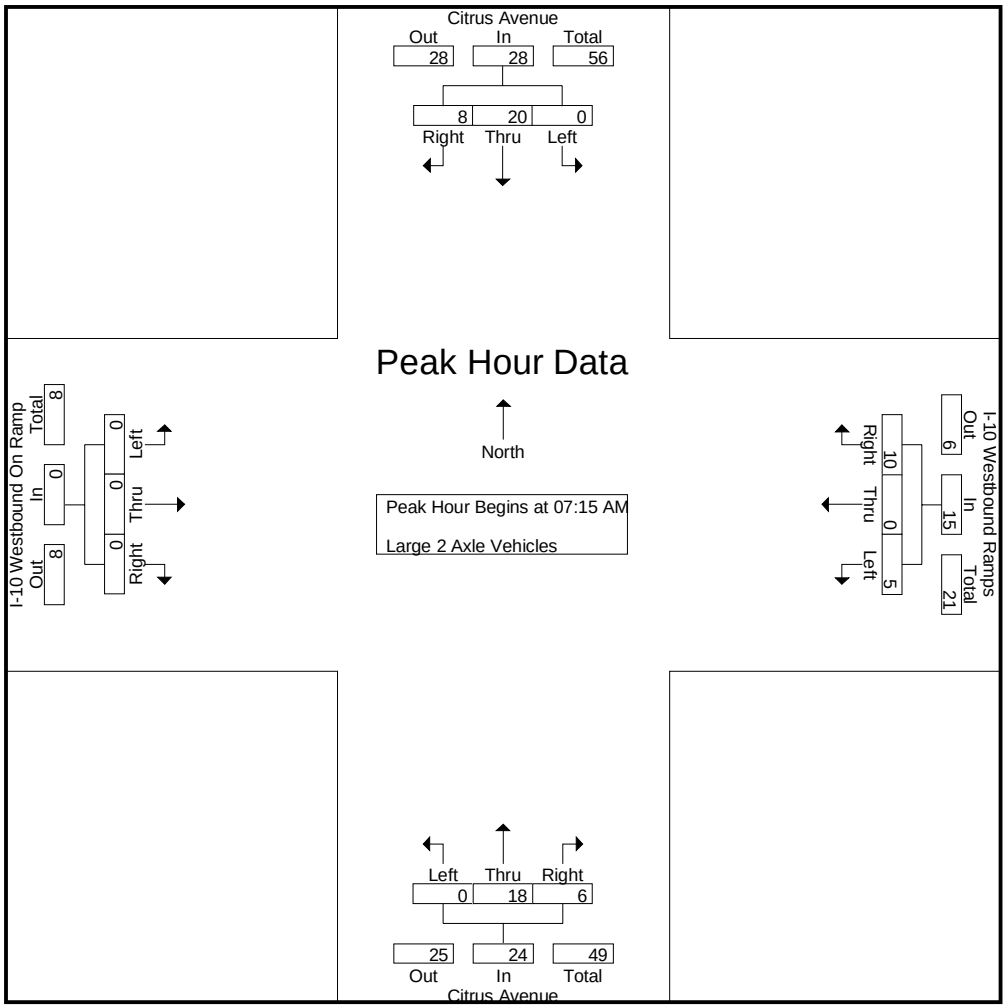
File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	5	2	7	1	0	1	2	0	3	**2**	5	0	0	0	0
+15 mins.	0	5	1	6	0	0	3	3	0	4	2	6	0	0	0	0
+30 mins.	0	**6**	**4**	**10**	**3**	0	1	4	0	4	0	4	0	0	0	0
+45 mins.	0	4	1	5	1	0	**5**	**6**	0	**7**	2	**9**	0	0	0	0
Total Volume	0	20	8	28	5	0	10	15	0	18	6	24	0	0	0	0
% App. Total	0	71.4	28.6		33.3	0	66.7		0	75	25		0	0	0	
PHF	.000	.833	.500	.700	.417	.000	.500	.625	.000	.643	.750	.667	.000	.000	.000	.000

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
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Groups Printed- 3 Axle Vehicles

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	0	3	0	0	3	3	0	1	1	2	0	0	0	0	8
07:15 AM	0	1	0	1	1	0	2	3	0	0	0	0	0	0	0	0	4
07:30 AM	0	3	1	4	3	0	3	6	0	2	2	4	0	0	0	0	14
07:45 AM	0	7	0	7	0	0	3	3	0	0	5	5	0	0	0	0	15
Total	0	14	1	15	4	0	11	15	0	3	8	11	0	0	0	0	41
08:00 AM	0	3	2	5	1	0	2	3	0	1	3	4	0	0	0	0	12
08:15 AM	0	3	1	4	1	0	1	2	0	1	1	2	0	0	0	0	8
08:30 AM	0	7	2	9	1	0	3	4	0	4	0	4	0	0	0	0	17
08:45 AM	0	2	1	3	3	0	3	6	0	0	3	3	0	0	0	0	12
Total	0	15	6	21	6	0	9	15	0	6	7	13	0	0	0	0	49
Grand Total	0	29	7	36	10	0	20	30	0	9	15	24	0	0	0	0	90
Apprch %	0	80.6	19.4		33.3	0	66.7		0	37.5	62.5		0	0	0		
Total %	0	32.2	7.8	40	11.1	0	22.2	33.3	0	10	16.7	26.7	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	1	0	1	1	0	2	3	0	0	0	0	0	0	0	0	4
07:30 AM	0	3	1	4	**3**	0	**3**	**6**	0	**2**	2	4	0	0	0	0	14
07:45 AM	0	**7**	0	**7**	0	0	3	3	0	0	**5**	**5**	0	0	0	0	**15**
08:00 AM	0	3	**2**	5	1	0	2	3	0	1	3	4	0	0	0	0	12
Total Volume	0	14	3	17	5	0	10	15	0	3	10	13	0	0	0	0	45
% App. Total	0	82.4	17.6		33.3	0	66.7		0	23.1	76.9		0	0	0		
PHF	.000	.500	.375	.607	.417	.000	.833	.625	.000	.375	.500	.650	.000	.000	.000	.000	.750

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City of Fontana
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E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
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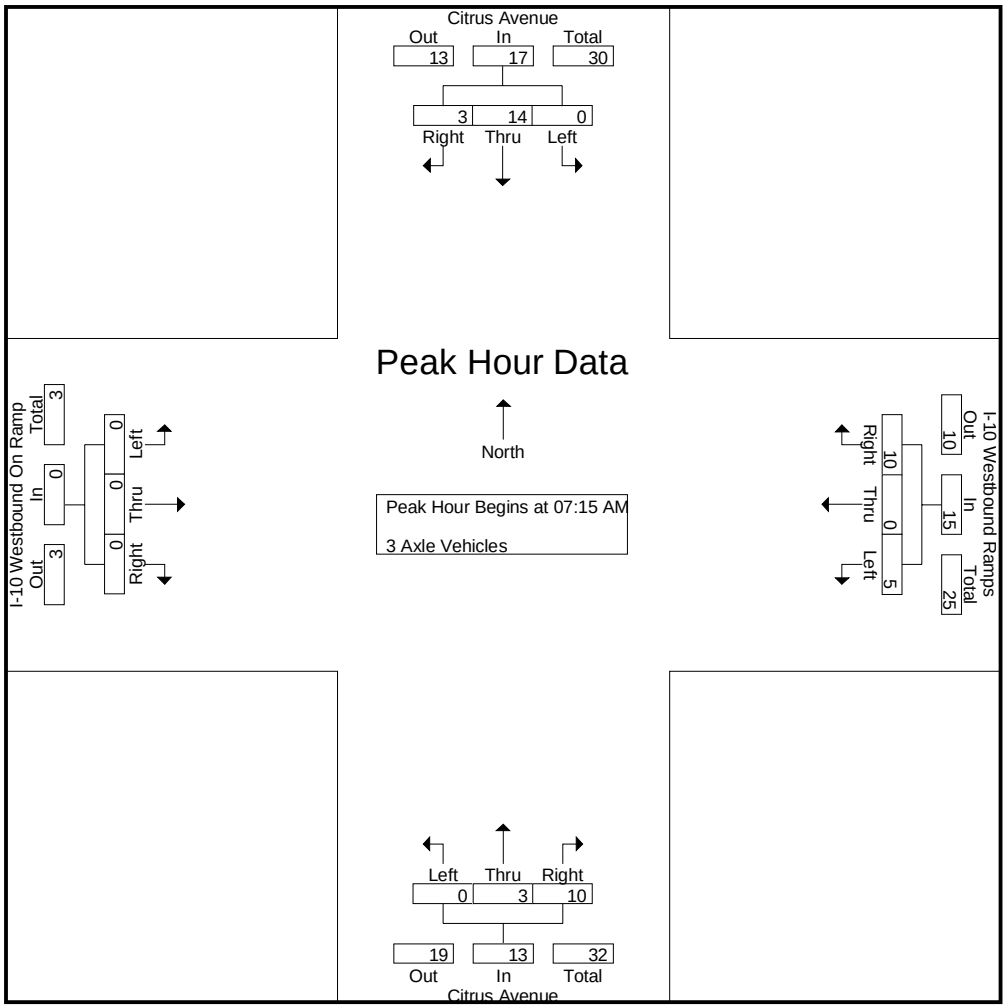

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	1	0	1	1	0	2	3	0	0	0	0	0	0	0	0
+15 mins.	0	3	1	4	**3**	0	**3**	**6**	0	**2**	2	4	0	0	0	0
+30 mins.	0	**7**	0	**7**	0	0	3	3	0	0	**5**	**5**	0	0	0	0
+45 mins.	0	3	**2**	5	1	0	2	3	0	1	3	4	0	0	0	0
Total Volume	0	14	3	17	5	0	10	15	0	3	10	13	0	0	0	0
% App. Total	0	82.4	17.6		33.3	0	66.7		0	23.1	76.9		0	0	0	
PHF	.000	.500	.375	.607	.417	.000	.833	.625	.000	.375	.500	.650	.000	.000	.000	.000

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E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	4	1	5	3	0	2	5	0	3	3	6	0	0	0	0	16
07:15 AM	0	5	2	7	7	0	2	9	0	3	3	6	0	0	0	0	22
07:30 AM	0	5	3	8	4	0	0	4	0	3	11	14	0	0	0	0	26
07:45 AM	0	4	7	11	2	0	1	3	0	1	8	9	0	0	0	0	23
Total	0	18	13	31	16	0	5	21	0	10	25	35	0	0	0	0	87
08:00 AM	0	5	1	6	3	0	0	3	0	6	3	9	0	0	0	0	18
08:15 AM	0	6	5	11	3	0	0	3	0	4	5	9	0	0	0	0	23
08:30 AM	0	11	2	13	5	0	2	7	0	5	6	11	0	0	0	0	31
08:45 AM	0	9	2	11	7	0	4	11	0	1	12	13	0	0	0	0	35
Total	0	31	10	41	18	0	6	24	0	16	26	42	0	0	0	0	107
Grand Total	0	49	23	72	34	0	11	45	0	26	51	77	0	0	0	0	194
Apprch %	0	68.1	31.9		75.6	0	24.4		0	33.8	66.2		0	0	0		
Total %	0	25.3	11.9	37.1	17.5	0	5.7	23.2	0	13.4	26.3	39.7	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**5**	2	7	**7**	0	**2**	**9**	0	3	3	6	0	0	0	0	22
07:30 AM	0	5	3	8	4	0	0	4	0	3	**11**	**14**	0	0	0	0	**26**
07:45 AM	0	4	**7**	**11**	2	0	1	3	0	1	8	9	0	0	0	0	23
08:00 AM	0	5	1	6	3	0	0	3	0	**6**	3	9	0	0	0	0	18
Total Volume	0	19	13	32	16	0	3	19	0	13	25	38	0	0	0	0	89
% App. Total	0	59.4	40.6		84.2	0	15.8		0	34.2	65.8		0	0	0		
PHF	.000	.950	.464	.727	.571	.000	.375	.528	.000	.542	.568	.679	.000	.000	.000	.000	.856

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W AM
Site Code : 10821516
Start Date : 9/28/2021
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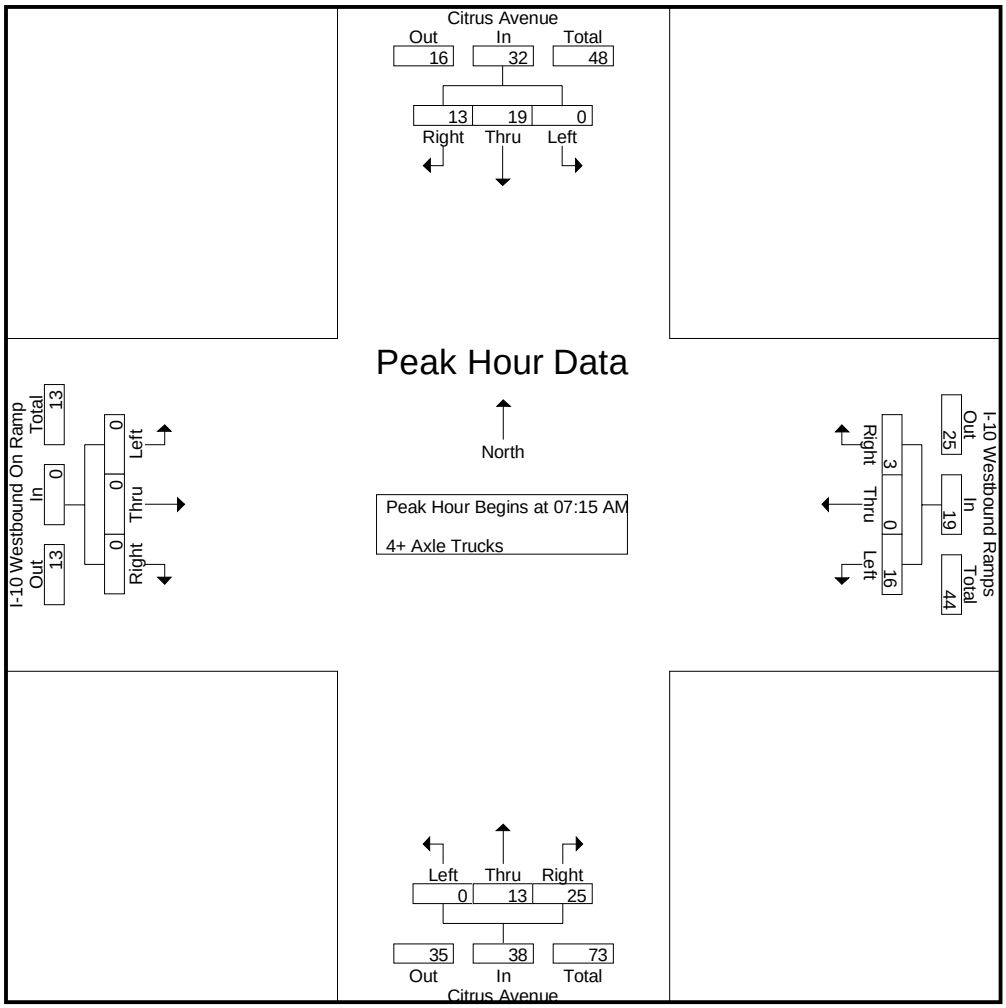

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**5**	2	7	**7**	0	**2**	**9**	0	3	3	6	0	0	0	0
+15 mins.	0	5	3	8	4	0	0	4	0	3	**11**	**14**	0	0	0	0
+30 mins.	0	4	**7**	**11**	2	0	1	3	0	1	8	9	0	0	0	0
+45 mins.	0	5	1	6	3	0	0	3	0	**6**	3	9	0	0	0	0
Total Volume	0	19	13	32	16	0	3	19	0	13	25	38	0	0	0	0
% App. Total	0	59.4	40.6		84.2	0	15.8		0	34.2	65.8		0	0	0	
PHF	.000	.950	.464	.727	.571	.000	.375	.528	.000	.542	.568	.679	.000	.000	.000	.000

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	241	106	347	46	0	134	180	0	275	54	329	0	0	0	0	856
04:15 PM	0	216	118	334	44	0	104	148	0	264	43	307	0	0	0	0	789
04:30 PM	0	199	119	318	52	0	105	157	0	222	69	291	0	0	0	0	766
04:45 PM	0	176	102	278	62	0	108	170	0	273	53	326	0	0	0	0	774
Total	0	832	445	1277	204	0	451	655	0	1034	219	1253	0	0	0	0	3185
05:00 PM	0	195	97	292	55	0	113	168	0	270	49	319	0	0	0	0	779
05:15 PM	0	187	79	266	50	1	113	164	0	237	55	292	0	0	0	0	722
05:30 PM	0	190	101	291	56	0	114	170	0	266	69	335	0	0	0	0	796
05:45 PM	0	180	103	283	52	0	115	167	0	261	74	335	0	0	0	0	785
Total	0	752	380	1132	213	1	455	669	0	1034	247	1281	0	0	0	0	3082
Grand Total	0	1584	825	2409	417	1	906	1324	0	2068	466	2534	0	0	0	0	6267
Apprch %	0	65.8	34.2		31.5	0.1	68.4		0	81.6	18.4		0	0	0		
Total %	0	25.3	13.2	38.4	6.7	0	14.5	21.1	0	33	7.4	40.4	0	0	0	0	
Passenger Vehicles	0	1502	786	2288	371	0	848	1219	0	1999	417	2416	0	0	0	0	5923
% Passenger Vehicles	0	94.8	95.3	95	89	0	93.6	92.1	0	96.7	89.5	95.3	0	0	0	0	94.5
Large 2 Axle Vehicles	0	26	10	36	16	0	18	34	0	35	7	42	0	0	0	0	112
% Large 2 Axle Vehicles	0	1.6	1.2	1.5	3.8	0	2	2.6	0	1.7	1.5	1.7	0	0	0	0	1.8
3 Axle Vehicles	0	18	7	25	2	1	12	15	0	12	12	24	0	0	0	0	64
% 3 Axle Vehicles	0	1.1	0.8	1	0.5	100	1.3	1.1	0	0.6	2.6	0.9	0	0	0	0	1
4+ Axle Trucks	0	38	22	60	28	0	28	56	0	22	30	52	0	0	0	0	168
% 4+ Axle Trucks	0	2.4	2.7	2.5	6.7	0	3.1	4.2	0	1.1	6.4	2.1	0	0	0	0	2.7

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**241**	106	**347**	46	0	**134**	**180**	0	**275**	54	**329**	0	0	0	0	**856**
04:15 PM	0	216	118	334	44	0	104	148	0	264	43	307	0	0	0	0	789
04:30 PM	0	199	**119**	318	52	0	105	157	0	222	**69**	291	0	0	0	0	766
04:45 PM	0	176	102	278	**62**	0	108	170	0	273	53	326	0	0	0	0	774
Total Volume	0	832	445	1277	204	0	451	655	0	1034	219	1253	0	0	0	0	3185
% App. Total	0	65.2	34.8		31.1	0	68.9		0	82.5	17.5		0	0	0		
PHF	.000	.863	.935	.920	.823	.000	.841	.910	.000	.940	.793	.952	.000	.000	.000	.000	.930

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
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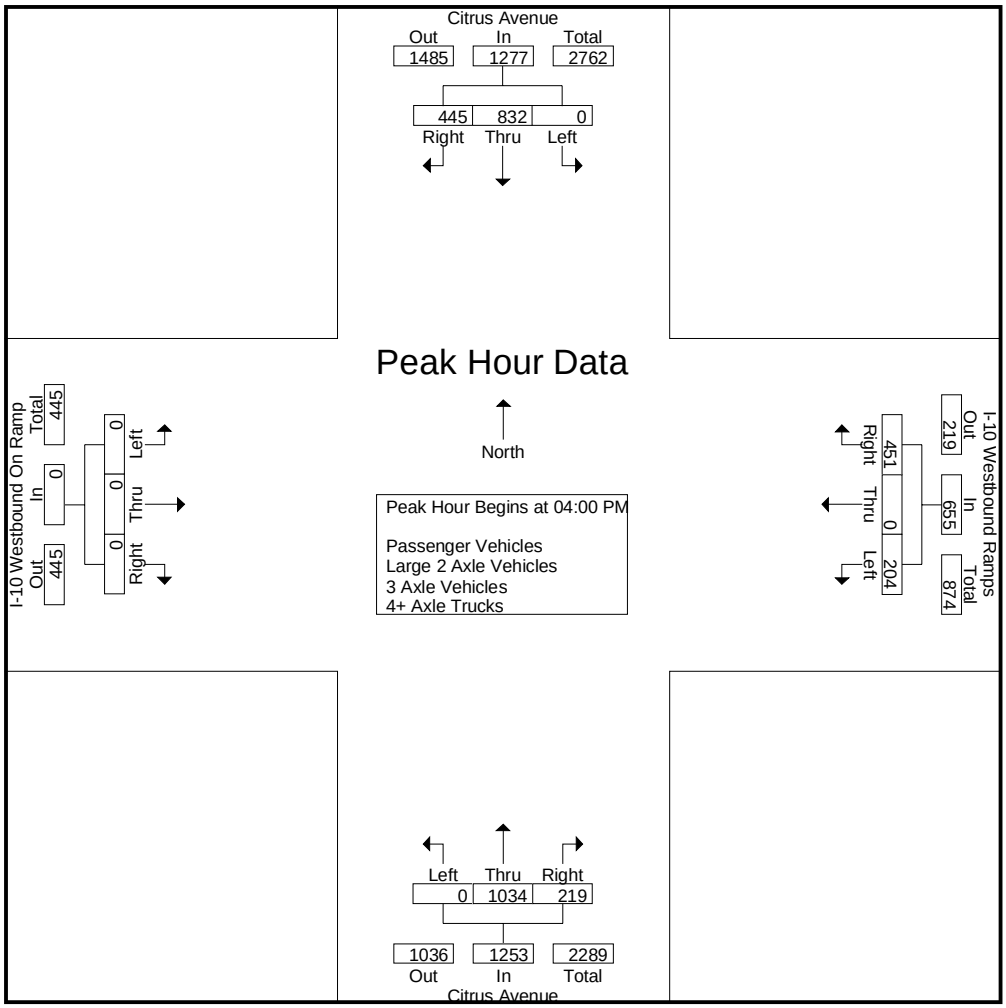

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				05:00 PM				04:00 PM			
+0 mins.	0	**241**	106	**347**	**62**	0	108	**170**	0	**270**	49	319	0	0	0	0
+15 mins.	0	216	118	334	55	0	113	168	0	237	55	292	0	0	0	0
+30 mins.	0	199	**119**	318	50	**1**	113	164	0	266	69	**335**	0	0	0	0
+45 mins.	0	176	102	278	56	0	**114**	170	0	261	**74**	335	0	0	0	0
Total Volume	0	832	445	1277	223	1	448	672	0	1034	247	1281	0	0	0	0
% App. Total	0	65.2	34.8		33.2	0.1	66.7		0	80.7	19.3		0	0	0	
PHF	.000	.863	.935	.920	.899	.250	.982	.988	.000	.957	.834	.956	.000	.000	.000	.000

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City of Fontana
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File Name : 03_FON_Citrus_10W PM
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Groups Printed- Passenger Vehicles

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	231	102	333	39	0	124	163	0	260	45	305	0	0	0	0	801
04:15 PM	0	198	112	310	40	0	96	136	0	252	41	293	0	0	0	0	739
04:30 PM	0	187	114	301	47	0	99	146	0	214	62	276	0	0	0	0	723
04:45 PM	0	168	98	266	54	0	98	152	0	261	47	308	0	0	0	0	726
Total	0	784	426	1210	180	0	417	597	0	987	195	1182	0	0	0	0	2989
05:00 PM	0	186	92	278	47	0	104	151	0	261	41	302	0	0	0	0	731
05:15 PM	0	179	73	252	46	0	110	156	0	235	50	285	0	0	0	0	693
05:30 PM	0	183	97	280	50	0	110	160	0	261	62	323	0	0	0	0	763
05:45 PM	0	170	98	268	48	0	107	155	0	255	69	324	0	0	0	0	747
Total	0	718	360	1078	191	0	431	622	0	1012	222	1234	0	0	0	0	2934
Grand Total	0	1502	786	2288	371	0	848	1219	0	1999	417	2416	0	0	0	0	5923
Apprch %	0	65.6	34.4		30.4	0	69.6		0	82.7	17.3		0	0	0		
Total %	0	25.4	13.3	38.6	6.3	0	14.3	20.6	0	33.7	7	40.8	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**231**	102	**333**	39	0	**124**	**163**	0	260	45	305	0	0	0	0	**801**
04:15 PM	0	198	112	310	40	0	96	136	0	252	41	293	0	0	0	0	739
04:30 PM	0	187	**114**	301	47	0	99	146	0	214	**62**	276	0	0	0	0	723
04:45 PM	0	168	98	266	**54**	0	98	152	0	**261**	47	**308**	0	0	0	0	726
Total Volume	0	784	426	1210	180	0	417	597	0	987	195	1182	0	0	0	0	2989
% App. Total	0	64.8	35.2		30.2	0	69.8		0	83.5	16.5		0	0	0		
PHF	.000	.848	.934	.908	.833	.000	.841	.916	.000	.945	.786	.959	.000	.000	.000	.000	.933

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City of Fontana
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File Name : 03_FON_Citrus_10W PM
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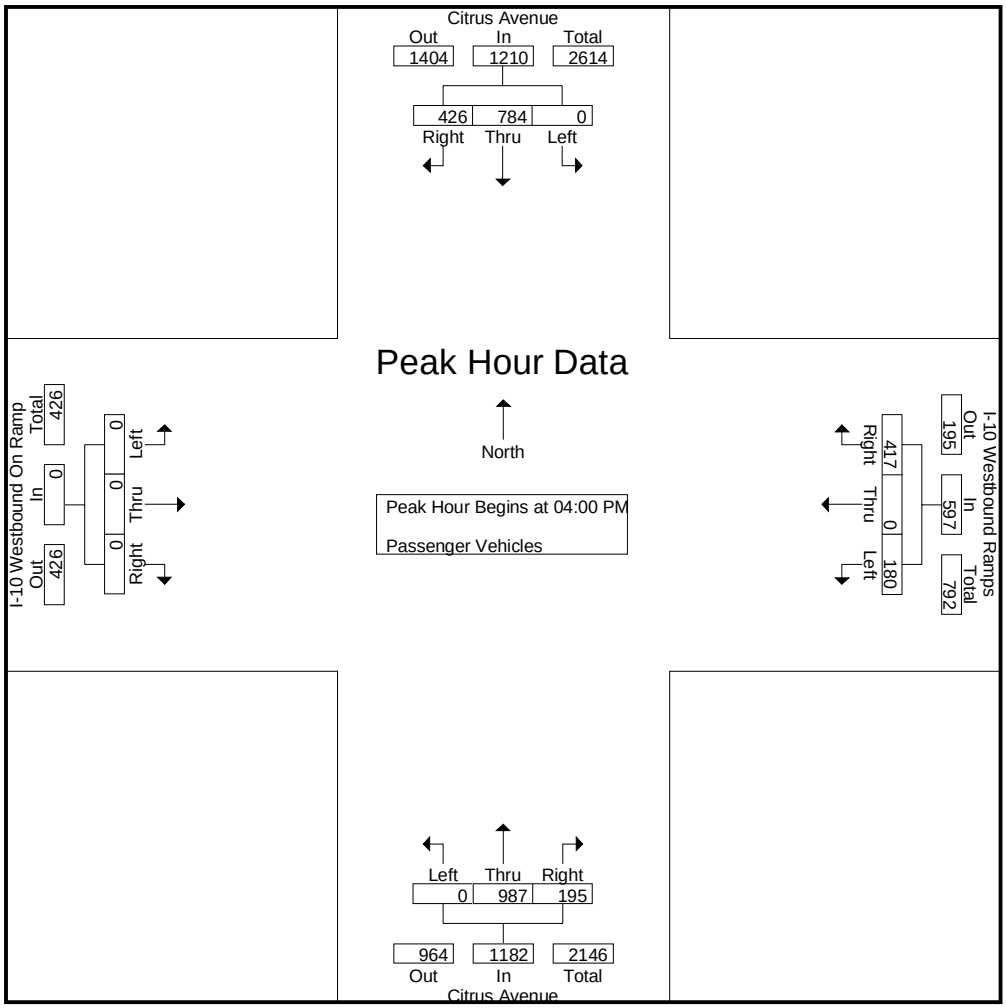

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**231**	102	**333**	39	0	**124**	**163**	0	260	45	305	0	0	0	0
+15 mins.	0	198	112	310	40	0	96	136	0	252	41	293	0	0	0	0
+30 mins.	0	187	**114**	301	47	0	99	146	0	214	**62**	276	0	0	0	0
+45 mins.	0	168	98	266	**54**	0	98	152	0	**261**	47	**308**	0	0	0	0
Total Volume	0	784	426	1210	180	0	417	597	0	987	195	1182	0	0	0	0
% App. Total	0	64.8	35.2		30.2	0	69.8		0	83.5	16.5		0	0	0	
PHF	.000	.848	.934	.908	.833	.000	.841	.916	.000	.945	.786	.959	.000	.000	.000	.000

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City of Fontana
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E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	3	3	0	8	1	9	0	0	0	0	13
04:15 PM	0	11	0	11	1	0	3	4	0	10	0	10	0	0	0	0	25
04:30 PM	0	5	2	7	3	0	1	4	0	3	2	5	0	0	0	0	16
04:45 PM	0	1	2	3	3	0	2	5	0	9	1	10	0	0	0	0	18
Total	0	18	4	22	7	0	9	16	0	30	4	34	0	0	0	0	72
05:00 PM	0	1	1	2	4	0	2	6	0	3	1	4	0	0	0	0	12
05:15 PM	0	2	3	5	1	0	2	3	0	0	1	1	0	0	0	0	9
05:30 PM	0	1	1	2	2	0	1	3	0	2	0	2	0	0	0	0	7
05:45 PM	0	4	1	5	2	0	4	6	0	0	1	1	0	0	0	0	12
Total	0	8	6	14	9	0	9	18	0	5	3	8	0	0	0	0	40
Grand Total	0	26	10	36	16	0	18	34	0	35	7	42	0	0	0	0	112
Apprch %	0	72.2	27.8		47.1	0	52.9		0	83.3	16.7		0	0	0		
Total %	0	23.2	8.9	32.1	14.3	0	16.1	30.4	0	31.2	6.2	37.5	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	0	**3**	3	0	8	1	9	0	0	0	0	13
04:15 PM	0	**11**	0	**11**	1	0	3	4	0	**10**	0	**10**	0	0	0	0	**25**
04:30 PM	0	5	**2**	7	**3**	0	1	4	0	3	**2**	5	0	0	0	0	16
04:45 PM	0	1	2	3	3	0	2	**5**	0	9	1	10	0	0	0	0	18
Total Volume	0	18	4	22	7	0	9	16	0	30	4	34	0	0	0	0	72
% App. Total	0	81.8	18.2		43.8	0	56.2		0	88.2	11.8		0	0	0		
PHF	.000	.409	.500	.500	.583	.000	.750	.800	.000	.750	.500	.850	.000	.000	.000	.000	.720

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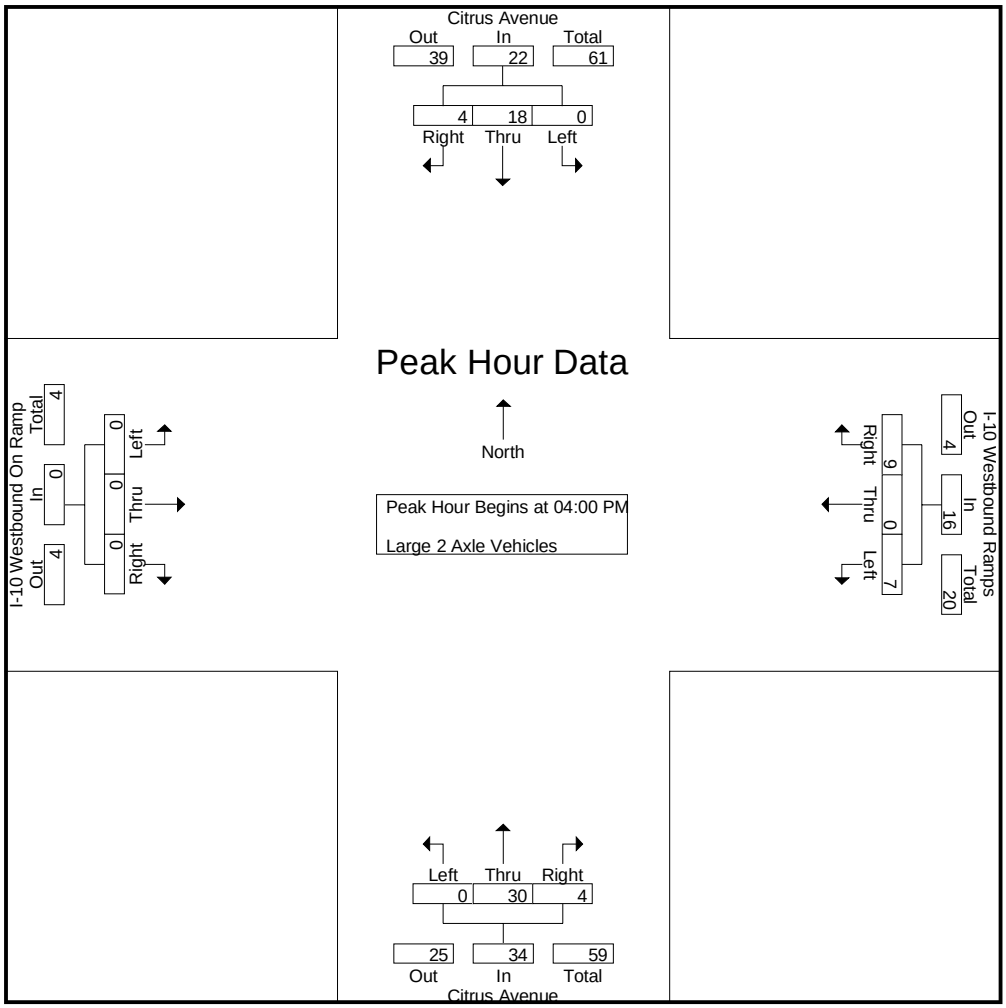

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	1	0	1	0	0	**3**	3	0	8	1	9	0	0	0	0
+15 mins.	0	**11**	0	**11**	1	0	3	4	0	**10**	0	**10**	0	0	0	0
+30 mins.	0	5	**2**	7	**3**	0	1	4	0	3	**2**	5	0	0	0	0
+45 mins.	0	1	2	3	3	0	2	**5**	0	9	1	10	0	0	0	0
Total Volume	0	18	4	22	7	0	9	16	0	30	4	34	0	0	0	0
% App. Total	0	81.8	18.2		43.8	0	56.2		0	88.2	11.8		0	0	0	
PHF	.000	.409	.500	.500	.583	.000	.750	.800	.000	.750	.500	.850	.000	.000	.000	.000

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- 3 Axle Vehicles

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	2	1	3	1	0	4	5	0	3	1	4	0	0	0	0	12
04:15 PM	0	2	1	3	1	0	1	2	0	0	0	0	0	0	0	0	5
04:30 PM	0	3	0	3	0	0	1	1	0	2	1	3	0	0	0	0	7
04:45 PM	0	2	1	3	0	0	2	2	0	3	3	6	0	0	0	0	11
Total	0	9	3	12	2	0	8	10	0	8	5	13	0	0	0	0	35
05:00 PM	0	3	2	5	0	0	4	4	0	2	2	4	0	0	0	0	13
05:15 PM	0	2	0	2	0	1	0	1	0	1	1	2	0	0	0	0	5
05:30 PM	0	2	0	2	0	0	0	0	0	1	3	4	0	0	0	0	6
05:45 PM	0	2	2	4	0	0	0	0	0	0	1	1	0	0	0	0	5
Total	0	9	4	13	0	1	4	5	0	4	7	11	0	0	0	0	29
Grand Total	0	18	7	25	2	1	12	15	0	12	12	24	0	0	0	0	64
Apprch %	0	72	28		13.3	6.7	80		0	50	50		0	0	0		
Total %	0	28.1	10.9	39.1	3.1	1.6	18.8	23.4	0	18.8	18.8	37.5	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	2	**1**	**3**	**1**	0	**4**	**5**	0	**3**	1	4	0	0	0	0	**12**
04:15 PM	0	2	1	3	1	0	1	2	0	0	0	0	0	0	0	0	5
04:30 PM	0	**3**	0	3	0	0	1	1	0	2	1	3	0	0	0	0	7
04:45 PM	0	2	1	3	0	0	2	2	0	3	**3**	**6**	0	0	0	0	11
Total Volume	0	9	3	12	2	0	8	10	0	8	5	13	0	0	0	0	35
% App. Total	0	75	25		20	0	80		0	61.5	38.5		0	0	0		
PHF	.000	.750	.750	1.00	.500	.000	.500	.500	.000	.667	.417	.542	.000	.000	.000	.000	.729

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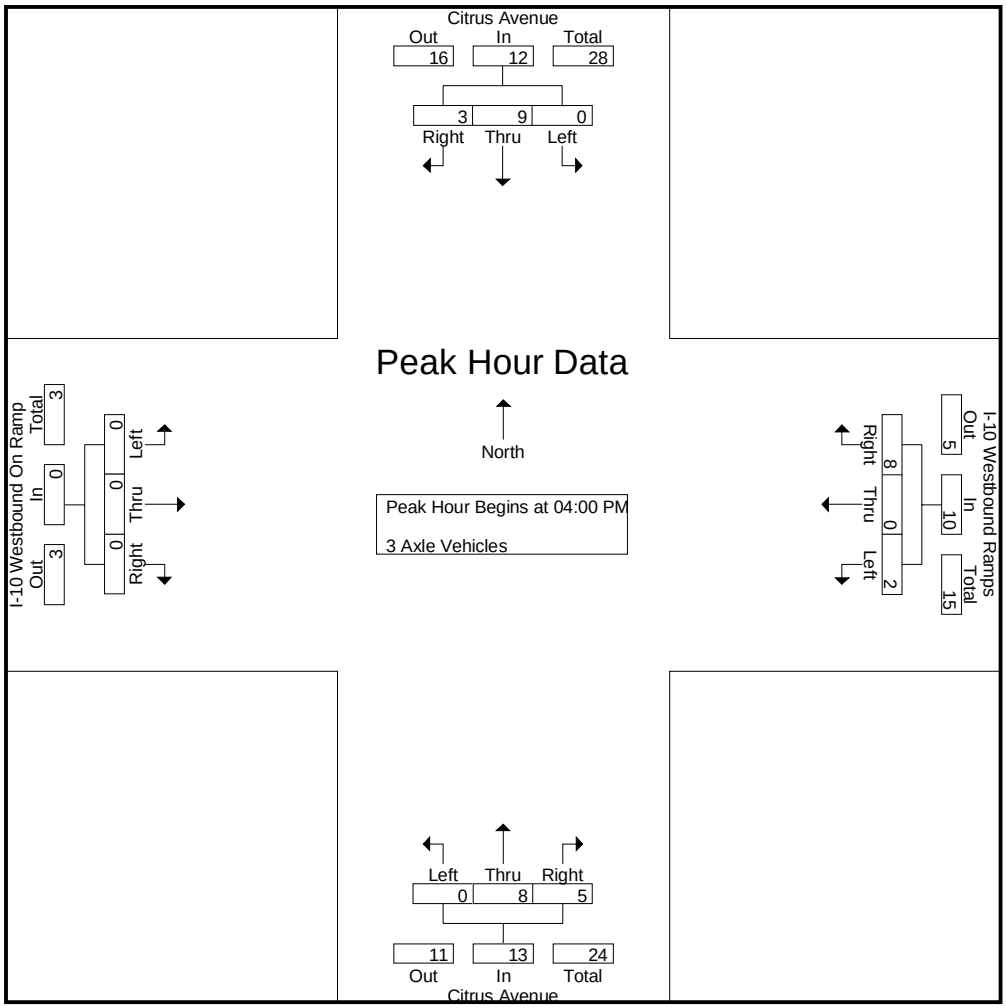
City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	2	**1**	**3**	**1**	0	**4**	**5**	0	**3**	1	4	0	0	0	0
+15 mins.	0	2	1	3	1	0	1	2	0	0	0	0	0	0	0	0
+30 mins.	0	**3**	0	3	0	0	1	1	0	2	1	3	0	0	0	0
+45 mins.	0	2	1	3	0	0	2	2	0	3	**3**	**6**	0	0	0	0
Total Volume	0	9	3	12	2	0	8	10	0	8	5	13	0	0	0	0
% App. Total	0	75	25		20	0	80		0	61.5	38.5		0	0	0	
PHF	.000	.750	.750	1.000	.500	.000	.500	.500	.000	.667	.417	.542	.000	.000	.000	.000

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	7	3	10	6	0	3	9	0	4	7	11	0	0	0	0	30
04:15 PM	0	5	5	10	2	0	4	6	0	2	2	4	0	0	0	0	20
04:30 PM	0	4	3	7	2	0	4	6	0	3	4	7	0	0	0	0	20
04:45 PM	0	5	1	6	5	0	6	11	0	0	2	2	0	0	0	0	19
Total	0	21	12	33	15	0	17	32	0	9	15	24	0	0	0	0	89
05:00 PM	0	5	2	7	4	0	3	7	0	4	5	9	0	0	0	0	23
05:15 PM	0	4	3	7	3	0	1	4	0	1	3	4	0	0	0	0	15
05:30 PM	0	4	3	7	4	0	3	7	0	2	4	6	0	0	0	0	20
05:45 PM	0	4	2	6	2	0	4	6	0	6	3	9	0	0	0	0	21
Total	0	17	10	27	13	0	11	24	0	13	15	28	0	0	0	0	79
Grand Total	0	38	22	60	28	0	28	56	0	22	30	52	0	0	0	0	168
Apprch %	0	63.3	36.7		50	0	50		0	42.3	57.7		0	0	0		
Total %	0	22.6	13.1	35.7	16.7	0	16.7	33.3	0	13.1	17.9	31	0	0	0	0	

	Citrus Avenue Southbound				I-10 Westbound Ramps Westbound				Citrus Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**7**	3	**10**	**6**	0	3	9	0	**4**	**7**	**11**	0	0	0	0	**30**
04:15 PM	0	5	**5**	10	2	0	4	6	0	2	2	4	0	0	0	0	20
04:30 PM	0	4	3	7	2	0	4	6	0	3	4	7	0	0	0	0	20
04:45 PM	0	5	1	6	5	0	**6**	**11**	0	0	2	2	0	0	0	0	19
Total Volume	0	21	12	33	15	0	17	32	0	9	15	24	0	0	0	0	89
% App. Total	0	63.6	36.4		46.9	0	53.1		0	37.5	62.5		0	0	0		
PHF	.000	.750	.600	.825	.625	.000	.708	.727	.000	.563	.536	.545	.000	.000	.000	.000	.742

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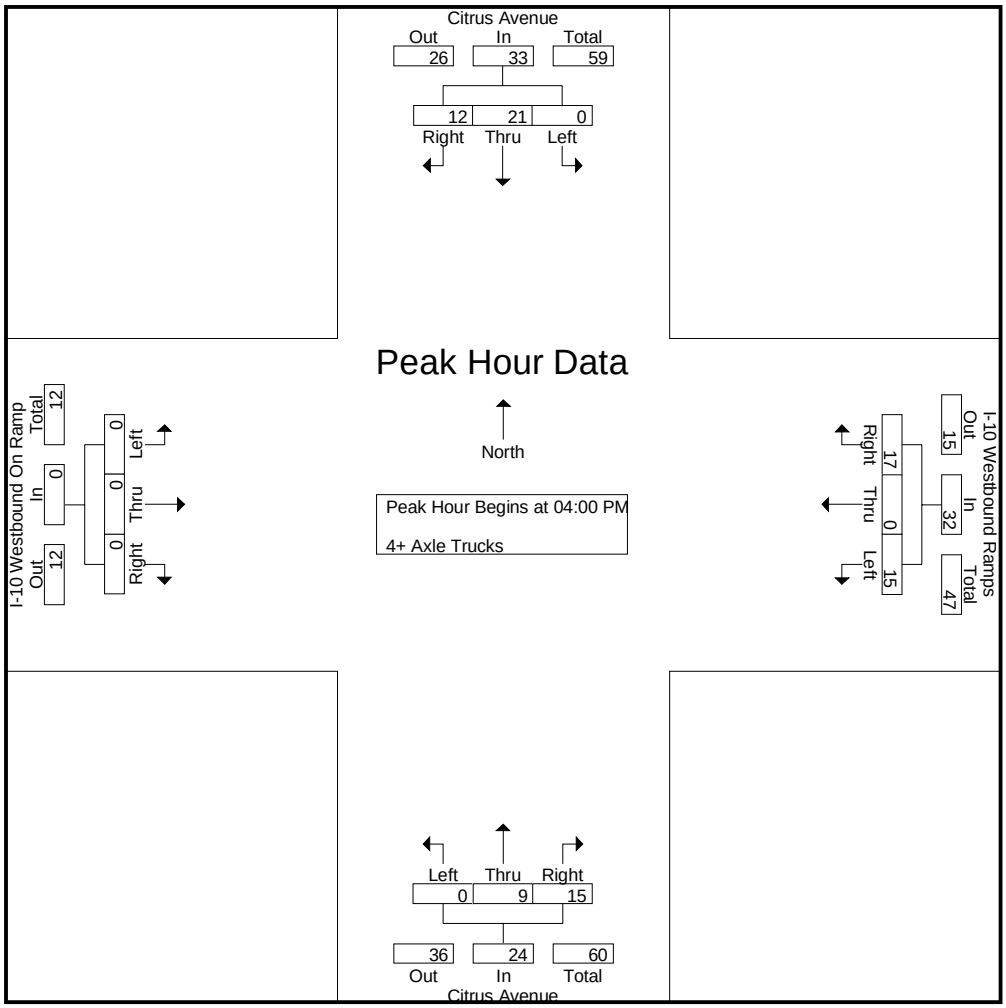
City of Fontana
N/S: Citrus Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 03_FON_Citrus_10W PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**7**	3	**10**	**6**	0	3	9	0	**4**	**7**	**11**	0	0	0	0
+15 mins.	0	5	**5**	10	2	0	4	6	0	2	2	4	0	0	0	0
+30 mins.	0	4	3	7	2	0	4	6	0	3	4	7	0	0	0	0
+45 mins.	0	5	1	6	5	0	**6**	**11**	0	0	2	2	0	0	0	0
Total Volume	0	21	12	33	15	0	17	32	0	9	15	24	0	0	0	0
% App. Total	0	63.6	36.4		46.9	0	53.1		0	37.5	62.5		0	0	0	
PHF	.000	.750	.600	.825	.625	.000	.708	.727	.000	.563	.536	.545	.000	.000	.000	.000

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	155	32	187	0	0	0	0	0	117	55	172	32	0	105	137	496
07:15 AM	0	179	36	215	0	0	0	0	0	128	43	171	49	0	103	152	538
07:30 AM	0	214	46	260	0	0	0	0	0	157	60	217	51	0	137	188	665
07:45 AM	0	221	43	264	0	0	0	0	0	160	51	211	42	0	134	176	651
Total	0	769	157	926	0	0	0	0	0	562	209	771	174	0	479	653	2350
08:00 AM	0	188	51	239	0	0	0	0	0	133	57	190	60	0	108	168	597
08:15 AM	0	150	29	179	0	0	0	0	0	146	61	207	44	0	122	166	552
08:30 AM	0	157	28	185	0	0	0	0	0	142	48	190	53	0	105	158	533
08:45 AM	0	148	25	173	0	0	0	0	0	123	50	173	48	0	112	160	506
Total	0	643	133	776	0	0	0	0	0	544	216	760	205	0	447	652	2188
Grand Total	0	1412	290	1702	0	0	0	0	0	1106	425	1531	379	0	926	1305	4538
Apprch %	0	83	17		0	0	0		0	72.2	27.8		29	0	71		
Total %	0	31.1	6.4	37.5	0	0	0	0	0	24.4	9.4	33.7	8.4	0	20.4	28.8	
Passenger Vehicles	0	1119	213	1332	0	0	0	0	0	696	252	948	217	0	690	907	3187
% Passenger Vehicles	0	79.2	73.4	78.3	0	0	0	0	0	62.9	59.3	61.9	57.3	0	74.5	69.5	70.2
Large 2 Axle Vehicles	0	62	8	70	0	0	0	0	0	80	41	121	17	0	38	55	246
% Large 2 Axle Vehicles	0	4.4	2.8	4.1	0	0	0	0	0	7.2	9.6	7.9	4.5	0	4.1	4.2	5.4
3 Axle Vehicles	0	65	17	82	0	0	0	0	0	93	21	114	53	0	43	96	292
% 3 Axle Vehicles	0	4.6	5.9	4.8	0	0	0	0	0	8.4	4.9	7.4	14	0	4.6	7.4	6.4
4+ Axle Trucks	0	166	52	218	0	0	0	0	0	237	111	348	92	0	155	247	813
% 4+ Axle Trucks	0	11.8	17.9	12.8	0	0	0	0	0	21.4	26.1	22.7	24.3	0	16.7	18.9	17.9

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	214	46	260	0	0	0	0	0	157	60	**217**	51	0	**137**	**188**	**665**
07:45 AM	0	**221**	43	**264**	0	0	0	0	0	**160**	51	211	42	0	134	176	651
08:00 AM	0	188	**51**	239	0	0	0	0	0	133	57	190	**60**	0	108	168	597
08:15 AM	0	150	29	179	0	0	0	0	0	146	**61**	207	44	0	122	166	552
Total Volume	0	773	169	942	0	0	0	0	0	596	229	825	197	0	501	698	2465
% App. Total	0	82.1	17.9		0	0	0		0	72.2	27.8		28.2	0	71.8		
PHF	.000	.874	.828	.892	.000	.000	.000	.000	.000	.931	.939	.950	.821	.000	.914	.928	.927

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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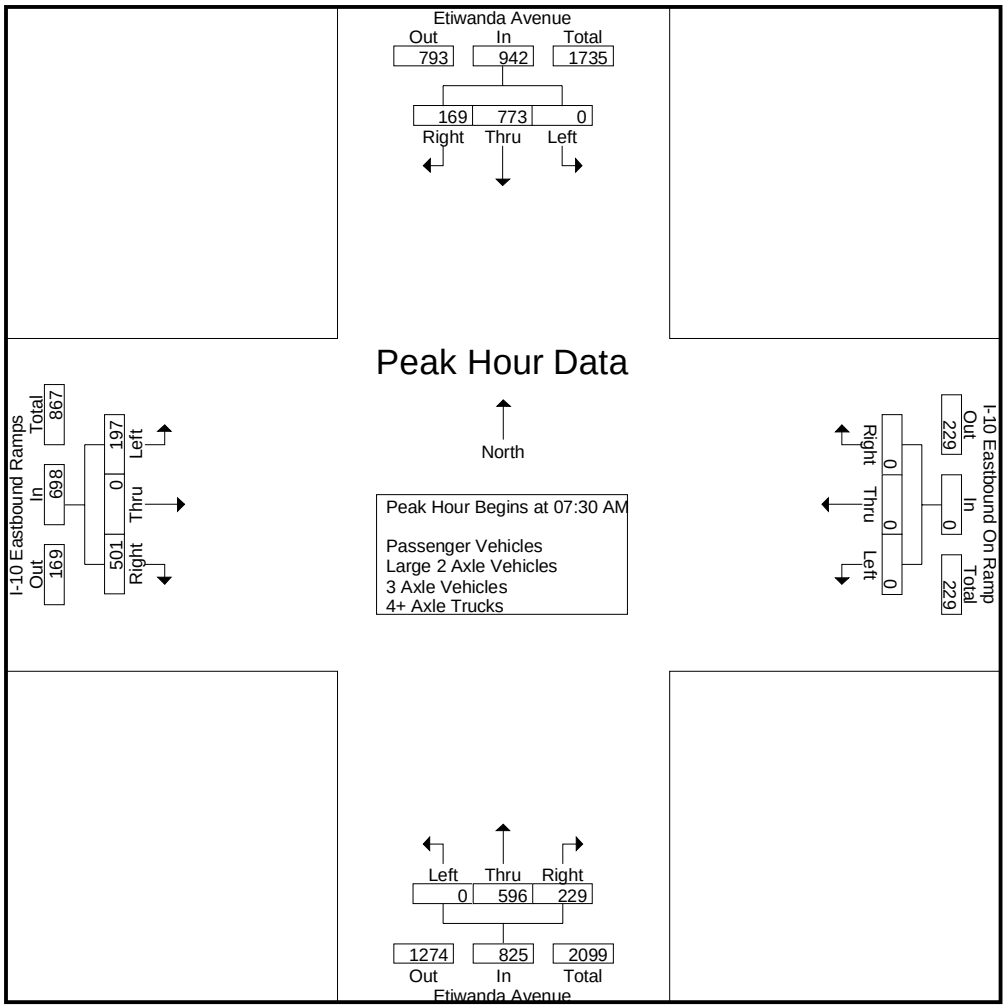

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:30 AM				07:30 AM			
+0 mins.	0	179	36	215	0	0	0	0	0	157	60	**217**	51	0	**137**	**188**
+15 mins.	0	214	46	260	0	0	0	0	0	**160**	51	211	42	0	134	176
+30 mins.	0	**221**	43	**264**	0	0	0	0	0	133	57	190	**60**	0	108	168
+45 mins.	0	188	**51**	239	0	0	0	0	0	146	**61**	207	44	0	122	166
Total Volume	0	802	176	978	0	0	0	0	0	596	229	825	197	0	501	698
% App. Total	0	82	18		0	0	0		0	72.2	27.8		28.2	0	71.8	
PHF	.000	.907	.863	.926	.000	.000	.000	.000	.000	.931	.939	.950	.821	.000	.914	.928

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	120	23	143	0	0	0	0	0	67	39	106	18	0	77	95	344
07:15 AM	0	145	26	171	0	0	0	0	0	84	24	108	32	0	82	114	393
07:30 AM	0	171	34	205	0	0	0	0	0	110	29	139	34	0	106	140	484
07:45 AM	0	195	33	228	0	0	0	0	0	102	28	130	28	0	107	135	493
Total	0	631	116	747	0	0	0	0	0	363	120	483	112	0	372	484	1714
08:00 AM	0	147	38	185	0	0	0	0	0	84	38	122	37	0	84	121	428
08:15 AM	0	122	21	143	0	0	0	0	0	101	35	136	25	0	91	116	395
08:30 AM	0	112	22	134	0	0	0	0	0	81	28	109	23	0	76	99	342
08:45 AM	0	107	16	123	0	0	0	0	0	67	31	98	20	0	67	87	308
Total	0	488	97	585	0	0	0	0	0	333	132	465	105	0	318	423	1473
Grand Total	0	1119	213	1332	0	0	0	0	0	696	252	948	217	0	690	907	3187
Apprch %	0	84	16		0	0	0		0	73.4	26.6		23.9	0	76.1		
Total %	0	35.1	6.7	41.8	0	0	0	0	0	21.8	7.9	29.7	6.8	0	21.7	28.5	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	171	34	205	0	0	0	0	0	**110**	29	**139**	34	0	106	**140**	484
07:45 AM	0	**195**	33	**228**	0	0	0	0	0	102	28	130	28	0	**107**	135	**493**
08:00 AM	0	147	**38**	185	0	0	0	0	0	84	**38**	122	**37**	0	84	121	428
08:15 AM	0	122	21	143	0	0	0	0	0	101	35	136	25	0	91	116	395
Total Volume	0	635	126	761	0	0	0	0	0	397	130	527	124	0	388	512	1800
% App. Total	0	83.4	16.6		0	0	0		0	75.3	24.7		24.2	0	75.8		
PHF	.000	.814	.829	.834	.000	.000	.000	.000	.000	.902	.855	.948	.838	.000	.907	.914	.913

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City of Fontana
N/S: Etiwanda Avenue
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File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
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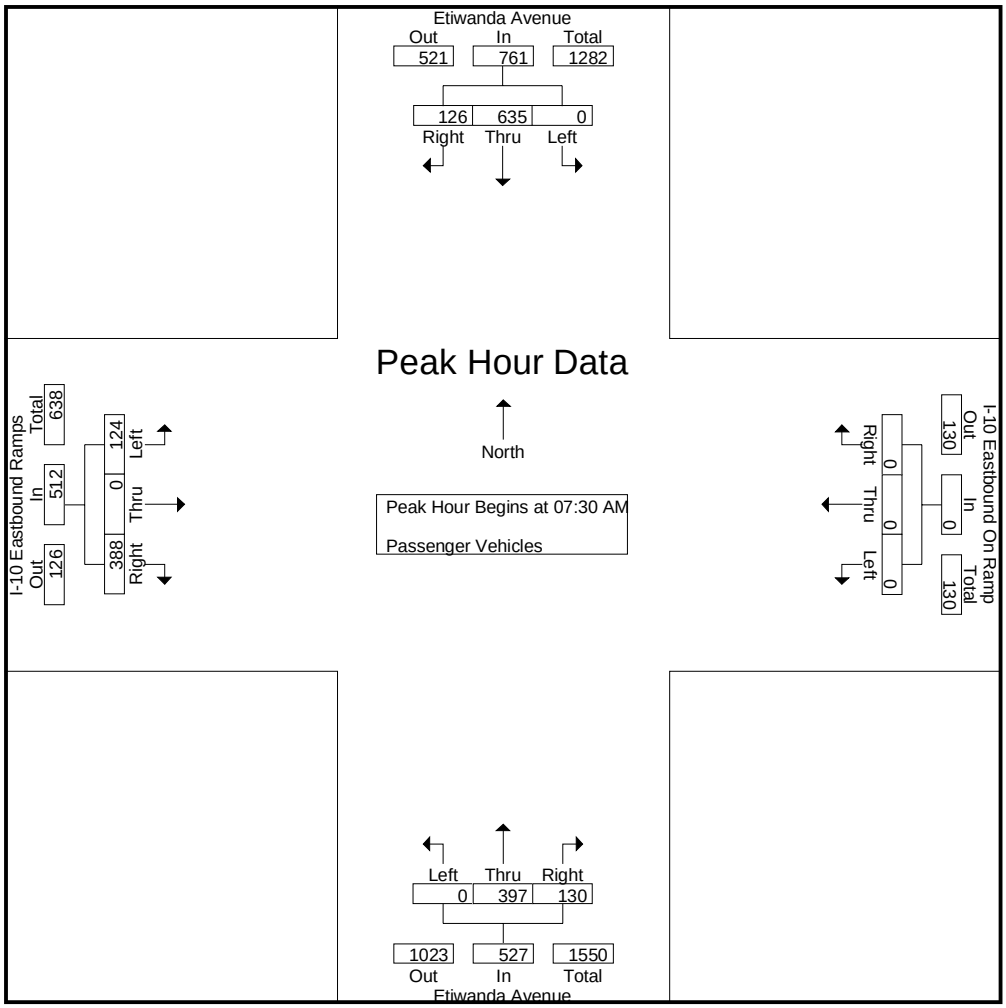

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	171	34	205	0	0	0	0	0	**110**	29	**139**	34	0	106	**140**
+15 mins.	0	**195**	33	**228**	0	0	0	0	0	102	28	130	28	0	**107**	135
+30 mins.	0	147	**38**	185	0	0	0	0	0	84	**38**	122	**37**	0	84	121
+45 mins.	0	122	21	143	0	0	0	0	0	101	35	136	25	0	91	116
Total Volume	0	635	126	761	0	0	0	0	0	397	130	527	124	0	388	512
% App. Total	0	83.4	16.6		0	0	0		0	75.3	24.7		24.2	0	75.8	
PHF	.000	.814	.829	.834	.000	.000	.000	.000	.000	.902	.855	.948	.838	.000	.907	.914

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	2	0	2	0	0	0	0	0	7	2	9	3	0	8	11	22
07:15 AM	0	5	1	6	0	0	0	0	0	9	5	14	4	0	2	6	26
07:30 AM	0	12	4	16	0	0	0	0	0	7	8	15	1	0	5	6	37
07:45 AM	0	4	2	6	0	0	0	0	0	12	7	19	2	0	6	8	33
Total	0	23	7	30	0	0	0	0	0	35	22	57	10	0	21	31	118
08:00 AM	0	11	0	11	0	0	0	0	0	7	4	11	1	0	4	5	27
08:15 AM	0	7	0	7	0	0	0	0	0	10	4	14	1	0	8	9	30
08:30 AM	0	12	0	12	0	0	0	0	0	14	5	19	2	0	3	5	36
08:45 AM	0	9	1	10	0	0	0	0	0	14	6	20	3	0	2	5	35
Total	0	39	1	40	0	0	0	0	0	45	19	64	7	0	17	24	128
Grand Total	0	62	8	70	0	0	0	0	0	80	41	121	17	0	38	55	246
Apprch %	0	88.6	11.4		0	0	0		0	66.1	33.9		30.9	0	69.1		
Total %	0	25.2	3.3	28.5	0	0	0	0	0	32.5	16.7	49.2	6.9	0	15.4	22.4	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	**12**	**4**	**16**	0	0	0	0	0	7	**8**	15	1	0	5	6	**37**
07:45 AM	0	4	2	6	0	0	0	0	0	**12**	7	**19**	**2**	0	6	8	33
08:00 AM	0	11	0	11	0	0	0	0	0	7	4	11	1	0	4	5	27
08:15 AM	0	7	0	7	0	0	0	0	0	10	4	14	1	0	**8**	**9**	30
Total Volume	0	34	6	40	0	0	0	0	0	36	23	59	5	0	23	28	127
% App. Total	0	85	15		0	0	0		0	61	39		17.9	0	82.1		
PHF	.000	.708	.375	.625	.000	.000	.000	.000	.000	.750	.719	.776	.625	.000	.719	.778	.858

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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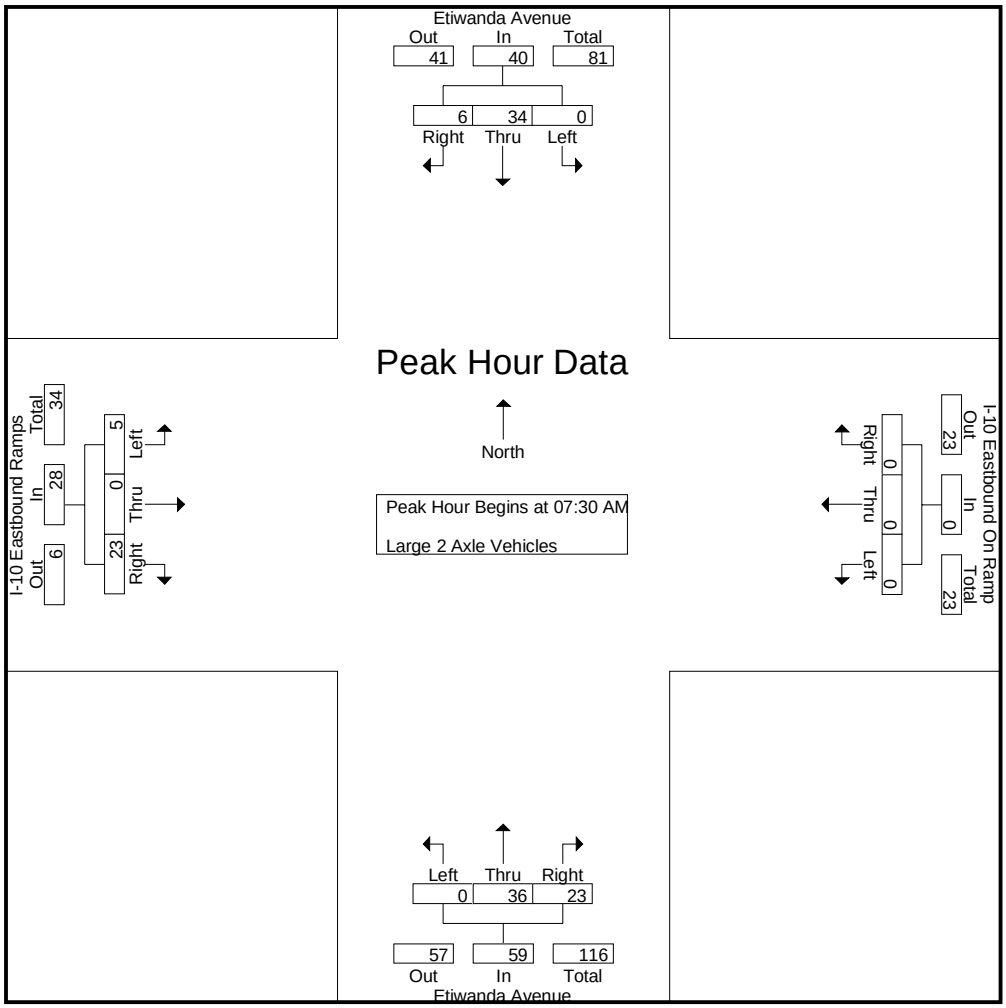

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	**12**	**4**	**16**	0	0	0	0	0	7	**8**	15	1	0	5	6
+15 mins.	0	4	2	6	0	0	0	0	0	**12**	7	**19**	**2**	0	6	8
+30 mins.	0	11	0	11	0	0	0	0	0	7	4	11	1	0	4	5
+45 mins.	0	7	0	7	0	0	0	0	0	10	4	14	1	0	**8**	**9**
Total Volume	0	34	6	40	0	0	0	0	0	36	23	59	5	0	23	28
% App. Total	0	85	15		0	0	0		0	61	39		17.9	0	82.1	
PHF	.000	.708	.375	.625	.000	.000	.000	.000	.000	.750	.719	.776	.625	.000	.719	.778

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City of Fontana
N/S: Etiwanda Avenue
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File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
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Groups Printed- 3 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	12	1	13	0	0	0	0	0	16	2	18	1	0	5	6	37
07:15 AM	0	7	2	9	0	0	0	0	0	7	1	8	3	0	3	6	23
07:30 AM	0	7	4	11	0	0	0	0	0	12	4	16	4	0	8	12	39
07:45 AM	0	6	1	7	0	0	0	0	0	12	3	15	1	0	2	3	25
Total	0	32	8	40	0	0	0	0	0	47	10	57	9	0	18	27	124
08:00 AM	0	12	1	13	0	0	0	0	0	11	1	12	13	0	4	17	42
08:15 AM	0	7	2	9	0	0	0	0	0	11	4	15	10	0	8	18	42
08:30 AM	0	4	2	6	0	0	0	0	0	14	3	17	10	0	2	12	35
08:45 AM	0	10	4	14	0	0	0	0	0	10	3	13	11	0	11	22	49
Total	0	33	9	42	0	0	0	0	0	46	11	57	44	0	25	69	168
Grand Total	0	65	17	82	0	0	0	0	0	93	21	114	53	0	43	96	292
Apprch %	0	79.3	20.7		0	0	0		0	81.6	18.4		55.2	0	44.8		
Total %	0	22.3	5.8	28.1	0	0	0	0	0	31.8	7.2	39	18.2	0	14.7	32.9	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	7	**4**	11	0	0	0	0	0	**12**	**4**	**16**	4	0	**8**	12	39
07:45 AM	0	6	1	7	0	0	0	0	0	12	3	15	1	0	2	3	25
08:00 AM	0	**12**	1	**13**	0	0	0	0	0	11	1	12	**13**	0	4	17	**42**
08:15 AM	0	7	2	9	0	0	0	0	0	11	4	15	10	0	8	**18**	42
Total Volume	0	32	8	40	0	0	0	0	0	46	12	58	28	0	22	50	148
% App. Total	0	80	20		0	0	0		0	79.3	20.7		56	0	44		
PHF	.000	.667	.500	.769	.000	.000	.000	.000	.000	.958	.750	.906	.538	.000	.688	.694	.881

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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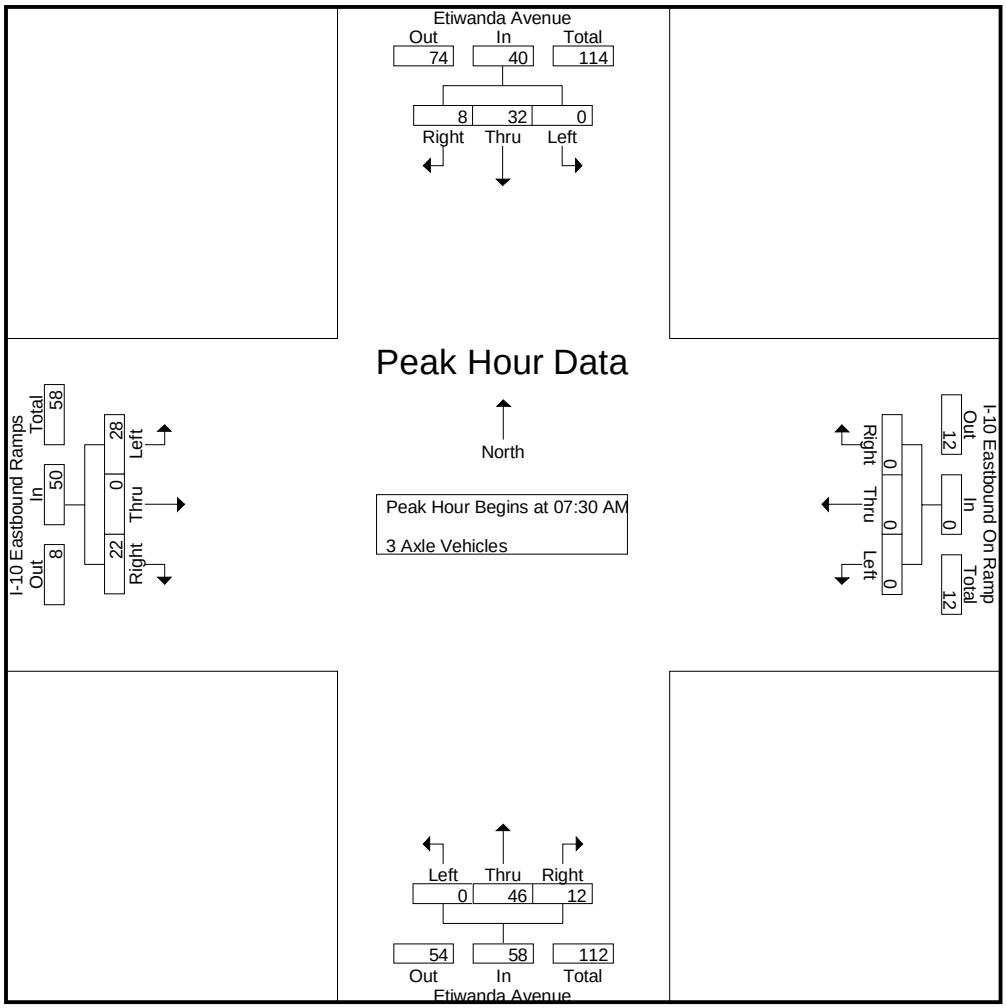

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	7	**4**	11	0	0	0	0	0	**12**	**4**	**16**	4	0	**8**	12
+15 mins.	0	6	1	7	0	0	0	0	0	12	3	15	1	0	2	3
+30 mins.	0	**12**	1	**13**	0	0	0	0	0	11	1	12	**13**	0	4	17
+45 mins.	0	7	2	9	0	0	0	0	0	11	4	15	10	0	8	**18**
Total Volume	0	32	8	40	0	0	0	0	0	46	12	58	28	0	22	50
% App. Total	0	80	20		0	0	0		0	79.3	20.7		56	0	44	
PHF	.000	.667	.500	.769	.000	.000	.000	.000	.000	.958	.750	.906	.538	.000	.688	.694

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E AM
Site Code : 10821516
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Groups Printed- 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	21	8	29	0	0	0	0	0	27	12	39	10	0	15	25	93
07:15 AM	0	22	7	29	0	0	0	0	0	28	13	41	10	0	16	26	96
07:30 AM	0	24	4	28	0	0	0	0	0	28	19	47	12	0	18	30	105
07:45 AM	0	16	7	23	0	0	0	0	0	34	13	47	11	0	19	30	100
Total	0	83	26	109	0	0	0	0	0	117	57	174	43	0	68	111	394
08:00 AM	0	18	12	30	0	0	0	0	0	31	14	45	9	0	16	25	100
08:15 AM	0	14	6	20	0	0	0	0	0	24	18	42	8	0	15	23	85
08:30 AM	0	29	4	33	0	0	0	0	0	33	12	45	18	0	24	42	120
08:45 AM	0	22	4	26	0	0	0	0	0	32	10	42	14	0	32	46	114
Total	0	83	26	109	0	0	0	0	0	120	54	174	49	0	87	136	419
Grand Total	0	166	52	218	0	0	0	0	0	237	111	348	92	0	155	247	813
Apprch %	0	76.1	23.9		0	0	0		0	68.1	31.9		37.2	0	62.8		
Total %	0	20.4	6.4	26.8	0	0	0	0	0	29.2	13.7	42.8	11.3	0	19.1	30.4	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	**24**	4	28	0	0	0	0	0	28	**19**	**47**	**12**	0	18	**30**	**105**
07:45 AM	0	16	7	23	0	0	0	0	0	**34**	13	47	11	0	**19**	30	100
08:00 AM	0	18	**12**	**30**	0	0	0	0	0	31	14	45	9	0	16	25	100
08:15 AM	0	14	6	20	0	0	0	0	0	24	18	42	8	0	15	23	85
Total Volume	0	72	29	101	0	0	0	0	0	117	64	181	40	0	68	108	390
% App. Total	0	71.3	28.7		0	0	0		0	64.6	35.4		37	0	63		
PHF	.000	.750	.604	.842	.000	.000	.000	.000	.000	.860	.842	.963	.833	.000	.895	.900	.929

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City of Fontana
N/S: Etiwanda Avenue
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File Name : 08_FON_Etiwanda_10E AM
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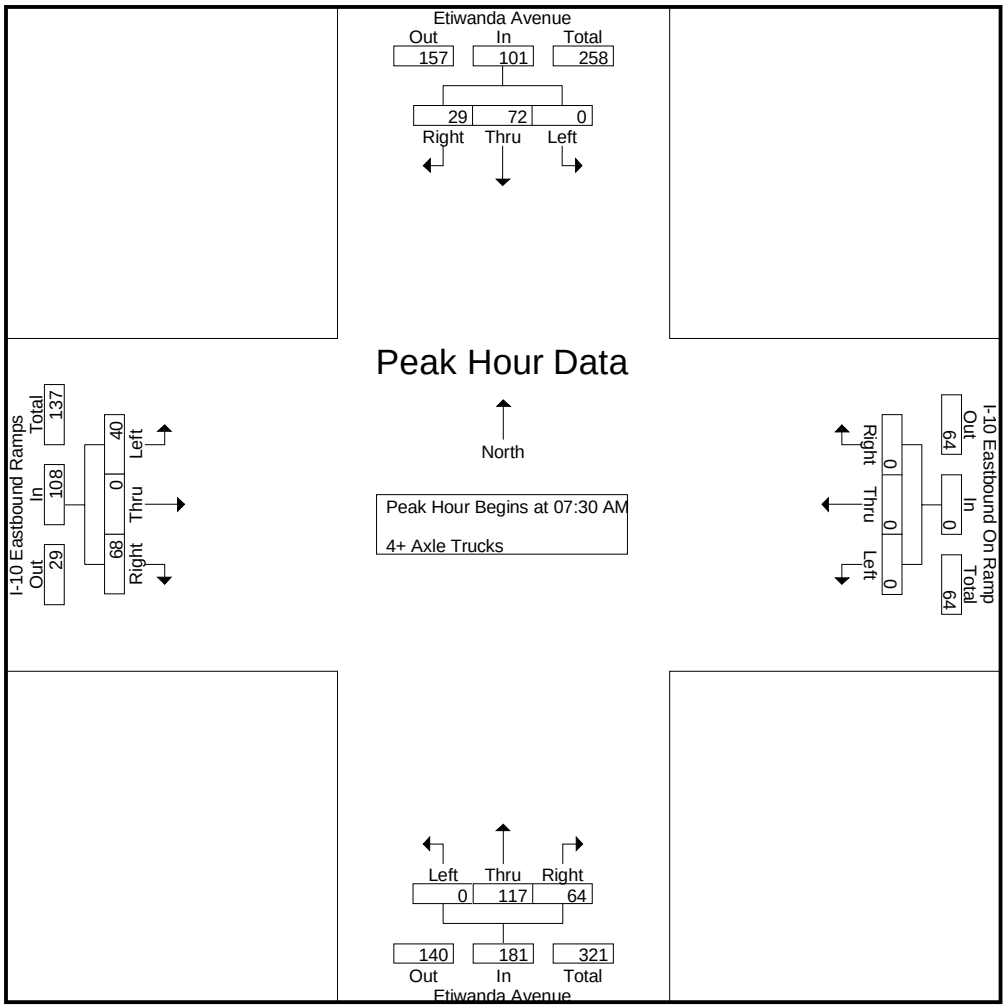

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	**24**	4	28	0	0	0	0	0	28	**19**	**47**	**12**	0	18	**30**
+15 mins.	0	16	7	23	0	0	0	0	0	**34**	13	47	11	0	**19**	30
+30 mins.	0	18	**12**	**30**	0	0	0	0	0	31	14	45	9	0	16	25
+45 mins.	0	14	6	20	0	0	0	0	0	24	18	42	8	0	15	23
Total Volume	0	72	29	101	0	0	0	0	0	117	64	181	40	0	68	108
% App. Total	0	71.3	28.7		0	0	0		0	64.6	35.4		37	0	63	
PHF	.000	.750	.604	.842	.000	.000	.000	.000	.000	.860	.842	.963	.833	.000	.895	.900

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	209	98	307	0	0	0	0	0	250	120	370	50	0	66	116	793
04:15 PM	0	158	66	224	0	0	0	0	0	253	103	356	47	0	54	101	681
04:30 PM	0	192	94	286	0	0	0	0	0	282	104	386	42	0	60	102	774
04:45 PM	0	217	95	312	0	0	0	0	0	252	119	371	61	0	63	124	807
Total	0	776	353	1129	0	0	0	0	0	1037	446	1483	200	0	243	443	3055
05:00 PM	0	224	86	310	0	0	0	0	0	285	87	372	48	0	31	79	761
05:15 PM	0	204	103	307	0	0	0	0	0	201	85	286	40	0	49	89	682
05:30 PM	0	167	67	234	0	0	0	0	0	229	85	314	42	0	50	92	640
05:45 PM	0	166	67	233	0	0	0	0	0	219	76	295	53	0	40	93	621
Total	0	761	323	1084	0	0	0	0	0	934	333	1267	183	0	170	353	2704
Grand Total	0	1537	676	2213	0	0	0	0	0	1971	779	2750	383	0	413	796	5759
Apprch %	0	69.5	30.5		0	0	0		0	71.7	28.3		48.1	0	51.9		
Total %	0	26.7	11.7	38.4	0	0	0	0	0	34.2	13.5	47.8	6.7	0	7.2	13.8	
Passenger Vehicles	0	1218	617	1835	0	0	0	0	0	1654	651	2305	267	0	242	509	4649
% Passenger Vehicles	0	79.2	91.3	82.9	0	0	0	0	0	83.9	83.6	83.8	69.7	0	58.6	63.9	80.7
Large 2 Axle Vehicles	0	68	17	85	0	0	0	0	0	48	24	72	10	0	30	40	197
% Large 2 Axle Vehicles	0	4.4	2.5	3.8	0	0	0	0	0	2.4	3.1	2.6	2.6	0	7.3	5	3.4
3 Axle Vehicles	0	81	8	89	0	0	0	0	0	67	25	92	41	0	15	56	237
% 3 Axle Vehicles	0	5.3	1.2	4	0	0	0	0	0	3.4	3.2	3.3	10.7	0	3.6	7	4.1
4+ Axle Trucks	0	170	34	204	0	0	0	0	0	202	79	281	65	0	126	191	676
% 4+ Axle Trucks	0	11.1	5	9.2	0	0	0	0	0	10.2	10.1	10.2	17	0	30.5	24	11.7

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	209	**98**	307	0	0	0	0	0	250	**120**	370	50	0	**66**	116	793
04:15 PM	0	158	66	224	0	0	0	0	0	253	103	356	47	0	54	101	681
04:30 PM	0	192	94	286	0	0	0	0	0	**282**	104	**386**	42	0	60	102	774
04:45 PM	0	**217**	95	**312**	0	0	0	0	0	252	119	371	**61**	0	63	**124**	**807**
Total Volume	0	776	353	1129	0	0	0	0	0	1037	446	1483	200	0	243	443	3055
% App. Total	0	68.7	31.3		0	0	0		0	69.9	30.1		45.1	0	54.9		
PHF	.000	.894	.901	.905	.000	.000	.000	.000	.000	.919	.929	.960	.820	.000	.920	.893	.946

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City of Fontana
N/S: Etiwanda Avenue
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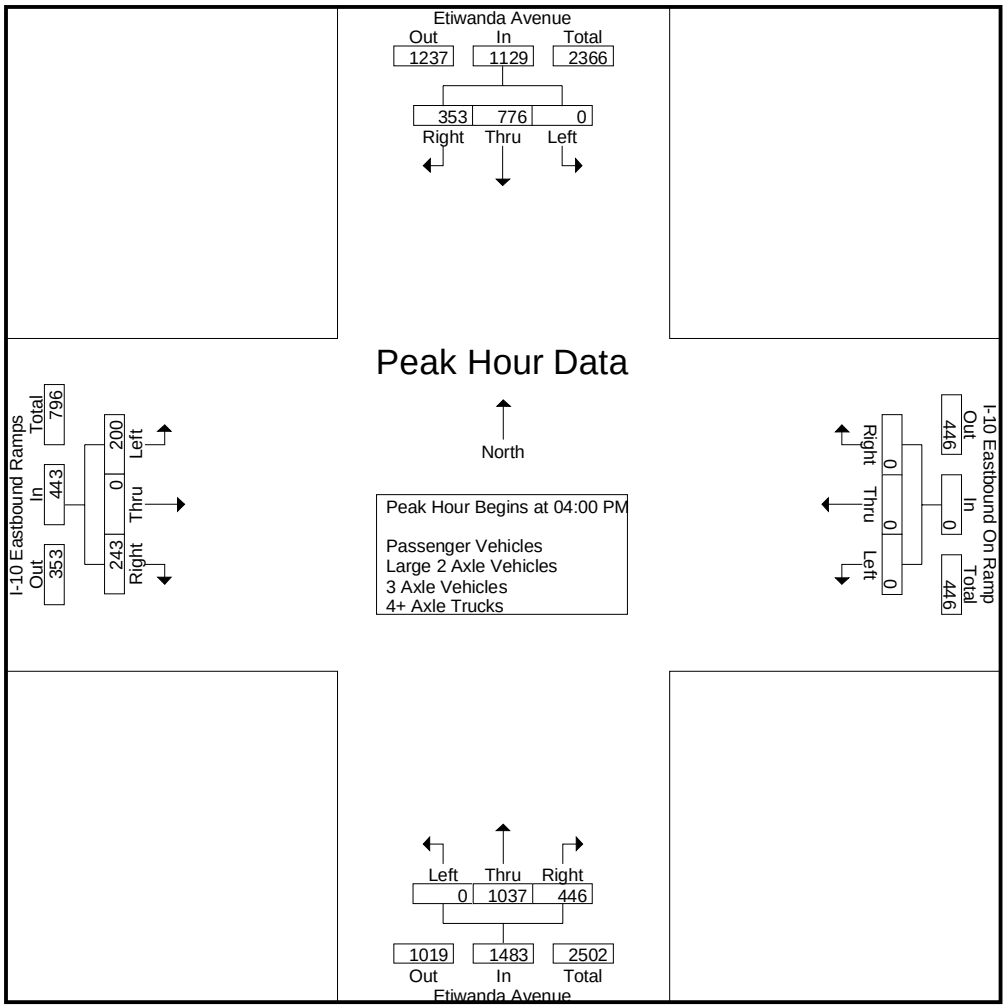

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:00 PM				04:15 PM				04:00 PM			
+0 mins.	0	192	94	286	0	0	0	0	0	253	103	356	50	0	**66**	116
+15 mins.	0	217	95	**312**	0	0	0	0	0	282	104	**386**	47	0	54	101
+30 mins.	0	**224**	86	310	0	0	0	0	0	252	**119**	371	42	0	60	102
+45 mins.	0	204	**103**	307	0	0	0	0	0	**285**	87	372	**61**	0	63	**124**
Total Volume	0	837	378	1215	0	0	0	0	0	1072	413	1485	200	0	243	443
% App. Total	0	68.9	31.1		0	0	0		0	72.2	27.8		45.1	0	54.9	
PHF	.000	.934	.917	.974	.000	.000	.000	.000	.000	.940	.868	.962	.820	.000	.920	.893

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City of Fontana
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File Name : 08_FON_Etiwanda_10E PM
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Groups Printed- Passenger Vehicles

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	169	91	260	0	0	0	0	0	200	104	304	28	0	34	62	626
04:15 PM	0	131	62	193	0	0	0	0	0	209	84	293	26	0	33	59	545
04:30 PM	0	154	86	240	0	0	0	0	0	243	85	328	30	0	41	71	639
04:45 PM	0	181	84	265	0	0	0	0	0	220	97	317	45	0	43	88	670
Total	0	635	323	958	0	0	0	0	0	872	370	1242	129	0	151	280	2480
05:00 PM	0	171	78	249	0	0	0	0	0	240	77	317	36	0	15	51	617
05:15 PM	0	157	90	247	0	0	0	0	0	164	75	239	31	0	25	56	542
05:30 PM	0	136	63	199	0	0	0	0	0	197	69	266	34	0	27	61	526
05:45 PM	0	119	63	182	0	0	0	0	0	181	60	241	37	0	24	61	484
Total	0	583	294	877	0	0	0	0	0	782	281	1063	138	0	91	229	2169
Grand Total	0	1218	617	1835	0	0	0	0	0	1654	651	2305	267	0	242	509	4649
Apprch %	0	66.4	33.6		0	0	0		0	71.8	28.2		52.5	0	47.5		
Total %	0	26.2	13.3	39.5	0	0	0	0	0	35.6	14	49.6	5.7	0	5.2	10.9	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	169	**91**	260	0	0	0	0	0	200	**104**	304	28	0	34	62	626
04:15 PM	0	131	62	193	0	0	0	0	0	209	84	293	26	0	33	59	545
04:30 PM	0	154	86	240	0	0	0	0	0	**243**	85	**328**	30	0	41	71	639
04:45 PM	0	**181**	84	**265**	0	0	0	0	0	220	97	317	**45**	0	**43**	**88**	**670**
Total Volume	0	635	323	958	0	0	0	0	0	872	370	1242	129	0	151	280	2480
% App. Total	0	66.3	33.7		0	0	0		0	70.2	29.8		46.1	0	53.9		
PHF	.000	.877	.887	.904	.000	.000	.000	.000	.000	.897	.889	.947	.717	.000	.878	.795	.925

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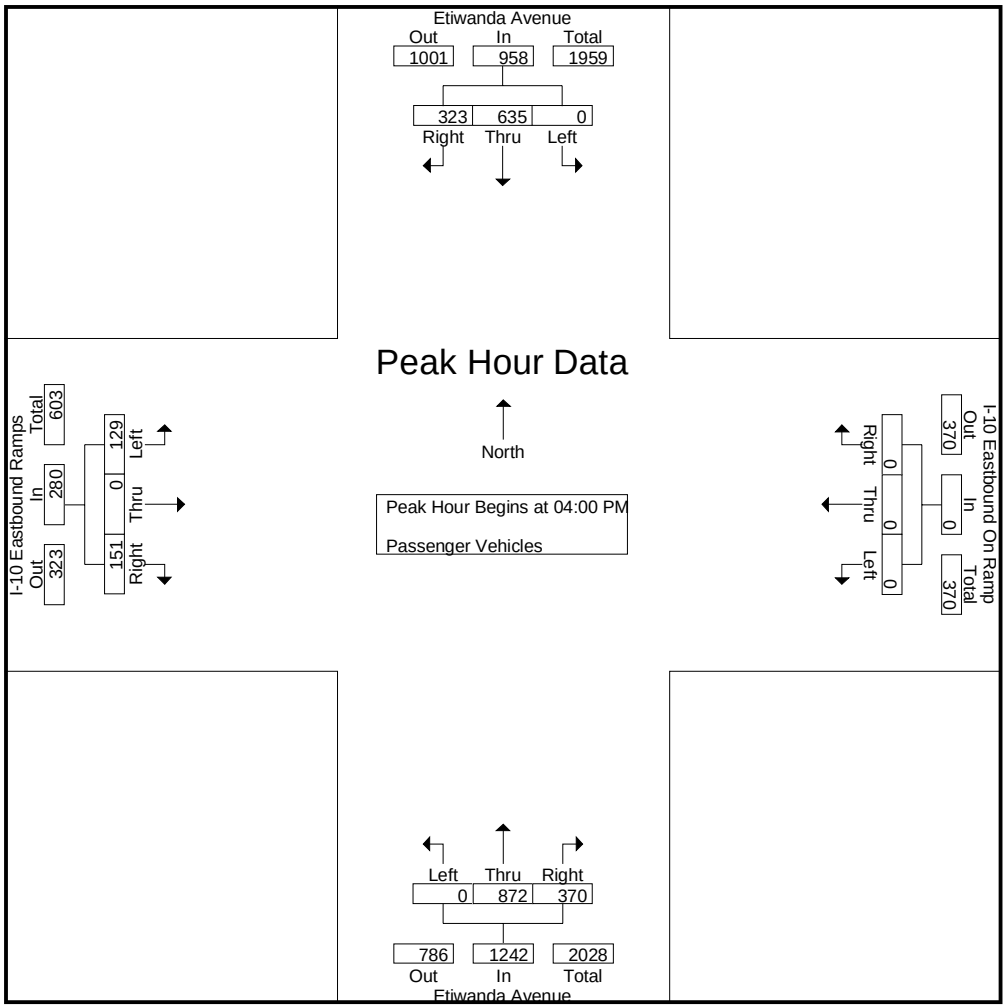
City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	169	**91**	260	0	0	0	0	0	200	**104**	304	28	0	34	62
+15 mins.	0	131	62	193	0	0	0	0	0	209	84	293	26	0	33	59
+30 mins.	0	154	86	240	0	0	0	0	0	**243**	85	**328**	30	0	41	71
+45 mins.	0	**181**	84	**265**	0	0	0	0	0	220	97	317	**45**	0	**43**	**88**
Total Volume	0	635	323	958	0	0	0	0	0	872	370	1242	129	0	151	280
% App. Total	0	66.3	33.7		0	0	0		0	70.2	29.8		46.1	0	53.9	
PHF	.000	.877	.887	.904	.000	.000	.000	.000	.000	.897	.889	.947	.717	.000	.878	.795

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PO Box 1178
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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	12	3	15	0	0	0	0	0	9	4	13	2	0	3	5	33
04:15 PM	0	9	2	11	0	0	0	0	0	5	4	9	4	0	5	9	29
04:30 PM	0	8	4	12	0	0	0	0	0	9	2	11	2	0	5	7	30
04:45 PM	0	11	1	12	0	0	0	0	0	4	4	8	0	0	4	4	24
Total	0	40	10	50	0	0	0	0	0	27	14	41	8	0	17	25	116
05:00 PM	0	12	3	15	0	0	0	0	0	8	1	9	0	0	2	2	26
05:15 PM	0	9	3	12	0	0	0	0	0	3	1	4	1	0	3	4	20
05:30 PM	0	3	0	3	0	0	0	0	0	5	4	9	0	0	6	6	18
05:45 PM	0	4	1	5	0	0	0	0	0	5	4	9	1	0	2	3	17
Total	0	28	7	35	0	0	0	0	0	21	10	31	2	0	13	15	81
Grand Total	0	68	17	85	0	0	0	0	0	48	24	72	10	0	30	40	197
Apprch %	0	80	20		0	0	0		0	66.7	33.3		25	0	75		
Total %	0	34.5	8.6	43.1	0	0	0	0	0	24.4	12.2	36.5	5.1	0	15.2	20.3	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**12**	3	**15**	0	0	0	0	0	**9**	**4**	**13**	2	0	3	5	**33**
04:15 PM	0	9	2	11	0	0	0	0	0	5	4	9	**4**	0	**5**	**9**	29
04:30 PM	0	8	**4**	12	0	0	0	0	0	9	2	11	2	0	5	7	30
04:45 PM	0	11	1	12	0	0	0	0	0	4	4	8	0	0	4	4	24
Total Volume	0	40	10	50	0	0	0	0	0	27	14	41	8	0	17	25	116
% App. Total	0	80	20		0	0	0		0	65.9	34.1		32	0	68		
PHF	.000	.833	.625	.833	.000	.000	.000	.000	.000	.750	.875	.788	.500	.000	.850	.694	.879

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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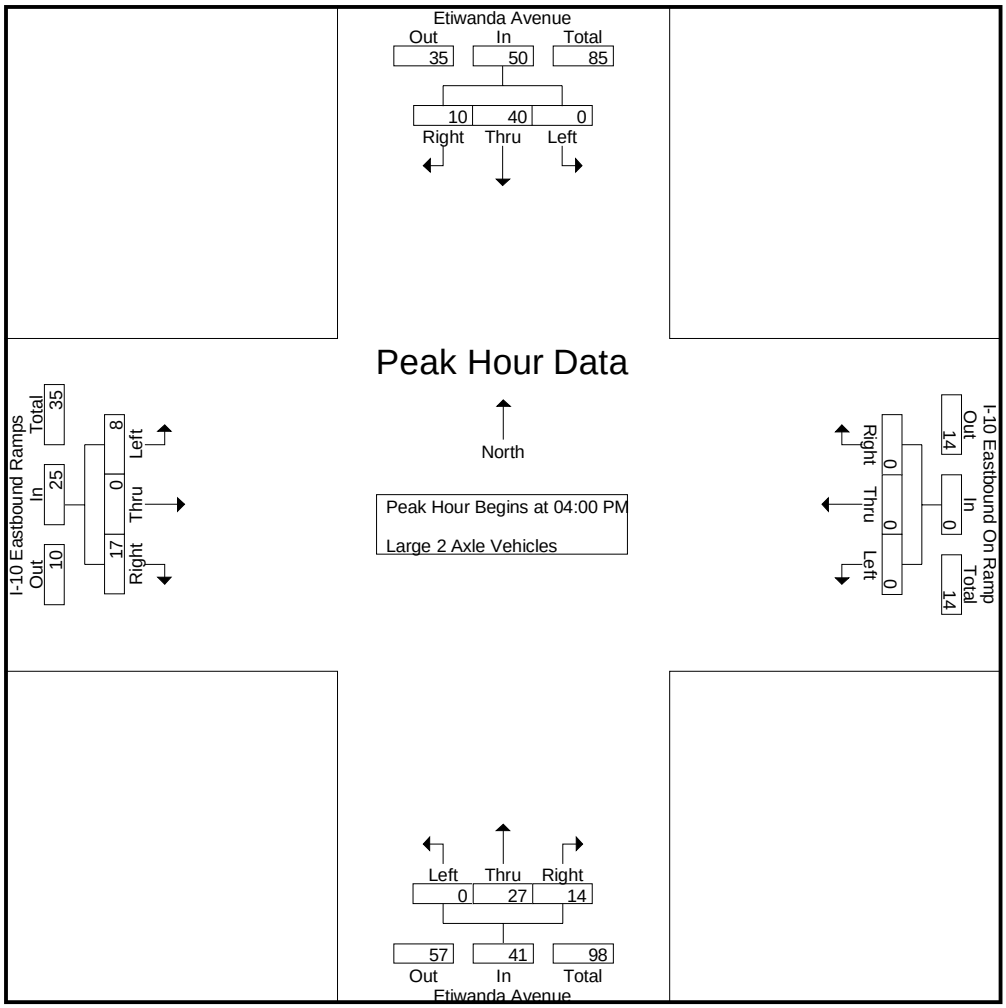

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**12**	3	**15**	0	0	0	0	0	**9**	**4**	**13**	2	0	3	5
+15 mins.	0	9	2	11	0	0	0	0	0	5	4	9	**4**	0	**5**	**9**
+30 mins.	0	8	**4**	12	0	0	0	0	0	9	2	11	2	0	5	7
+45 mins.	0	11	1	12	0	0	0	0	0	4	4	8	0	0	4	4
Total Volume	0	40	10	50	0	0	0	0	0	27	14	41	8	0	17	25
% App. Total	0	80	20		0	0	0		0	65.9	34.1		32	0	68	
PHF	.000	.833	.625	.833	.000	.000	.000	.000	.000	.750	.875	.788	.500	.000	.850	.694

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	6	1	7	0	0	0	0	0	15	0	15	12	0	3	15	37
04:15 PM	0	3	1	4	0	0	0	0	0	13	4	17	11	0	3	14	35
04:30 PM	0	8	0	8	0	0	0	0	0	7	6	13	2	0	3	5	26
04:45 PM	0	12	2	14	0	0	0	0	0	5	5	10	7	0	1	8	32
Total	0	29	4	33	0	0	0	0	0	40	15	55	32	0	10	42	130
05:00 PM	0	14	2	16	0	0	0	0	0	7	2	9	3	0	1	4	29
05:15 PM	0	15	1	16	0	0	0	0	0	5	2	7	1	0	1	2	25
05:30 PM	0	9	1	10	0	0	0	0	0	7	5	12	2	0	2	4	26
05:45 PM	0	14	0	14	0	0	0	0	0	8	1	9	3	0	1	4	27
Total	0	52	4	56	0	0	0	0	0	27	10	37	9	0	5	14	107
Grand Total	0	81	8	89	0	0	0	0	0	67	25	92	41	0	15	56	237
Apprch %	0	91	9		0	0	0		0	72.8	27.2		73.2	0	26.8		
Total %	0	34.2	3.4	37.6	0	0	0	0	0	28.3	10.5	38.8	17.3	0	6.3	23.6	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	6	1	7	0	0	0	0	0	**15**	0	15	**12**	0	**3**	**15**	**37**
04:15 PM	0	3	1	4	0	0	0	0	0	13	4	**17**	11	0	3	14	35
04:30 PM	0	8	0	8	0	0	0	0	0	7	**6**	13	2	0	3	5	26
04:45 PM	0	**12**	**2**	**14**	0	0	0	0	0	5	5	10	7	0	1	8	32
Total Volume	0	29	4	33	0	0	0	0	0	40	15	55	32	0	10	42	130
% App. Total	0	87.9	12.1		0	0	0		0	72.7	27.3		76.2	0	23.8		
PHF	.000	.604	.500	.589	.000	.000	.000	.000	.000	.667	.625	.809	.667	.000	.833	.700	.878

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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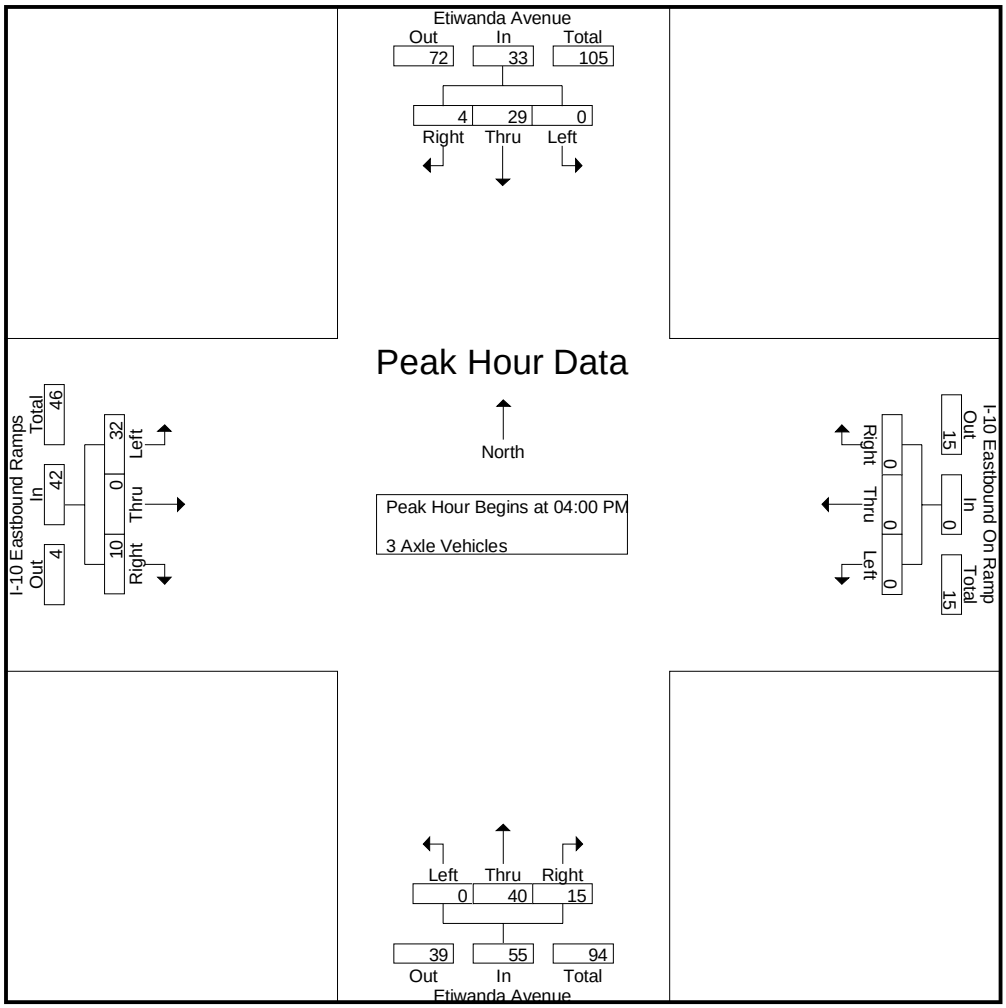

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	6	1	7	0	0	0	0	0	**15**	0	15	**12**	0	**3**	**15**
+15 mins.	0	3	1	4	0	0	0	0	0	13	4	**17**	11	0	3	14
+30 mins.	0	8	0	8	0	0	0	0	0	7	**6**	13	2	0	3	5
+45 mins.	0	**12**	**2**	**14**	0	0	0	0	0	5	5	10	7	0	1	8
Total Volume	0	29	4	33	0	0	0	0	0	40	15	55	32	0	10	42
% App. Total	0	87.9	12.1		0	0	0		0	72.7	27.3		76.2	0	23.8	
PHF	.000	.604	.500	.589	.000	.000	.000	.000	.000	.667	.625	.809	.667	.000	.833	.700

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City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	22	3	25	0	0	0	0	0	26	12	38	8	0	26	34	97
04:15 PM	0	15	1	16	0	0	0	0	0	26	11	37	6	0	13	19	72
04:30 PM	0	22	4	26	0	0	0	0	0	23	11	34	8	0	11	19	79
04:45 PM	0	13	8	21	0	0	0	0	0	23	13	36	9	0	15	24	81
Total	0	72	16	88	0	0	0	0	0	98	47	145	31	0	65	96	329
05:00 PM	0	27	3	30	0	0	0	0	0	30	7	37	9	0	13	22	89
05:15 PM	0	23	9	32	0	0	0	0	0	29	7	36	7	0	20	27	95
05:30 PM	0	19	3	22	0	0	0	0	0	20	7	27	6	0	15	21	70
05:45 PM	0	29	3	32	0	0	0	0	0	25	11	36	12	0	13	25	93
Total	0	98	18	116	0	0	0	0	0	104	32	136	34	0	61	95	347
Grand Total	0	170	34	204	0	0	0	0	0	202	79	281	65	0	126	191	676
Apprch %	0	83.3	16.7		0	0	0		0	71.9	28.1		34	0	66		
Total %	0	25.1	5	30.2	0	0	0	0	0	29.9	11.7	41.6	9.6	0	18.6	28.3	

	Etiwanda Avenue Southbound				I-10 Eastbound On Ramp Westbound				Etiwanda Avenue Northbound				I-10 Eastbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**22**	3	25	0	0	0	0	0	**26**	12	**38**	8	0	**26**	**34**	**97**
04:15 PM	0	15	1	16	0	0	0	0	0	26	11	37	6	0	13	19	72
04:30 PM	0	22	4	**26**	0	0	0	0	0	23	11	34	8	0	11	19	79
04:45 PM	0	13	**8**	21	0	0	0	0	0	23	**13**	36	**9**	0	15	24	81
Total Volume	0	72	16	88	0	0	0	0	0	98	47	145	31	0	65	96	329
% App. Total	0	81.8	18.2		0	0	0		0	67.6	32.4		32.3	0	67.7		
PHF	.000	.818	.500	.846	.000	.000	.000	.000	.000	.942	.904	.954	.861	.000	.625	.706	.848

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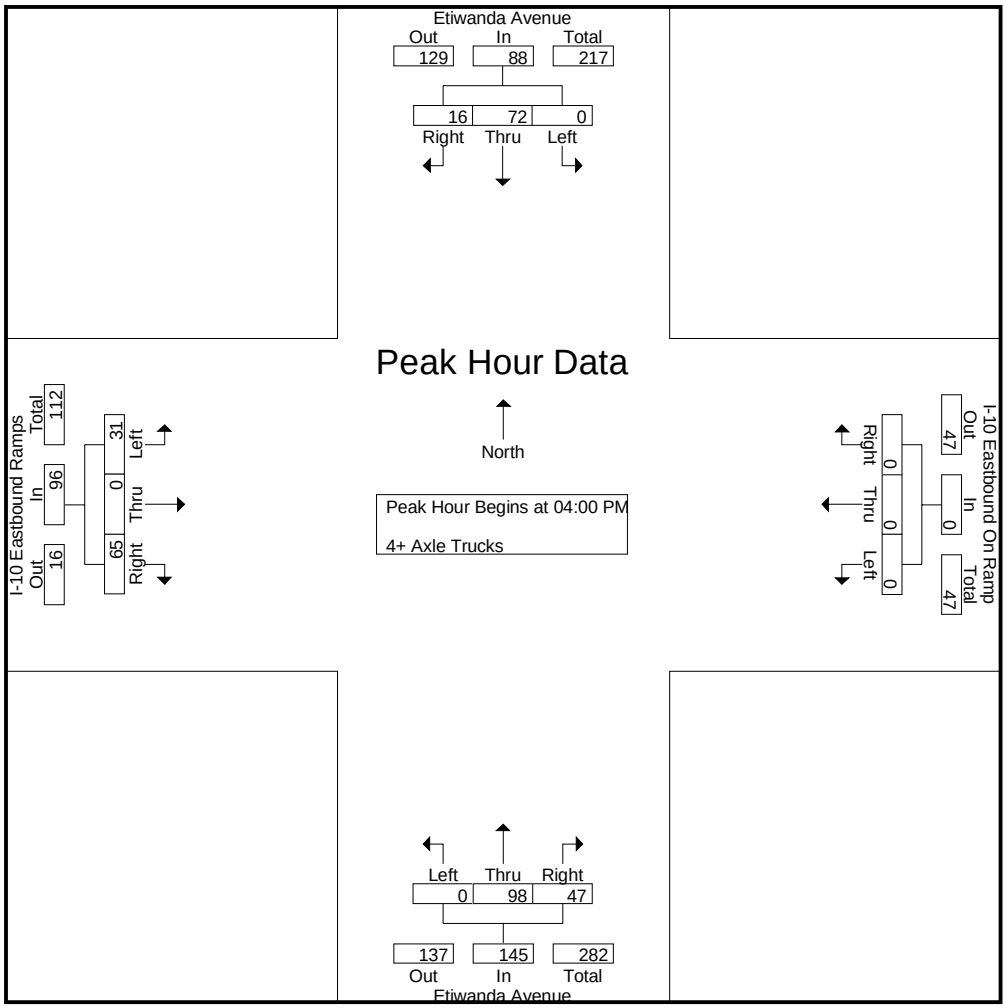
City of Fontana
N/S: Etiwanda Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 08_FON_Etiwanda_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**22**	3	25	0	0	0	0	0	**26**	12	**38**	8	0	**26**	**34**
+15 mins.	0	15	1	16	0	0	0	0	0	26	11	37	6	0	13	19
+30 mins.	0	22	4	**26**	0	0	0	0	0	23	11	34	8	0	11	19
+45 mins.	0	13	**8**	21	0	0	0	0	0	23	**13**	36	**9**	0	15	24
Total Volume	0	72	16	88	0	0	0	0	0	98	47	145	31	0	65	96
% App. Total	0	81.8	18.2		0	0	0		0	67.6	32.4		32.3	0	67.7	
PHF	.000	.818	.500	.846	.000	.000	.000	.000	.000	.942	.904	.954	.861	.000	.625	.706

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	80	227	0	307	0	0	0	0	0	172	59	231	85	3	102	190	728
07:15 AM	71	277	0	348	0	0	0	0	0	215	86	301	73	1	111	185	834
07:30 AM	89	308	0	397	0	0	0	0	0	211	85	296	77	0	102	179	872
07:45 AM	81	373	0	454	0	0	0	0	0	243	91	334	83	3	119	205	993
Total	321	1185	0	1506	0	0	0	0	0	841	321	1162	318	7	434	759	3427
08:00 AM	81	310	0	391	0	0	0	0	0	230	95	325	91	0	121	212	928
08:15 AM	80	254	0	334	0	0	0	0	0	236	91	327	68	2	107	177	838
08:30 AM	86	194	0	280	0	0	0	0	0	248	88	336	76	0	122	198	814
08:45 AM	84	163	0	247	0	0	0	0	0	191	83	274	74	0	87	161	682
Total	331	921	0	1252	0	0	0	0	0	905	357	1262	309	2	437	748	3262
Grand Total	652	2106	0	2758	0	0	0	0	0	1746	678	2424	627	9	871	1507	6689
Apprch %	23.6	76.4	0		0	0	0		0	72	28		41.6	0.6	57.8		
Total %	9.7	31.5	0	41.2	0	0	0	0	0	26.1	10.1	36.2	9.4	0.1	13	22.5	
Passenger Vehicles	455	1783	0	2238	0	0	0	0	0	1333	515	1848	495	7	659	1161	5247
% Passenger Vehicles	69.8	84.7	0	81.1	0	0	0	0	0	76.3	76	76.2	78.9	77.8	75.7	77	78.4
Large 2 Axle Vehicles	41	68	0	109	0	0	0	0	0	80	28	108	45	1	20	66	283
% Large 2 Axle Vehicles	6.3	3.2	0	4	0	0	0	0	0	4.6	4.1	4.5	7.2	11.1	2.3	4.4	4.2
3 Axle Vehicles	42	93	0	135	0	0	0	0	0	80	37	117	34	0	43	77	329
% 3 Axle Vehicles	6.4	4.4	0	4.9	0	0	0	0	0	4.6	5.5	4.8	5.4	0	4.9	5.1	4.9
4+ Axle Trucks	114	162	0	276	0	0	0	0	0	253	98	351	53	1	149	203	830
% 4+ Axle Trucks	17.5	7.7	0	10	0	0	0	0	0	14.5	14.5	14.5	8.5	11.1	17.1	13.5	12.4

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**89**	308	0	397	0	0	0	0	0	211	85	296	77	0	102	179	872
07:45 AM	81	**373**	0	**454**	0	0	0	0	0	**243**	91	**334**	83	**3**	119	205	**993**
08:00 AM	81	310	0	391	0	0	0	0	0	230	**95**	325	**91**	0	**121**	**212**	928
08:15 AM	80	254	0	334	0	0	0	0	0	236	91	327	68	2	107	177	838
Total Volume	331	1245	0	1576	0	0	0	0	0	920	362	1282	319	5	449	773	3631
% App. Total	21	79	0		0	0	0		0	71.8	28.2		41.3	0.6	58.1		
PHF	.930	.834	.000	.868	.000	.000	.000	.000	.000	.947	.953	.960	.876	.417	.928	.912	.914

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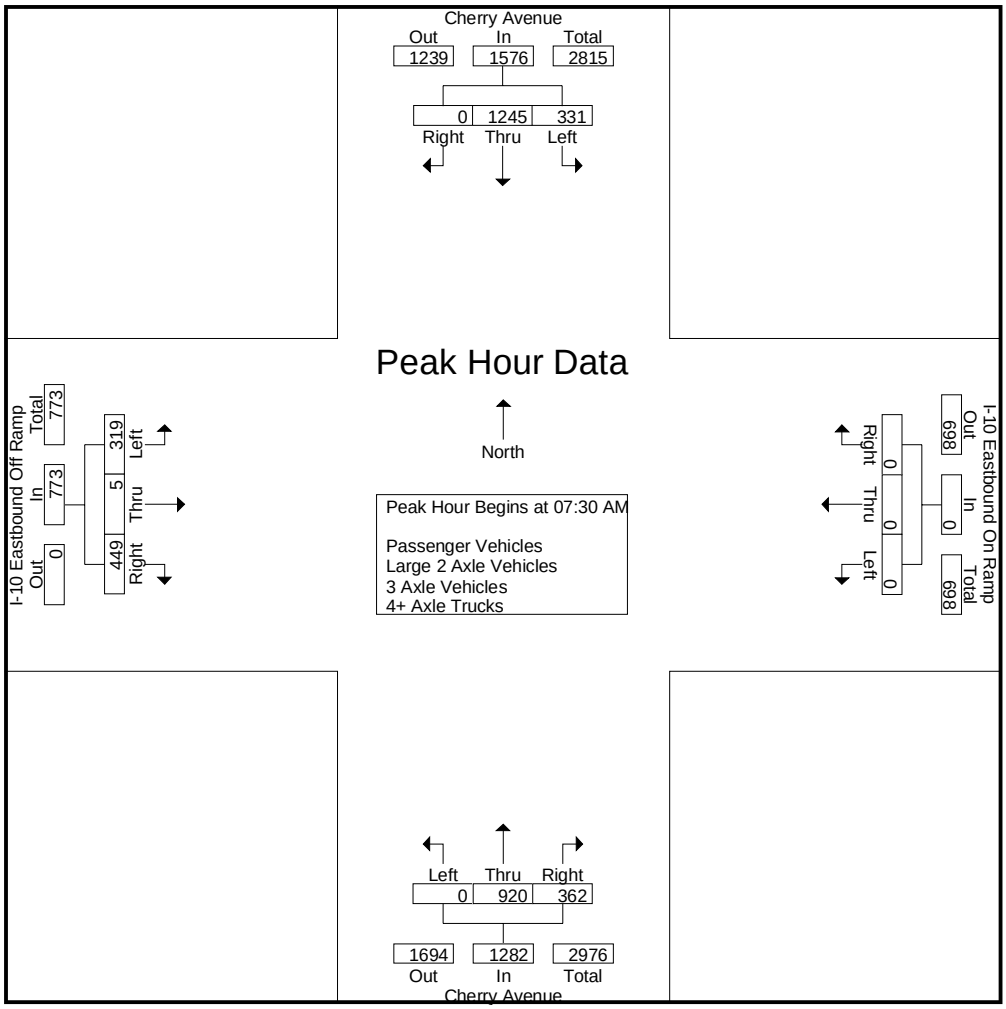
City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:45 AM				07:45 AM			
+0 mins.	71	277	0	348	0	0	0	0	0	243	91	334	83	**3**	119	205
+15 mins.	**89**	308	0	397	0	0	0	0	0	230	**95**	325	**91**	0	121	**212**
+30 mins.	81	**373**	0	**454**	0	0	0	0	0	236	91	327	68	2	107	177
+45 mins.	81	310	0	391	0	0	0	0	0	**248**	88	**336**	76	0	**122**	198
Total Volume	322	1268	0	1590	0	0	0	0	0	957	365	1322	318	5	469	792
% App. Total	20.3	79.7	0		0	0	0		0	72.4	27.6		40.2	0.6	59.2	
PHF	.904	.850	.000	.876	.000	.000	.000	.000	.000	.965	.961	.984	.874	.417	.961	.934

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	58	195	0	253	0	0	0	0	0	128	46	174	69	2	78	149	576
07:15 AM	43	242	0	285	0	0	0	0	0	173	59	232	67	1	82	150	667
07:30 AM	69	273	0	342	0	0	0	0	0	165	63	228	58	0	74	132	702
07:45 AM	62	334	0	396	0	0	0	0	0	190	70	260	71	3	91	165	821
Total	232	1044	0	1276	0	0	0	0	0	656	238	894	265	6	325	596	2766
08:00 AM	53	254	0	307	0	0	0	0	0	179	74	253	75	0	93	168	728
08:15 AM	57	212	0	269	0	0	0	0	0	178	74	252	47	1	89	137	658
08:30 AM	61	150	0	211	0	0	0	0	0	191	66	257	58	0	92	150	618
08:45 AM	52	123	0	175	0	0	0	0	0	129	63	192	50	0	60	110	477
Total	223	739	0	962	0	0	0	0	0	677	277	954	230	1	334	565	2481
Grand Total	455	1783	0	2238	0	0	0	0	0	1333	515	1848	495	7	659	1161	5247
Apprch %	20.3	79.7	0		0	0	0		0	72.1	27.9		42.6	0.6	56.8		
Total %	8.7	34	0	42.7	0	0	0	0	0	25.4	9.8	35.2	9.4	0.1	12.6	22.1	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**69**	273	0	342	0	0	0	0	0	165	63	228	58	0	74	132	702
07:45 AM	62	**334**	0	**396**	0	0	0	0	0	**190**	70	**260**	71	**3**	91	165	**821**
08:00 AM	53	254	0	307	0	0	0	0	0	179	**74**	253	**75**	0	**93**	**168**	728
08:15 AM	57	212	0	269	0	0	0	0	0	178	74	252	47	1	89	137	658
Total Volume	241	1073	0	1314	0	0	0	0	0	712	281	993	251	4	347	602	2909
% App. Total	18.3	81.7	0		0	0	0		0	71.7	28.3		41.7	0.7	57.6		
PHF	.873	.803	.000	.830	.000	.000	.000	.000	.000	.937	.949	.955	.837	.333	.933	.896	.886

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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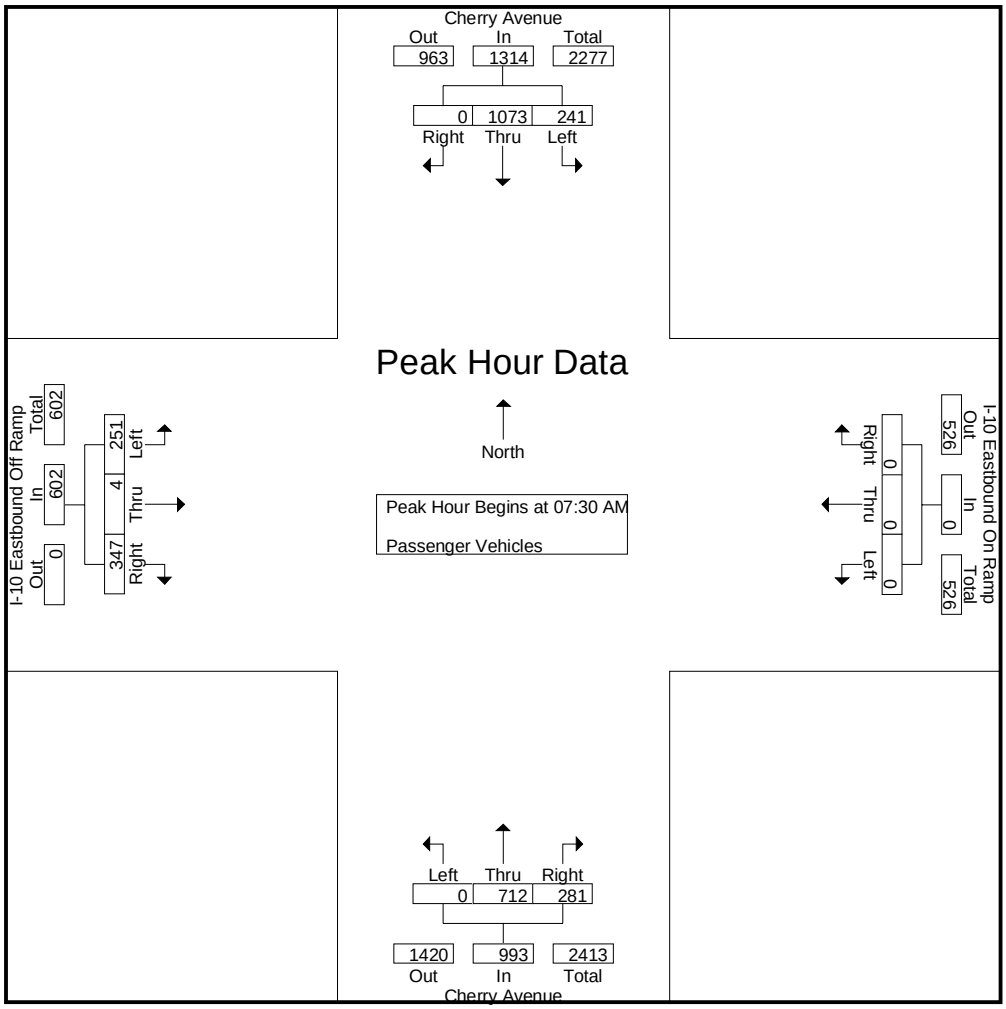

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**69**	273	0	342	0	0	0	0	0	165	63	228	58	0	74	132
+15 mins.	62	**334**	0	**396**	0	0	0	0	0	**190**	70	**260**	71	**3**	91	165
+30 mins.	53	254	0	307	0	0	0	0	0	179	**74**	253	**75**	0	**93**	**168**
+45 mins.	57	212	0	269	0	0	0	0	0	178	74	252	47	1	89	137
Total Volume	241	1073	0	1314	0	0	0	0	0	712	281	993	251	4	347	602
% App. Total	18.3	81.7	0		0	0	0		0	71.7	28.3		41.7	0.7	57.6	
PHF	.873	.803	.000	.830	.000	.000	.000	.000	.000	.937	.949	.955	.837	.333	.933	.896

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	4	0	4	0	0	0	0	0	11	2	13	5	0	5	10	27
07:15 AM	8	5	0	13	0	0	0	0	0	10	5	15	3	0	2	5	33
07:30 AM	4	9	0	13	0	0	0	0	0	9	3	12	8	0	5	13	38
07:45 AM	3	7	0	10	0	0	0	0	0	9	4	13	4	0	2	6	29
Total	15	25	0	40	0	0	0	0	0	39	14	53	20	0	14	34	127
08:00 AM	8	7	0	15	0	0	0	0	0	11	5	16	7	0	2	9	40
08:15 AM	7	14	0	21	0	0	0	0	0	11	3	14	4	1	3	8	43
08:30 AM	5	11	0	16	0	0	0	0	0	11	2	13	4	0	1	5	34
08:45 AM	6	11	0	17	0	0	0	0	0	8	4	12	10	0	0	10	39
Total	26	43	0	69	0	0	0	0	0	41	14	55	25	1	6	32	156
Grand Total	41	68	0	109	0	0	0	0	0	80	28	108	45	1	20	66	283
Apprch %	37.6	62.4	0		0	0	0		0	74.1	25.9		68.2	1.5	30.3		
Total %	14.5	24	0	38.5	0	0	0	0	0	28.3	9.9	38.2	15.9	0.4	7.1	23.3	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	4	9	0	13	0	0	0	0	0	9	3	12	**8**	0	**5**	**13**	38
07:45 AM	3	7	0	10	0	0	0	0	0	9	4	13	4	0	2	6	29
08:00 AM	**8**	7	0	15	0	0	0	0	0	**11**	**5**	**16**	7	0	2	9	40
08:15 AM	7	**14**	0	**21**	0	0	0	0	0	11	3	14	4	**1**	3	8	**43**
Total Volume	22	37	0	59	0	0	0	0	0	40	15	55	23	1	12	36	150
% App. Total	37.3	62.7	0		0	0	0		0	72.7	27.3		63.9	2.8	33.3		
PHF	.688	.661	.000	.702	.000	.000	.000	.000	.000	.909	.750	.859	.719	.250	.600	.692	.872

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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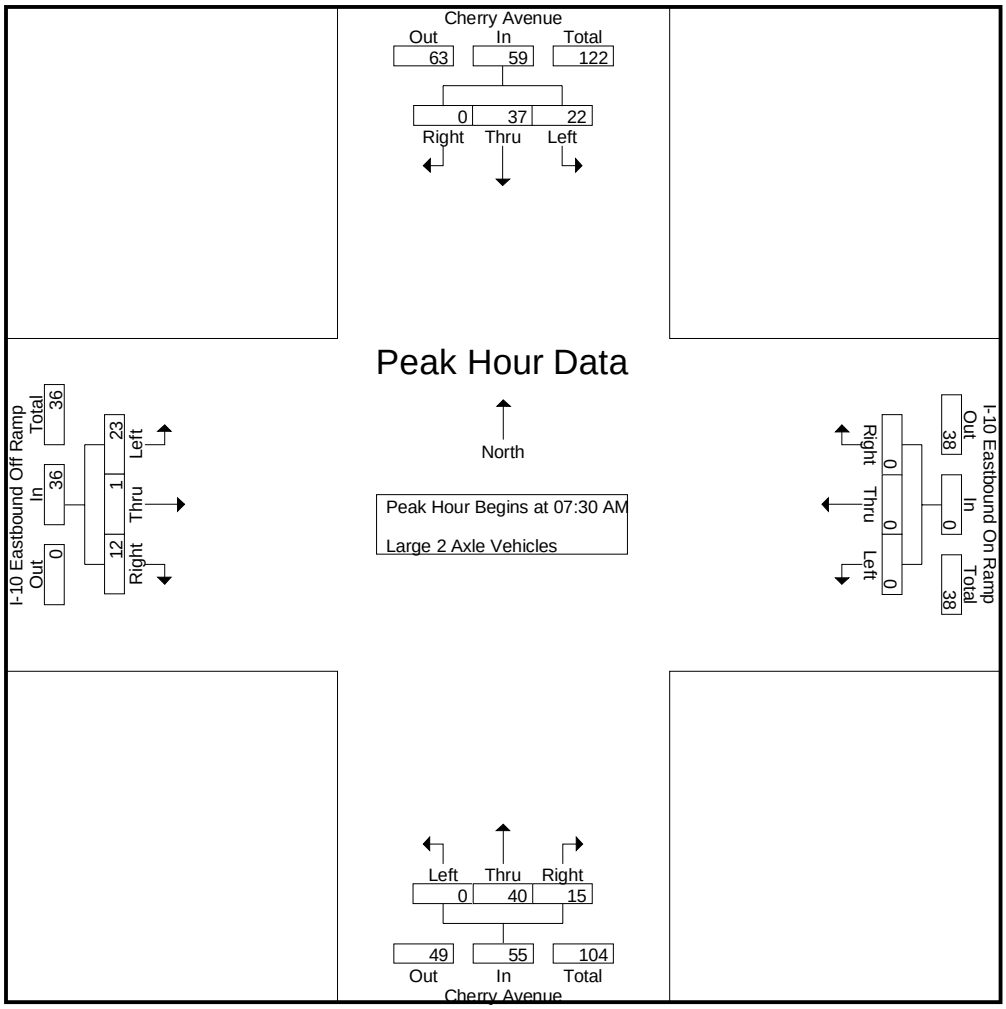

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	4	9	0	13	0	0	0	0	0	9	3	12	**8**	0	**5**	**13**
+15 mins.	3	7	0	10	0	0	0	0	0	9	4	13	4	0	2	6
+30 mins.	**8**	7	0	15	0	0	0	0	0	**11**	**5**	**16**	7	0	2	9
+45 mins.	7	**14**	0	**21**	0	0	0	0	0	11	3	14	4	**1**	3	8
Total Volume	22	37	0	59	0	0	0	0	0	40	15	55	23	1	12	36
% App. Total	37.3	62.7	0		0	0	0		0	72.7	27.3		63.9	2.8	33.3	
PHF	.688	.661	.000	.702	.000	.000	.000	.000	.000	.909	.750	.859	.719	.250	.600	.692

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
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Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	9	0	14	0	0	0	0	0	7	4	11	3	0	3	6	31
07:15 AM	7	16	0	23	0	0	0	0	0	12	5	17	1	0	8	9	49
07:30 AM	4	8	0	12	0	0	0	0	0	8	7	15	3	0	6	9	36
07:45 AM	2	13	0	15	0	0	0	0	0	13	5	18	4	0	5	9	42
Total	18	46	0	64	0	0	0	0	0	40	21	61	11	0	22	33	158
08:00 AM	3	20	0	23	0	0	0	0	0	10	5	15	6	0	5	11	49
08:15 AM	9	5	0	14	0	0	0	0	0	11	2	13	7	0	2	9	36
08:30 AM	4	13	0	17	0	0	0	0	0	6	6	12	3	0	4	7	36
08:45 AM	8	9	0	17	0	0	0	0	0	13	3	16	7	0	10	17	50
Total	24	47	0	71	0	0	0	0	0	40	16	56	23	0	21	44	171
Grand Total	42	93	0	135	0	0	0	0	0	80	37	117	34	0	43	77	329
Apprch %	31.1	68.9	0		0	0	0		0	68.4	31.6		44.2	0	55.8		
Total %	12.8	28.3	0	41	0	0	0	0	0	24.3	11.2	35.6	10.3	0	13.1	23.4	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	4	8	0	12	0	0	0	0	0	8	**7**	15	3	0	**6**	9	36
07:45 AM	2	13	0	15	0	0	0	0	0	**13**	5	**18**	4	0	5	9	42
08:00 AM	3	**20**	0	**23**	0	0	0	0	0	10	5	15	6	0	5	**11**	**49**
08:15 AM	**9**	5	0	14	0	0	0	0	0	11	2	13	**7**	0	2	9	36
Total Volume	18	46	0	64	0	0	0	0	0	42	19	61	20	0	18	38	163
% App. Total	28.1	71.9	0		0	0	0		0	68.9	31.1		52.6	0	47.4		
PHF	.500	.575	.000	.696	.000	.000	.000	.000	.000	.808	.679	.847	.714	.000	.750	.864	.832

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
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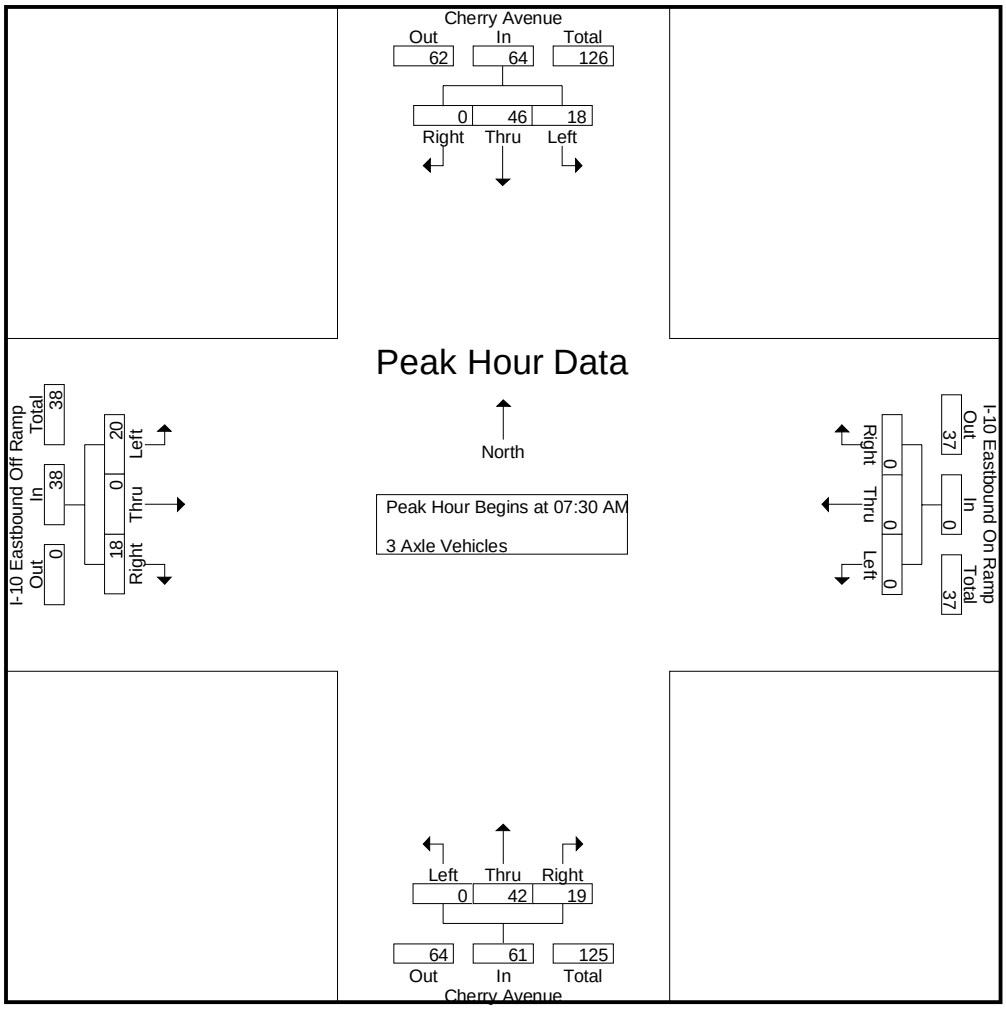

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	4	8	0	12	0	0	0	0	0	8	**7**	15	3	0	**6**	9
+15 mins.	2	13	0	15	0	0	0	0	0	**13**	5	**18**	4	0	5	9
+30 mins.	3	**20**	0	**23**	0	0	0	0	0	10	5	15	6	0	5	**11**
+45 mins.	**9**	5	0	14	0	0	0	0	0	11	2	13	**7**	0	2	9
Total Volume	18	46	0	64	0	0	0	0	0	42	19	61	20	0	18	38
% App. Total	28.1	71.9	0		0	0	0		0	68.9	31.1		52.6	0	47.4	
PHF	.500	.575	.000	.696	.000	.000	.000	.000	.000	.808	.679	.847	.714	.000	.750	.864

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	17	19	0	36	0	0	0	0	0	26	7	33	8	1	16	25	94
07:15 AM	13	14	0	27	0	0	0	0	0	20	17	37	2	0	19	21	85
07:30 AM	12	18	0	30	0	0	0	0	0	29	12	41	8	0	17	25	96
07:45 AM	14	19	0	33	0	0	0	0	0	31	12	43	4	0	21	25	101
Total	56	70	0	126	0	0	0	0	0	106	48	154	22	1	73	96	376
08:00 AM	17	29	0	46	0	0	0	0	0	30	11	41	3	0	21	24	111
08:15 AM	7	23	0	30	0	0	0	0	0	36	12	48	10	0	13	23	101
08:30 AM	16	20	0	36	0	0	0	0	0	40	14	54	11	0	25	36	126
08:45 AM	18	20	0	38	0	0	0	0	0	41	13	54	7	0	17	24	116
Total	58	92	0	150	0	0	0	0	0	147	50	197	31	0	76	107	454
Grand Total	114	162	0	276	0	0	0	0	0	253	98	351	53	1	149	203	830
Apprch %	41.3	58.7	0		0	0	0		0	72.1	27.9		26.1	0.5	73.4		
Total %	13.7	19.5	0	33.3	0	0	0	0	0	30.5	11.8	42.3	6.4	0.1	18	24.5	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	12	18	0	30	0	0	0	0	0	29	**12**	41	8	0	17	**25**	96
07:45 AM	14	19	0	33	0	0	0	0	0	31	12	43	4	0	**21**	25	101
08:00 AM	**17**	**29**	0	**46**	0	0	0	0	0	30	11	41	3	0	21	24	**111**
08:15 AM	7	23	0	30	0	0	0	0	0	**36**	12	**48**	**10**	0	13	23	101
Total Volume	50	89	0	139	0	0	0	0	0	126	47	173	25	0	72	97	409
% App. Total	36	64	0		0	0	0		0	72.8	27.2		25.8	0	74.2		
PHF	.735	.767	.000	.755	.000	.000	.000	.000	.000	.875	.979	.901	.625	.000	.857	.970	.921

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
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File Name : 06_FON_Cherry_10E AM
Site Code : 10821516
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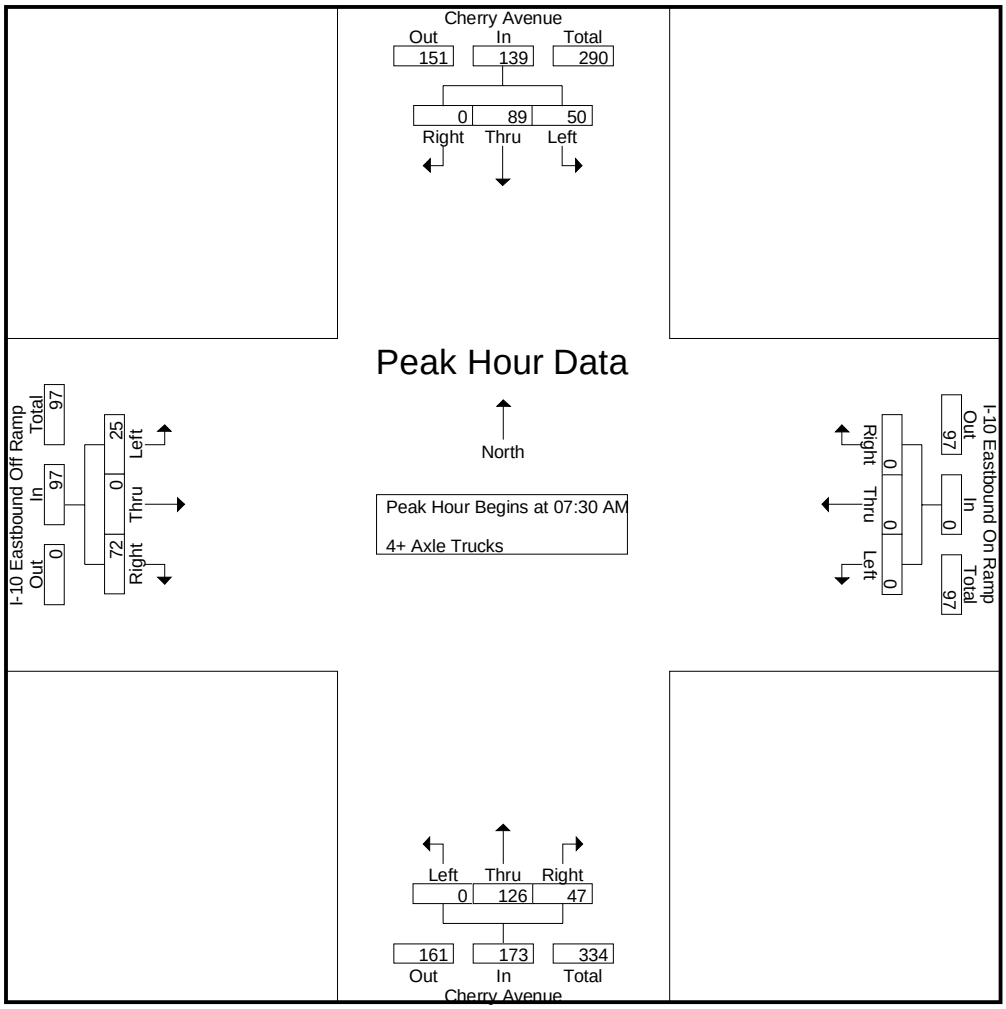

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	12	18	0	30	0	0	0	0	0	29	**12**	41	8	0	17	**25**
+15 mins.	14	19	0	33	0	0	0	0	0	31	12	43	4	0	**21**	25
+30 mins.	**17**	**29**	0	**46**	0	0	0	0	0	30	11	41	3	0	21	24
+45 mins.	7	23	0	30	0	0	0	0	0	**36**	12	**48**	**10**	0	13	23
Total Volume	50	89	0	139	0	0	0	0	0	126	47	173	25	0	72	97
% App. Total	36	64	0		0	0	0		0	72.8	27.2		25.8	0	74.2	
PHF	.735	.767	.000	.755	.000	.000	.000	.000	.000	.875	.979	.901	.625	.000	.857	.970

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	133	234	0	367	0	0	0	0	0	236	55	291	104	4	108	216	874
04:15 PM	101	211	0	312	0	0	0	0	0	257	87	344	98	7	105	210	866
04:30 PM	130	259	0	389	0	0	0	0	0	251	70	321	104	12	91	207	917
04:45 PM	97	231	0	328	0	0	0	0	0	277	82	359	100	19	105	224	911
Total	461	935	0	1396	0	0	0	0	0	1021	294	1315	406	42	409	857	3568
05:00 PM	105	252	0	357	0	0	0	0	0	246	95	341	115	4	118	237	935
05:15 PM	88	199	0	287	0	0	0	0	0	276	92	368	94	14	97	205	860
05:30 PM	100	213	0	313	0	0	0	0	0	252	91	343	101	14	119	234	890
05:45 PM	94	206	0	300	0	0	0	0	0	210	71	281	96	4	95	195	776
Total	387	870	0	1257	0	0	0	0	0	984	349	1333	406	36	429	871	3461
Grand Total	848	1805	0	2653	0	0	0	0	0	2005	643	2648	812	78	838	1728	7029
Apprch %	32	68	0		0	0	0		0	75.7	24.3		47	4.5	48.5		
Total %	12.1	25.7	0	37.7	0	0	0	0	0	28.5	9.1	37.7	11.6	1.1	11.9	24.6	
Passenger Vehicles	716	1482	0	2198	0	0	0	0	0	1746	545	2291	701	75	658	1434	5923
% Passenger Vehicles	84.4	82.1	0	82.8	0	0	0	0	0	87.1	84.8	86.5	86.3	96.2	78.5	83	84.3
Large 2 Axle Vehicles	27	50	0	77	0	0	0	0	0	47	16	63	18	2	25	45	185
% Large 2 Axle Vehicles	3.2	2.8	0	2.9	0	0	0	0	0	2.3	2.5	2.4	2.2	2.6	3	2.6	2.6
3 Axle Vehicles	46	107	0	153	0	0	0	0	0	73	14	87	23	1	15	39	279
% 3 Axle Vehicles	5.4	5.9	0	5.8	0	0	0	0	0	3.6	2.2	3.3	2.8	1.3	1.8	2.3	4
4+ Axle Trucks	59	166	0	225	0	0	0	0	0	139	68	207	70	0	140	210	642
% 4+ Axle Trucks	7	9.2	0	8.5	0	0	0	0	0	6.9	10.6	7.8	8.6	0	16.7	12.2	9.1

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	101	211	0	312	0	0	0	0	0	257	87	344	98	7	105	210	866
04:30 PM	**130**	**259**	0	**389**	0	0	0	0	0	251	70	321	104	12	91	207	917
04:45 PM	97	231	0	328	0	0	0	0	0	**277**	82	**359**	100	**19**	105	224	911
05:00 PM	105	252	0	357	0	0	0	0	0	246	**95**	341	**115**	4	**118**	**237**	**935**
Total Volume	433	953	0	1386	0	0	0	0	0	1031	334	1365	417	42	419	878	3629
% App. Total	31.2	68.8	0		0	0	0		0	75.5	24.5		47.5	4.8	47.7		
PHF	.833	.920	.000	.891	.000	.000	.000	.000	.000	.931	.879	.951	.907	.553	.888	.926	.970

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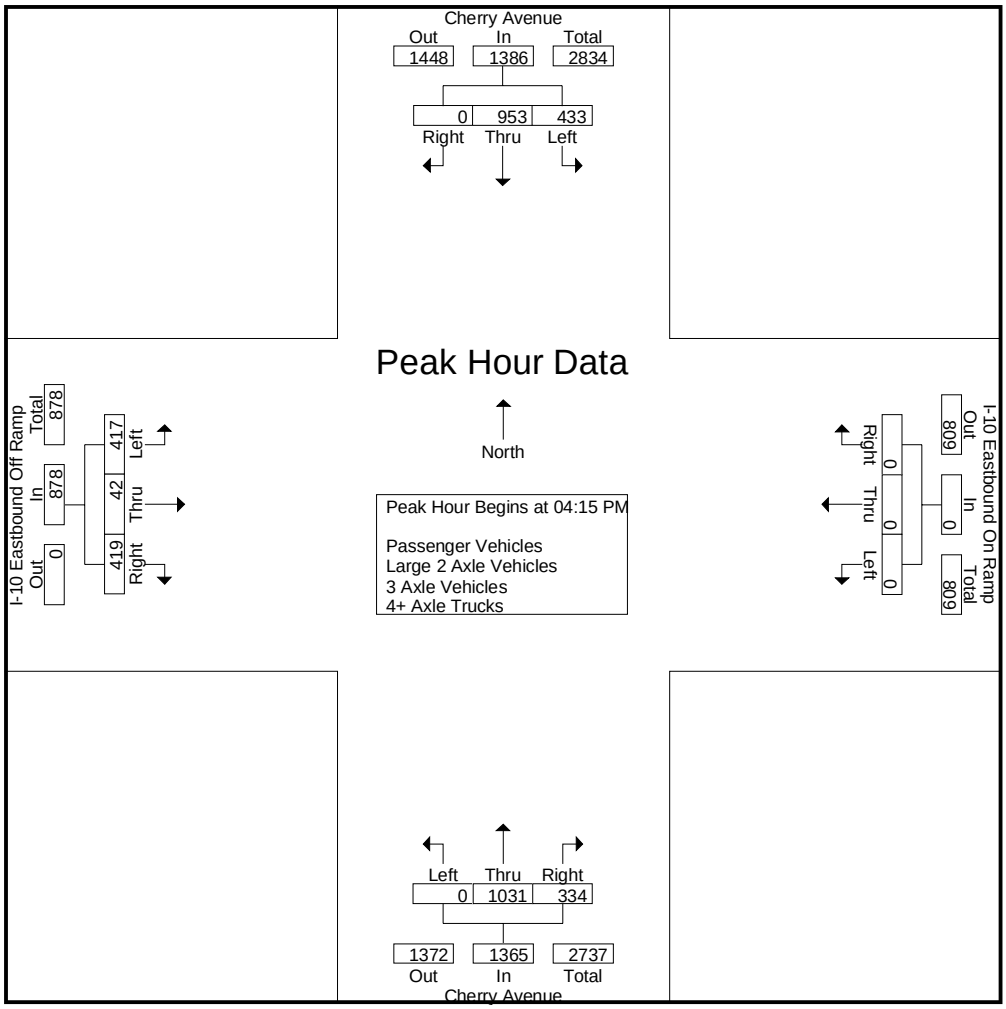
City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:45 PM				04:45 PM			
+0 mins.	**133**	234	0	367	0	0	0	0	0	**277**	82	359	100	**19**	105	224
+15 mins.	101	211	0	312	0	0	0	0	0	246	**95**	341	**115**	4	118	**237**
+30 mins.	130	**259**	0	**389**	0	0	0	0	0	276	92	**368**	94	14	97	205
+45 mins.	97	231	0	328	0	0	0	0	0	252	91	343	101	14	**119**	234
Total Volume	461	935	0	1396	0	0	0	0	0	1051	360	1411	410	51	439	900
% App. Total	33	67	0		0	0	0		0	74.5	25.5		45.6	5.7	48.8	
PHF	.867	.903	.000	.897	.000	.000	.000	.000	.000	.949	.947	.959	.891	.671	.922	.949

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	109	183	0	292	0	0	0	0	0	201	50	251	89	4	75	168	711
04:15 PM	80	181	0	261	0	0	0	0	0	220	71	291	88	7	84	179	731
04:30 PM	111	210	0	321	0	0	0	0	0	216	62	278	89	11	68	168	767
04:45 PM	88	200	0	288	0	0	0	0	0	237	71	308	89	19	91	199	795
Total	388	774	0	1162	0	0	0	0	0	874	254	1128	355	41	318	714	3004
05:00 PM	93	203	0	296	0	0	0	0	0	216	79	295	92	4	97	193	784
05:15 PM	77	159	0	236	0	0	0	0	0	249	78	327	79	13	78	170	733
05:30 PM	78	171	0	249	0	0	0	0	0	225	79	304	90	13	93	196	749
05:45 PM	80	175	0	255	0	0	0	0	0	182	55	237	85	4	72	161	653
Total	328	708	0	1036	0	0	0	0	0	872	291	1163	346	34	340	720	2919
Grand Total	716	1482	0	2198	0	0	0	0	0	1746	545	2291	701	75	658	1434	5923
Apprch %	32.6	67.4	0		0	0	0		0	76.2	23.8		48.9	5.2	45.9		
Total %	12.1	25	0	37.1	0	0	0	0	0	29.5	9.2	38.7	11.8	1.3	11.1	24.2	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	80	181	0	261	0	0	0	0	0	220	71	291	88	7	84	179	731
04:30 PM	**111**	**210**	0	**321**	0	0	0	0	0	216	62	278	89	11	68	168	767
04:45 PM	88	200	0	288	0	0	0	0	0	**237**	71	**308**	89	**19**	91	**199**	**795**
05:00 PM	93	203	0	296	0	0	0	0	0	216	**79**	295	**92**	4	**97**	193	784
Total Volume	372	794	0	1166	0	0	0	0	0	889	283	1172	358	41	340	739	3077
% App. Total	31.9	68.1	0		0	0	0		0	75.9	24.1		48.4	5.5	46		
PHF	.838	.945	.000	.908	.000	.000	.000	.000	.000	.938	.896	.951	.973	.539	.876	.928	.968

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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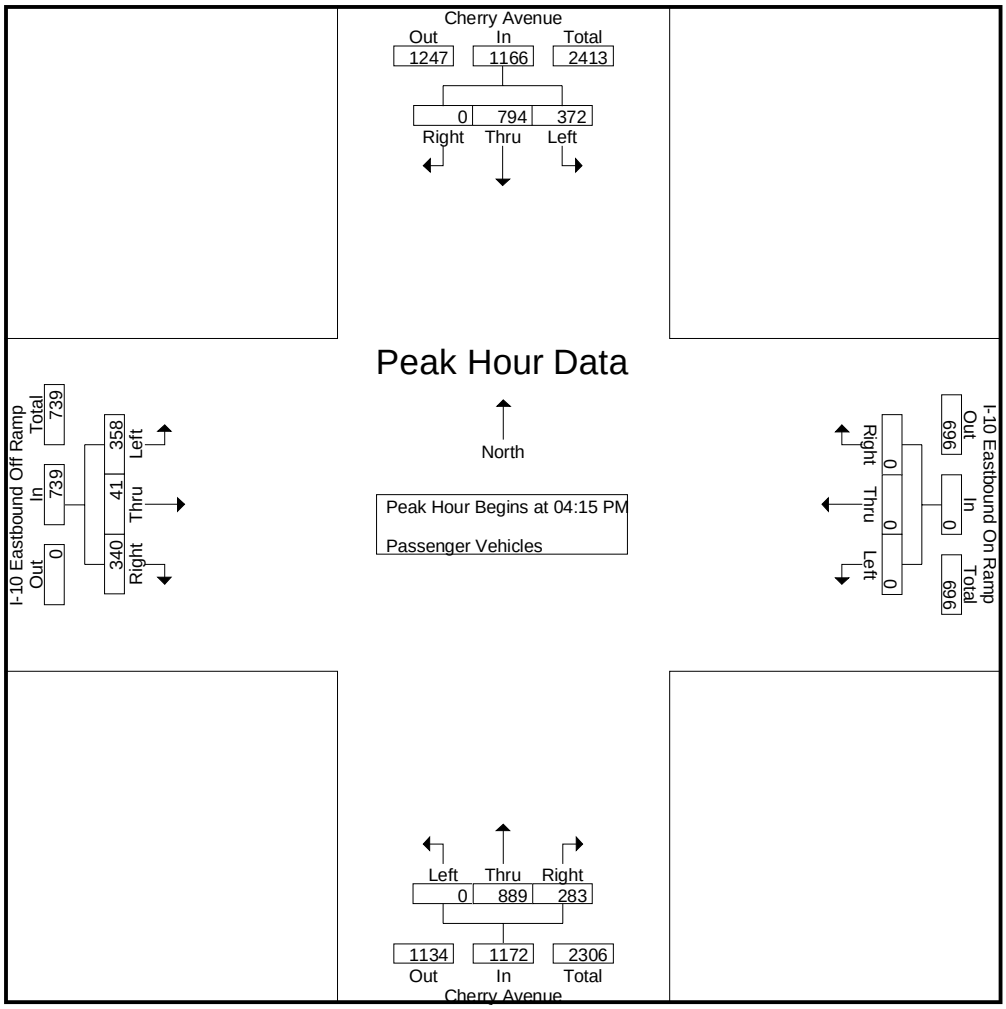

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	80	181	0	261	0	0	0	0	0	220	71	291	88	7	84	179
+15 mins.	**111**	**210**	0	**321**	0	0	0	0	0	216	62	278	89	11	68	168
+30 mins.	88	200	0	288	0	0	0	0	0	**237**	71	**308**	89	**19**	91	**199**
+45 mins.	93	203	0	296	0	0	0	0	0	216	**79**	295	**92**	4	**97**	193
Total Volume	372	794	0	1166	0	0	0	0	0	889	283	1172	358	41	340	739
% App. Total	31.9	68.1	0		0	0	0		0	75.9	24.1		48.4	5.5	46	
PHF	.838	.945	.000	.908	.000	.000	.000	.000	.000	.938	.896	.951	.973	.539	.876	.928

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	11	0	12	0	0	0	0	0	5	0	5	3	0	4	7	24
04:15 PM	7	3	0	10	0	0	0	0	0	9	1	10	2	0	5	7	27
04:30 PM	5	6	0	11	0	0	0	0	0	6	0	6	2	1	4	7	24
04:45 PM	2	7	0	9	0	0	0	0	0	7	2	9	1	0	2	3	21
Total	15	27	0	42	0	0	0	0	0	27	3	30	8	1	15	24	96
05:00 PM	2	8	0	10	0	0	0	0	0	4	3	7	4	0	3	7	24
05:15 PM	3	4	0	7	0	0	0	0	0	5	2	7	5	1	1	7	21
05:30 PM	5	6	0	11	0	0	0	0	0	5	4	9	1	0	3	4	24
05:45 PM	2	5	0	7	0	0	0	0	0	6	4	10	0	0	3	3	20
Total	12	23	0	35	0	0	0	0	0	20	13	33	10	1	10	21	89
Grand Total	27	50	0	77	0	0	0	0	0	47	16	63	18	2	25	45	185
Apprch %	35.1	64.9	0		0	0	0		0	74.6	25.4		40	4.4	55.6		
Total %	14.6	27	0	41.6	0	0	0	0	0	25.4	8.6	34.1	9.7	1.1	13.5	24.3	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**7**	3	0	10	0	0	0	0	0	**9**	1	**10**	2	0	**5**	**7**	**27**
04:30 PM	5	6	0	**11**	0	0	0	0	0	6	0	6	2	**1**	4	7	24
04:45 PM	2	7	0	9	0	0	0	0	0	7	2	9	1	0	2	3	21
05:00 PM	2	**8**	0	10	0	0	0	0	0	4	**3**	7	**4**	0	3	7	24
Total Volume	16	24	0	40	0	0	0	0	0	26	6	32	9	1	14	24	96
% App. Total	40	60	0		0	0	0		0	81.2	18.8		37.5	4.2	58.3		
PHF	.571	.750	.000	.909	.000	.000	.000	.000	.000	.722	.500	.800	.563	.250	.700	.857	.889

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
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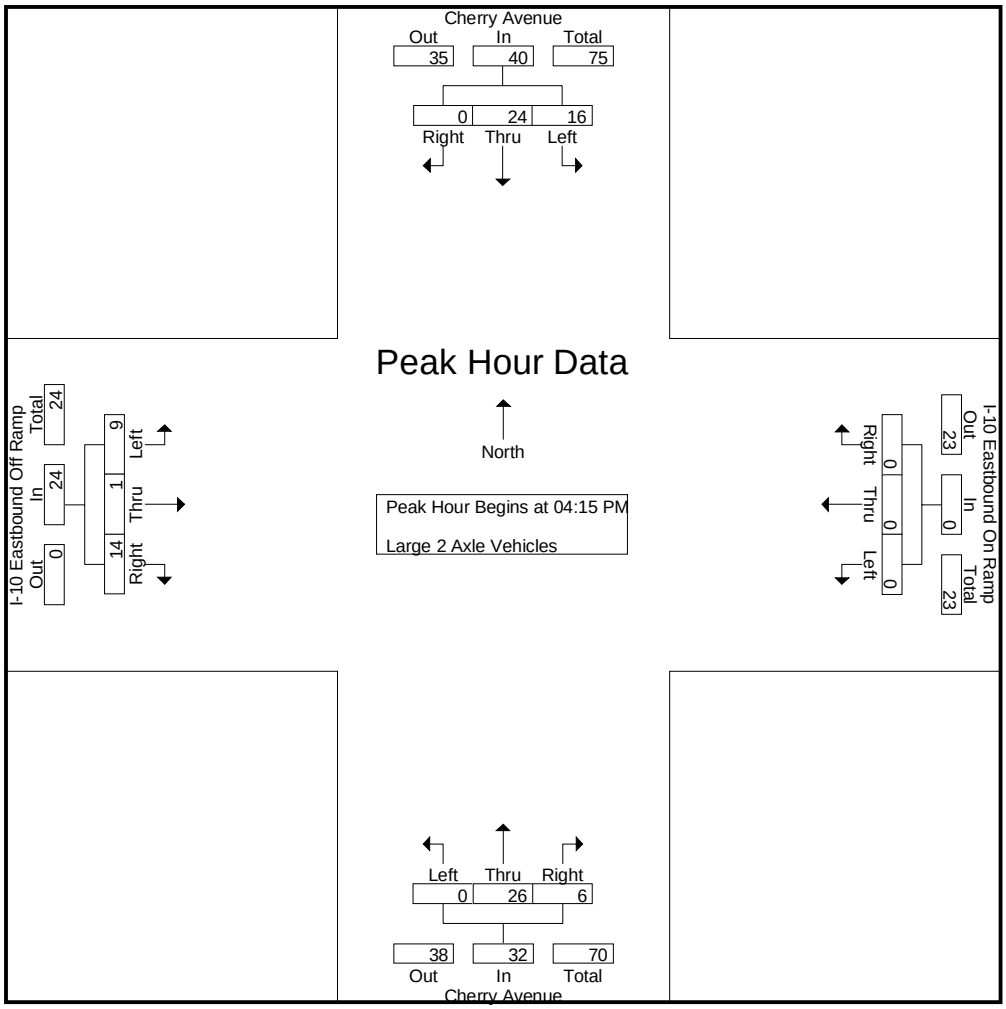

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	**7**	3	0	10	0	0	0	0	0	**9**	1	**10**	2	0	**5**	**7**
+15 mins.	5	6	0	**11**	0	0	0	0	0	6	0	6	2	**1**	4	7
+30 mins.	2	7	0	9	0	0	0	0	0	7	2	9	1	0	2	3
+45 mins.	2	**8**	0	10	0	0	0	0	0	4	**3**	7	**4**	0	3	7
Total Volume	16	24	0	40	0	0	0	0	0	26	6	32	9	1	14	24
% App. Total	40	60	0		0	0	0		0	81.2	18.8		37.5	4.2	58.3	
PHF	.571	.750	.000	.909	.000	.000	.000	.000	.000	.722	.500	.800	.563	.250	.700	.857

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
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Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	8	17	0	25	0	0	0	0	0	13	0	13	1	0	2	3	41
04:15 PM	7	14	0	21	0	0	0	0	0	10	3	13	3	0	2	5	39
04:30 PM	5	16	0	21	0	0	0	0	0	8	0	8	4	0	0	4	33
04:45 PM	2	8	0	10	0	0	0	0	0	14	2	16	1	0	2	3	29
Total	22	55	0	77	0	0	0	0	0	45	5	50	9	0	6	15	142
05:00 PM	4	15	0	19	0	0	0	0	0	8	3	11	5	0	4	9	39
05:15 PM	7	16	0	23	0	0	0	0	0	4	1	5	4	0	1	5	33
05:30 PM	9	13	0	22	0	0	0	0	0	7	3	10	2	1	2	5	37
05:45 PM	4	8	0	12	0	0	0	0	0	9	2	11	3	0	2	5	28
Total	24	52	0	76	0	0	0	0	0	28	9	37	14	1	9	24	137
Grand Total	46	107	0	153	0	0	0	0	0	73	14	87	23	1	15	39	279
Apprch %	30.1	69.9	0		0	0	0		0	83.9	16.1		59	2.6	38.5		
Total %	16.5	38.4	0	54.8	0	0	0	0	0	26.2	5	31.2	8.2	0.4	5.4	14	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**7**	14	0	**21**	0	0	0	0	0	10	**3**	13	3	0	2	5	**39**
04:30 PM	5	**16**	0	21	0	0	0	0	0	8	0	8	4	0	0	4	33
04:45 PM	2	8	0	10	0	0	0	0	0	**14**	2	**16**	1	0	2	3	29
05:00 PM	4	15	0	19	0	0	0	0	0	8	3	11	**5**	0	**4**	**9**	39
Total Volume	18	53	0	71	0	0	0	0	0	40	8	48	13	0	8	21	140
% App. Total	25.4	74.6	0		0	0	0		0	83.3	16.7		61.9	0	38.1		
PHF	.643	.828	.000	.845	.000	.000	.000	.000	.000	.714	.667	.750	.650	.000	.500	.583	.897

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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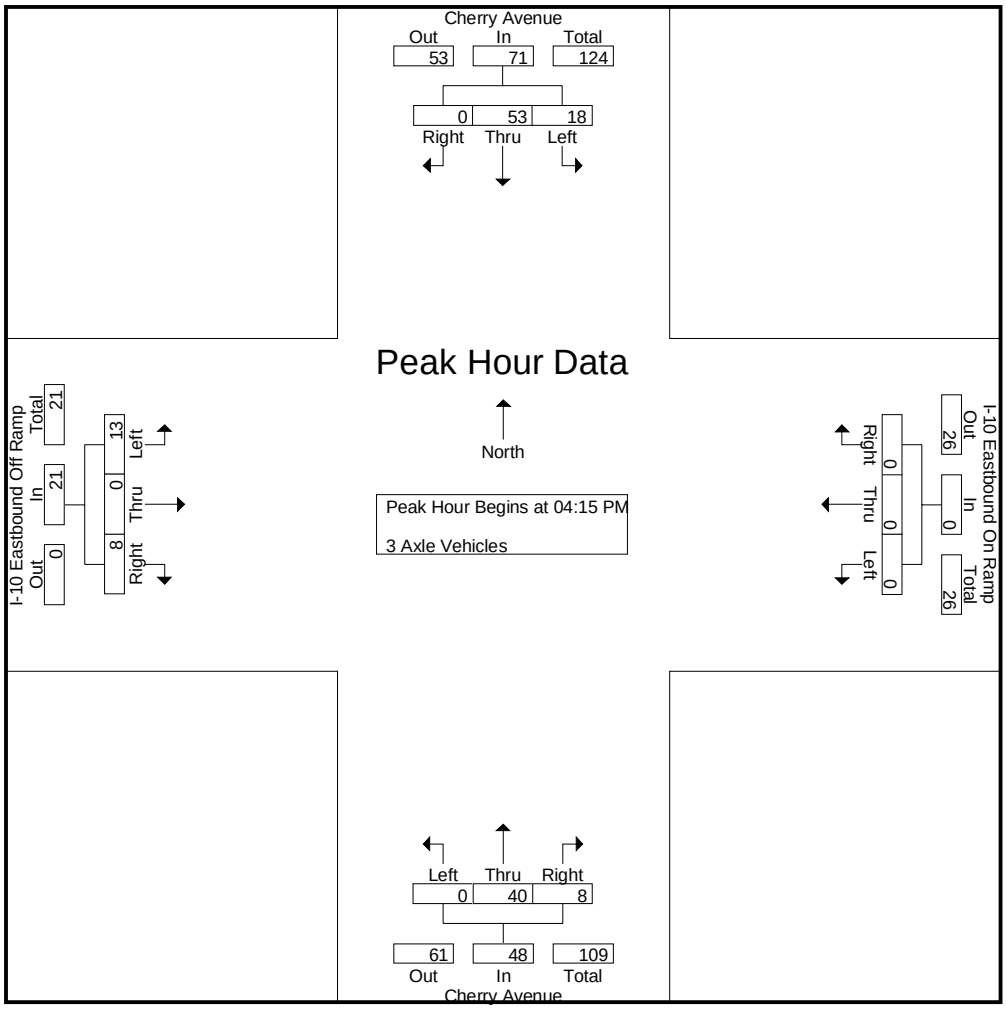

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	**7**	14	0	**21**	0	0	0	0	0	10	**3**	13	3	0	2	5
+15 mins.	5	**16**	0	21	0	0	0	0	0	8	0	8	4	0	0	4
+30 mins.	2	8	0	10	0	0	0	0	0	**14**	2	**16**	1	0	2	3
+45 mins.	4	15	0	19	0	0	0	0	0	8	3	11	**5**	0	**4**	**9**
Total Volume	18	53	0	71	0	0	0	0	0	40	8	48	13	0	8	21
% App. Total	25.4	74.6	0		0	0	0		0	83.3	16.7		61.9	0	38.1	
PHF	.643	.828	.000	.845	.000	.000	.000	.000	.000	.714	.667	.750	.650	.000	.500	.583

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City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	15	23	0	38	0	0	0	0	0	17	5	22	11	0	27	38	98
04:15 PM	7	13	0	20	0	0	0	0	0	18	12	30	5	0	14	19	69
04:30 PM	9	27	0	36	0	0	0	0	0	21	8	29	9	0	19	28	93
04:45 PM	5	16	0	21	0	0	0	0	0	19	7	26	9	0	10	19	66
Total	36	79	0	115	0	0	0	0	0	75	32	107	34	0	70	104	326
05:00 PM	6	26	0	32	0	0	0	0	0	18	10	28	14	0	14	28	88
05:15 PM	1	20	0	21	0	0	0	0	0	18	11	29	6	0	17	23	73
05:30 PM	8	23	0	31	0	0	0	0	0	15	5	20	8	0	21	29	80
05:45 PM	8	18	0	26	0	0	0	0	0	13	10	23	8	0	18	26	75
Total	23	87	0	110	0	0	0	0	0	64	36	100	36	0	70	106	316
Grand Total	59	166	0	225	0	0	0	0	0	139	68	207	70	0	140	210	642
Apprch %	26.2	73.8	0		0	0	0		0	67.1	32.9		33.3	0	66.7		
Total %	9.2	25.9	0	35	0	0	0	0	0	21.7	10.6	32.2	10.9	0	21.8	32.7	

	Cherry Avenue Southbound				I-10 Eastbound On Ramp Westbound				Cherry Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	7	13	0	20	0	0	0	0	0	18	**12**	**30**	5	0	14	19	69
04:30 PM	**9**	**27**	0	**36**	0	0	0	0	0	**21**	8	29	9	0	**19**	**28**	**93**
04:45 PM	5	16	0	21	0	0	0	0	0	19	7	26	9	0	10	19	66
05:00 PM	6	26	0	32	0	0	0	0	0	18	10	28	**14**	0	14	28	88
Total Volume	27	82	0	109	0	0	0	0	0	76	37	113	37	0	57	94	316
% App. Total	24.8	75.2	0		0	0	0		0	67.3	32.7		39.4	0	60.6		
PHF	.750	.759	.000	.757	.000	.000	.000	.000	.000	.905	.771	.942	.661	.000	.750	.839	.849

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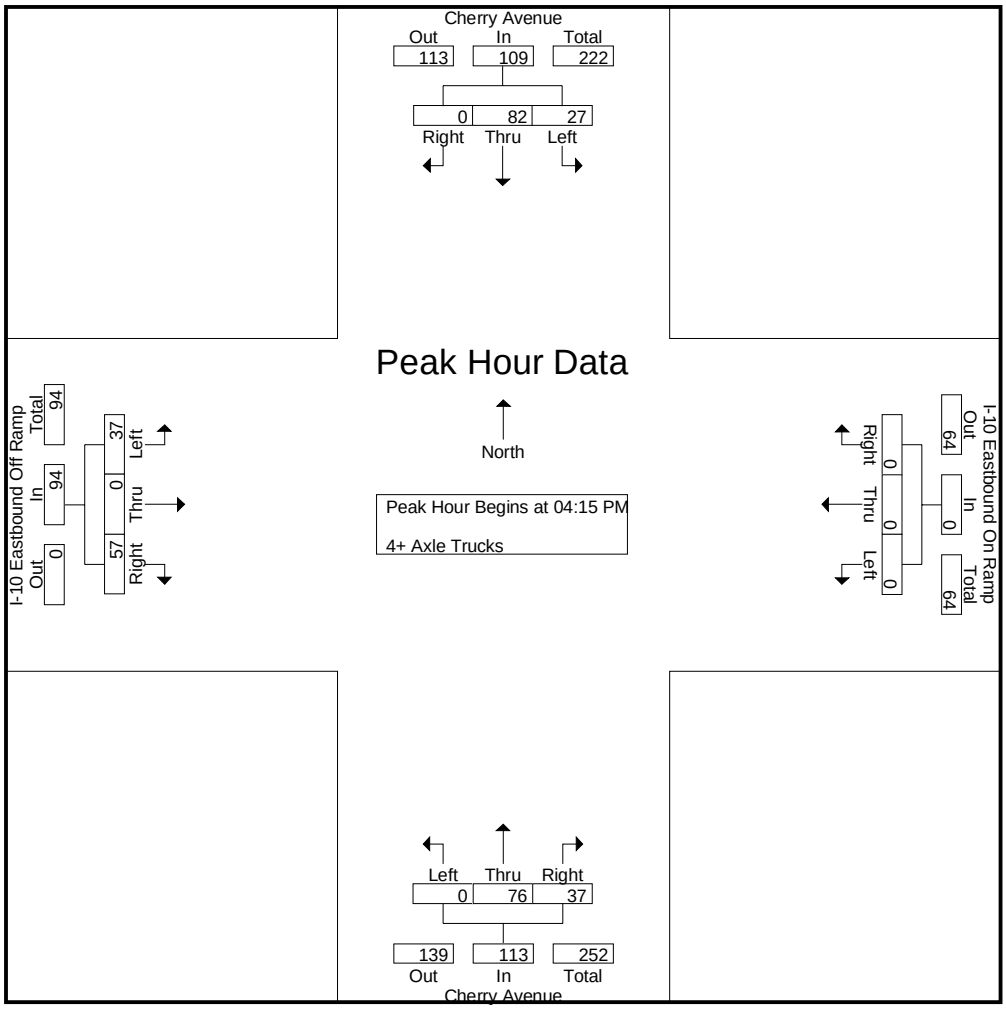
City of Fontana
N/S: Cherry Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 06_FON_Cherry_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	7	13	0	20	0	0	0	0	0	18	**12**	**30**	5	0	14	19
+15 mins.	**9**	**27**	0	**36**	0	0	0	0	0	**21**	8	29	9	0	**19**	**28**
+30 mins.	5	16	0	21	0	0	0	0	0	19	7	26	9	0	10	19
+45 mins.	6	26	0	32	0	0	0	0	0	18	10	28	**14**	0	14	28
Total Volume	27	82	0	109	0	0	0	0	0	76	37	113	37	0	57	94
% App. Total	24.8	75.2	0		0	0	0		0	67.3	32.7		39.4	0	60.6	
PHF	.750	.759	.000	.757	.000	.000	.000	.000	.000	.905	.771	.942	.661	.000	.750	.839

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	104	118	0	222	0	0	0	0	0	91	50	141	79	0	104	183	546
07:15 AM	129	160	0	289	0	0	0	0	0	134	56	190	77	1	68	146	625
07:30 AM	157	161	0	318	0	0	0	0	0	124	60	184	89	2	72	163	665
07:45 AM	127	196	0	323	0	0	0	0	0	123	65	188	77	0	70	147	658
Total	517	635	0	1152	0	0	0	0	0	472	231	703	322	3	314	639	2494
08:00 AM	99	235	0	334	0	0	0	0	0	124	75	199	77	5	96	178	711
08:15 AM	103	202	0	305	0	0	0	0	0	183	65	248	78	0	77	155	708
08:30 AM	93	128	0	221	0	0	0	0	0	152	76	228	59	1	60	120	569
08:45 AM	93	139	0	232	0	0	0	0	0	114	66	180	62	2	42	106	518
Total	388	704	0	1092	0	0	0	0	0	573	282	855	276	8	275	559	2506
Grand Total	905	1339	0	2244	0	0	0	0	0	1045	513	1558	598	11	589	1198	5000
Apprch %	40.3	59.7	0		0	0	0		0	67.1	32.9		49.9	0.9	49.2		
Total %	18.1	26.8	0	44.9	0	0	0	0	0	20.9	10.3	31.2	12	0.2	11.8	24	
Passenger Vehicles	809	1227	0	2036	0	0	0	0	0	913	419	1332	564	10	493	1067	4435
% Passenger Vehicles	89.4	91.6	0	90.7	0	0	0	0	0	87.4	81.7	85.5	94.3	90.9	83.7	89.1	88.7
Large 2 Axle Vehicles	39	48	0	87	0	0	0	0	0	45	21	66	20	1	14	35	188
% Large 2 Axle Vehicles	4.3	3.6	0	3.9	0	0	0	0	0	4.3	4.1	4.2	3.3	9.1	2.4	2.9	3.8
3 Axle Vehicles	20	17	0	37	0	0	0	0	0	16	12	28	4	0	13	17	82
% 3 Axle Vehicles	2.2	1.3	0	1.6	0	0	0	0	0	1.5	2.3	1.8	0.7	0	2.2	1.4	1.6
4+ Axle Trucks	37	47	0	84	0	0	0	0	0	71	61	132	10	0	69	79	295
% 4+ Axle Trucks	4.1	3.5	0	3.7	0	0	0	0	0	6.8	11.9	8.5	1.7	0	11.7	6.6	5.9

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**157**	161	0	318	0	0	0	0	0	124	60	184	**89**	2	72	163	665
07:45 AM	127	196	0	323	0	0	0	0	0	123	65	188	77	0	70	147	658
08:00 AM	99	**235**	0	**334**	0	0	0	0	0	124	**75**	199	77	**5**	**96**	**178**	**711**
08:15 AM	103	202	0	305	0	0	0	0	0	**183**	65	**248**	78	0	77	155	708
Total Volume	486	794	0	1280	0	0	0	0	0	554	265	819	321	7	315	643	2742
% App. Total	38	62	0		0	0	0		0	67.6	32.4		49.9	1.1	49		
PHF	.774	.845	.000	.958	.000	.000	.000	.000	.000	.757	.883	.826	.902	.350	.820	.903	.964

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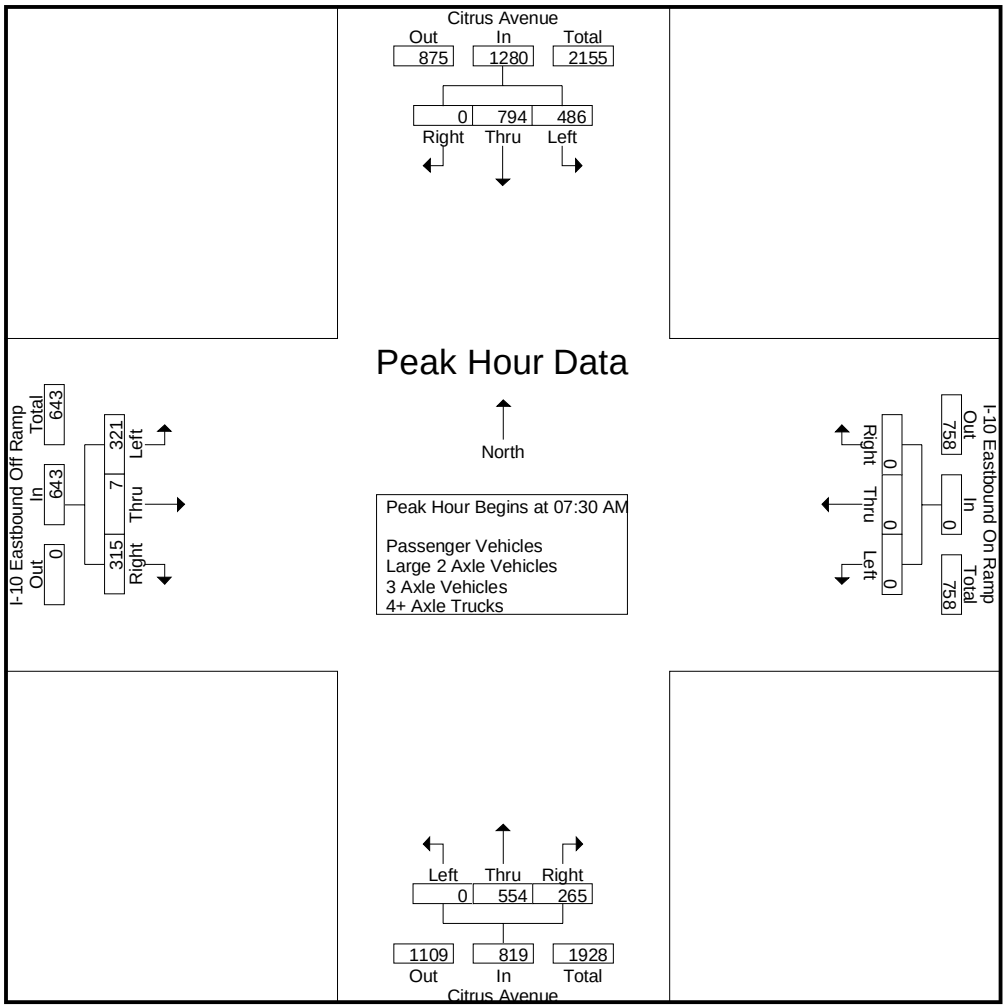
City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:45 AM				07:30 AM			
+0 mins.	**157**	161	0	318	0	0	0	0	0	123	65	188	**89**	2	72	163
+15 mins.	127	196	0	323	0	0	0	0	0	124	75	199	77	0	70	147
+30 mins.	99	**235**	0	**334**	0	0	0	0	0	**183**	65	**248**	77	**5**	**96**	**178**
+45 mins.	103	202	0	305	0	0	0	0	0	152	**76**	228	78	0	77	155
Total Volume	486	794	0	1280	0	0	0	0	0	582	281	863	321	7	315	643
% App. Total	38	62	0		0	0	0		0	67.4	32.6		49.9	1.1	49	
PHF	.774	.845	.000	.958	.000	.000	.000	.000	.000	.795	.924	.870	.902	.350	.820	.903

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	95	108	0	203	0	0	0	0	0	81	40	121	76	0	91	167	491
07:15 AM	119	148	0	267	0	0	0	0	0	121	46	167	74	1	60	135	569
07:30 AM	144	146	0	290	0	0	0	0	0	105	51	156	84	2	63	149	595
07:45 AM	116	183	0	299	0	0	0	0	0	107	57	164	73	0	61	134	597
Total	474	585	0	1059	0	0	0	0	0	414	194	608	307	3	275	585	2252
08:00 AM	90	224	0	314	0	0	0	0	0	108	62	170	72	4	82	158	642
08:15 AM	92	189	0	281	0	0	0	0	0	166	53	219	73	0	59	132	632
08:30 AM	77	109	0	186	0	0	0	0	0	131	54	185	53	1	45	99	470
08:45 AM	76	120	0	196	0	0	0	0	0	94	56	150	59	2	32	93	439
Total	335	642	0	977	0	0	0	0	0	499	225	724	257	7	218	482	2183
Grand Total	809	1227	0	2036	0	0	0	0	0	913	419	1332	564	10	493	1067	4435
Apprch %	39.7	60.3	0		0	0	0		0	68.5	31.5		52.9	0.9	46.2		
Total %	18.2	27.7	0	45.9	0	0	0	0	0	20.6	9.4	30	12.7	0.2	11.1	24.1	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**144**	146	0	290	0	0	0	0	0	105	51	156	**84**	2	63	149	595
07:45 AM	116	183	0	299	0	0	0	0	0	107	57	164	73	0	61	134	597
08:00 AM	90	**224**	0	**314**	0	0	0	0	0	108	**62**	170	72	**4**	**82**	**158**	**642**
08:15 AM	92	189	0	281	0	0	0	0	0	**166**	53	**219**	73	0	59	132	632
Total Volume	442	742	0	1184	0	0	0	0	0	486	223	709	302	6	265	573	2466
% App. Total	37.3	62.7	0		0	0	0		0	68.5	31.5		52.7	1	46.2		
PHF	.767	.828	.000	.943	.000	.000	.000	.000	.000	.732	.899	.809	.899	.375	.808	.907	.960

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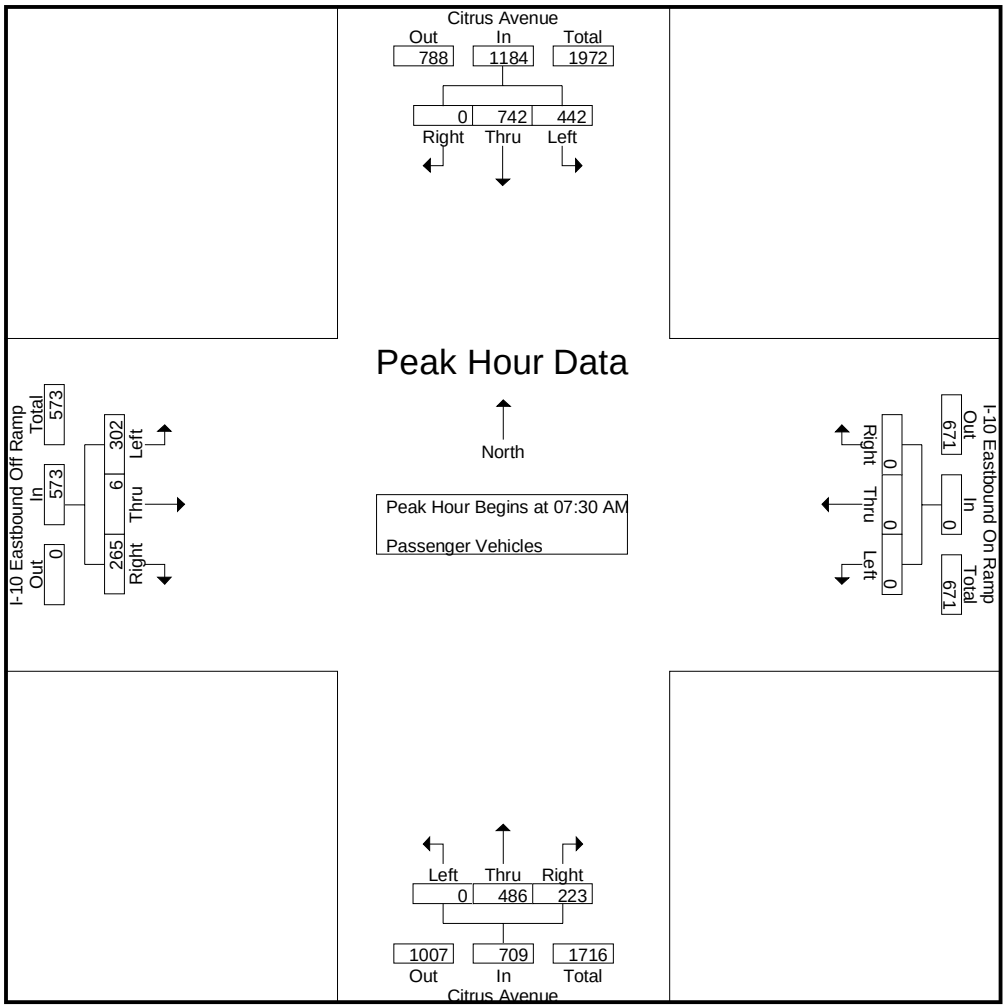
City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**144**	146	0	290	0	0	0	0	0	105	51	156	**84**	2	63	149
+15 mins.	116	183	0	299	0	0	0	0	0	107	57	164	73	0	61	134
+30 mins.	90	**224**	0	**314**	0	0	0	0	0	108	**62**	170	72	**4**	**82**	**158**
+45 mins.	92	189	0	281	0	0	0	0	0	**166**	53	**219**	73	0	59	132
Total Volume	442	742	0	1184	0	0	0	0	0	486	223	709	302	6	265	573
% App. Total	37.3	62.7	0		0	0	0		0	68.5	31.5		52.7	1	46.2	
PHF	.767	.828	.000	.943	.000	.000	.000	.000	.000	.732	.899	.809	.899	.375	.808	.907

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	6	0	8	0	0	0	0	0	3	4	7	2	0	1	3	18
07:15 AM	5	2	0	7	0	0	0	0	0	6	4	10	3	0	2	5	22
07:30 AM	8	5	0	13	0	0	0	0	0	4	2	6	3	0	1	4	23
07:45 AM	7	7	0	14	0	0	0	0	0	4	1	5	3	0	0	3	22
Total	22	20	0	42	0	0	0	0	0	17	11	28	11	0	4	15	85
08:00 AM	3	5	0	8	0	0	0	0	0	5	4	9	2	1	3	6	23
08:15 AM	3	7	0	10	0	0	0	0	0	8	2	10	4	0	4	8	28
08:30 AM	4	7	0	11	0	0	0	0	0	10	2	12	2	0	2	4	27
08:45 AM	7	9	0	16	0	0	0	0	0	5	2	7	1	0	1	2	25
Total	17	28	0	45	0	0	0	0	0	28	10	38	9	1	10	20	103
Grand Total	39	48	0	87	0	0	0	0	0	45	21	66	20	1	14	35	188
Apprch %	44.8	55.2	0		0	0	0		0	68.2	31.8		57.1	2.9	40		
Total %	20.7	25.5	0	46.3	0	0	0	0	0	23.9	11.2	35.1	10.6	0.5	7.4	18.6	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**8**	5	0	13	0	0	0	0	0	4	2	6	3	0	1	4	23
07:45 AM	7	**7**	0	**14**	0	0	0	0	0	4	1	5	3	0	0	3	22
08:00 AM	3	5	0	8	0	0	0	0	0	5	**4**	9	2	**1**	3	6	23
08:15 AM	3	7	0	10	0	0	0	0	0	**8**	2	**10**	**4**	0	**4**	**8**	**28**
Total Volume	21	24	0	45	0	0	0	0	0	21	9	30	12	1	8	21	96
% App. Total	46.7	53.3	0		0	0	0		0	70	30		57.1	4.8	38.1		
PHF	.656	.857	.000	.804	.000	.000	.000	.000	.000	.656	.563	.750	.750	.250	.500	.656	.857

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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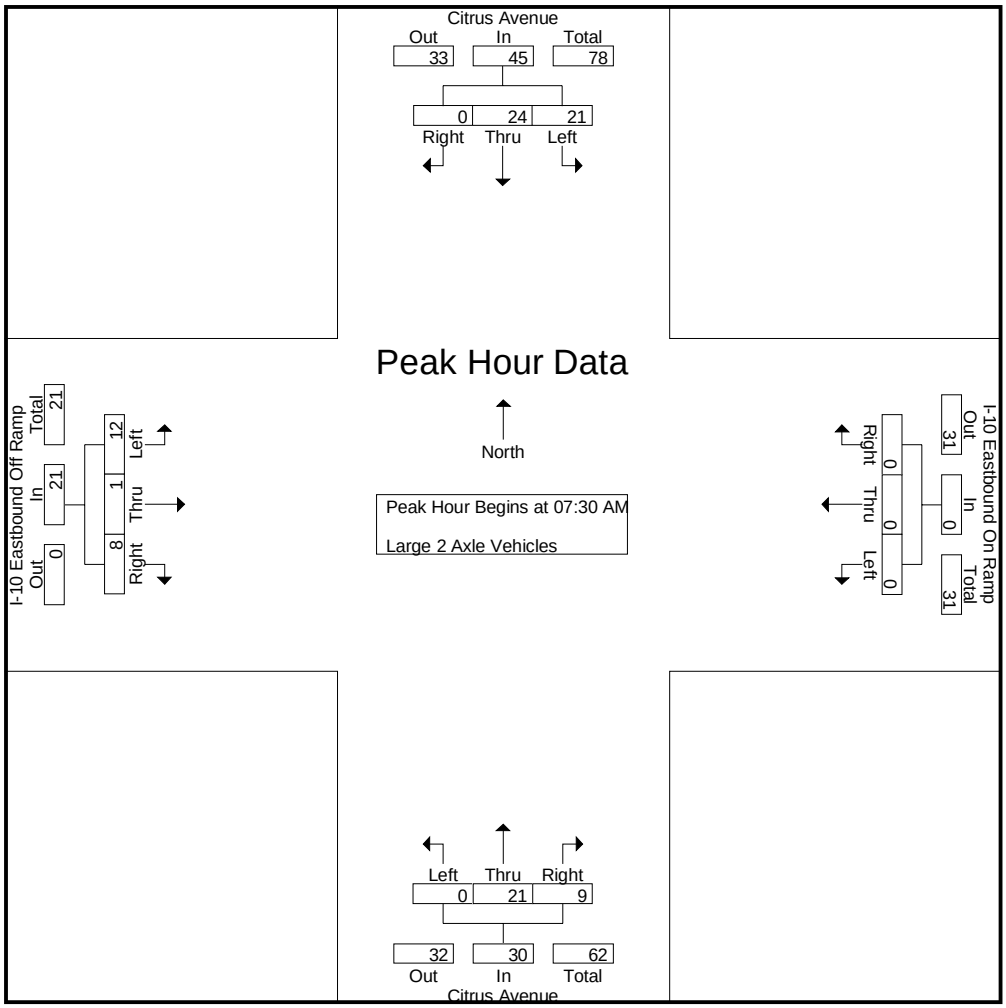

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**8**	5	0	13	0	0	0	0	0	4	2	6	3	0	1	4
+15 mins.	7	**7**	0	**14**	0	0	0	0	0	4	1	5	3	0	0	3
+30 mins.	3	5	0	8	0	0	0	0	0	5	**4**	9	2	**1**	3	6
+45 mins.	3	7	0	10	0	0	0	0	0	**8**	2	**10**	**4**	0	**4**	**8**
Total Volume	21	24	0	45	0	0	0	0	0	21	9	30	12	1	8	21
% App. Total	46.7	53.3	0		0	0	0		0	70	30		57.1	4.8	38.1	
PHF	.656	.857	.000	.804	.000	.000	.000	.000	.000	.656	.563	.750	.750	.250	.500	.656

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	0	0	3	0	0	0	0	0	2	1	3	0	0	1	1	7
07:15 AM	1	1	0	2	0	0	0	0	0	1	1	2	0	0	0	0	4
07:30 AM	1	5	0	6	0	0	0	0	0	0	1	1	2	0	1	3	10
07:45 AM	2	4	0	6	0	0	0	0	0	4	0	4	0	0	2	2	12
Total	7	10	0	17	0	0	0	0	0	7	3	10	2	0	4	6	33
08:00 AM	3	1	0	4	0	0	0	0	0	3	1	4	1	0	3	4	12
08:15 AM	3	1	0	4	0	0	0	0	0	1	2	3	1	0	3	4	11
08:30 AM	5	3	0	8	0	0	0	0	0	3	6	9	0	0	2	2	19
08:45 AM	2	2	0	4	0	0	0	0	0	2	0	2	0	0	1	1	7
Total	13	7	0	20	0	0	0	0	0	9	9	18	2	0	9	11	49
Grand Total	20	17	0	37	0	0	0	0	0	16	12	28	4	0	13	17	82
Apprch %	54.1	45.9	0		0	0	0		0	57.1	42.9		23.5	0	76.5		
Total %	24.4	20.7	0	45.1	0	0	0	0	0	19.5	14.6	34.1	4.9	0	15.9	20.7	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	**5**	0	**6**	0	0	0	0	0	0	1	1	**2**	0	1	3	10
07:45 AM	2	4	0	6	0	0	0	0	0	**4**	0	**4**	0	0	2	2	**12**
08:00 AM	**3**	1	0	4	0	0	0	0	0	3	1	4	1	0	**3**	**4**	12
08:15 AM	3	1	0	4	0	0	0	0	0	1	**2**	3	1	0	3	4	11
Total Volume	9	11	0	20	0	0	0	0	0	8	4	12	4	0	9	13	45
% App. Total	45	55	0		0	0	0		0	66.7	33.3		30.8	0	69.2		
PHF	.750	.550	.000	.833	.000	.000	.000	.000	.000	.500	.500	.750	.500	.000	.750	.813	.938

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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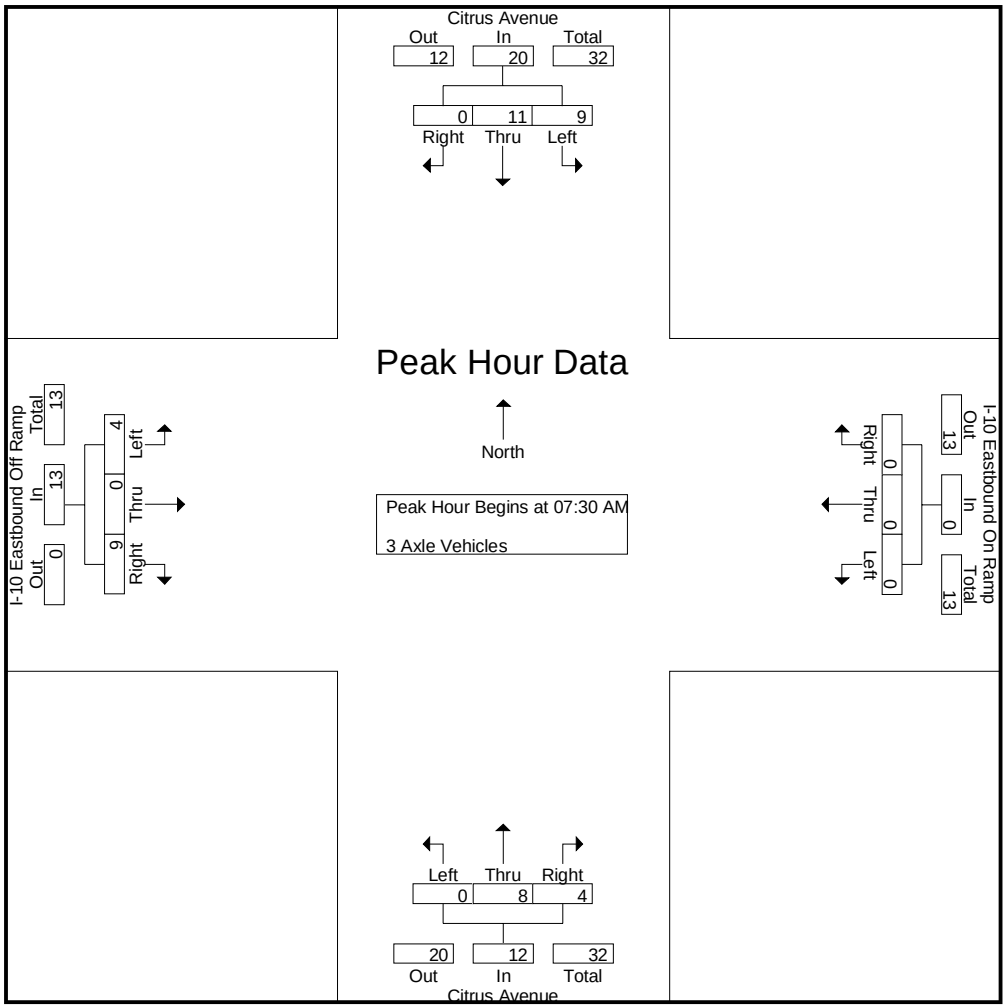

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	1	**5**	0	**6**	0	0	0	0	0	0	1	1	**2**	0	1	3
+15 mins.	2	4	0	6	0	0	0	0	0	**4**	0	**4**	0	0	2	2
+30 mins.	**3**	1	0	4	0	0	0	0	0	3	1	4	1	0	**3**	**4**
+45 mins.	3	1	0	4	0	0	0	0	0	1	**2**	3	1	0	3	4
Total Volume	9	11	0	20	0	0	0	0	0	8	4	12	4	0	9	13
% App. Total	45	55	0		0	0	0		0	66.7	33.3		30.8	0	69.2	
PHF	.750	.550	.000	.833	.000	.000	.000	.000	.000	.500	.500	.750	.500	.000	.750	.813

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	4	0	8	0	0	0	0	0	5	5	10	1	0	11	12	30
07:15 AM	4	9	0	13	0	0	0	0	0	6	5	11	0	0	6	6	30
07:30 AM	4	5	0	9	0	0	0	0	0	15	6	21	0	0	7	7	37
07:45 AM	2	2	0	4	0	0	0	0	0	8	7	15	1	0	7	8	27
Total	14	20	0	34	0	0	0	0	0	34	23	57	2	0	31	33	124
08:00 AM	3	5	0	8	0	0	0	0	0	8	8	16	2	0	8	10	34
08:15 AM	5	5	0	10	0	0	0	0	0	8	8	16	0	0	11	11	37
08:30 AM	7	9	0	16	0	0	0	0	0	8	14	22	4	0	11	15	53
08:45 AM	8	8	0	16	0	0	0	0	0	13	8	21	2	0	8	10	47
Total	23	27	0	50	0	0	0	0	0	37	38	75	8	0	38	46	171
Grand Total	37	47	0	84	0	0	0	0	0	71	61	132	10	0	69	79	295
Apprch %	44	56	0		0	0	0		0	53.8	46.2		12.7	0	87.3		
Total %	12.5	15.9	0	28.5	0	0	0	0	0	24.1	20.7	44.7	3.4	0	23.4	26.8	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	4	**5**	0	9	0	0	0	0	0	**15**	6	**21**	0	0	7	7	**37**
07:45 AM	2	2	0	4	0	0	0	0	0	8	7	15	1	0	7	8	27
08:00 AM	3	5	0	8	0	0	0	0	0	8	**8**	16	**2**	0	8	10	34
08:15 AM	**5**	5	0	**10**	0	0	0	0	0	8	8	16	0	0	**11**	**11**	37
Total Volume	14	17	0	31	0	0	0	0	0	39	29	68	3	0	33	36	135
% App. Total	45.2	54.8	0		0	0	0		0	57.4	42.6		8.3	0	91.7		
PHF	.700	.850	.000	.775	.000	.000	.000	.000	.000	.650	.906	.810	.375	.000	.750	.818	.912

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File Name : 04_FON_Citrus_10E AM
Site Code : 10821516
Start Date : 9/28/2021
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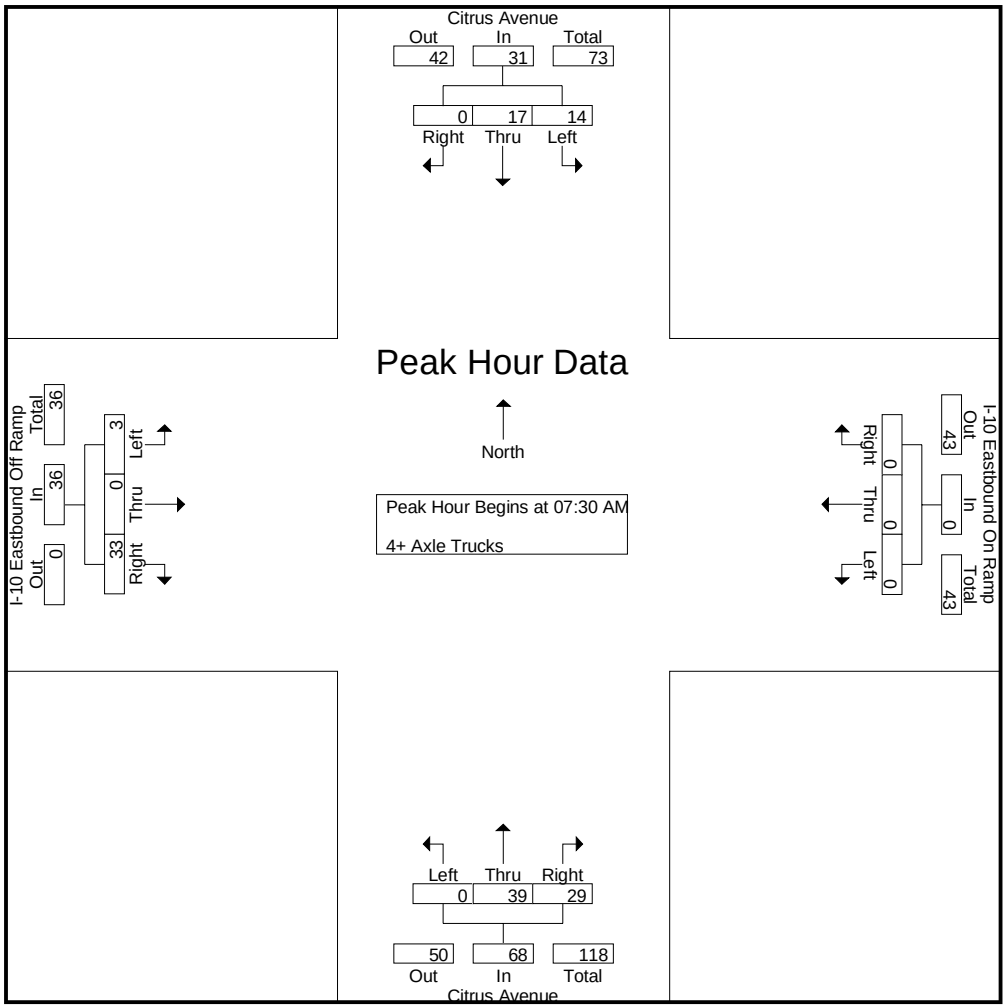

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	4	**5**	0	9	0	0	0	0	0	**15**	6	**21**	0	0	7	7
+15 mins.	2	2	0	4	0	0	0	0	0	8	7	15	1	0	7	8
+30 mins.	3	5	0	8	0	0	0	0	0	8	**8**	16	**2**	0	8	10
+45 mins.	**5**	5	0	**10**	0	0	0	0	0	8	8	16	0	0	**11**	**11**
Total Volume	14	17	0	31	0	0	0	0	0	39	29	68	3	0	33	36
% App. Total	45.2	54.8	0		0	0	0		0	57.4	42.6		8.3	0	91.7	
PHF	.700	.850	.000	.775	.000	.000	.000	.000	.000	.650	.906	.810	.375	.000	.750	.818

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	128	138	0	266	0	0	0	0	0	227	108	335	107	2	50	159	760
04:15 PM	128	159	0	287	0	0	0	0	0	214	136	350	100	0	41	141	778
04:30 PM	115	148	0	263	0	0	0	0	0	200	113	313	101	3	42	146	722
04:45 PM	92	144	0	236	0	0	0	0	0	192	92	284	122	2	45	169	689
Total	463	589	0	1052	0	0	0	0	0	833	449	1282	430	7	178	615	2949
05:00 PM	106	142	0	248	0	0	0	0	0	185	102	287	130	6	51	187	722
05:15 PM	106	156	0	262	0	0	0	0	0	202	97	299	107	4	36	147	708
05:30 PM	111	145	0	256	0	0	0	0	0	221	75	296	115	2	43	160	712
05:45 PM	95	128	0	223	0	0	0	0	0	231	72	303	110	1	78	189	715
Total	418	571	0	989	0	0	0	0	0	839	346	1185	462	13	208	683	2857
Grand Total	881	1160	0	2041	0	0	0	0	0	1672	795	2467	892	20	386	1298	5806
Apprch %	43.2	56.8	0		0	0	0		0	67.8	32.2		68.7	1.5	29.7		
Total %	15.2	20	0	35.2	0	0	0	0	0	28.8	13.7	42.5	15.4	0.3	6.6	22.4	
Passenger Vehicles	825	1074	0	1899	0	0	0	0	0	1581	731	2312	855	20	344	1219	5430
% Passenger Vehicles	93.6	92.6	0	93	0	0	0	0	0	94.6	91.9	93.7	95.9	100	89.1	93.9	93.5
Large 2 Axle Vehicles	22	35	0	57	0	0	0	0	0	31	19	50	19	0	12	31	138
% Large 2 Axle Vehicles	2.5	3	0	2.8	0	0	0	0	0	1.9	2.4	2	2.1	0	3.1	2.4	2.4
3 Axle Vehicles	12	10	0	22	0	0	0	0	0	20	10	30	5	0	4	9	61
% 3 Axle Vehicles	1.4	0.9	0	1.1	0	0	0	0	0	1.2	1.3	1.2	0.6	0	1	0.7	1.1
4+ Axle Trucks	22	41	0	63	0	0	0	0	0	40	35	75	13	0	26	39	177
% 4+ Axle Trucks	2.5	3.5	0	3.1	0	0	0	0	0	2.4	4.4	3	1.5	0	6.7	3	3

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**128**	138	0	266	0	0	0	0	0	**227**	108	335	107	2	**50**	159	760
04:15 PM	128	**159**	0	**287**	0	0	0	0	0	214	**136**	**350**	100	0	41	141	**778**
04:30 PM	115	148	0	263	0	0	0	0	0	200	113	313	101	**3**	42	146	722
04:45 PM	92	144	0	236	0	0	0	0	0	192	92	284	**122**	2	45	**169**	689
Total Volume	463	589	0	1052	0	0	0	0	0	833	449	1282	430	7	178	615	2949
% App. Total	44	56	0		0	0	0		0	65	35		69.9	1.1	28.9		
PHF	.904	.926	.000	.916	.000	.000	.000	.000	.000	.917	.825	.916	.881	.583	.890	.910	.948

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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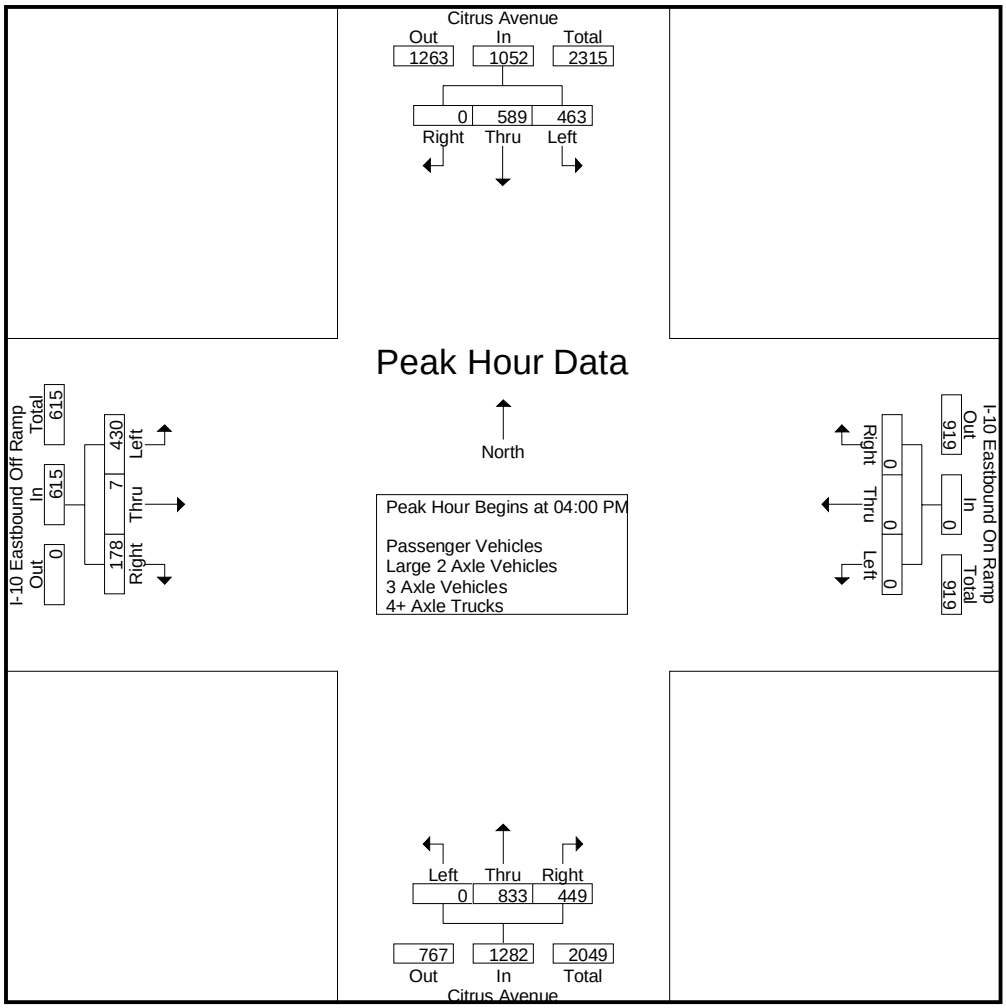

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				05:00 PM			
+0 mins.	**128**	138	0	266	0	0	0	0	0	**227**	108	335	**130**	**6**	51	187
+15 mins.	128	**159**	0	**287**	0	0	0	0	0	214	**136**	**350**	107	4	36	147
+30 mins.	115	148	0	263	0	0	0	0	0	200	113	313	115	2	43	160
+45 mins.	92	144	0	236	0	0	0	0	0	192	92	284	110	1	**78**	**189**
Total Volume	463	589	0	1052	0	0	0	0	0	833	449	1282	462	13	208	683
% App. Total	44	56	0		0	0	0		0	65	35		67.6	1.9	30.5	
PHF	.904	.926	.000	.916	.000	.000	.000	.000	.000	.917	.825	.916	.888	.542	.667	.903

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File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	121	129	0	250	0	0	0	0	0	206	95	301	101	2	42	145	696
04:15 PM	118	143	0	261	0	0	0	0	0	203	125	328	94	0	33	127	716
04:30 PM	109	136	0	245	0	0	0	0	0	190	101	291	95	3	38	136	672
04:45 PM	84	133	0	217	0	0	0	0	0	181	85	266	118	2	40	160	643
Total	432	541	0	973	0	0	0	0	0	780	406	1186	408	7	153	568	2727
05:00 PM	101	132	0	233	0	0	0	0	0	170	95	265	125	6	43	174	672
05:15 PM	99	146	0	245	0	0	0	0	0	194	90	284	106	4	34	144	673
05:30 PM	103	138	0	241	0	0	0	0	0	214	72	286	110	2	42	154	681
05:45 PM	90	117	0	207	0	0	0	0	0	223	68	291	106	1	72	179	677
Total	393	533	0	926	0	0	0	0	0	801	325	1126	447	13	191	651	2703
Grand Total	825	1074	0	1899	0	0	0	0	0	1581	731	2312	855	20	344	1219	5430
Apprch %	43.4	56.6	0		0	0	0		0	68.4	31.6		70.1	1.6	28.2		
Total %	15.2	19.8	0	35	0	0	0	0	0	29.1	13.5	42.6	15.7	0.4	6.3	22.4	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**121**	129	0	250	0	0	0	0	0	**206**	95	301	101	2	**42**	145	696
04:15 PM	118	**143**	0	**261**	0	0	0	0	0	203	**125**	**328**	94	0	33	127	**716**
04:30 PM	109	136	0	245	0	0	0	0	0	190	101	291	95	**3**	38	136	672
04:45 PM	84	133	0	217	0	0	0	0	0	181	85	266	**118**	2	40	**160**	643
Total Volume	432	541	0	973	0	0	0	0	0	780	406	1186	408	7	153	568	2727
% App. Total	44.4	55.6	0		0	0	0		0	65.8	34.2		71.8	1.2	26.9		
PHF	.893	.946	.000	.932	.000	.000	.000	.000	.000	.947	.812	.904	.864	.583	.911	.888	.952

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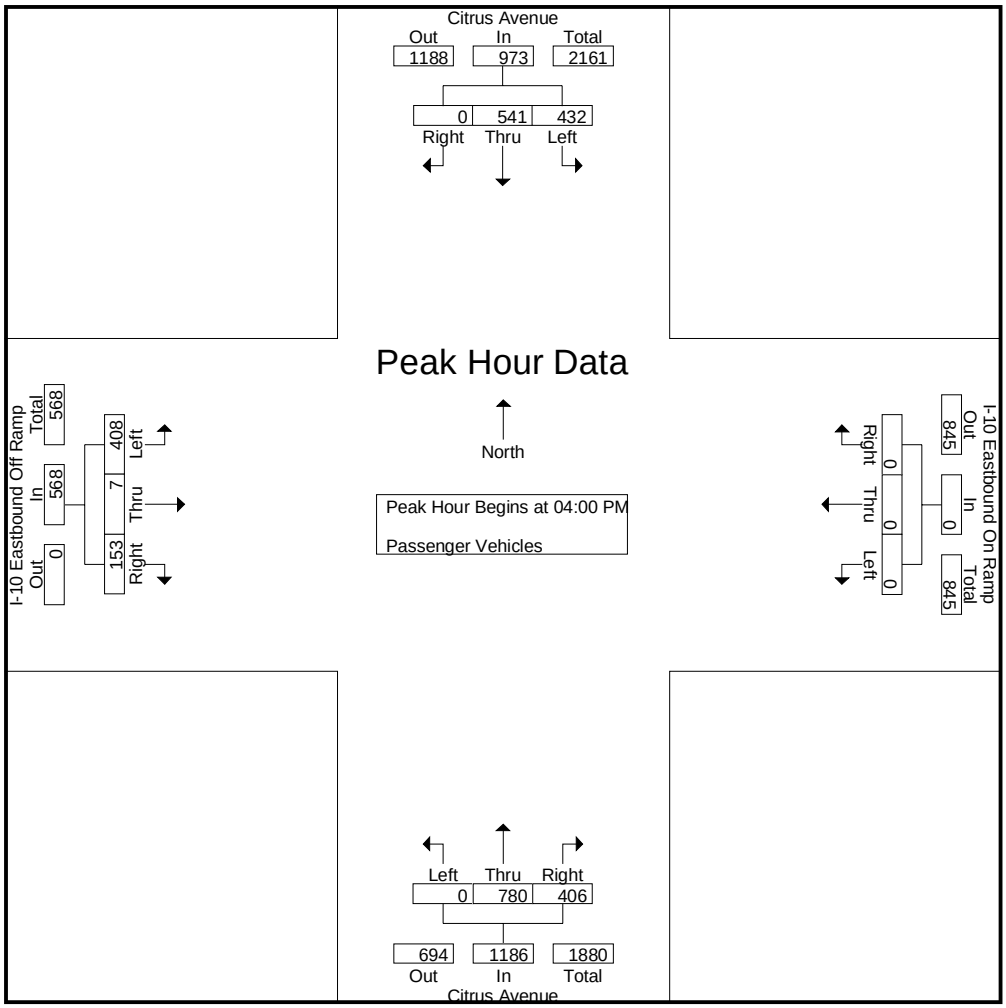

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**121**	129	0	250	0	0	0	0	0	**206**	95	301	101	2	**42**	145
+15 mins.	118	**143**	0	**261**	0	0	0	0	0	203	**125**	**328**	94	0	33	127
+30 mins.	109	136	0	245	0	0	0	0	0	190	101	291	95	**3**	38	136
+45 mins.	84	133	0	217	0	0	0	0	0	181	85	266	**118**	2	40	**160**
Total Volume	432	541	0	973	0	0	0	0	0	780	406	1186	408	7	153	568
% App. Total	44.4	55.6	0		0	0	0		0	65.8	34.2		71.8	1.2	26.9	
PHF	.893	.946	.000	.932	.000	.000	.000	.000	.000	.947	.812	.904	.864	.583	.911	.888

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File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	1	0	2	0	0	0	0	0	11	3	14	2	0	3	5	21
04:15 PM	6	9	0	15	0	0	0	0	0	6	4	10	6	0	2	8	33
04:30 PM	2	8	0	10	0	0	0	0	0	4	4	8	2	0	3	5	23
04:45 PM	2	4	0	6	0	0	0	0	0	4	4	8	3	0	0	3	17
Total	11	22	0	33	0	0	0	0	0	25	15	40	13	0	8	21	94
05:00 PM	2	5	0	7	0	0	0	0	0	3	2	5	2	0	2	4	16
05:15 PM	1	2	0	3	0	0	0	0	0	1	2	3	1	0	0	1	7
05:30 PM	4	2	0	6	0	0	0	0	0	0	0	0	3	0	0	3	9
05:45 PM	4	4	0	8	0	0	0	0	0	2	0	2	0	0	2	2	12
Total	11	13	0	24	0	0	0	0	0	6	4	10	6	0	4	10	44
Grand Total	22	35	0	57	0	0	0	0	0	31	19	50	19	0	12	31	138
Apprch %	38.6	61.4	0		0	0	0		0	62	38		61.3	0	38.7		
Total %	15.9	25.4	0	41.3	0	0	0	0	0	22.5	13.8	36.2	13.8	0	8.7	22.5	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	1	0	2	0	0	0	0	0	**11**	3	**14**	2	0	**3**	5	21
04:15 PM	**6**	**9**	0	**15**	0	0	0	0	0	6	**4**	10	**6**	0	2	**8**	**33**
04:30 PM	2	8	0	10	0	0	0	0	0	4	4	8	2	0	3	5	23
04:45 PM	2	4	0	6	0	0	0	0	0	4	4	8	3	0	0	3	17
Total Volume	11	22	0	33	0	0	0	0	0	25	15	40	13	0	8	21	94
% App. Total	33.3	66.7	0		0	0	0		0	62.5	37.5		61.9	0	38.1		
PHF	.458	.611	.000	.550	.000	.000	.000	.000	.000	.568	.938	.714	.542	.000	.667	.656	.712

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File Name : 04_FON_Citrus_10E PM
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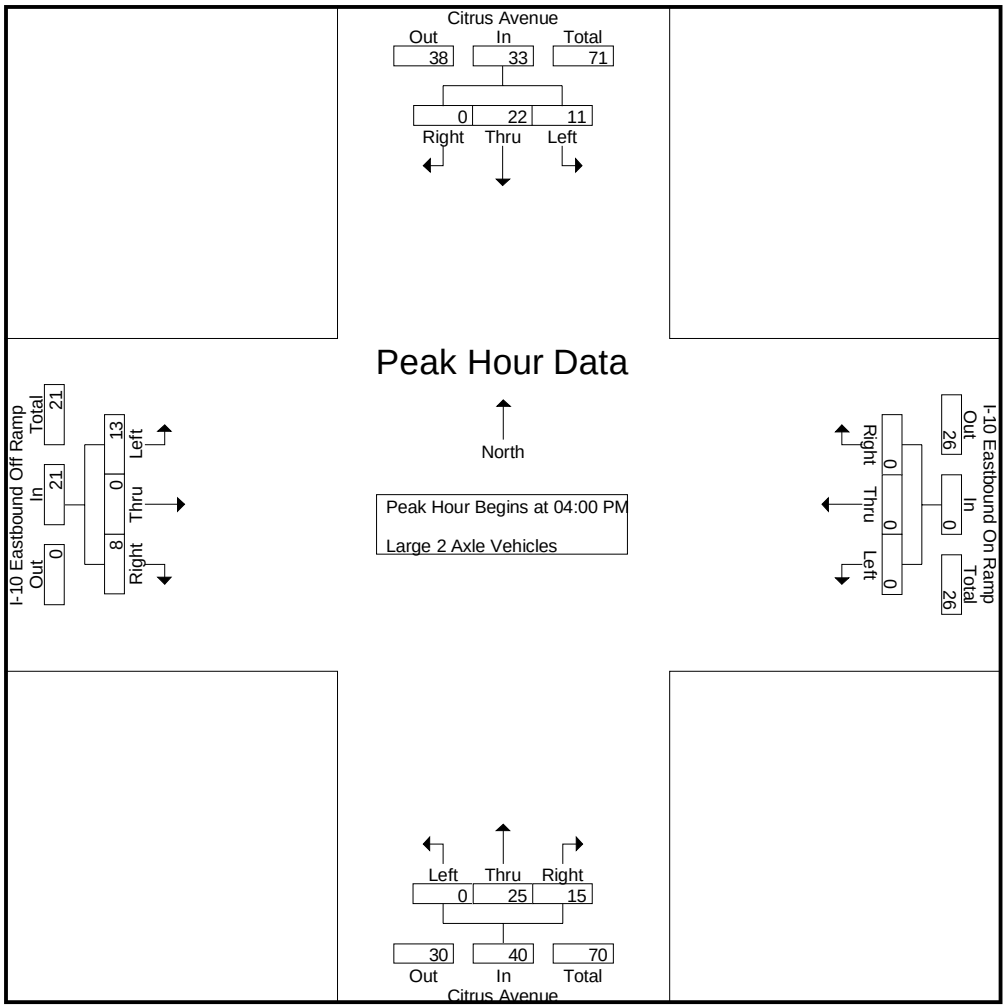

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	1	1	0	2	0	0	0	0	0	**11**	3	**14**	2	0	**3**	5
+15 mins.	**6**	**9**	0	**15**	0	0	0	0	0	6	**4**	10	**6**	0	2	**8**
+30 mins.	2	8	0	10	0	0	0	0	0	4	4	8	2	0	3	5
+45 mins.	2	4	0	6	0	0	0	0	0	4	4	8	3	0	0	3
Total Volume	11	22	0	33	0	0	0	0	0	25	15	40	13	0	8	21
% App. Total	33.3	66.7	0		0	0	0		0	62.5	37.5		61.9	0	38.1	
PHF	.458	.611	.000	.550	.000	.000	.000	.000	.000	.568	.938	.714	.542	.000	.667	.656

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(951)268-6268

City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	1	0	4	0	0	0	0	0	2	1	3	2	0	1	3	10
04:15 PM	1	3	0	4	0	0	0	0	0	0	2	2	0	0	2	2	8
04:30 PM	2	0	0	2	0	0	0	0	0	2	1	3	2	0	0	2	7
04:45 PM	2	1	0	3	0	0	0	0	0	5	0	5	0	0	1	1	9
Total	8	5	0	13	0	0	0	0	0	9	4	13	4	0	4	8	34
05:00 PM	1	1	0	2	0	0	0	0	0	4	1	5	1	0	0	1	8
05:15 PM	1	3	0	4	0	0	0	0	0	3	3	6	0	0	0	0	10
05:30 PM	1	0	0	1	0	0	0	0	0	3	1	4	0	0	0	0	5
05:45 PM	1	1	0	2	0	0	0	0	0	1	1	2	0	0	0	0	4
Total	4	5	0	9	0	0	0	0	0	11	6	17	1	0	0	1	27
Grand Total	12	10	0	22	0	0	0	0	0	20	10	30	5	0	4	9	61
Apprch %	54.5	45.5	0		0	0	0		0	66.7	33.3		55.6	0	44.4		
Total %	19.7	16.4	0	36.1	0	0	0	0	0	32.8	16.4	49.2	8.2	0	6.6	14.8	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**3**	1	0	**4**	0	0	0	0	0	2	1	3	**2**	0	1	**3**	**10**
04:15 PM	1	**3**	0	4	0	0	0	0	0	0	**2**	2	0	0	**2**	2	8
04:30 PM	2	0	0	2	0	0	0	0	0	2	1	3	2	0	0	2	7
04:45 PM	2	1	0	3	0	0	0	0	0	**5**	0	**5**	0	0	1	1	9
Total Volume	8	5	0	13	0	0	0	0	0	9	4	13	4	0	4	8	34
% App. Total	61.5	38.5	0		0	0	0		0	69.2	30.8		50	0	50		
PHF	.667	.417	.000	.813	.000	.000	.000	.000	.000	.450	.500	.650	.500	.000	.500	.667	.850

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
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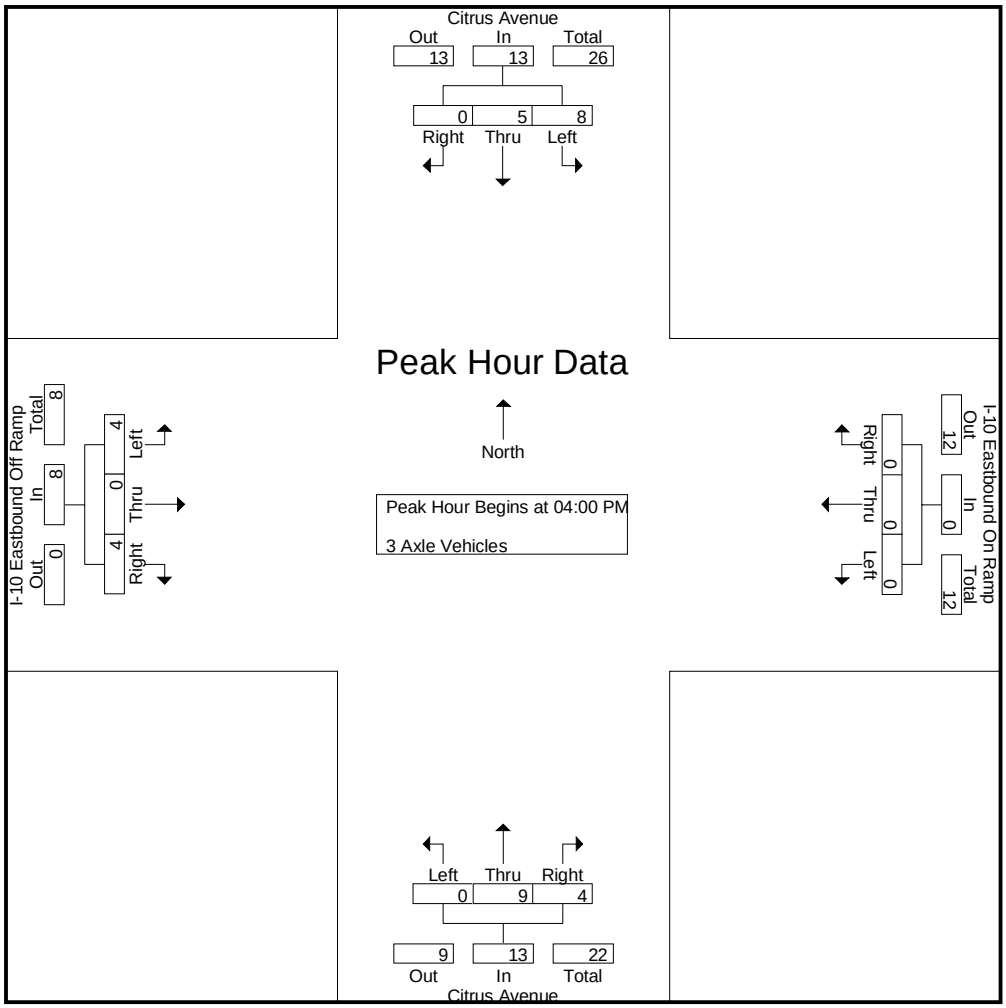

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**3**	1	0	**4**	0	0	0	0	0	2	1	3	**2**	0	1	**3**
+15 mins.	1	**3**	0	4	0	0	0	0	0	0	**2**	2	0	0	**2**	2
+30 mins.	2	0	0	2	0	0	0	0	0	2	1	3	2	0	0	2
+45 mins.	2	1	0	3	0	0	0	0	0	**5**	0	**5**	0	0	1	1
Total Volume	8	5	0	13	0	0	0	0	0	9	4	13	4	0	4	8
% App. Total	61.5	38.5	0		0	0	0		0	69.2	30.8		50	0	50	
PHF	.667	.417	.000	.813	.000	.000	.000	.000	.000	.450	.500	.650	.500	.000	.500	.667

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City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	7	0	10	0	0	0	0	0	8	9	17	2	0	4	6	33
04:15 PM	3	4	0	7	0	0	0	0	0	5	5	10	0	0	4	4	21
04:30 PM	2	4	0	6	0	0	0	0	0	4	7	11	2	0	1	3	20
04:45 PM	4	6	0	10	0	0	0	0	0	2	3	5	1	0	4	5	20
Total	12	21	0	33	0	0	0	0	0	19	24	43	5	0	13	18	94
05:00 PM	2	4	0	6	0	0	0	0	0	8	4	12	2	0	6	8	26
05:15 PM	5	5	0	10	0	0	0	0	0	4	2	6	0	0	2	2	18
05:30 PM	3	5	0	8	0	0	0	0	0	4	2	6	2	0	1	3	17
05:45 PM	0	6	0	6	0	0	0	0	0	5	3	8	4	0	4	8	22
Total	10	20	0	30	0	0	0	0	0	21	11	32	8	0	13	21	83
Grand Total	22	41	0	63	0	0	0	0	0	40	35	75	13	0	26	39	177
Apprch %	34.9	65.1	0		0	0	0		0	53.3	46.7		33.3	0	66.7		
Total %	12.4	23.2	0	35.6	0	0	0	0	0	22.6	19.8	42.4	7.3	0	14.7	22	

	Citrus Avenue Southbound				I-10 Eastbound On Ramp Westbound				Citrus Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	3	**7**	0	**10**	0	0	0	0	0	**8**	**9**	**17**	**2**	0	**4**	**6**	**33**
04:15 PM	3	4	0	7	0	0	0	0	0	5	5	10	0	0	4	4	21
04:30 PM	2	4	0	6	0	0	0	0	0	4	7	11	2	0	1	3	20
04:45 PM	**4**	6	0	10	0	0	0	0	0	2	3	5	1	0	4	5	20
Total Volume	12	21	0	33	0	0	0	0	0	19	24	43	5	0	13	18	94
% App. Total	36.4	63.6	0		0	0	0		0	44.2	55.8		27.8	0	72.2		
PHF	.750	.750	.000	.825	.000	.000	.000	.000	.000	.594	.667	.632	.625	.000	.813	.750	.712

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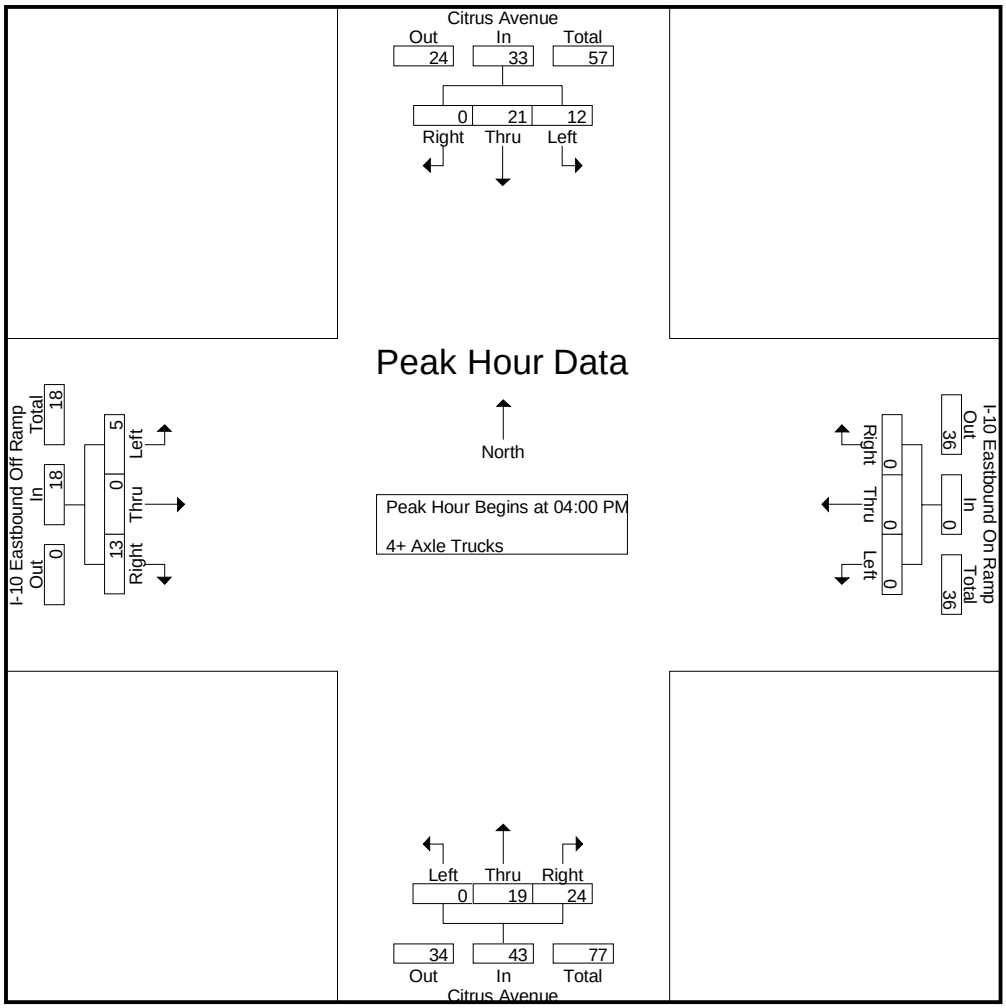
City of Fontana
N/S: Citrus Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 04_FON_Citrus_10E PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	3	**7**	0	**10**	0	0	0	0	0	**8**	**9**	**17**	**2**	0	**4**	**6**
+15 mins.	3	4	0	7	0	0	0	0	0	5	5	10	0	0	4	4
+30 mins.	2	4	0	6	0	0	0	0	0	4	7	11	2	0	1	3
+45 mins.	**4**	6	0	10	0	0	0	0	0	2	3	5	1	0	4	5
Total Volume	12	21	0	33	0	0	0	0	0	19	24	43	5	0	13	18
% App. Total	36.4	63.6	0		0	0	0		0	44.2	55.8		27.8	0	72.2	
PHF	.750	.750	.000	.825	.000	.000	.000	.000	.000	.594	.667	.632	.625	.000	.813	.750

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	81	162	172	415	101	0	138	239	87	104	59	250	155	0	74	229	1133
07:15 AM	110	132	204	446	75	0	125	200	128	187	91	406	172	0	77	249	1301
07:30 AM	150	162	217	529	86	0	134	220	111	136	103	350	178	0	90	268	1367
07:45 AM	139	215	218	572	99	0	153	252	96	192	83	371	182	0	96	278	1473
Total	480	671	811	1962	361	0	550	911	422	619	336	1377	687	0	337	1024	5274
08:00 AM	104	199	172	475	109	0	135	244	82	181	74	337	236	0	105	341	1397
08:15 AM	97	154	171	422	100	0	124	224	78	201	69	348	242	0	154	396	1390
08:30 AM	89	135	188	412	57	0	138	195	95	177	70	342	202	0	76	278	1227
08:45 AM	84	147	171	402	71	0	163	234	88	196	62	346	181	0	97	278	1260
Total	374	635	702	1711	337	0	560	897	343	755	275	1373	861	0	432	1293	5274
Grand Total	854	1306	1513	3673	698	0	1110	1808	765	1374	611	2750	1548	0	769	2317	10548
Apprch %	23.3	35.6	41.2		38.6	0	61.4		27.8	50	22.2		66.8	0	33.2		
Total %	8.1	12.4	14.3	34.8	6.6	0	10.5	17.1	7.3	13	5.8	26.1	14.7	0	7.3	22	
Passenger Vehicles	829	1277	1438	3544	661	0	1092	1753	675	1347	574	2596	1510	0	683	2193	10086
% Passenger Vehicles	97.1	97.8	95	96.5	94.7	0	98.4	97	88.2	98	93.9	94.4	97.5	0	88.8	94.6	95.6
Large 2 Axle Vehicles	15	23	38	76	14	0	9	23	27	23	12	62	25	0	21	46	207
% Large 2 Axle Vehicles	1.8	1.8	2.5	2.1	2	0	0.8	1.3	3.5	1.7	2	2.3	1.6	0	2.7	2	2
3 Axle Vehicles	2	3	7	12	3	0	4	7	10	2	3	15	5	0	18	23	57
% 3 Axle Vehicles	0.2	0.2	0.5	0.3	0.4	0	0.4	0.4	1.3	0.1	0.5	0.5	0.3	0	2.3	1	0.5
4+ Axle Trucks	8	3	30	41	20	0	5	25	53	2	22	77	8	0	47	55	198
% 4+ Axle Trucks	0.9	0.2	2	1.1	2.9	0	0.5	1.4	6.9	0.1	3.6	2.8	0.5	0	6.1	2.4	1.9

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**150**	162	217	529	86	0	134	220	**111**	136	**103**	350	178	0	90	268	1367
07:45 AM	139	**215**	**218**	**572**	99	0	**153**	**252**	96	192	83	**371**	182	0	96	278	**1473**
08:00 AM	104	199	172	475	**109**	0	135	244	82	181	74	337	236	0	105	341	1397
08:15 AM	97	154	171	422	100	0	124	224	78	**201**	69	348	**242**	0	**154**	**396**	1390
Total Volume	490	730	778	1998	394	0	546	940	367	710	329	1406	838	0	445	1283	5627
% App. Total	24.5	36.5	38.9		41.9	0	58.1		26.1	50.5	23.4		65.3	0	34.7		
PHF	.817	.849	.892	.873	.904	.000	.892	.933	.827	.883	.799	.947	.866	.000	.722	.810	.955

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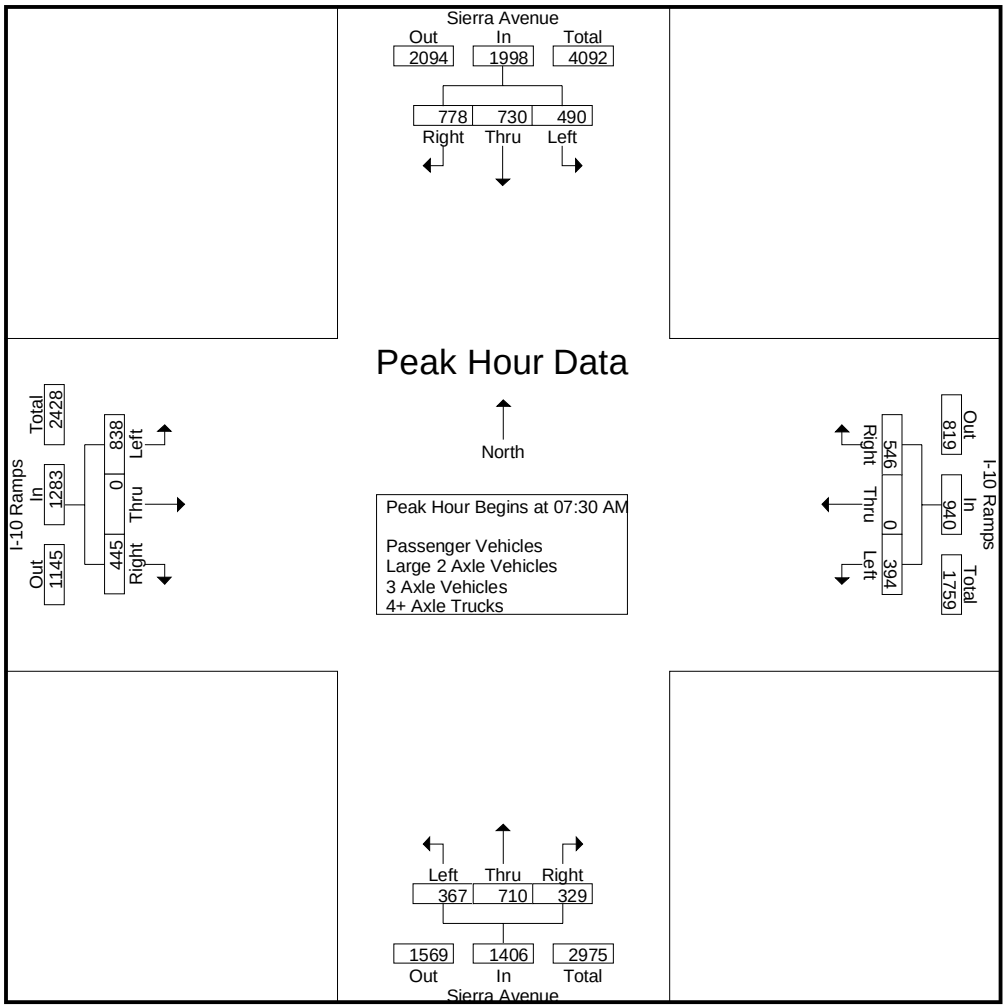
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:30 AM				07:15 AM				07:45 AM			
+0 mins.	110	132	204	446	86	0	134	220	**128**	187	91	**406**	182	0	96	278
+15 mins.	**150**	162	217	529	99	0	**153**	**252**	111	136	**103**	350	236	0	105	341
+30 mins.	139	**215**	**218**	**572**	**109**	0	135	244	96	**192**	83	371	**242**	0	**154**	**396**
+45 mins.	104	199	172	475	100	0	124	224	82	181	74	337	202	0	76	278
Total Volume	503	708	811	2022	394	0	546	940	417	696	351	1464	862	0	431	1293
% App. Total	24.9	35	40.1		41.9	0	58.1		28.5	47.5	24		66.7	0	33.3	
PHF	.838	.823	.930	.884	.904	.000	.892	.933	.814	.906	.852	.901	.890	.000	.700	.816

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	79	160	171	410	91	0	136	227	73	100	54	227	150	0	59	209	1073
07:15 AM	106	131	194	431	74	0	124	198	117	183	84	384	171	0	66	237	1250
07:30 AM	146	160	211	517	81	0	132	213	100	135	97	332	174	0	74	248	1310
07:45 AM	138	212	210	560	94	0	153	247	88	191	74	353	177	0	91	268	1428
Total	469	663	786	1918	340	0	545	885	378	609	309	1296	672	0	290	962	5061
08:00 AM	101	194	160	455	106	0	134	240	73	176	72	321	233	0	102	335	1351
08:15 AM	94	148	159	401	90	0	120	210	70	197	66	333	236	0	136	372	1316
08:30 AM	86	131	171	388	55	0	135	190	79	172	67	318	196	0	70	266	1162
08:45 AM	79	141	162	382	70	0	158	228	75	193	60	328	173	0	85	258	1196
Total	360	614	652	1626	321	0	547	868	297	738	265	1300	838	0	393	1231	5025
Grand Total	829	1277	1438	3544	661	0	1092	1753	675	1347	574	2596	1510	0	683	2193	10086
Apprch %	23.4	36	40.6		37.7	0	62.3		26	51.9	22.1		68.9	0	31.1		
Total %	8.2	12.7	14.3	35.1	6.6	0	10.8	17.4	6.7	13.4	5.7	25.7	15	0	6.8	21.7	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**146**	160	**211**	517	81	0	132	213	**100**	135	**97**	332	174	0	74	248	1310
07:45 AM	138	**212**	210	**560**	94	0	**153**	**247**	88	191	74	**353**	177	0	91	268	**1428**
08:00 AM	101	194	160	455	**106**	0	134	240	73	176	72	321	233	0	102	335	1351
08:15 AM	94	148	159	401	90	0	120	210	70	**197**	66	333	**236**	0	**136**	**372**	1316
Total Volume	479	714	740	1933	371	0	539	910	331	699	309	1339	820	0	403	1223	5405
% App. Total	24.8	36.9	38.3		40.8	0	59.2		24.7	52.2	23.1		67	0	33		
PHF	.820	.842	.877	.863	.875	.000	.881	.921	.828	.887	.796	.948	.869	.000	.741	.822	.946

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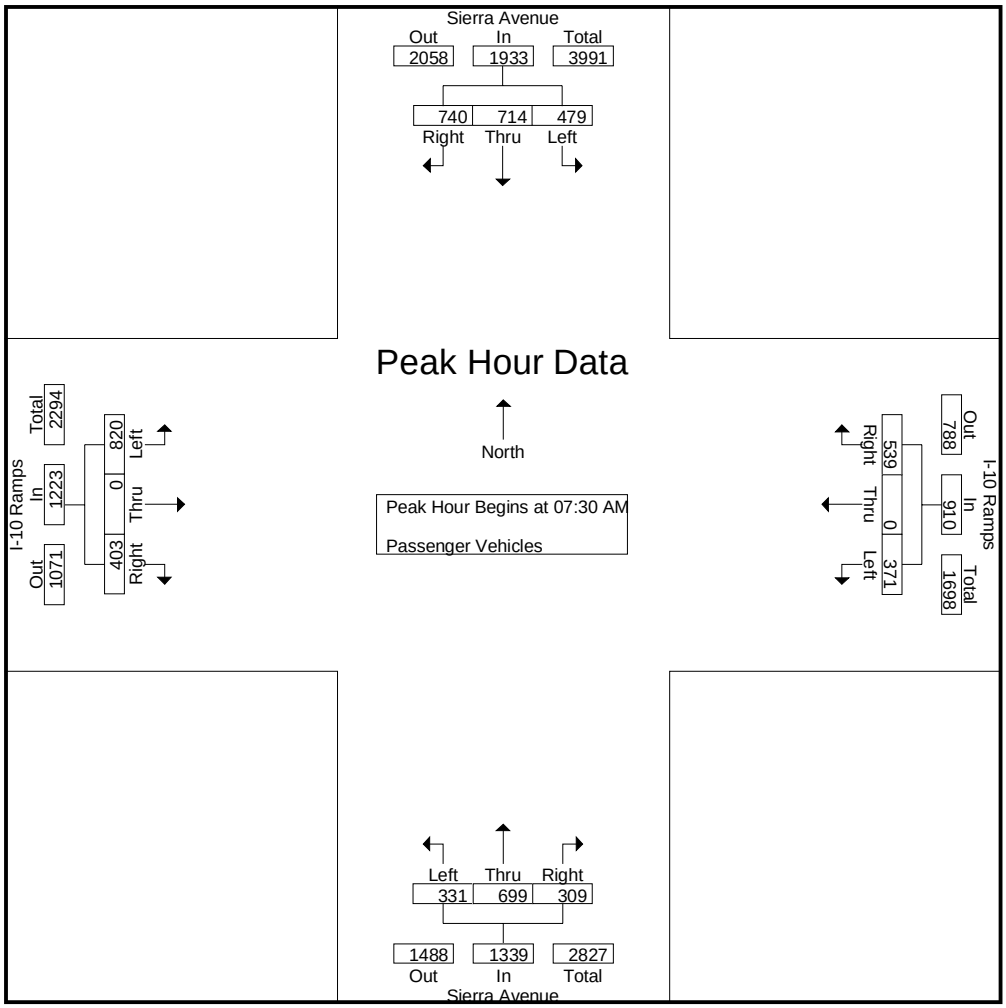
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**146**	160	**211**	517	81	0	132	213	**100**	135	**97**	332	174	0	74	248
+15 mins.	138	**212**	210	**560**	94	0	**153**	**247**	88	191	74	**353**	177	0	91	268
+30 mins.	101	194	160	455	**106**	0	134	240	73	176	72	321	233	0	102	335
+45 mins.	94	148	159	401	90	0	120	210	70	**197**	66	333	**236**	0	**136**	**372**
Total Volume	479	714	740	1933	371	0	539	910	331	699	309	1339	820	0	403	1223
% App. Total	24.8	36.9	38.3		40.8	0	59.2		24.7	52.2	23.1		67	0	33	
PHF	.820	.842	.877	.863	.875	.000	.881	.921	.828	.887	.796	.948	.869	.000	.741	.822

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	6	0	0	6	6	3	1	10	3	0	6	9	26
07:15 AM	3	1	2	6	0	0	0	0	0	4	2	6	1	0	0	1	13
07:30 AM	3	2	2	7	1	0	2	3	4	1	2	7	1	0	3	4	21
07:45 AM	0	3	3	6	4	0	0	4	3	1	4	8	5	0	1	6	24
Total	6	6	8	20	11	0	2	13	13	9	9	31	10	0	10	20	84
08:00 AM	2	4	7	13	0	0	0	0	1	4	1	6	2	0	0	2	21
08:15 AM	2	5	8	15	2	0	3	5	2	3	0	5	4	0	9	13	38
08:30 AM	2	3	10	15	1	0	3	4	6	4	1	11	5	0	0	5	35
08:45 AM	3	5	5	13	0	0	1	1	5	3	1	9	4	0	2	6	29
Total	9	17	30	56	3	0	7	10	14	14	3	31	15	0	11	26	123
Grand Total	15	23	38	76	14	0	9	23	27	23	12	62	25	0	21	46	207
Apprch %	19.7	30.3	50		60.9	0	39.1		43.5	37.1	19.4		54.3	0	45.7		
Total %	7.2	11.1	18.4	36.7	6.8	0	4.3	11.1	13	11.1	5.8	30	12.1	0	10.1	22.2	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**3**	2	2	7	1	0	2	3	**4**	1	2	7	1	0	3	4	21
07:45 AM	0	3	3	6	**4**	0	0	4	3	1	**4**	**8**	**5**	0	1	6	24
08:00 AM	2	4	7	13	0	0	0	0	1	**4**	1	6	2	0	0	2	21
08:15 AM	2	**5**	**8**	**15**	2	0	**3**	**5**	2	3	0	5	4	0	**9**	**13**	**38**
Total Volume	7	14	20	41	7	0	5	12	10	9	7	26	12	0	13	25	104
% App. Total	17.1	34.1	48.8		58.3	0	41.7		38.5	34.6	26.9		48	0	52		
PHF	.583	.700	.625	.683	.438	.000	.417	.600	.625	.563	.438	.813	.600	.000	.361	.481	.684

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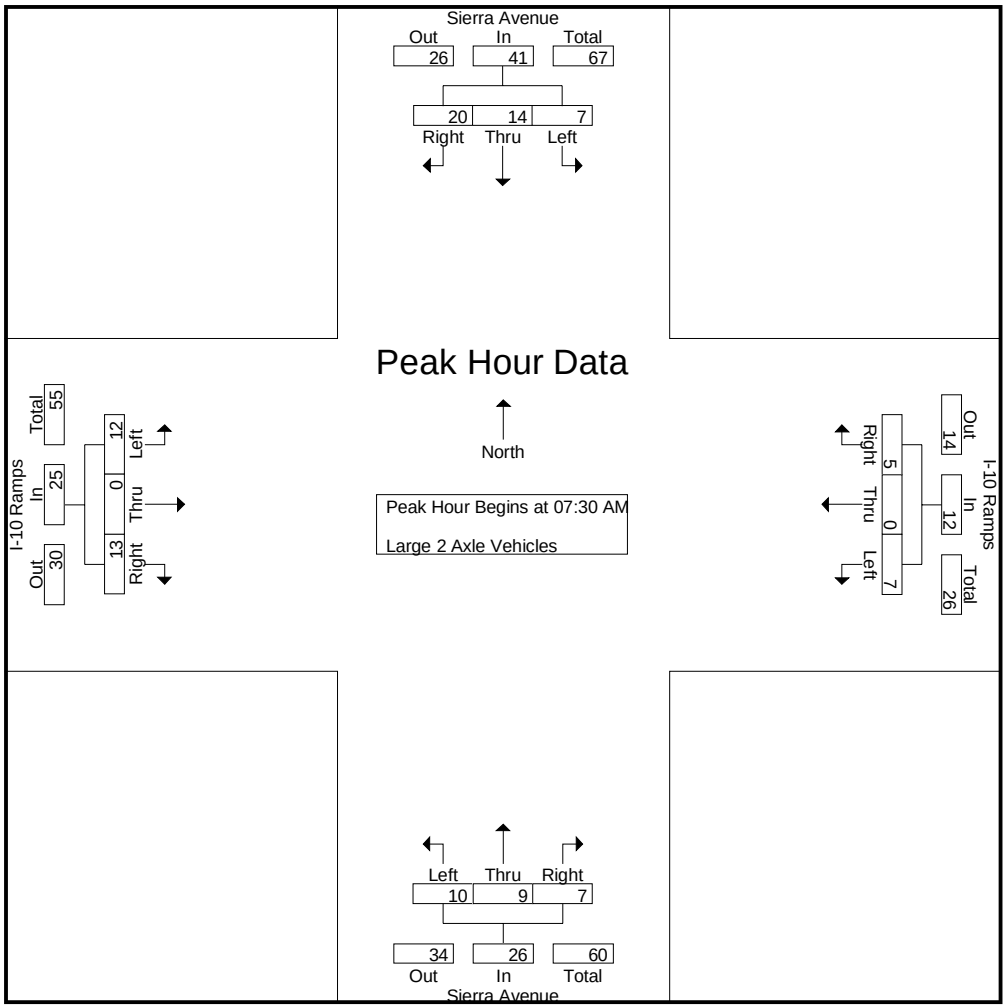
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**3**	2	2	7	1	0	2	3	**4**	1	2	7	1	0	3	4
+15 mins.	0	3	3	6	**4**	0	0	4	3	1	**4**	**8**	**5**	0	1	6
+30 mins.	2	4	7	13	0	0	0	0	1	**4**	1	6	2	0	0	2
+45 mins.	2	**5**	**8**	**15**	2	0	**3**	**5**	2	3	0	5	4	0	**9**	**13**
Total Volume	7	14	20	41	7	0	5	12	10	9	7	26	12	0	13	25
% App. Total	17.1	34.1	48.8		58.3	0	41.7		38.5	34.6	26.9		48	0	52	
PHF	.583	.700	.625	.683	.438	.000	.417	.600	.625	.563	.438	.813	.600	.000	.361	.481

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
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Groups Printed- 3 Axle Vehicles

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	2	0	2	1	0	1	2	0	0	1	1	1	0	2	3	8
07:15 AM	0	0	3	3	0	0	1	1	3	0	0	3	0	0	5	5	12
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	4	5	6
07:45 AM	1	0	2	3	0	0	0	0	1	0	2	3	0	0	2	2	8
Total	1	2	5	8	1	0	2	3	5	0	3	8	2	0	13	15	34
08:00 AM	0	0	1	1	0	0	0	0	2	1	0	3	0	0	0	0	4
08:15 AM	1	0	0	1	2	0	1	3	0	0	0	0	0	0	3	3	7
08:30 AM	0	1	0	1	0	0	0	0	1	1	0	2	1	0	0	1	4
08:45 AM	0	0	1	1	0	0	1	1	2	0	0	2	2	0	2	4	8
Total	1	1	2	4	2	0	2	4	5	2	0	7	3	0	5	8	23
Grand Total	2	3	7	12	3	0	4	7	10	2	3	15	5	0	18	23	57
Apprch %	16.7	25	58.3		42.9	0	57.1		66.7	13.3	20		21.7	0	78.3		
Total %	3.5	5.3	12.3	21.1	5.3	0	7	12.3	17.5	3.5	5.3	26.3	8.8	0	31.6	40.4	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	**1**	0	**4**	**5**	6
07:45 AM	**1**	0	**2**	**3**	0	0	0	0	1	0	**2**	**3**	0	0	2	2	**8**
08:00 AM	0	0	1	1	0	0	0	0	**2**	**1**	0	3	0	0	0	0	4
08:15 AM	1	0	0	1	**2**	0	**1**	**3**	0	0	0	0	0	0	3	3	7
Total Volume	2	0	3	5	2	0	1	3	4	1	2	7	1	0	9	10	25
% App. Total	40	0	60		66.7	0	33.3		57.1	14.3	28.6		10	0	90		
PHF	.500	.000	.375	.417	.250	.000	.250	.250	.500	.250	.250	.583	.250	.000	.563	.500	.781

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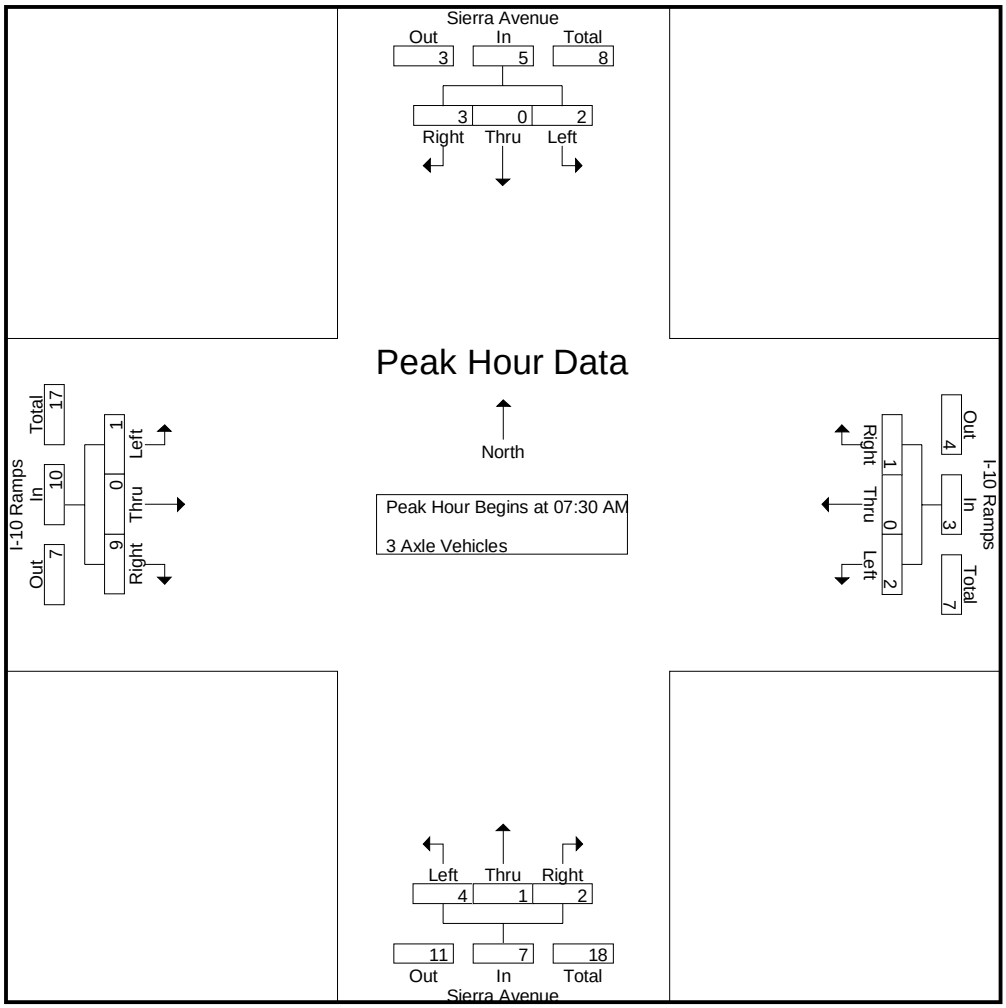
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	1	0	0	1	**1**	0	**4**	**5**
+15 mins.	**1**	0	**2**	**3**	0	0	0	0	1	0	**2**	**3**	0	0	2	2
+30 mins.	0	0	1	1	0	0	0	0	**2**	**1**	0	3	0	0	0	0
+45 mins.	1	0	0	1	**2**	0	**1**	**3**	0	0	0	0	0	0	3	3
Total Volume	2	0	3	5	2	0	1	3	4	1	2	7	1	0	9	10
% App. Total	40	0	60		66.7	0	33.3		57.1	14.3	28.6		10	0	90	
PHF	.500	.000	.375	.417	.250	.000	.250	.250	.500	.250	.250	.583	.250	.000	.563	.500

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	0	0	2	3	0	1	4	8	1	3	12	1	0	7	8	26
07:15 AM	1	0	5	6	1	0	0	1	8	0	5	13	0	0	6	6	26
07:30 AM	1	0	4	5	4	0	0	4	6	0	4	10	2	0	9	11	30
07:45 AM	0	0	3	3	1	0	0	1	4	0	3	7	0	0	2	2	13
Total	4	0	12	16	9	0	1	10	26	1	15	42	3	0	24	27	95
08:00 AM	1	1	4	6	3	0	1	4	6	0	1	7	1	0	3	4	21
08:15 AM	0	1	4	5	6	0	0	6	6	1	3	10	2	0	6	8	29
08:30 AM	1	0	7	8	1	0	0	1	9	0	2	11	0	0	6	6	26
08:45 AM	2	1	3	6	1	0	3	4	6	0	1	7	2	0	8	10	27
Total	4	3	18	25	11	0	4	15	27	1	7	35	5	0	23	28	103
Grand Total	8	3	30	41	20	0	5	25	53	2	22	77	8	0	47	55	198
Apprch %	19.5	7.3	73.2		80	0	20		68.8	2.6	28.6		14.5	0	85.5		
Total %	4	1.5	15.2	20.7	10.1	0	2.5	12.6	26.8	1	11.1	38.9	4	0	23.7	27.8	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**1**	0	**4**	5	4	0	0	4	**6**	0	**4**	**10**	**2**	0	**9**	**11**	**30**
07:45 AM	0	0	3	3	1	0	0	1	4	0	3	7	0	0	2	2	13
08:00 AM	1	**1**	4	**6**	3	0	**1**	4	6	0	1	7	1	0	3	4	21
08:15 AM	0	1	4	5	**6**	0	0	**6**	6	**1**	3	10	2	0	6	8	29
Total Volume	2	2	15	19	14	0	1	15	22	1	11	34	5	0	20	25	93
% App. Total	10.5	10.5	78.9		93.3	0	6.7		64.7	2.9	32.4		20	0	80		
PHF	.500	.500	.938	.792	.583	.000	.250	.625	.917	.250	.688	.850	.625	.000	.556	.568	.775

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps AM
Site Code : 10821516
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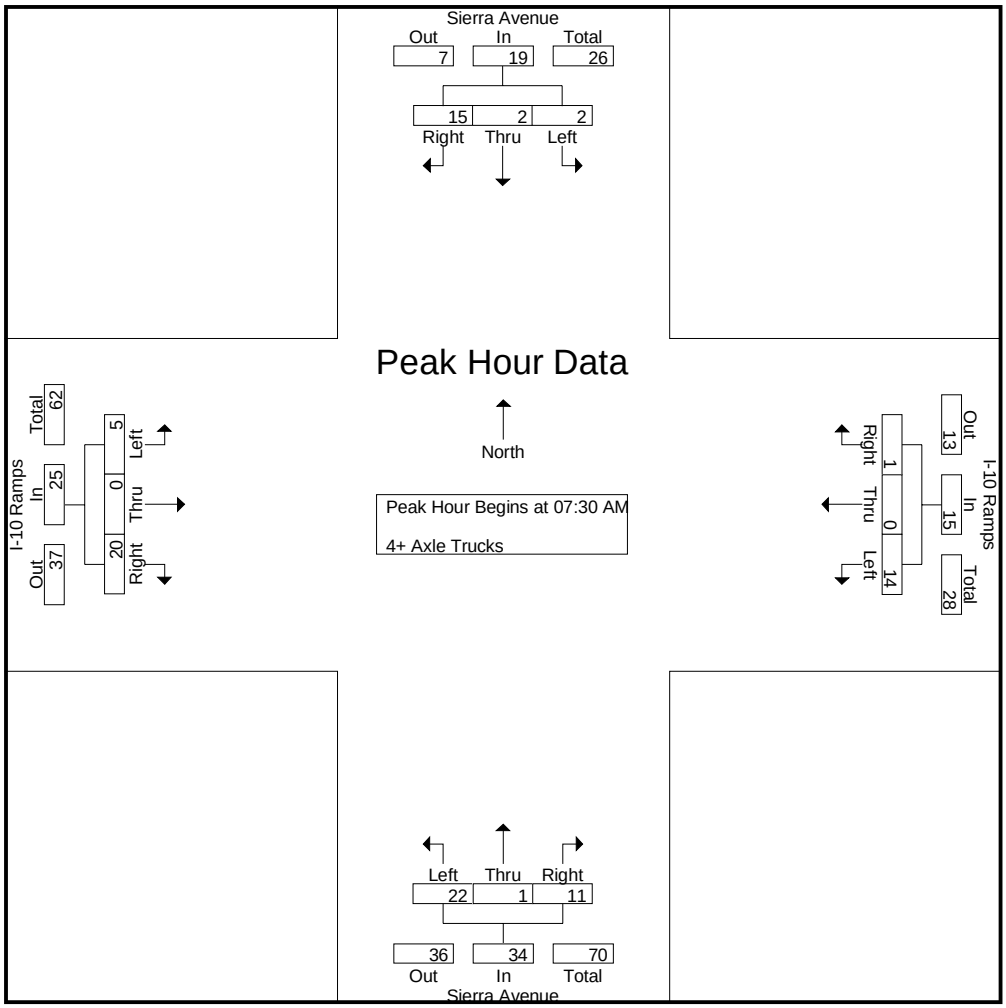

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**1**	0	**4**	5	4	0	0	4	**6**	0	**4**	**10**	**2**	0	**9**	**11**
+15 mins.	0	0	3	3	1	0	0	1	4	0	3	7	0	0	2	2
+30 mins.	1	**1**	4	**6**	3	0	**1**	4	6	0	1	7	1	0	3	4
+45 mins.	0	1	4	5	**6**	0	0	**6**	6	**1**	3	10	2	0	6	8
Total Volume	2	2	15	19	14	0	1	15	22	1	11	34	5	0	20	25
% App. Total	10.5	10.5	78.9		93.3	0	6.7		64.7	2.9	32.4		20	0	80	
PHF	.500	.500	.938	.792	.583	.000	.250	.625	.917	.250	.688	.850	.625	.000	.556	.568

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	128	214	191	533	118	0	132	250	117	293	124	534	222	0	103	325	1642
04:15 PM	103	193	169	465	89	0	133	222	109	324	109	542	210	0	92	302	1531
04:30 PM	124	208	212	544	115	0	138	253	111	291	103	505	234	0	104	338	1640
04:45 PM	110	233	201	544	114	0	145	259	119	307	101	527	219	0	105	324	1654
Total	465	848	773	2086	436	0	548	984	456	1215	437	2108	885	0	404	1289	6467
05:00 PM	155	195	205	555	99	0	150	249	106	277	80	463	224	0	84	308	1575
05:15 PM	128	217	175	520	105	0	156	261	126	305	80	511	177	0	96	273	1565
05:30 PM	128	223	171	522	112	0	134	246	112	282	98	492	205	0	113	318	1578
05:45 PM	90	220	186	496	104	0	147	251	119	331	115	565	200	0	99	299	1611
Total	501	855	737	2093	420	0	587	1007	463	1195	373	2031	806	0	392	1198	6329
Grand Total	966	1703	1510	4179	856	0	1135	1991	919	2410	810	4139	1691	0	796	2487	12796
Apprch %	23.1	40.8	36.1		43	0	57		22.2	58.2	19.6		68	0	32		
Total %	7.5	13.3	11.8	32.7	6.7	0	8.9	15.6	7.2	18.8	6.3	32.3	13.2	0	6.2	19.4	
Passenger Vehicles	947	1683	1461	4091	818	0	1114	1932	841	2395	771	4007	1625	0	723	2348	12378
% Passenger Vehicles	98	98.8	96.8	97.9	95.6	0	98.1	97	91.5	99.4	95.2	96.8	96.1	0	90.8	94.4	96.7
Large 2 Axle Vehicles	6	10	29	45	14	0	9	23	17	8	13	38	49	0	22	71	177
% Large 2 Axle Vehicles	0.6	0.6	1.9	1.1	1.6	0	0.8	1.2	1.8	0.3	1.6	0.9	2.9	0	2.8	2.9	1.4
3 Axle Vehicles	5	9	11	25	5	0	6	11	14	6	7	27	7	0	11	18	81
% 3 Axle Vehicles	0.5	0.5	0.7	0.6	0.6	0	0.5	0.6	1.5	0.2	0.9	0.7	0.4	0	1.4	0.7	0.6
4+ Axle Trucks	8	1	9	18	19	0	6	25	47	1	19	67	10	0	40	50	160
% 4+ Axle Trucks	0.8	0.1	0.6	0.4	2.2	0	0.5	1.3	5.1	0	2.3	1.6	0.6	0	5	2	1.3

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**128**	214	191	533	**118**	0	132	250	117	293	**124**	534	222	0	103	325	1642
04:15 PM	103	193	169	465	89	0	133	222	109	**324**	109	**542**	210	0	92	302	1531
04:30 PM	124	208	**212**	**544**	115	0	138	253	111	291	103	505	**234**	0	104	**338**	1640
04:45 PM	110	**233**	201	544	114	0	**145**	**259**	**119**	307	101	527	219	0	**105**	324	**1654**
Total Volume	465	848	773	2086	436	0	548	984	456	1215	437	2108	885	0	404	1289	6467
% App. Total	22.3	40.7	37.1		44.3	0	55.7		21.6	57.6	20.7		68.7	0	31.3		
PHF	.908	.910	.912	.959	.924	.000	.945	.950	.958	.938	.881	.972	.946	.000	.962	.953	.977

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City of Fontana
N/S: Sierra Avenue
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Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
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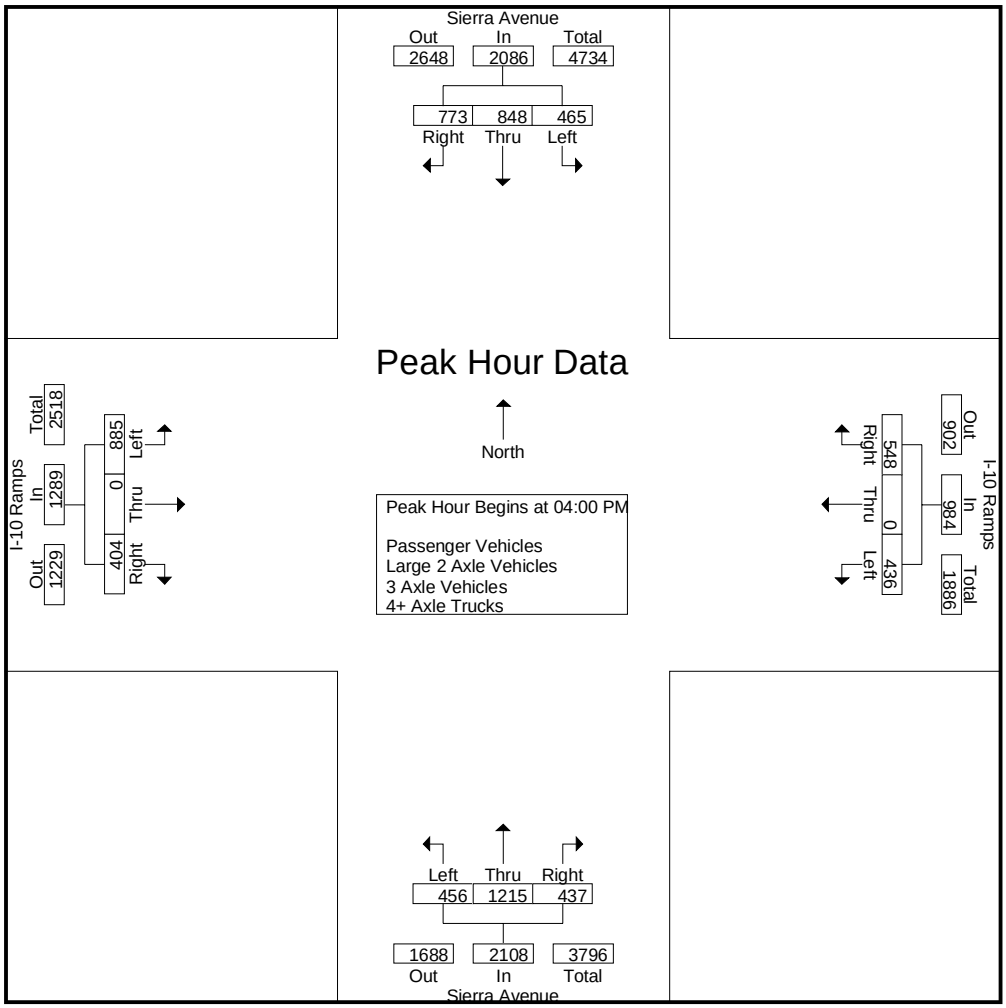

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:00 PM				04:00 PM			
+0 mins.	124	208	**212**	544	**115**	0	138	253	117	293	**124**	534	222	0	103	325
+15 mins.	110	**233**	201	544	114	0	145	259	109	**324**	109	**542**	210	0	92	302
+30 mins.	**155**	195	205	**555**	99	0	150	249	111	291	103	505	**234**	0	104	**338**
+45 mins.	128	217	175	520	105	0	**156**	**261**	**119**	307	101	527	219	0	**105**	324
Total Volume	517	853	793	2163	433	0	589	1022	456	1215	437	2108	885	0	404	1289
% App. Total	23.9	39.4	36.7		42.4	0	57.6		21.6	57.6	20.7		68.7	0	31.3	
PHF	.834	.915	.935	.974	.941	.000	.944	.979	.958	.938	.881	.972	.946	.000	.962	.953

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
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Groups Printed- Passenger Vehicles

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	127	213	184	524	113	0	129	242	108	290	117	515	216	0	97	313	1594
04:15 PM	101	185	163	449	85	0	132	217	100	321	103	524	196	0	83	279	1469
04:30 PM	119	204	201	524	108	0	134	242	102	289	98	489	225	0	89	314	1569
04:45 PM	107	230	197	534	108	0	142	250	109	306	96	511	211	0	94	305	1600
Total	454	832	745	2031	414	0	537	951	419	1206	414	2039	848	0	363	1211	6232
05:00 PM	152	194	203	549	95	0	147	242	94	277	77	448	218	0	78	296	1535
05:15 PM	126	216	172	514	102	0	155	257	114	303	74	491	169	0	88	257	1519
05:30 PM	126	221	161	508	108	0	132	240	105	281	95	481	196	0	102	298	1527
05:45 PM	89	220	180	489	99	0	143	242	109	328	111	548	194	0	92	286	1565
Total	493	851	716	2060	404	0	577	981	422	1189	357	1968	777	0	360	1137	6146
Grand Total	947	1683	1461	4091	818	0	1114	1932	841	2395	771	4007	1625	0	723	2348	12378
Apprch %	23.1	41.1	35.7		42.3	0	57.7		21	59.8	19.2		69.2	0	30.8		
Total %	7.7	13.6	11.8	33.1	6.6	0	9	15.6	6.8	19.3	6.2	32.4	13.1	0	5.8	19	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**127**	213	184	524	**113**	0	129	242	108	290	**117**	515	216	0	**97**	313	1594
04:15 PM	101	185	163	449	85	0	132	217	100	**321**	103	**524**	196	0	83	279	1469
04:30 PM	119	204	**201**	524	108	0	134	242	102	289	98	489	**225**	0	89	**314**	1569
04:45 PM	107	**230**	197	**534**	108	0	**142**	**250**	**109**	306	96	511	211	0	94	305	**1600**
Total Volume	454	832	745	2031	414	0	537	951	419	1206	414	2039	848	0	363	1211	6232
% App. Total	22.4	41	36.7		43.5	0	56.5		20.5	59.1	20.3		70	0	30		
PHF	.894	.904	.927	.951	.916	.000	.945	.951	.961	.939	.885	.973	.942	.000	.936	.964	.974

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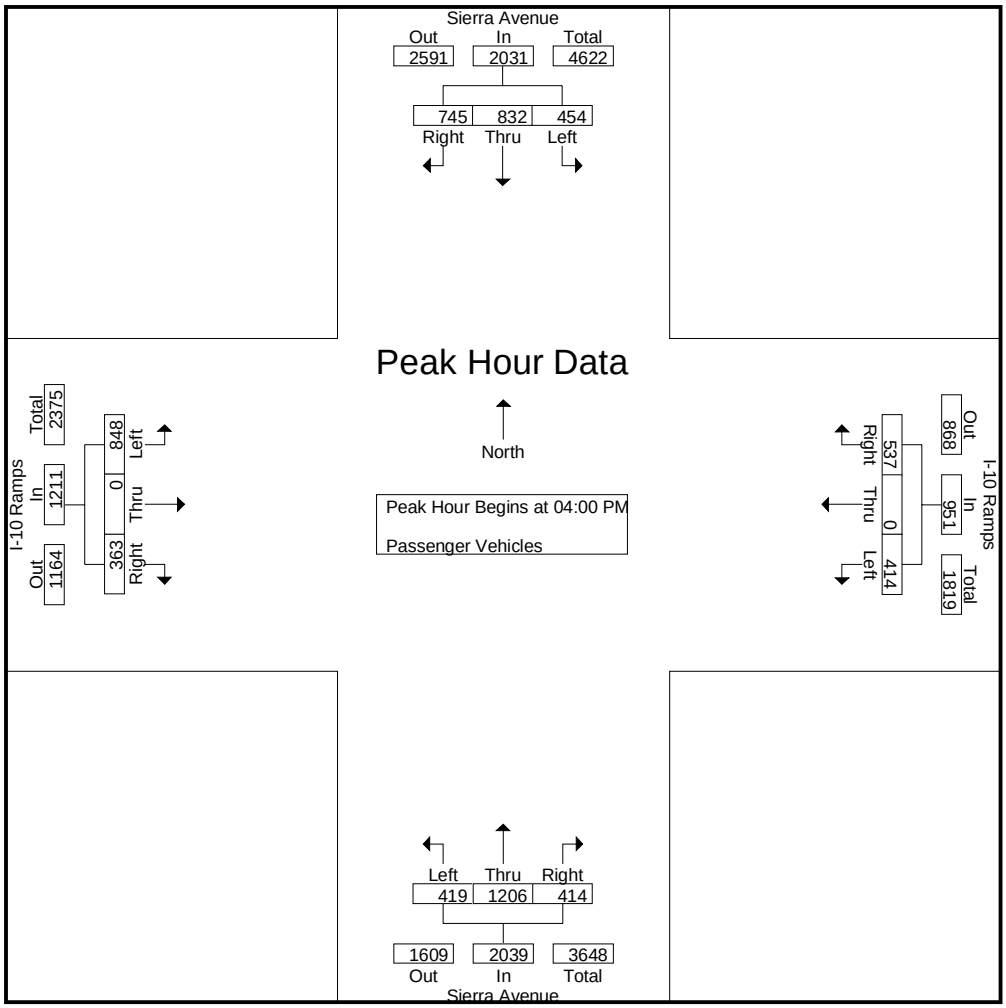
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**127**	213	184	524	**113**	0	129	242	108	290	**117**	515	216	0	**97**	313
+15 mins.	101	185	163	449	85	0	132	217	100	**321**	103	**524**	196	0	83	279
+30 mins.	119	204	**201**	524	108	0	134	242	102	289	98	489	**225**	0	89	**314**
+45 mins.	107	**230**	197	**534**	108	0	**142**	**250**	**109**	306	96	511	211	0	94	305
Total Volume	454	832	745	2031	414	0	537	951	419	1206	414	2039	848	0	363	1211
% App. Total	22.4	41	36.7		43.5	0	56.5		20.5	59.1	20.3		70	0	30	
PHF	.894	.904	.927	.951	.916	.000	.945	.951	.961	.939	.885	.973	.942	.000	.936	.964

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	6	6	2	0	3	5	2	2	2	6	4	0	2	6	23
04:15 PM	2	6	5	13	3	0	0	3	3	1	3	7	11	0	6	17	40
04:30 PM	0	2	5	7	1	0	1	2	1	1	1	3	6	0	3	9	21
04:45 PM	1	0	2	3	3	0	2	5	2	1	2	5	6	0	6	12	25
Total	3	8	18	29	9	0	6	15	8	5	8	21	27	0	17	44	109
05:00 PM	2	1	1	4	1	0	1	2	2	0	0	2	4	0	1	5	13
05:15 PM	0	0	3	3	2	0	1	3	3	0	3	6	6	0	3	9	21
05:30 PM	0	1	5	6	1	0	0	1	2	0	0	2	8	0	1	9	18
05:45 PM	1	0	2	3	1	0	1	2	2	3	2	7	4	0	0	4	16
Total	3	2	11	16	5	0	3	8	9	3	5	17	22	0	5	27	68
Grand Total	6	10	29	45	14	0	9	23	17	8	13	38	49	0	22	71	177
Apprch %	13.3	22.2	64.4		60.9	0	39.1		44.7	21.1	34.2		69	0	31		
Total %	3.4	5.6	16.4	25.4	7.9	0	5.1	13	9.6	4.5	7.3	21.5	27.7	0	12.4	40.1	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	**6**	6	2	0	**3**	**5**	2	**2**	2	6	4	0	2	6	23
04:15 PM	**2**	**6**	5	**13**	**3**	0	0	3	**3**	1	**3**	**7**	**11**	0	**6**	**17**	**40**
04:30 PM	0	2	5	7	1	0	1	2	1	1	1	3	6	0	3	9	21
04:45 PM	1	0	2	3	3	0	2	5	2	1	2	5	6	0	6	12	25
Total Volume	3	8	18	29	9	0	6	15	8	5	8	21	27	0	17	44	109
% App. Total	10.3	27.6	62.1		60	0	40		38.1	23.8	38.1		61.4	0	38.6		
PHF	.375	.333	.750	.558	.750	.000	.500	.750	.667	.625	.667	.750	.614	.000	.708	.647	.681

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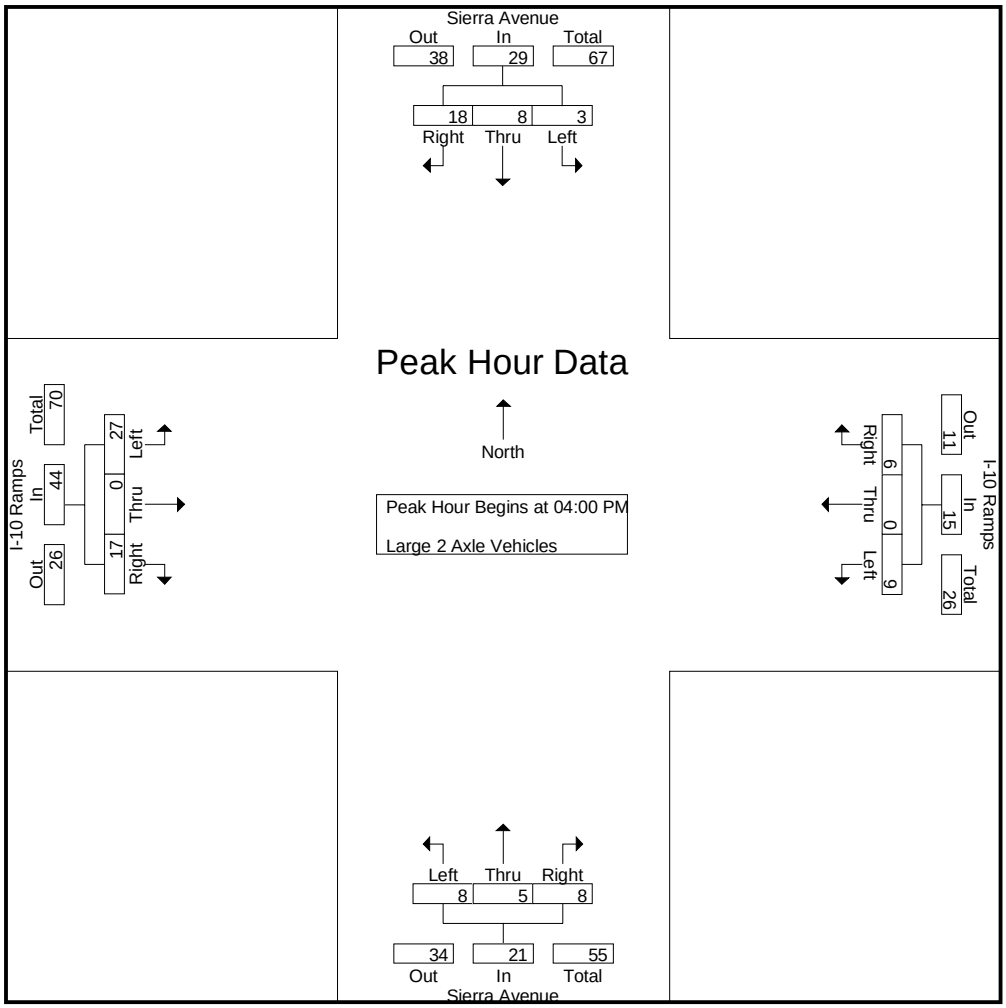
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	**6**	6	2	0	**3**	**5**	2	**2**	2	6	4	0	2	6
+15 mins.	**2**	**6**	5	**13**	**3**	0	0	3	**3**	1	**3**	**7**	**11**	0	**6**	**17**
+30 mins.	0	2	5	7	1	0	1	2	1	1	1	3	6	0	3	9
+45 mins.	1	0	2	3	3	0	2	5	2	1	2	5	6	0	6	12
Total Volume	3	8	18	29	9	0	6	15	8	5	8	21	27	0	17	44
% App. Total	10.3	27.6	62.1		60	0	40		38.1	23.8	38.1		61.4	0	38.6	
PHF	.375	.333	.750	.558	.750	.000	.500	.750	.667	.625	.667	.750	.614	.000	.708	.647

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	1	1	3	0	0	0	0	1	0	0	1	1	0	0	1	5
04:15 PM	0	2	1	3	1	0	1	2	1	2	1	4	2	0	1	3	12
04:30 PM	1	1	3	5	2	0	3	5	2	1	2	5	2	0	2	4	19
04:45 PM	1	3	1	5	1	0	0	1	2	0	1	3	0	0	1	1	10
Total	3	7	6	16	4	0	4	8	6	3	4	13	5	0	4	9	46
05:00 PM	0	0	0	0	1	0	0	1	3	0	0	3	0	0	2	2	6
05:15 PM	0	1	0	1	0	0	0	0	2	2	1	5	1	0	0	1	7
05:30 PM	2	1	3	6	0	0	1	1	2	1	1	4	0	0	1	1	12
05:45 PM	0	0	2	2	0	0	1	1	1	0	1	2	1	0	4	5	10
Total	2	2	5	9	1	0	2	3	8	3	3	14	2	0	7	9	35
Grand Total	5	9	11	25	5	0	6	11	14	6	7	27	7	0	11	18	81
Apprch %	20	36	44		45.5	0	54.5		51.9	22.2	25.9		38.9	0	61.1		
Total %	6.2	11.1	13.6	30.9	6.2	0	7.4	13.6	17.3	7.4	8.6	33.3	8.6	0	13.6	22.2	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	1	1	3	0	0	0	0	1	0	0	1	1	0	0	1	5
04:15 PM	0	2	1	3	1	0	1	2	1	**2**	1	4	**2**	0	1	3	12
04:30 PM	1	1	**3**	**5**	**2**	0	**3**	**5**	**2**	1	**2**	**5**	2	0	**2**	**4**	**19**
04:45 PM	1	**3**	1	5	1	0	0	1	2	0	1	3	0	0	1	1	10
Total Volume	3	7	6	16	4	0	4	8	6	3	4	13	5	0	4	9	46
% App. Total	18.8	43.8	37.5		50	0	50		46.2	23.1	30.8		55.6	0	44.4		
PHF	.750	.583	.500	.800	.500	.000	.333	.400	.750	.375	.500	.650	.625	.000	.500	.563	.605

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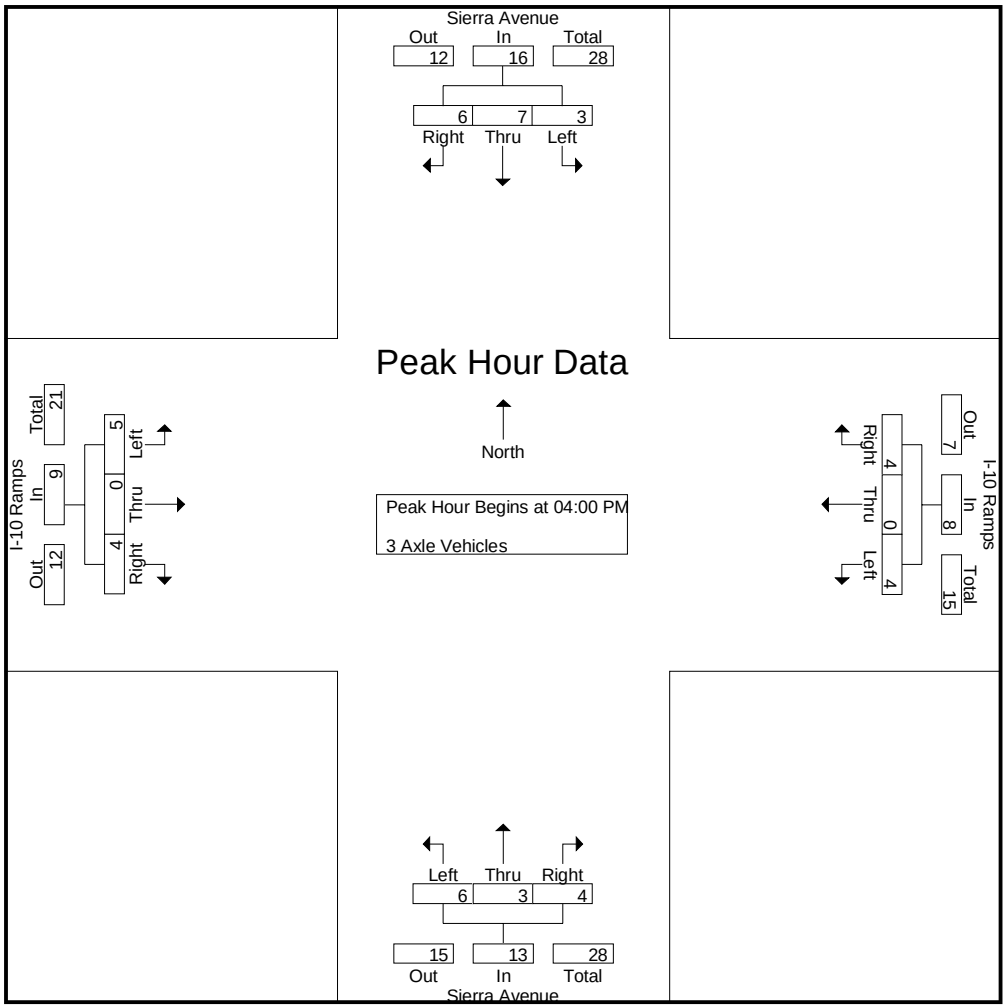
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**1**	1	1	3	0	0	0	0	1	0	0	1	1	0	0	1
+15 mins.	0	2	1	3	1	0	1	2	1	**2**	1	4	**2**	0	1	3
+30 mins.	1	1	**3**	**5**	**2**	0	**3**	**5**	**2**	1	**2**	**5**	2	0	**2**	**4**
+45 mins.	1	**3**	1	5	1	0	0	1	2	0	1	3	0	0	1	1
Total Volume	3	7	6	16	4	0	4	8	6	3	4	13	5	0	4	9
% App. Total	18.8	43.8	37.5		50	0	50		46.2	23.1	30.8		55.6	0	44.4	
PHF	.750	.583	.500	.800	.500	.000	.333	.400	.750	.375	.500	.650	.625	.000	.500	.563

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City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	3	0	0	3	6	1	5	12	1	0	4	5	20
04:15 PM	0	0	0	0	0	0	0	0	5	0	2	7	1	0	2	3	10
04:30 PM	4	1	3	8	4	0	0	4	6	0	2	8	1	0	10	11	31
04:45 PM	1	0	1	2	2	0	1	3	6	0	2	8	2	0	4	6	19
Total	5	1	4	10	9	0	1	10	23	1	11	35	5	0	20	25	80
05:00 PM	1	0	1	2	2	0	2	4	7	0	3	10	2	0	3	5	21
05:15 PM	2	0	0	2	1	0	0	1	7	0	2	9	1	0	5	6	18
05:30 PM	0	0	2	2	3	0	1	4	3	0	2	5	1	0	9	10	21
05:45 PM	0	0	2	2	4	0	2	6	7	0	1	8	1	0	3	4	20
Total	3	0	5	8	10	0	5	15	24	0	8	32	5	0	20	25	80
Grand Total	8	1	9	18	19	0	6	25	47	1	19	67	10	0	40	50	160
Apprch %	44.4	5.6	50		76	0	24		70.1	1.5	28.4		20	0	80		
Total %	5	0.6	5.6	11.2	11.9	0	3.8	15.6	29.4	0.6	11.9	41.9	6.2	0	25	31.2	

	Sierra Avenue Southbound				I-10 Ramps Westbound				Sierra Avenue Northbound				I-10 Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	3	0	0	3	**6**	**1**	**5**	**12**	1	0	4	5	20
04:15 PM	0	0	0	0	0	0	0	0	5	0	2	7	1	0	2	3	10
04:30 PM	**4**	**1**	**3**	**8**	**4**	0	0	**4**	6	0	2	8	1	0	**10**	**11**	**31**
04:45 PM	1	0	1	2	2	0	**1**	3	6	0	2	8	**2**	0	4	6	19
Total Volume	5	1	4	10	9	0	1	10	23	1	11	35	5	0	20	25	80
% App. Total	50	10	40		90	0	10		65.7	2.9	31.4		20	0	80		
PHF	.313	.250	.333	.313	.563	.000	.250	.625	.958	.250	.550	.729	.625	.000	.500	.568	.645

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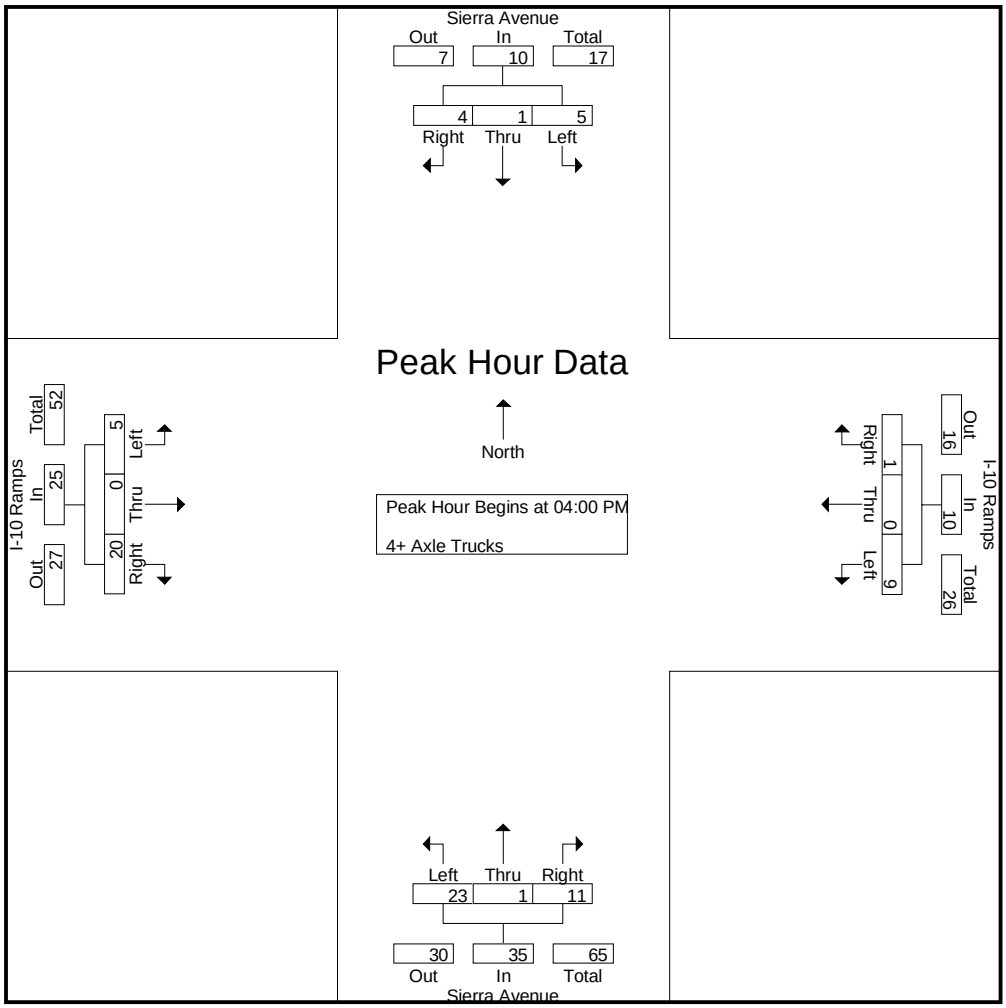
City of Fontana
N/S: Sierra Avenue
E/W: I-10 Ramps
Weather: Clear

File Name : 01_FON_Sierra_10 Ramps PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	3	0	0	3	**6**	**1**	**5**	**12**	1	0	4	5
+15 mins.	0	0	0	0	0	0	0	0	5	0	2	7	1	0	2	3
+30 mins.	**4**	**1**	**3**	**8**	**4**	0	0	**4**	6	0	2	8	1	0	**10**	**11**
+45 mins.	1	0	1	2	2	0	**1**	3	6	0	2	8	**2**	0	4	6
Total Volume	5	1	4	10	9	0	1	10	23	1	11	35	5	0	20	25
% App. Total	50	10	40		90	0	10		65.7	2.9	31.4		20	0	80	
PHF	.313	.250	.333	.313	.563	.000	.250	.625	.958	.250	.550	.729	.625	.000	.500	.568

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	17	108	30	155	26	234	9	269	32	41	14	87	10	73	12	95	606
07:15 AM	22	156	34	212	22	231	7	260	24	56	15	95	3	62	20	85	652
07:30 AM	29	158	49	236	19	299	20	338	39	60	17	116	8	79	17	104	794
07:45 AM	39	208	54	301	52	286	33	371	44	71	18	133	20	115	37	172	977
Total	107	630	167	904	119	1050	69	1238	139	228	64	431	41	329	86	456	3029
08:00 AM	13	135	48	196	30	254	22	306	28	87	17	132	26	94	26	146	780
08:15 AM	20	174	48	242	44	227	20	291	43	86	12	141	20	93	16	129	803
08:30 AM	17	176	46	239	37	160	18	215	31	93	12	136	24	70	23	117	707
08:45 AM	14	138	37	189	23	180	12	215	26	86	16	128	15	83	18	116	648
Total	64	623	179	866	134	821	72	1027	128	352	57	537	85	340	83	508	2938
Grand Total	171	1253	346	1770	253	1871	141	2265	267	580	121	968	126	669	169	964	5967
Apprch %	9.7	70.8	19.5		11.2	82.6	6.2		27.6	59.9	12.5		13.1	69.4	17.5		
Total %	2.9	21	5.8	29.7	4.2	31.4	2.4	38	4.5	9.7	2	16.2	2.1	11.2	2.8	16.2	
Passenger Vehicles	163	1216	319	1698	237	1803	129	2169	246	533	96	875	119	621	142	882	5624
% Passenger Vehicles	95.3	97	92.2	95.9	93.7	96.4	91.5	95.8	92.1	91.9	79.3	90.4	94.4	92.8	84	91.5	94.3
Large 2 Axle Vehicles	3	14	13	30	6	35	5	46	6	28	11	45	3	19	7	29	150
% Large 2 Axle Vehicles	1.8	1.1	3.8	1.7	2.4	1.9	3.5	2	2.2	4.8	9.1	4.6	2.4	2.8	4.1	3	2.5
3 Axle Vehicles	0	3	4	7	2	16	3	21	2	3	3	8	2	15	4	21	57
% 3 Axle Vehicles	0	0.2	1.2	0.4	0.8	0.9	2.1	0.9	0.7	0.5	2.5	0.8	1.6	2.2	2.4	2.2	1
4+ Axle Trucks	5	20	10	35	8	17	4	29	13	16	11	40	2	14	16	32	136
% 4+ Axle Trucks	2.9	1.6	2.9	2	3.2	0.9	2.8	1.3	4.9	2.8	9.1	4.1	1.6	2.1	9.5	3.3	2.3

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	29	158	49	236	19	**299**	20	338	39	60	17	116	8	79	17	104	794
07:45 AM	**39**	**208**	**54**	**301**	**52**	286	**33**	**371**	**44**	71	**18**	133	20	**115**	**37**	**172**	**977**
08:00 AM	13	135	48	196	30	254	22	306	28	**87**	17	132	**26**	94	26	146	780
08:15 AM	20	174	48	242	44	227	20	291	43	86	12	**141**	20	93	16	129	803
Total Volume	101	675	199	975	145	1066	95	1306	154	304	64	522	74	381	96	551	3354
% App. Total	10.4	69.2	20.4		11.1	81.6	7.3		29.5	58.2	12.3		13.4	69.1	17.4		
PHF	.647	.811	.921	.810	.697	.891	.720	.880	.875	.874	.889	.926	.712	.828	.649	.801	.858

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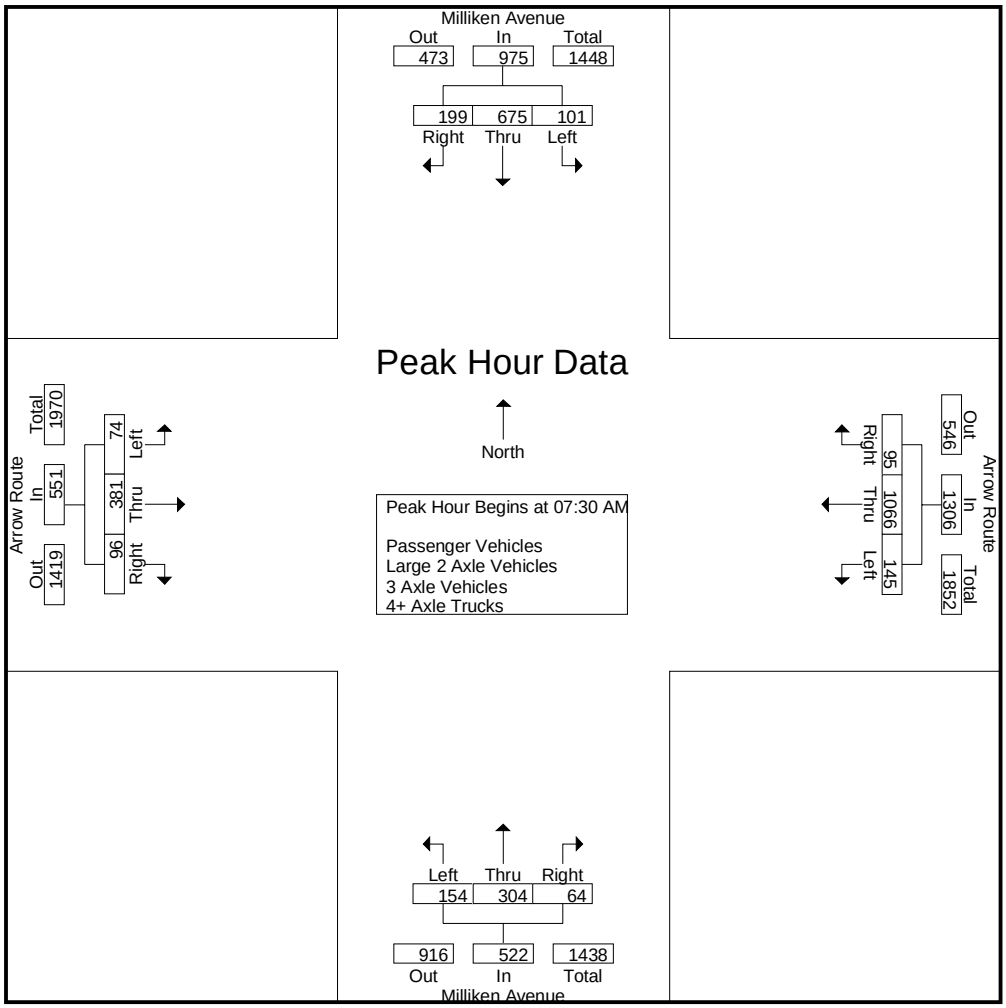
City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:30 AM				07:45 AM				07:45 AM			
+0 mins.	**39**	**208**	**54**	**301**	19	**299**	20	338	**44**	71	**18**	133	20	**115**	**37**	**172**
+15 mins.	13	135	48	196	**52**	286	**33**	**371**	28	87	17	132	**26**	94	26	146
+30 mins.	20	174	48	242	30	254	22	306	43	86	12	**141**	20	93	16	129
+45 mins.	17	176	46	239	44	227	20	291	31	**93**	12	136	24	70	23	117
Total Volume	89	693	196	978	145	1066	95	1306	146	337	59	542	90	372	102	564
% App. Total	9.1	70.9	20		11.1	81.6	7.3		26.9	62.2	10.9		16	66	18.1	
PHF	.571	.833	.907	.812	.697	.891	.720	.880	.830	.906	.819	.961	.865	.809	.689	.820

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
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File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	16	104	28	148	25	223	6	254	30	37	12	79	9	68	8	85	566
07:15 AM	22	153	31	206	20	223	6	249	23	49	11	83	3	59	19	81	619
07:30 AM	28	151	47	226	17	286	18	321	36	55	13	104	8	76	13	97	748
07:45 AM	38	206	47	291	50	277	31	358	42	64	16	122	20	107	35	162	933
Total	104	614	153	871	112	1009	61	1182	131	205	52	388	40	310	75	425	2866
08:00 AM	12	127	44	183	28	248	19	295	26	79	13	118	24	85	23	132	728
08:15 AM	19	167	45	231	41	216	20	277	36	78	10	124	18	86	13	117	749
08:30 AM	17	175	42	234	33	157	17	207	28	90	10	128	23	66	16	105	674
08:45 AM	11	133	35	179	23	173	12	208	25	81	11	117	14	74	15	103	607
Total	59	602	166	827	125	794	68	987	115	328	44	487	79	311	67	457	2758
Grand Total	163	1216	319	1698	237	1803	129	2169	246	533	96	875	119	621	142	882	5624
Apprch %	9.6	71.6	18.8		10.9	83.1	5.9		28.1	60.9	11		13.5	70.4	16.1		
Total %	2.9	21.6	5.7	30.2	4.2	32.1	2.3	38.6	4.4	9.5	1.7	15.6	2.1	11	2.5	15.7	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	28	151	**47**	226	17	**286**	18	321	36	55	13	104	8	76	13	97	748
07:45 AM	**38**	**206**	47	**291**	**50**	277	**31**	**358**	**42**	64	**16**	122	20	**107**	**35**	**162**	**933**
08:00 AM	12	127	44	183	28	248	19	295	26	**79**	13	118	**24**	85	23	132	728
08:15 AM	19	167	45	231	41	216	20	277	36	78	10	**124**	18	86	13	117	749
Total Volume	97	651	183	931	136	1027	88	1251	140	276	52	468	70	354	84	508	3158
% App. Total	10.4	69.9	19.7		10.9	82.1	7		29.9	59	11.1		13.8	69.7	16.5		
PHF	.638	.790	.973	.800	.680	.898	.710	.874	.833	.873	.813	.944	.729	.827	.600	.784	.846

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
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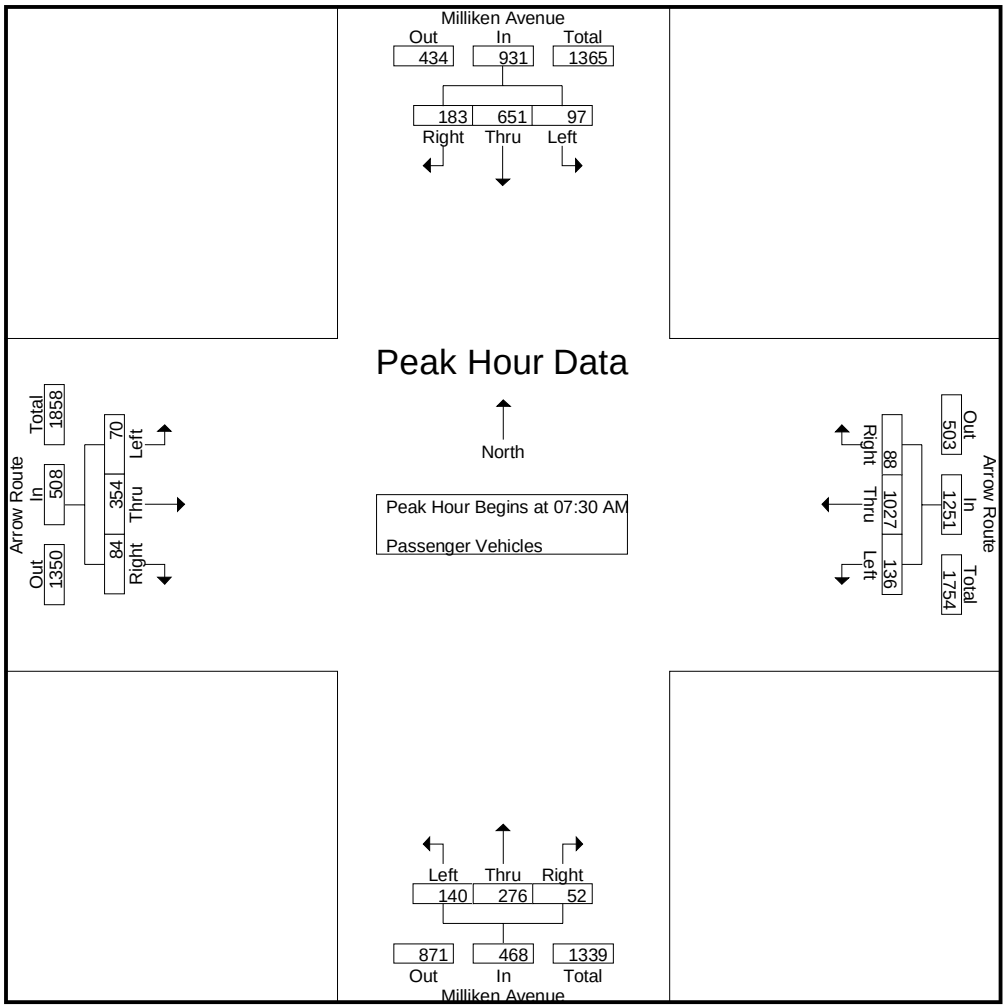

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	28	151	**47**	226	17	**286**	18	321	36	55	13	104	8	76	13	97
+15 mins.	**38**	**206**	47	**291**	**50**	277	**31**	**358**	**42**	64	**16**	122	20	**107**	**35**	**162**
+30 mins.	12	127	44	183	28	248	19	295	26	**79**	13	118	**24**	85	23	132
+45 mins.	19	167	45	231	41	216	20	277	36	78	10	**124**	18	86	13	117
Total Volume	97	651	183	931	136	1027	88	1251	140	276	52	468	70	354	84	508
% App. Total	10.4	69.9	19.7		10.9	82.1	7		29.9	59	11.1		13.8	69.7	16.5	
PHF	.638	.790	.973	.800	.680	.898	.710	.874	.833	.873	.813	.944	.729	.827	.600	.784

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	3	2	5	1	2	2	5	0	1	1	2	13
07:15 AM	0	0	2	2	0	4	0	4	0	4	1	5	0	0	1	1	12
07:30 AM	0	2	1	3	0	9	0	9	2	4	3	9	0	1	1	2	23
07:45 AM	0	1	4	5	2	6	1	9	0	6	0	6	0	2	0	2	22
Total	0	3	8	11	2	22	3	27	3	16	6	25	0	4	3	7	70
08:00 AM	0	3	1	4	0	3	2	5	0	3	1	4	1	6	0	7	20
08:15 AM	1	6	1	8	2	5	0	7	1	4	0	5	2	4	0	6	26
08:30 AM	0	0	2	2	2	2	0	4	1	2	2	5	0	1	2	3	14
08:45 AM	2	2	1	5	0	3	0	3	1	3	2	6	0	4	2	6	20
Total	3	11	5	19	4	13	2	19	3	12	5	20	3	15	4	22	80
Grand Total	3	14	13	30	6	35	5	46	6	28	11	45	3	19	7	29	150
Apprch %	10	46.7	43.3		13	76.1	10.9		13.3	62.2	24.4		10.3	65.5	24.1		
Total %	2	9.3	8.7	20	4	23.3	3.3	30.7	4	18.7	7.3	30	2	12.7	4.7	19.3	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	2	1	3	0	**9**	0	**9**	**2**	4	**3**	**9**	0	1	**1**	2	23
07:45 AM	0	1	**4**	5	**2**	6	1	9	0	**6**	0	6	0	2	0	2	22
08:00 AM	0	3	1	4	0	3	**2**	5	0	3	1	4	1	**6**	0	**7**	20
08:15 AM	**1**	**6**	1	**8**	2	5	0	7	1	4	0	5	**2**	4	0	6	**26**
Total Volume	1	12	7	20	4	23	3	30	3	17	4	24	3	13	1	17	91
% App. Total	5	60	35		13.3	76.7	10		12.5	70.8	16.7		17.6	76.5	5.9		
PHF	.250	.500	.438	.625	.500	.639	.375	.833	.375	.708	.333	.667	.375	.542	.250	.607	.875

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
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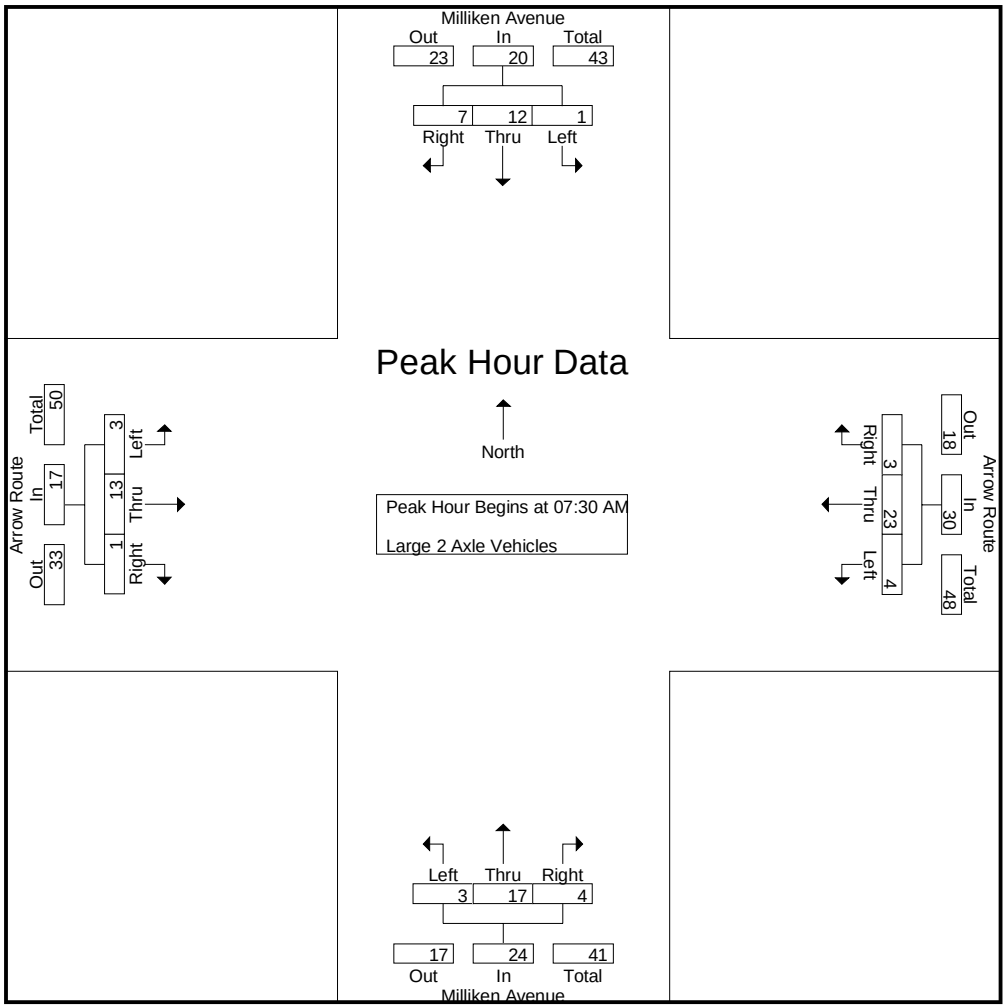

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	2	1	3	0	**9**	0	**9**	**2**	4	**3**	**9**	0	1	**1**	2
+15 mins.	0	1	**4**	5	**2**	6	1	9	0	**6**	0	6	0	2	0	2
+30 mins.	0	3	1	4	0	3	**2**	5	0	3	1	4	1	**6**	0	**7**
+45 mins.	**1**	**6**	1	**8**	2	5	0	7	1	4	0	5	**2**	4	0	6
Total Volume	1	12	7	20	4	23	3	30	3	17	4	24	3	13	1	17
% App. Total	5	60	35		13.3	76.7	10		12.5	70.8	16.7		17.6	76.5	5.9	
PHF	.250	.500	.438	.625	.500	.639	.375	.833	.375	.708	.333	.667	.375	.542	.250	.607

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	2	1	3	0	3	1	4	0	0	0	0	0	1	2	3	10
07:15 AM	0	0	0	0	1	3	0	4	0	0	0	0	0	2	0	2	6
07:30 AM	0	0	0	0	1	2	1	4	1	0	1	2	0	1	0	1	7
07:45 AM	0	0	2	2	0	3	1	4	0	1	0	1	0	3	1	4	11
Total	0	2	3	5	2	11	3	16	1	1	1	3	0	7	3	10	34
08:00 AM	0	0	1	1	0	0	0	0	0	1	0	1	1	2	0	3	5
08:15 AM	0	0	0	0	0	3	0	3	1	0	1	2	0	1	0	1	6
08:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	1	1	0	2	4
08:45 AM	0	0	0	0	0	1	0	1	0	1	1	2	0	4	1	5	8
Total	0	1	1	2	0	5	0	5	1	2	2	5	2	8	1	11	23
Grand Total	0	3	4	7	2	16	3	21	2	3	3	8	2	15	4	21	57
Apprch %	0	42.9	57.1		9.5	76.2	14.3		25	37.5	37.5		9.5	71.4	19		
Total %	0	5.3	7	12.3	3.5	28.1	5.3	36.8	3.5	5.3	5.3	14	3.5	26.3	7	36.8	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	**1**	2	**1**	**4**	**1**	0	**1**	**2**	0	1	0	1	7
07:45 AM	0	0	**2**	**2**	0	**3**	1	4	0	**1**	0	1	0	**3**	**1**	**4**	**11**
08:00 AM	0	0	1	1	0	0	0	0	0	1	0	1	**1**	2	0	3	5
08:15 AM	0	0	0	0	0	3	0	3	1	0	1	2	0	1	0	1	6
Total Volume	0	0	3	3	1	8	2	11	2	2	2	6	1	7	1	9	29
% App. Total	0	0	100		9.1	72.7	18.2		33.3	33.3	33.3		11.1	77.8	11.1		
PHF	.000	.000	.375	.375	.250	.667	.500	.688	.500	.500	.500	.750	.250	.583	.250	.563	.659

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City of Fontana
N/S: Milliken Avenue
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File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
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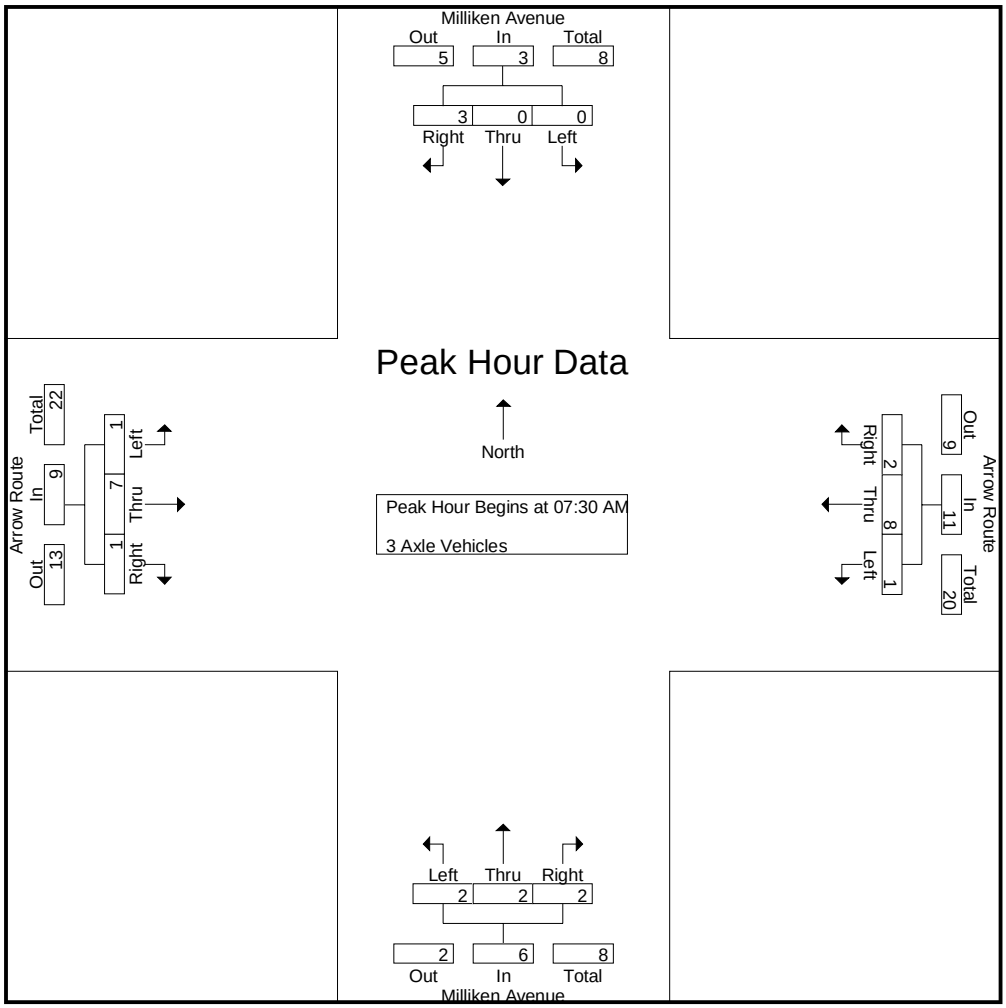

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	**1**	2	**1**	**4**	**1**	0	**1**	**2**	0	1	0	1
+15 mins.	0	0	**2**	**2**	0	**3**	1	4	0	**1**	0	1	0	**3**	**1**	**4**
+30 mins.	0	0	1	1	0	0	0	0	0	1	0	1	**1**	2	0	3
+45 mins.	0	0	0	0	0	3	0	3	1	0	1	2	0	1	0	1
Total Volume	0	0	3	3	1	8	2	11	2	2	2	6	1	7	1	9
% App. Total	0	0	100		9.1	72.7	18.2		33.3	33.3	33.3		11.1	77.8	11.1	
PHF	.000	.000	.375	.375	.250	.667	.500	.688	.500	.500	.500	.750	.250	.583	.250	.563

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City of Fontana
N/S: Milliken Avenue
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Groups Printed- 4+ Axle Trucks

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	2	0	3	1	5	0	6	1	2	0	3	1	3	1	5	17
07:15 AM	0	3	1	4	1	1	1	3	1	3	3	7	0	1	0	1	15
07:30 AM	1	5	1	7	1	2	1	4	0	1	0	1	0	1	3	4	16
07:45 AM	1	1	1	3	0	0	0	0	2	0	2	4	0	3	1	4	11
Total	3	11	3	17	3	8	2	13	4	6	5	15	1	8	5	14	59
08:00 AM	1	5	2	8	2	3	1	6	2	4	3	9	0	1	3	4	27
08:15 AM	0	1	2	3	1	3	0	4	5	4	1	10	0	2	3	5	22
08:30 AM	0	0	2	2	2	0	1	3	2	1	0	3	0	2	5	7	15
08:45 AM	1	3	1	5	0	3	0	3	0	1	2	3	1	1	0	2	13
Total	2	9	7	18	5	9	2	16	9	10	6	25	1	6	11	18	77
Grand Total	5	20	10	35	8	17	4	29	13	16	11	40	2	14	16	32	136
Apprch %	14.3	57.1	28.6		27.6	58.6	13.8		32.5	40	27.5		6.2	43.8	50		
Total %	3.7	14.7	7.4	25.7	5.9	12.5	2.9	21.3	9.6	11.8	8.1	29.4	1.5	10.3	11.8	23.5	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**1**	**5**	1	7	1	2	**1**	4	0	1	0	1	0	1	**3**	4	16
07:45 AM	1	1	1	3	0	0	0	0	2	0	2	4	0	**3**	1	4	11
08:00 AM	1	5	**2**	**8**	**2**	**3**	1	**6**	2	**4**	**3**	9	0	1	3	4	**27**
08:15 AM	0	1	2	3	1	3	0	4	**5**	4	1	**10**	0	2	3	**5**	22
Total Volume	3	12	6	21	4	8	2	14	9	9	6	24	0	7	10	17	76
% App. Total	14.3	57.1	28.6		28.6	57.1	14.3		37.5	37.5	25		0	41.2	58.8		
PHF	.750	.600	.750	.656	.500	.667	.500	.583	.450	.563	.500	.600	.000	.583	.833	.850	.704

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File Name : 12_FON_Miliken_Arrow AM
Site Code : 10821516
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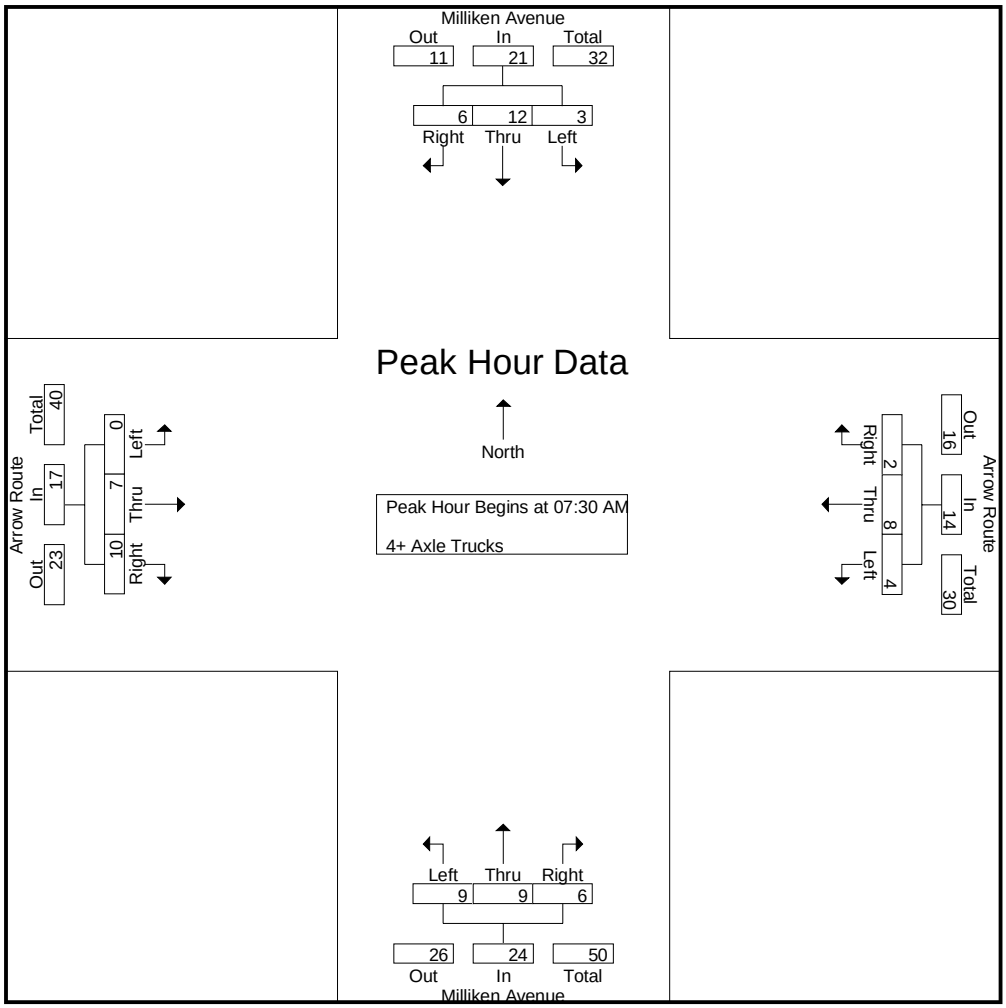

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**1**	**5**	1	7	1	2	**1**	4	0	1	0	1	0	1	**3**	4
+15 mins.	1	1	1	3	0	0	0	0	2	0	2	4	0	**3**	1	4
+30 mins.	1	5	**2**	**8**	**2**	**3**	1	**6**	2	**4**	**3**	9	0	1	3	4
+45 mins.	0	1	2	3	1	3	0	4	**5**	4	1	**10**	0	2	3	**5**
Total Volume	3	12	6	21	4	8	2	14	9	9	6	24	0	7	10	17
% App. Total	14.3	57.1	28.6		28.6	57.1	14.3		37.5	37.5	25		0	41.2	58.8	
PHF	.750	.600	.750	.656	.500	.667	.500	.583	.450	.563	.500	.600	.000	.583	.833	.850

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City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	8	110	29	147	28	131	22	181	44	305	73	422	45	220	40	305	1055
04:15 PM	12	117	26	155	19	114	20	153	35	295	52	382	34	209	36	279	969
04:30 PM	5	142	26	173	22	130	22	174	52	350	72	474	57	238	41	336	1157
04:45 PM	20	107	27	154	23	134	15	172	43	352	76	471	53	233	47	333	1130
Total	45	476	108	629	92	509	79	680	174	1302	273	1749	189	900	164	1253	4311
05:00 PM	18	139	34	191	21	130	38	189	35	378	77	490	65	234	47	346	1216
05:15 PM	15	116	25	156	24	118	24	166	35	372	82	489	50	227	36	313	1124
05:30 PM	13	123	26	162	23	140	18	181	35	295	72	402	64	239	36	339	1084
05:45 PM	16	116	25	157	26	125	22	173	37	328	50	415	40	170	26	236	981
Total	62	494	110	666	94	513	102	709	142	1373	281	1796	219	870	145	1234	4405
Grand Total	107	970	218	1295	186	1022	181	1389	316	2675	554	3545	408	1770	309	2487	8716
Apprch %	8.3	74.9	16.8		13.4	73.6	13		8.9	75.5	15.6		16.4	71.2	12.4		
Total %	1.2	11.1	2.5	14.9	2.1	11.7	2.1	15.9	3.6	30.7	6.4	40.7	4.7	20.3	3.5	28.5	
Passenger Vehicles	102	942	210	1254	162	977	177	1316	307	2646	524	3477	391	1687	292	2370	8417
% Passenger Vehicles	95.3	97.1	96.3	96.8	87.1	95.6	97.8	94.7	97.2	98.9	94.6	98.1	95.8	95.3	94.5	95.3	96.6
Large 2 Axle Vehicles	2	18	4	24	5	17	1	23	2	17	9	28	4	28	6	38	113
% Large 2 Axle Vehicles	1.9	1.9	1.8	1.9	2.7	1.7	0.6	1.7	0.6	0.6	1.6	0.8	1	1.6	1.9	1.5	1.3
3 Axle Vehicles	1	2	1	4	3	3	2	8	0	1	3	4	1	26	1	28	44
% 3 Axle Vehicles	0.9	0.2	0.5	0.3	1.6	0.3	1.1	0.6	0	0	0.5	0.1	0.2	1.5	0.3	1.1	0.5
4+ Axle Trucks	2	8	3	13	16	25	1	42	7	11	18	36	12	29	10	51	142
% 4+ Axle Trucks	1.9	0.8	1.4	1	8.6	2.4	0.6	3	2.2	0.4	3.2	1	2.9	1.6	3.2	2.1	1.6

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	5	**142**	26	173	22	130	22	174	**52**	350	72	474	57	**238**	41	336	1157
04:45 PM	**20**	107	27	154	23	**134**	15	172	43	352	76	471	53	233	**47**	333	1130
05:00 PM	18	139	**34**	**191**	21	130	**38**	**189**	35	**378**	77	**490**	**65**	234	47	**346**	**1216**
05:15 PM	15	116	25	156	**24**	118	24	166	35	372	**82**	489	50	227	36	313	1124
Total Volume	58	504	112	674	90	512	99	701	165	1452	307	1924	225	932	171	1328	4627
% App. Total	8.6	74.8	16.6		12.8	73	14.1		8.6	75.5	16		16.9	70.2	12.9		
PHF	.725	.887	.824	.882	.938	.955	.651	.927	.793	.960	.936	.982	.865	.979	.910	.960	.951

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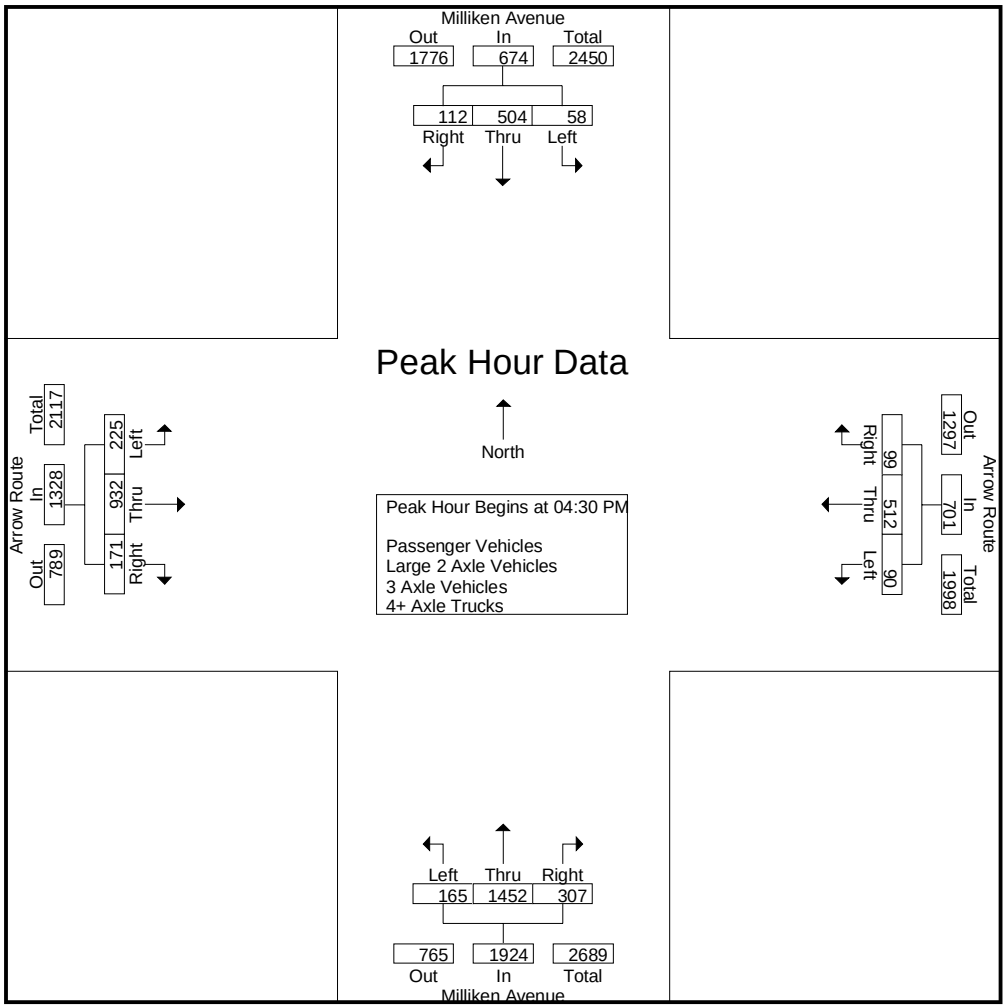

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:30 PM				04:45 PM			
+0 mins.	5	**142**	26	173	21	130	**38**	**189**	**52**	350	72	474	53	233	**47**	333
+15 mins.	**20**	107	27	154	24	118	24	166	43	352	76	471	**65**	234	47	**346**
+30 mins.	18	139	**34**	**191**	23	**140**	18	181	35	**378**	77	**490**	50	227	36	313
+45 mins.	15	116	25	156	**26**	125	22	173	35	372	**82**	489	64	**239**	36	339
Total Volume	58	504	112	674	94	513	102	709	165	1452	307	1924	232	933	166	1331
% App. Total	8.6	74.8	16.6		13.3	72.4	14.4		8.6	75.5	16		17.4	70.1	12.5	
PHF	.725	.887	.824	.882	.904	.916	.671	.938	.793	.960	.936	.982	.892	.976	.883	.962

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Groups Printed- Passenger Vehicles

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	8	110	28	146	24	123	22	169	43	301	70	414	41	210	36	287	1016
04:15 PM	12	113	26	151	15	107	19	141	34	289	50	373	32	195	35	262	927
04:30 PM	5	139	26	170	16	126	22	164	52	347	70	469	55	224	40	319	1122
04:45 PM	18	105	25	148	23	129	15	167	43	349	72	464	52	223	44	319	1098
Total	43	467	105	615	78	485	78	641	172	1286	262	1720	180	852	155	1187	4163
05:00 PM	18	129	32	179	19	124	36	179	32	375	70	477	63	224	45	332	1167
05:15 PM	14	114	24	152	21	113	24	158	32	368	81	481	47	217	34	298	1089
05:30 PM	12	119	24	155	19	137	18	174	34	292	67	393	61	232	33	326	1048
05:45 PM	15	113	25	153	25	118	21	164	37	325	44	406	40	162	25	227	950
Total	59	475	105	639	84	492	99	675	135	1360	262	1757	211	835	137	1183	4254
Grand Total	102	942	210	1254	162	977	177	1316	307	2646	524	3477	391	1687	292	2370	8417
Apprch %	8.1	75.1	16.7		12.3	74.2	13.4		8.8	76.1	15.1		16.5	71.2	12.3		
Total %	1.2	11.2	2.5	14.9	1.9	11.6	2.1	15.6	3.6	31.4	6.2	41.3	4.6	20	3.5	28.2	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	5	**139**	26	170	16	126	22	164	**52**	347	70	469	55	**224**	40	319	1122
04:45 PM	**18**	105	25	148	**23**	**129**	15	167	43	349	72	464	52	223	44	319	1098
05:00 PM	18	129	**32**	**179**	19	124	**36**	**179**	32	**375**	70	477	**63**	224	**45**	**332**	**1167**
05:15 PM	14	114	24	152	21	113	24	158	32	368	**81**	**481**	47	217	34	298	1089
Total Volume	55	487	107	649	79	492	97	668	159	1439	293	1891	217	888	163	1268	4476
% App. Total	8.5	75	16.5		11.8	73.7	14.5		8.4	76.1	15.5		17.1	70	12.9		
PHF	.764	.876	.836	.906	.859	.953	.674	.933	.764	.959	.904	.983	.861	.991	.906	.955	.959

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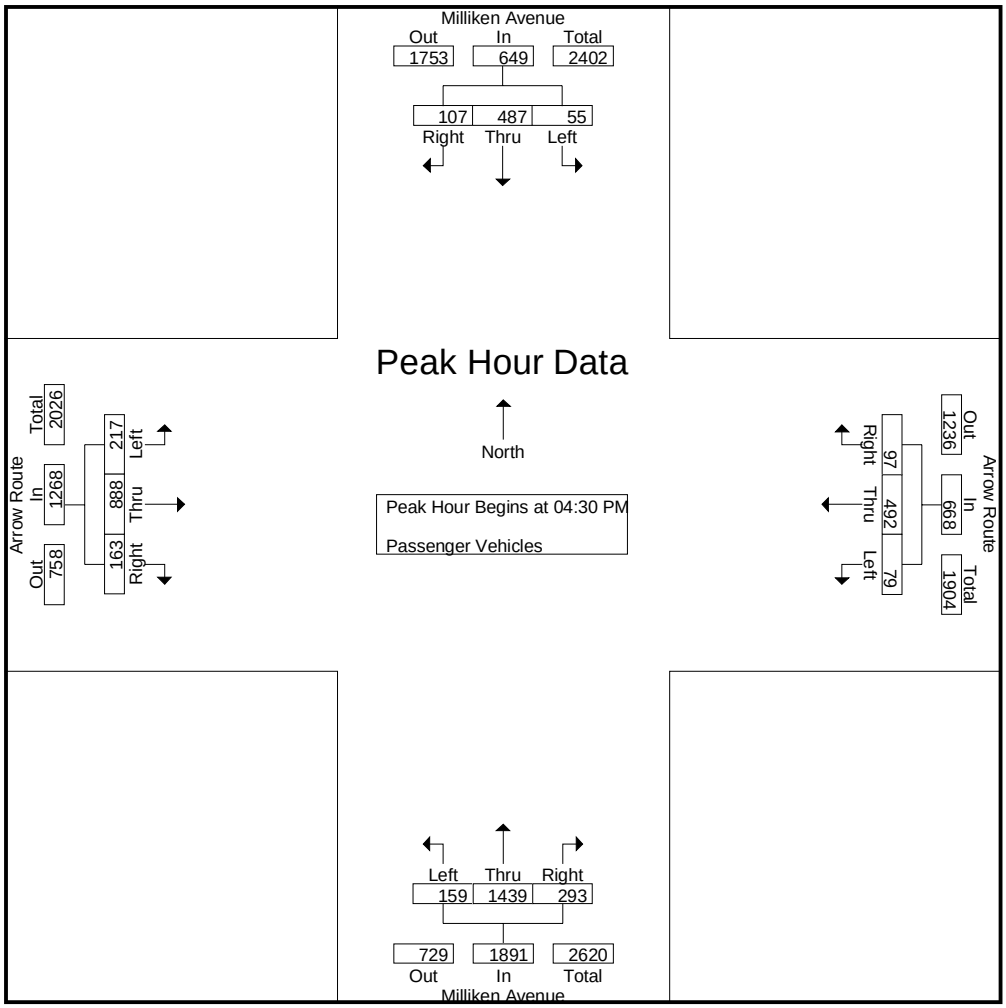

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	5	**139**	26	170	16	126	22	164	**52**	347	70	469	55	**224**	40	319
+15 mins.	**18**	105	25	148	**23**	**129**	15	167	43	349	72	464	52	223	44	319
+30 mins.	18	129	**32**	**179**	19	124	**36**	**179**	32	**375**	70	477	**63**	224	**45**	**332**
+45 mins.	14	114	24	152	21	113	24	158	32	368	**81**	**481**	47	217	34	298
Total Volume	55	487	107	649	79	492	97	668	159	1439	293	1891	217	888	163	1268
% App. Total	8.5	75	16.5		11.8	73.7	14.5		8.4	76.1	15.5		17.1	70	12.9	
PHF	.764	.876	.836	.906	.859	.953	.674	.933	.764	.959	.904	.983	.861	.991	.906	.955

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City of Fontana
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Groups Printed- Large 2 Axle Vehicles

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	1	1	0	3	0	3	0	4	2	6	1	2	3	6	16
04:15 PM	0	3	0	3	1	4	0	5	0	3	2	5	0	2	1	3	16
04:30 PM	0	2	0	2	1	2	0	3	0	1	0	1	1	5	0	6	12
04:45 PM	1	1	1	3	0	1	0	1	0	2	1	3	0	8	1	9	16
Total	1	6	2	9	2	10	0	12	0	10	5	15	2	17	5	24	60
05:00 PM	0	7	0	7	1	3	1	5	1	1	2	4	0	4	0	4	20
05:15 PM	0	1	1	2	1	0	0	1	1	2	0	3	2	3	0	5	11
05:30 PM	0	1	1	2	0	0	0	0	0	2	1	3	0	1	1	2	7
05:45 PM	1	3	0	4	1	4	0	5	0	2	1	3	0	3	0	3	15
Total	1	12	2	15	3	7	1	11	2	7	4	13	2	11	1	14	53
Grand Total	2	18	4	24	5	17	1	23	2	17	9	28	4	28	6	38	113
Apprch %	8.3	75	16.7		21.7	73.9	4.3		7.1	60.7	32.1		10.5	73.7	15.8		
Total %	1.8	15.9	3.5	21.2	4.4	15	0.9	20.4	1.8	15	8	24.8	3.5	24.8	5.3	33.6	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	2	0	2	**1**	2	0	3	0	1	0	1	1	5	0	6	12
04:45 PM	**1**	1	**1**	3	0	1	0	1	0	**2**	1	3	0	**8**	**1**	**9**	16
05:00 PM	0	**7**	0	**7**	1	**3**	**1**	**5**	**1**	1	**2**	**4**	0	4	0	4	**20**
05:15 PM	0	1	1	2	1	0	0	1	1	2	0	3	**2**	3	0	5	11
Total Volume	1	11	2	14	3	6	1	10	2	6	3	11	3	20	1	24	59
% App. Total	7.1	78.6	14.3		30	60	10		18.2	54.5	27.3		12.5	83.3	4.2		
PHF	.250	.393	.500	.500	.750	.500	.250	.500	.500	.750	.375	.688	.375	.625	.250	.667	.738

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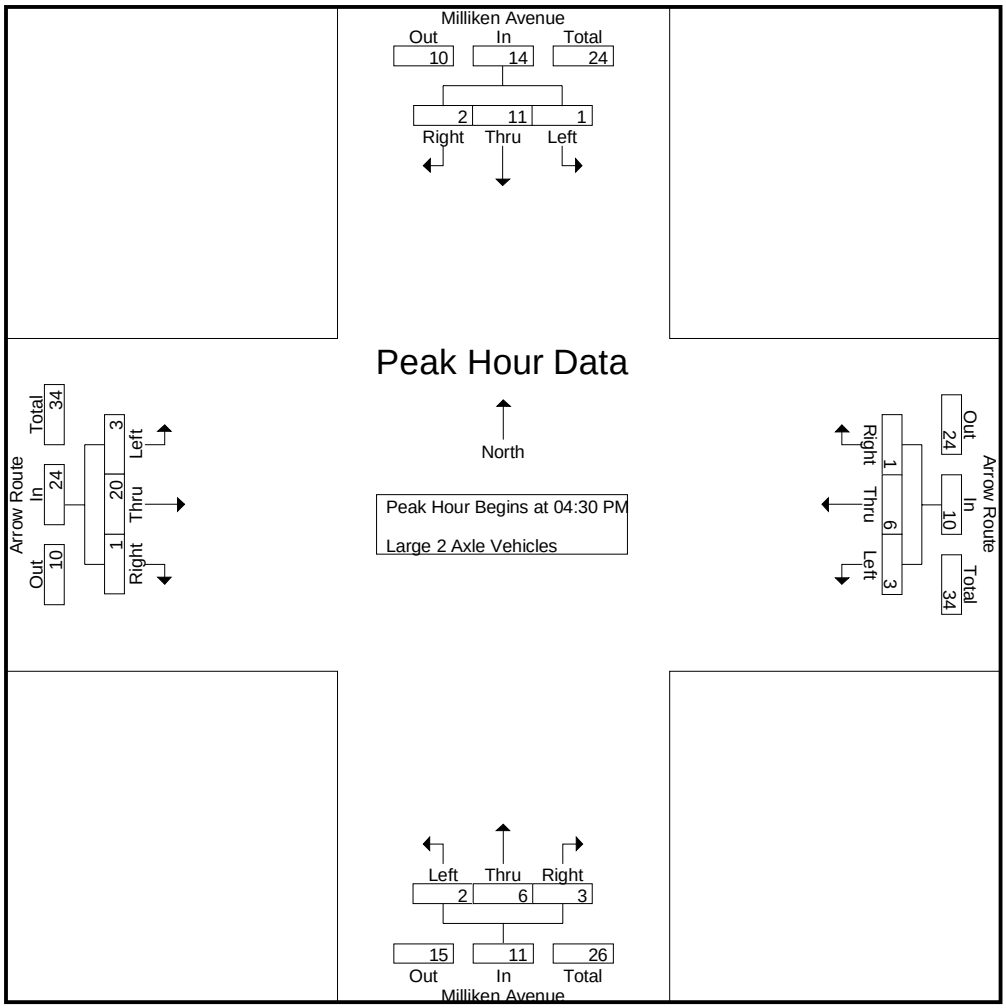

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	2	0	2	**1**	2	0	3	0	1	0	1	1	5	0	6
+15 mins.	**1**	1	**1**	3	0	1	0	1	0	**2**	1	3	0	**8**	**1**	**9**
+30 mins.	0	**7**	0	**7**	1	**3**	**1**	**5**	**1**	1	**2**	**4**	0	4	0	4
+45 mins.	0	1	1	2	1	0	0	1	1	2	0	3	**2**	3	0	5
Total Volume	1	11	2	14	3	6	1	10	2	6	3	11	3	20	1	24
% App. Total	7.1	78.6	14.3		30	60	10		18.2	54.5	27.3		12.5	83.3	4.2	
PHF	.250	.393	.500	.500	.750	.500	.250	.500	.500	.750	.375	.688	.375	.625	.250	.667

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Groups Printed- 3 Axle Vehicles

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
04:15 PM	0	0	0	0	1	0	1	2	0	0	0	0	0	8	0	8	10
04:30 PM	0	0	0	0	1	1	0	2	0	1	0	1	0	6	0	6	9
04:45 PM	1	0	1	2	0	1	0	1	0	0	1	1	0	0	0	0	4
Total	1	0	1	2	2	3	1	6	0	1	1	2	0	18	0	18	28
05:00 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	2	0	2	4
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	3	4
05:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	1	2	1	4	5
05:45 PM	0	0	0	0	0	0	1	1	0	0	1	1	0	1	0	1	3
Total	0	2	0	2	1	0	1	2	0	0	2	2	1	8	1	10	16
Grand Total	1	2	1	4	3	3	2	8	0	1	3	4	1	26	1	28	44
Apprch %	25	50	25		37.5	37.5	25		0	25	75		3.6	92.9	3.6		
Total %	2.3	4.5	2.3	9.1	6.8	6.8	4.5	18.2	0	2.3	6.8	9.1	2.3	59.1	2.3	63.6	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	**1**	**1**	0	**2**	0	**1**	0	**1**	0	**6**	0	**6**	**9**
04:45 PM	**1**	0	**1**	**2**	0	1	0	1	0	0	**1**	1	0	0	0	0	4
05:00 PM	0	**1**	0	1	0	0	0	0	0	0	1	1	0	2	0	2	4
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	3	4
Total Volume	1	2	1	4	1	2	0	3	0	1	2	3	0	11	0	11	21
% App. Total	25	50	25		33.3	66.7	0		0	33.3	66.7		0	100	0		
PHF	.250	.500	.250	.500	.250	.500	.000	.375	.000	.250	.500	.750	.000	.458	.000	.458	.583

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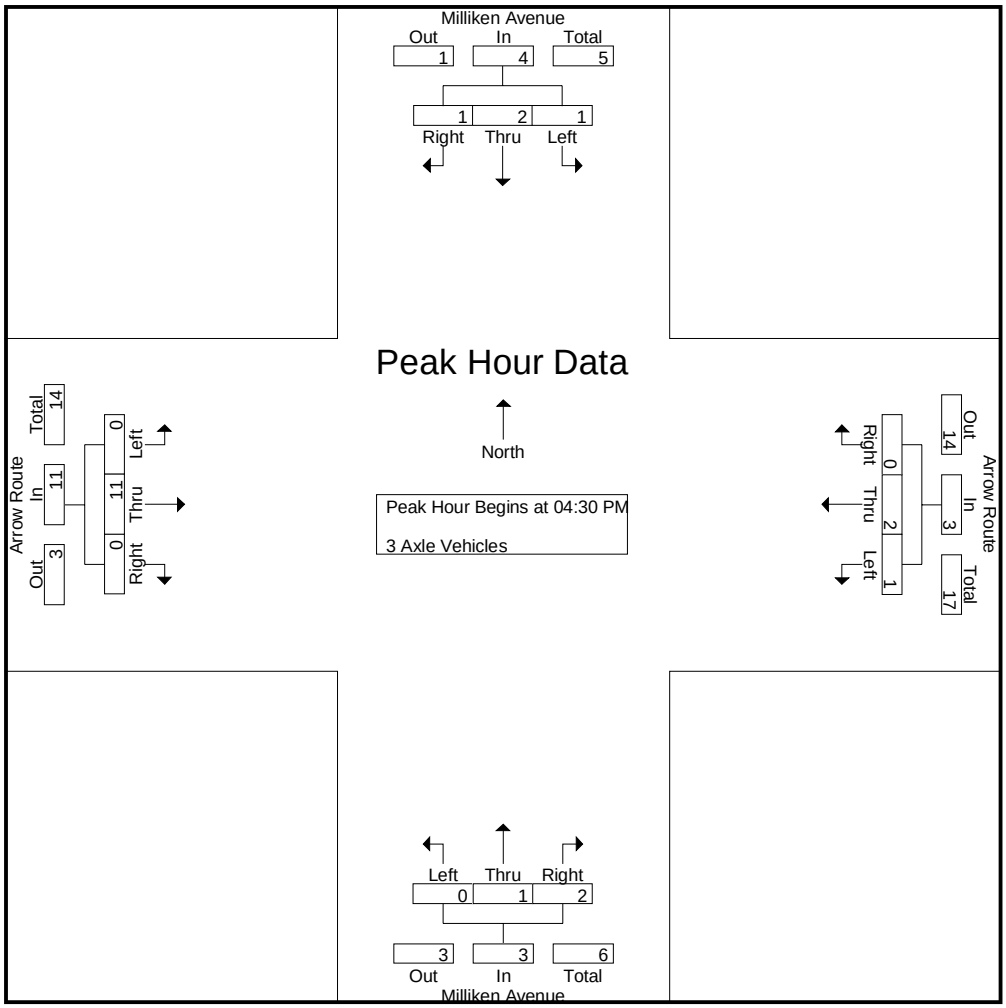

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	**1**	**1**	0	**2**	0	**1**	0	**1**	0	**6**	0	**6**
+15 mins.	**1**	0	**1**	**2**	0	1	0	1	0	0	**1**	1	0	0	0	0
+30 mins.	0	**1**	0	1	0	0	0	0	0	0	1	1	0	2	0	2
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	1	2	1	4	1	2	0	3	0	1	2	3	0	11	0	11
% App. Total	25	50	25		33.3	66.7	0		0	33.3	66.7		0	100	0	
PHF	.250	.500	.250	.500	.250	.500	.000	.375	.000	.250	.500	.750	.000	.458	.000	.458

Counts Unlimited, Inc.
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(951)268-6268

City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	4	4	0	8	1	0	1	2	3	4	1	8	18
04:15 PM	0	1	0	1	2	3	0	5	1	3	0	4	2	4	0	6	16
04:30 PM	0	1	0	1	4	1	0	5	0	1	2	3	1	3	1	5	14
04:45 PM	0	1	0	1	0	3	0	3	0	1	2	3	1	2	2	5	12
Total	0	3	0	3	10	11	0	21	2	5	5	12	7	13	4	24	60
05:00 PM	0	2	2	4	1	3	1	5	2	2	4	8	2	4	2	8	25
05:15 PM	1	0	0	1	2	5	0	7	2	2	1	5	1	4	2	7	20
05:30 PM	1	3	1	5	3	3	0	6	1	1	4	6	2	4	1	7	24
05:45 PM	0	0	0	0	0	3	0	3	0	1	4	5	0	4	1	5	13
Total	2	5	3	10	6	14	1	21	5	6	13	24	5	16	6	27	82
Grand Total	2	8	3	13	16	25	1	42	7	11	18	36	12	29	10	51	142
Apprch %	15.4	61.5	23.1		38.1	59.5	2.4		19.4	30.6	50		23.5	56.9	19.6		
Total %	1.4	5.6	2.1	9.2	11.3	17.6	0.7	29.6	4.9	7.7	12.7	25.4	8.5	20.4	7	35.9	

	Milliken Avenue Southbound				Arrow Route Westbound				Milliken Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	1	0	1	**4**	1	0	5	0	1	2	3	1	3	1	5	14
04:45 PM	0	1	0	1	0	3	0	3	0	1	2	3	1	2	**2**	5	12
05:00 PM	0	**2**	**2**	**4**	1	3	**1**	5	**2**	**2**	**4**	**8**	**2**	**4**	2	**8**	**25**
05:15 PM	**1**	0	0	1	2	**5**	0	**7**	2	2	1	5	1	4	2	7	20
Total Volume	1	4	2	7	7	12	1	20	4	6	9	19	5	13	7	25	71
% App. Total	14.3	57.1	28.6		35	60	5		21.1	31.6	47.4		20	52	28		
PHF	.250	.500	.250	.438	.438	.600	.250	.714	.500	.750	.563	.594	.625	.813	.875	.781	.710

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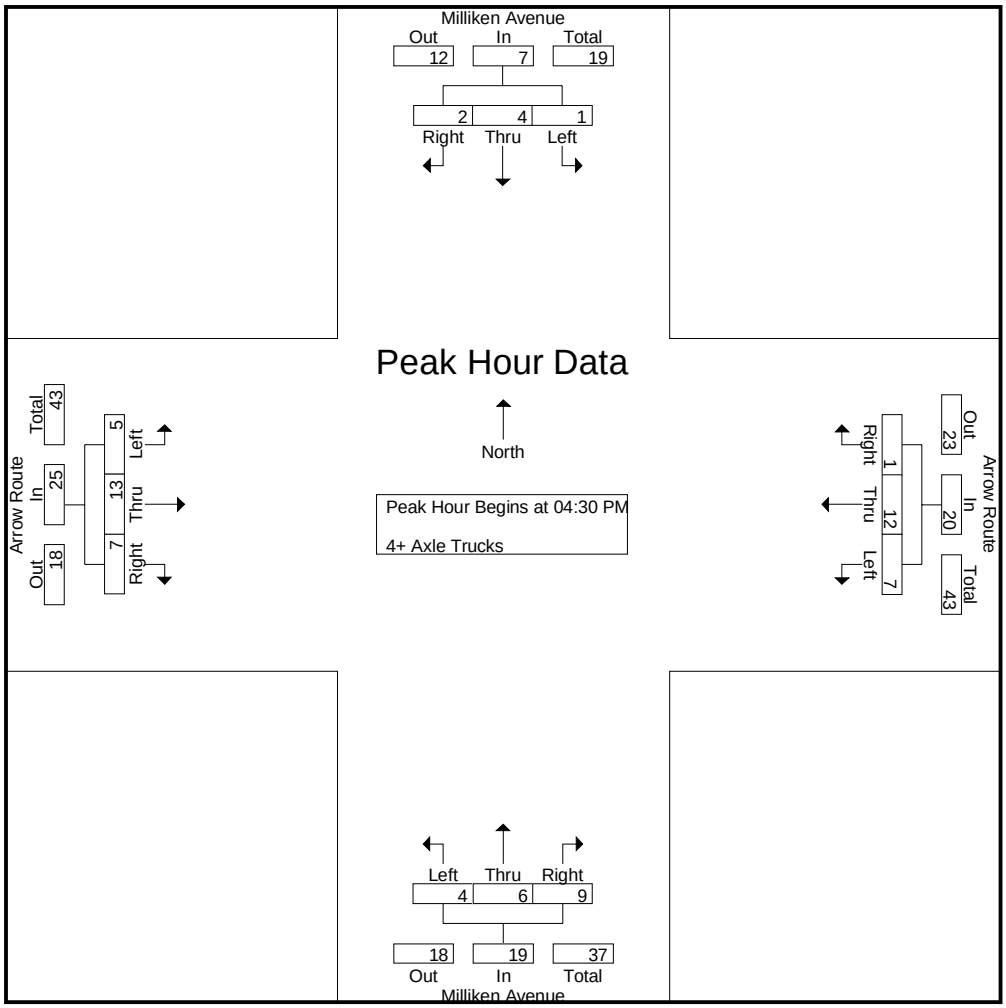
City of Fontana
N/S: Milliken Avenue
E/W: Arrow Route
Weather: Clear

File Name : 12_FON_Miliken_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	1	0	1	**4**	1	0	5	0	1	2	3	1	3	1	5
+15 mins.	0	1	0	1	0	3	0	3	0	1	2	3	1	2	**2**	5
+30 mins.	0	**2**	**2**	**4**	1	3	**1**	5	**2**	**2**	**4**	**8**	**2**	**4**	2	**8**
+45 mins.	**1**	0	0	1	2	**5**	0	**7**	2	2	1	5	1	4	2	7
Total Volume	1	4	2	7	7	12	1	20	4	6	9	19	5	13	7	25
% App. Total	14.3	57.1	28.6		35	60	5		21.1	31.6	47.4		20	52	28	
PHF	.250	.500	.250	.438	.438	.600	.250	.714	.500	.750	.563	.594	.625	.813	.875	.781

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	10	55	59	124	16	214	7	237	5	29	16	50	24	65	2	91	502
07:15 AM	17	70	58	145	22	227	16	265	5	27	13	45	16	63	8	87	542
07:30 AM	8	74	62	144	30	264	27	321	5	33	13	51	20	75	9	104	620
07:45 AM	40	97	57	194	54	287	44	385	12	37	21	70	34	102	20	156	805
Total	75	296	236	607	122	992	94	1208	27	126	63	216	94	305	39	438	2469
08:00 AM	29	95	71	195	41	218	32	291	10	40	16	66	31	69	9	109	661
08:15 AM	27	108	75	210	32	207	24	263	11	45	9	65	25	62	19	106	644
08:30 AM	15	77	51	143	23	171	22	216	2	36	11	49	31	65	10	106	514
08:45 AM	16	84	61	161	30	146	22	198	9	27	19	55	27	61	9	97	511
Total	87	364	258	709	126	742	100	968	32	148	55	235	114	257	47	418	2330
Grand Total	162	660	494	1316	248	1734	194	2176	59	274	118	451	208	562	86	856	4799
Apprch %	12.3	50.2	37.5		11.4	79.7	8.9		13.1	60.8	26.2		24.3	65.7	10		
Total %	3.4	13.8	10.3	27.4	5.2	36.1	4	45.3	1.2	5.7	2.5	9.4	4.3	11.7	1.8	17.8	
Passenger Vehicles	158	632	482	1272	234	1661	180	2075	44	252	102	398	198	514	73	785	4530
% Passenger Vehicles	97.5	95.8	97.6	96.7	94.4	95.8	92.8	95.4	74.6	92	86.4	88.2	95.2	91.5	84.9	91.7	94.4
Large 2 Axle Vehicles	4	19	8	31	5	36	12	53	6	10	7	23	4	18	7	29	136
% Large 2 Axle Vehicles	2.5	2.9	1.6	2.4	2	2.1	6.2	2.4	10.2	3.6	5.9	5.1	1.9	3.2	8.1	3.4	2.8
3 Axle Vehicles	0	0	0	0	5	18	1	24	1	1	5	7	0	19	1	20	51
% 3 Axle Vehicles	0	0	0	0	2	1	0.5	1.1	1.7	0.4	4.2	1.6	0	3.4	1.2	2.3	1.1
4+ Axle Trucks	0	9	4	13	4	19	1	24	8	11	4	23	6	11	5	22	82
% 4+ Axle Trucks	0	1.4	0.8	1	1.6	1.1	0.5	1.1	13.6	4	3.4	5.1	2.9	2	5.8	2.6	1.7

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	74	62	144	30	264	27	321	5	33	13	51	20	75	9	104	620
07:45 AM	**40**	97	57	194	**54**	**287**	**44**	**385**	**12**	37	**21**	**70**	**34**	**102**	**20**	**156**	**805**
08:00 AM	29	95	71	195	41	218	32	291	10	40	16	66	31	69	9	109	661
08:15 AM	27	**108**	**75**	**210**	32	207	24	263	11	**45**	9	65	25	62	19	106	644
Total Volume	104	374	265	743	157	976	127	1260	38	155	59	252	110	308	57	475	2730
% App. Total	14	50.3	35.7		12.5	77.5	10.1		15.1	61.5	23.4		23.2	64.8	12		
PHF	.650	.866	.883	.885	.727	.850	.722	.818	.792	.861	.702	.900	.809	.755	.713	.761	.848

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
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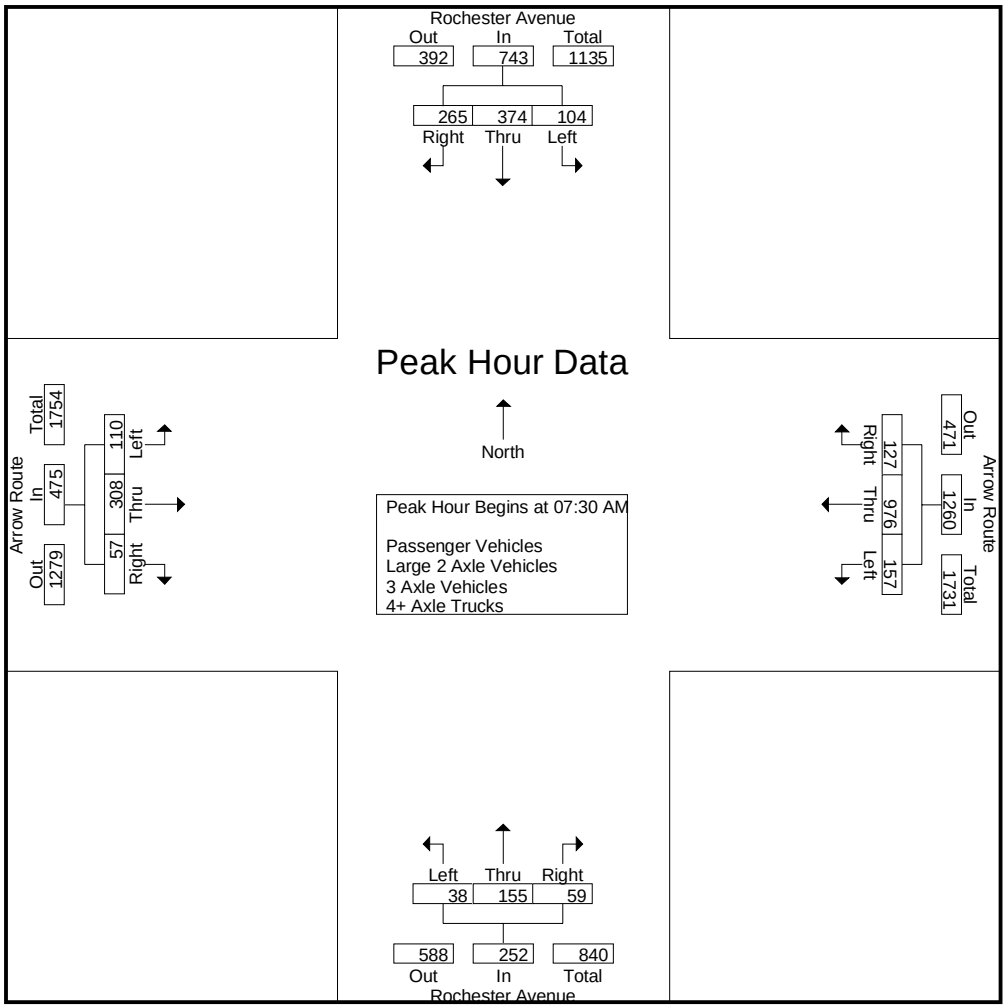

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:30 AM				07:45 AM			
+0 mins.	8	74	62	144	22	227	16	265	5	33	13	51	**34**	**102**	**20**	**156**
+15 mins.	**40**	97	57	194	30	264	27	321	**12**	37	**21**	**70**	31	69	9	109
+30 mins.	29	95	71	195	**54**	**287**	**44**	**385**	10	40	16	66	25	62	19	106
+45 mins.	27	**108**	**75**	**210**	41	218	32	291	11	**45**	9	65	31	65	10	106
Total Volume	104	374	265	743	147	996	119	1262	38	155	59	252	121	298	58	477
% App. Total	14	50.3	35.7		11.6	78.9	9.4		15.1	61.5	23.4		25.4	62.5	12.2	
PHF	.650	.866	.883	.885	.681	.868	.676	.819	.792	.861	.702	.900	.890	.730	.725	.764

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City of Fontana
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E/W: Arrow Route
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File Name : 13_FON_Rochester_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	10	55	59	124	15	205	7	227	2	27	15	44	23	60	2	85	480
07:15 AM	17	69	56	142	21	215	14	250	4	24	11	39	16	60	8	84	515
07:30 AM	8	72	61	141	29	251	24	304	3	29	11	43	19	71	8	98	586
07:45 AM	40	91	56	187	51	277	42	370	10	34	19	63	33	95	18	146	766
Total	75	287	232	594	116	948	87	1151	19	114	56	189	91	286	36	413	2347
08:00 AM	27	92	71	190	38	207	31	276	8	38	14	60	30	62	7	99	625
08:15 AM	27	102	71	200	30	202	21	253	8	42	8	58	22	56	14	92	603
08:30 AM	13	72	48	133	21	164	22	207	2	32	9	43	29	61	8	98	481
08:45 AM	16	79	60	155	29	140	19	188	7	26	15	48	26	49	8	83	474
Total	83	345	250	678	118	713	93	924	25	138	46	209	107	228	37	372	2183
Grand Total	158	632	482	1272	234	1661	180	2075	44	252	102	398	198	514	73	785	4530
Apprch %	12.4	49.7	37.9		11.3	80	8.7		11.1	63.3	25.6		25.2	65.5	9.3		
Total %	3.5	14	10.6	28.1	5.2	36.7	4	45.8	1	5.6	2.3	8.8	4.4	11.3	1.6	17.3	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	72	61	141	29	251	24	304	3	29	11	43	19	71	8	98	586
07:45 AM	**40**	91	56	187	**51**	**277**	**42**	**370**	**10**	34	**19**	**63**	**33**	**95**	**18**	**146**	**766**
08:00 AM	27	92	**71**	190	38	207	31	276	8	38	14	60	30	62	7	99	625
08:15 AM	27	**102**	71	**200**	30	202	21	253	8	**42**	8	58	22	56	14	92	603
Total Volume	102	357	259	718	148	937	118	1203	29	143	52	224	104	284	47	435	2580
% App. Total	14.2	49.7	36.1		12.3	77.9	9.8		12.9	63.8	23.2		23.9	65.3	10.8		
PHF	.638	.875	.912	.898	.725	.846	.702	.813	.725	.851	.684	.889	.788	.747	.653	.745	.842

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
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Site Code : 10821516
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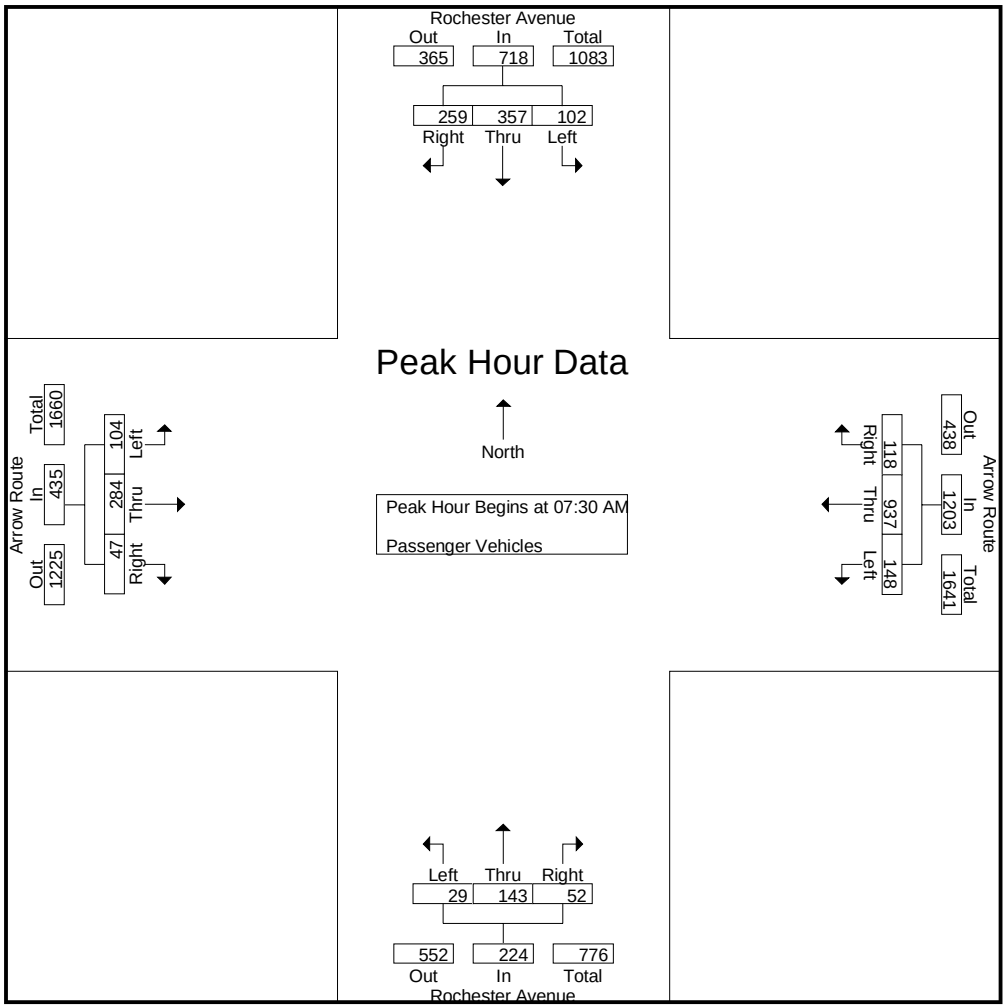

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	8	72	61	141	29	251	24	304	3	29	11	43	19	71	8	98
+15 mins.	**40**	91	56	187	**51**	**277**	**42**	**370**	**10**	34	**19**	**63**	**33**	**95**	**18**	**146**
+30 mins.	27	92	**71**	190	38	207	31	276	8	38	14	60	30	62	7	99
+45 mins.	27	**102**	71	**200**	30	202	21	253	8	**42**	8	58	22	56	14	92
Total Volume	102	357	259	718	148	937	118	1203	29	143	52	224	104	284	47	435
% App. Total	14.2	49.7	36.1		12.3	77.9	9.8		12.9	63.8	23.2		23.9	65.3	10.8	
PHF	.638	.875	.912	.898	.725	.846	.702	.813	.725	.851	.684	.889	.788	.747	.653	.745

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	1	3	0	4	1	1	0	2	0	1	0	1	7
07:15 AM	0	0	2	2	0	5	2	7	0	1	1	2	0	0	0	0	11
07:30 AM	0	1	1	2	0	8	2	10	0	2	1	3	1	2	0	3	18
07:45 AM	0	4	1	5	1	7	1	9	2	2	0	4	1	2	1	4	22
Total	0	5	4	9	2	23	5	30	3	6	2	11	2	5	1	8	58
08:00 AM	2	1	0	3	2	3	1	6	1	1	1	3	0	3	1	4	16
08:15 AM	0	6	3	9	1	3	3	7	2	1	1	4	1	2	3	6	26
08:30 AM	2	4	1	7	0	4	0	4	0	1	1	2	0	2	1	3	16
08:45 AM	0	3	0	3	0	3	3	6	0	1	2	3	1	6	1	8	20
Total	4	14	4	22	3	13	7	23	3	4	5	12	2	13	6	21	78
Grand Total	4	19	8	31	5	36	12	53	6	10	7	23	4	18	7	29	136
Apprch %	12.9	61.3	25.8		9.4	67.9	22.6		26.1	43.5	30.4		13.8	62.1	24.1		
Total %	2.9	14	5.9	22.8	3.7	26.5	8.8	39	4.4	7.4	5.1	16.9	2.9	13.2	5.1	21.3	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	1	1	2	0	**8**	2	**10**	0	**2**	**1**	3	**1**	2	0	3	18
07:45 AM	0	4	1	5	1	7	1	9	**2**	2	0	**4**	1	2	1	4	22
08:00 AM	**2**	1	0	3	**2**	3	1	6	1	1	1	3	0	**3**	1	4	16
08:15 AM	0	**6**	**3**	**9**	1	3	**3**	7	2	1	1	4	1	2	**3**	**6**	**26**
Total Volume	2	12	5	19	4	21	7	32	5	6	3	14	3	9	5	17	82
% App. Total	10.5	63.2	26.3		12.5	65.6	21.9		35.7	42.9	21.4		17.6	52.9	29.4		
PHF	.250	.500	.417	.528	.500	.656	.583	.800	.625	.750	.750	.875	.750	.750	.417	.708	.788

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City of Fontana
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File Name : 13_FON_Rochester_Arrow AM
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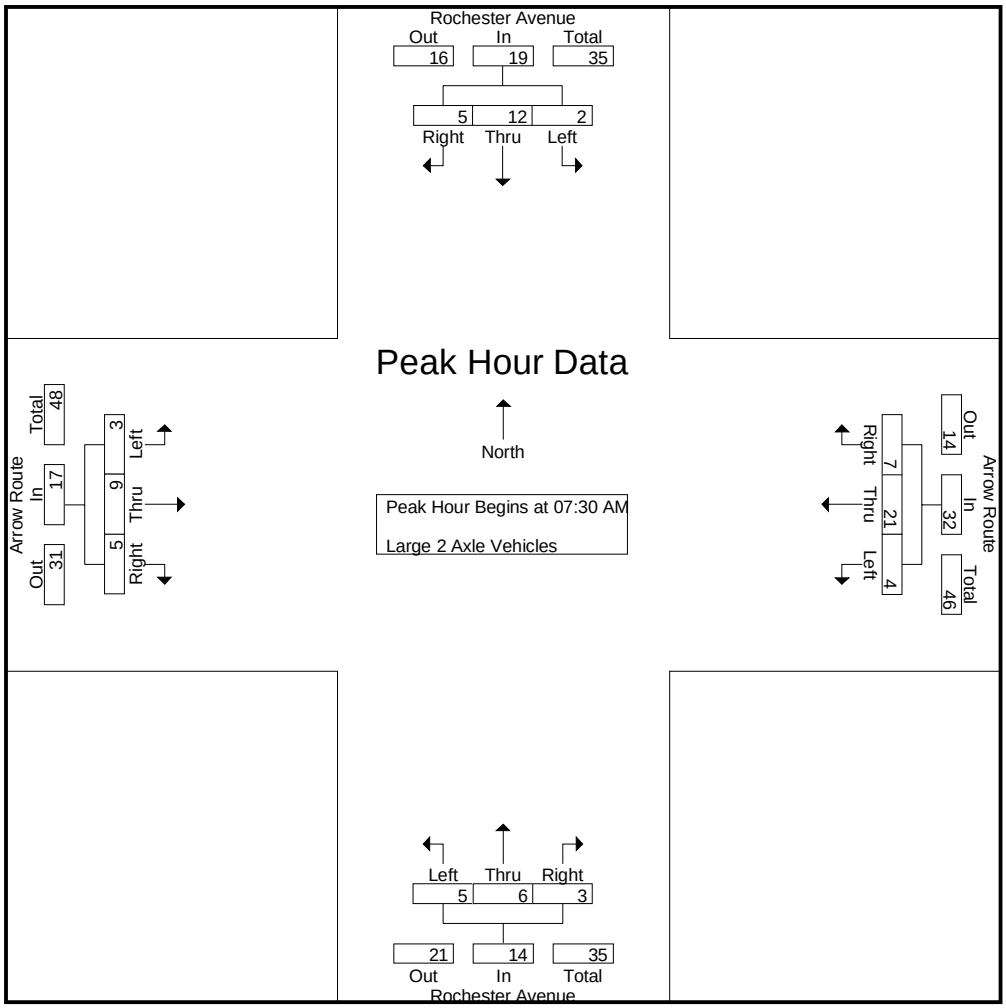

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	1	1	2	0	**8**	2	**10**	0	**2**	**1**	3	**1**	2	0	3
+15 mins.	0	4	1	5	1	7	1	9	**2**	2	0	**4**	1	2	1	4
+30 mins.	**2**	1	0	3	**2**	3	1	6	1	1	1	3	0	**3**	1	4
+45 mins.	0	**6**	**3**	**9**	1	3	**3**	7	2	1	1	4	1	2	**3**	**6**
Total Volume	2	12	5	19	4	21	7	32	5	6	3	14	3	9	5	17
% App. Total	10.5	63.2	26.3		12.5	65.6	21.9		35.7	42.9	21.4		17.6	52.9	29.4	
PHF	.250	.500	.417	.528	.500	.656	.583	.800	.625	.750	.750	.875	.750	.750	.417	.708

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow AM
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Groups Printed- 3 Axle Vehicles

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	2	0	2	0	1	0	1	0	1	0	1	4
07:15 AM	0	0	0	0	0	4	0	4	0	0	1	1	0	2	0	2	7
07:30 AM	0	0	0	0	0	3	0	3	0	0	1	1	0	0	0	0	4
07:45 AM	0	0	0	0	1	3	1	5	0	0	1	1	0	4	0	4	10
Total	0	0	0	0	1	12	1	14	0	1	3	4	0	7	0	7	25
08:00 AM	0	0	0	0	1	3	0	4	0	0	1	1	0	3	0	3	8
08:15 AM	0	0	0	0	1	1	0	2	0	0	0	0	0	3	1	4	6
08:30 AM	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1	3
08:45 AM	0	0	0	0	1	1	0	2	1	0	1	2	0	5	0	5	9
Total	0	0	0	0	4	6	0	10	1	0	2	3	0	12	1	13	26
Grand Total	0	0	0	0	5	18	1	24	1	1	5	7	0	19	1	20	51
Apprch %	0	0	0		20.8	75	4.2		14.3	14.3	71.4		0	95	5		
Total %	0	0	0	0	9.8	35.3	2	47.1	2	2	9.8	13.7	0	37.3	2	39.2	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	**3**	0	3	0	0	**1**	**1**	0	0	0	0	4
07:45 AM	0	0	0	0	**1**	3	**1**	**5**	0	0	1	1	0	**4**	0	**4**	**10**
08:00 AM	0	0	0	0	1	3	0	4	0	0	1	1	0	3	0	3	8
08:15 AM	0	0	0	0	1	1	0	2	0	0	0	0	0	3	**1**	4	6
Total Volume	0	0	0	0	3	10	1	14	0	0	3	3	0	10	1	11	28
% App. Total	0	0	0		21.4	71.4	7.1		0	0	100		0	90.9	9.1		
PHF	.000	.000	.000	.000	.750	.833	.250	.700	.000	.000	.750	.750	.000	.625	.250	.688	.700

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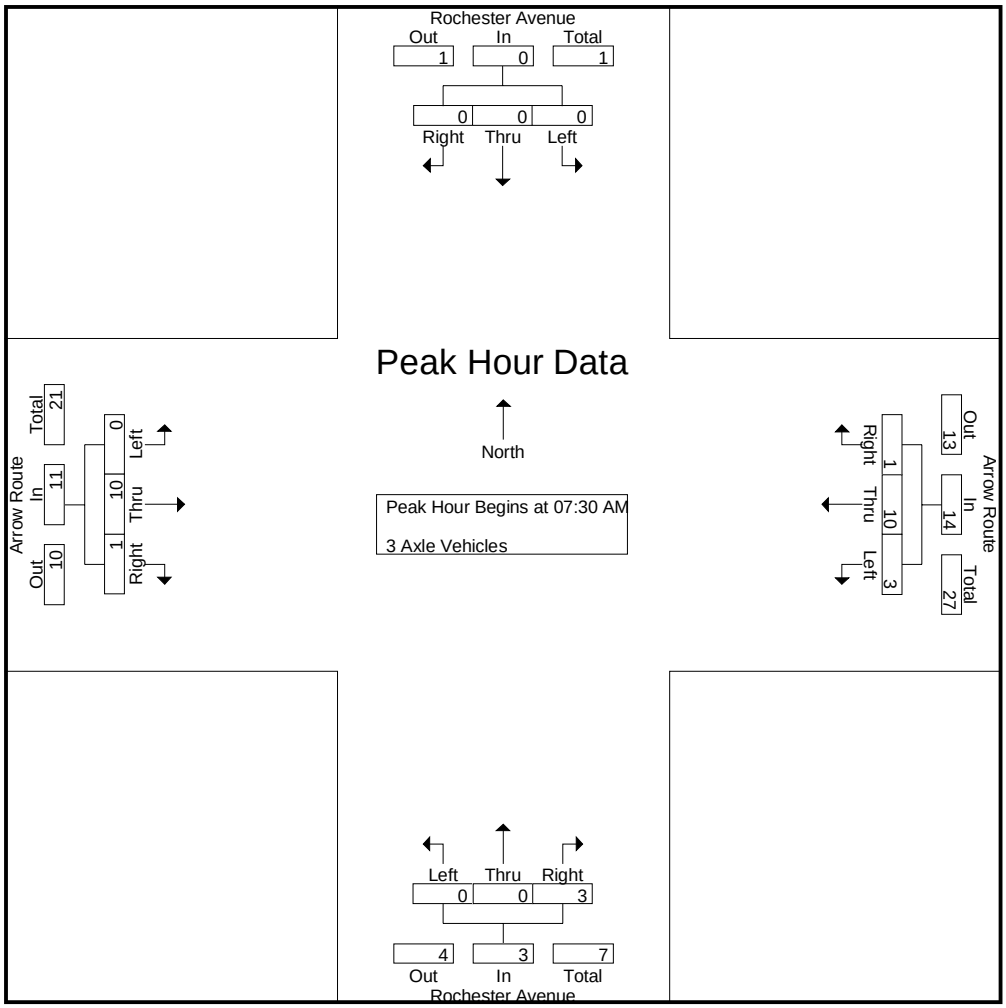

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	**3**	0	3	0	0	**1**	**1**	0	0	0	0
+15 mins.	0	0	0	0	**1**	3	**1**	**5**	0	0	1	1	0	**4**	0	**4**
+30 mins.	0	0	0	0	1	3	0	4	0	0	1	1	0	3	0	3
+45 mins.	0	0	0	0	1	1	0	2	0	0	0	0	0	3	**1**	4
Total Volume	0	0	0	0	3	10	1	14	0	0	3	3	0	10	1	11
% App. Total	0	0	0		21.4	71.4	7.1		0	0	100		0	90.9	9.1	
PHF	.000	.000	.000	.000	.750	.833	.250	.700	.000	.000	.750	.750	.000	.625	.250	.688

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File Name : 13_FON_Rochester_Arrow AM
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Groups Printed- 4+ Axle Trucks

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	4	0	4	2	0	1	3	1	3	0	4	11
07:15 AM	0	1	0	1	1	3	0	4	1	2	0	3	0	1	0	1	9
07:30 AM	0	1	0	1	1	2	1	4	2	2	0	4	0	2	1	3	12
07:45 AM	0	2	0	2	1	0	0	1	0	1	1	2	0	1	1	2	7
Total	0	4	0	4	3	9	1	13	5	5	2	12	1	7	2	10	39
08:00 AM	0	2	0	2	0	5	0	5	1	1	0	2	1	1	1	3	12
08:15 AM	0	0	1	1	0	1	0	1	1	2	0	3	2	1	1	4	9
08:30 AM	0	1	2	3	1	2	0	3	0	3	1	4	2	1	1	4	14
08:45 AM	0	2	1	3	0	2	0	2	1	0	1	2	0	1	0	1	8
Total	0	5	4	9	1	10	0	11	3	6	2	11	5	4	3	12	43
Grand Total	0	9	4	13	4	19	1	24	8	11	4	23	6	11	5	22	82
Apprch %	0	69.2	30.8		16.7	79.2	4.2		34.8	47.8	17.4		27.3	50	22.7		
Total %	0	11	4.9	15.9	4.9	23.2	1.2	29.3	9.8	13.4	4.9	28	7.3	13.4	6.1	26.8	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	1	0	1	**1**	2	**1**	4	**2**	**2**	0	**4**	0	**2**	**1**	3	**12**
07:45 AM	0	**2**	0	**2**	1	0	0	1	0	1	**1**	2	0	1	1	2	7
08:00 AM	0	2	0	2	0	**5**	0	**5**	1	1	0	2	1	1	1	3	12
08:15 AM	0	0	**1**	1	0	1	0	1	1	2	0	3	**2**	1	1	**4**	9
Total Volume	0	5	1	6	2	8	1	11	4	6	1	11	3	5	4	12	40
% App. Total	0	83.3	16.7		18.2	72.7	9.1		36.4	54.5	9.1		25	41.7	33.3		
PHF	.000	.625	.250	.750	.500	.400	.250	.550	.500	.750	.250	.688	.375	.625	1.00	.750	.833

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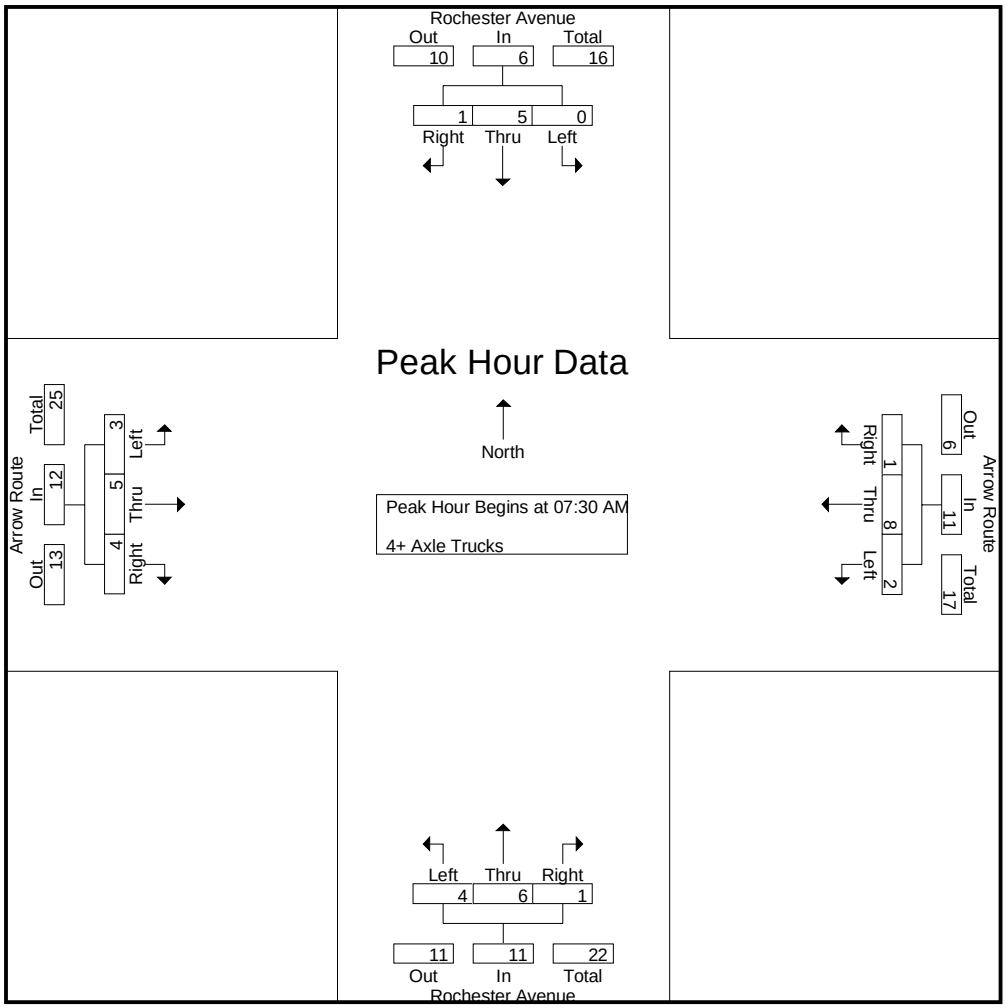

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	1	0	1	**1**	2	**1**	4	**2**	**2**	0	**4**	0	**2**	**1**	3
+15 mins.	0	**2**	0	**2**	1	0	0	1	0	1	**1**	2	0	1	1	2
+30 mins.	0	2	0	2	0	**5**	0	**5**	1	1	0	2	1	1	1	3
+45 mins.	0	0	**1**	1	0	1	0	1	1	2	0	3	**2**	1	1	**4**
Total Volume	0	5	1	6	2	8	1	11	4	6	1	11	3	5	4	12
% App. Total	0	83.3	16.7		18.2	72.7	9.1		36.4	54.5	9.1		25	41.7	33.3	
PHF	.000	.625	.250	.750	.500	.400	.250	.550	.500	.750	.250	.688	.375	.625	1.000	.750

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City of Fontana
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	14	56	58	128	17	91	39	147	17	191	67	275	100	186	6	292	842
04:15 PM	16	51	46	113	16	104	53	173	7	192	50	249	82	196	8	286	821
04:30 PM	14	60	47	121	19	98	32	149	17	198	60	275	82	185	9	276	821
04:45 PM	16	44	50	110	13	126	50	189	9	188	62	259	88	220	6	314	872
Total	60	211	201	472	65	419	174	658	50	769	239	1058	352	787	29	1168	3356
05:00 PM	23	48	44	115	10	108	41	159	13	203	78	294	81	193	3	277	845
05:15 PM	22	62	33	117	26	118	33	177	7	191	41	239	89	200	2	291	824
05:30 PM	23	59	44	126	12	112	45	169	14	197	64	275	86	210	8	304	874
05:45 PM	29	39	46	114	16	112	41	169	6	178	56	240	60	164	4	228	751
Total	97	208	167	472	64	450	160	674	40	769	239	1048	316	767	17	1100	3294
Grand Total	157	419	368	944	129	869	334	1332	90	1538	478	2106	668	1554	46	2268	6650
Apprch %	16.6	44.4	39		9.7	65.2	25.1		4.3	73	22.7		29.5	68.5	2		
Total %	2.4	6.3	5.5	14.2	1.9	13.1	5	20	1.4	23.1	7.2	31.7	10	23.4	0.7	34.1	
Passenger Vehicles	151	407	357	915	119	829	325	1273	77	1510	449	2036	661	1464	42	2167	6391
% Passenger Vehicles	96.2	97.1	97	96.9	92.2	95.4	97.3	95.6	85.6	98.2	93.9	96.7	99	94.2	91.3	95.5	96.1
Large 2 Axle Vehicles	3	7	7	17	4	12	4	20	3	16	13	32	3	24	2	29	98
% Large 2 Axle Vehicles	1.9	1.7	1.9	1.8	3.1	1.4	1.2	1.5	3.3	1	2.7	1.5	0.4	1.5	4.3	1.3	1.5
3 Axle Vehicles	2	0	0	2	1	7	1	9	1	2	9	12	1	28	1	30	53
% 3 Axle Vehicles	1.3	0	0	0.2	0.8	0.8	0.3	0.7	1.1	0.1	1.9	0.6	0.1	1.8	2.2	1.3	0.8
4+ Axle Trucks	1	5	4	10	5	21	4	30	9	10	7	26	3	38	1	42	108
% 4+ Axle Trucks	0.6	1.2	1.1	1.1	3.9	2.4	1.2	2.3	10	0.7	1.5	1.2	0.4	2.4	2.2	1.9	1.6

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	16	44	**50**	110	13	**126**	**50**	**189**	9	188	62	259	88	**220**	6	**314**	872
05:00 PM	**23**	48	44	115	10	108	41	159	13	**203**	**78**	**294**	81	193	3	277	845
05:15 PM	22	**62**	33	117	**26**	118	33	177	7	191	41	239	**89**	200	2	291	824
05:30 PM	23	59	44	**126**	12	112	45	169	**14**	197	64	275	86	210	**8**	304	**874**
Total Volume	84	213	171	468	61	464	169	694	43	779	245	1067	344	823	19	1186	3415
% App. Total	17.9	45.5	36.5		8.8	66.9	24.4		4	73	23		29	69.4	1.6		
PHF	.913	.859	.855	.929	.587	.921	.845	.918	.768	.959	.785	.907	.966	.935	.594	.944	.977

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City of Fontana
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File Name : 13_FON_Rochester_Arrow PM
Site Code : 10821516
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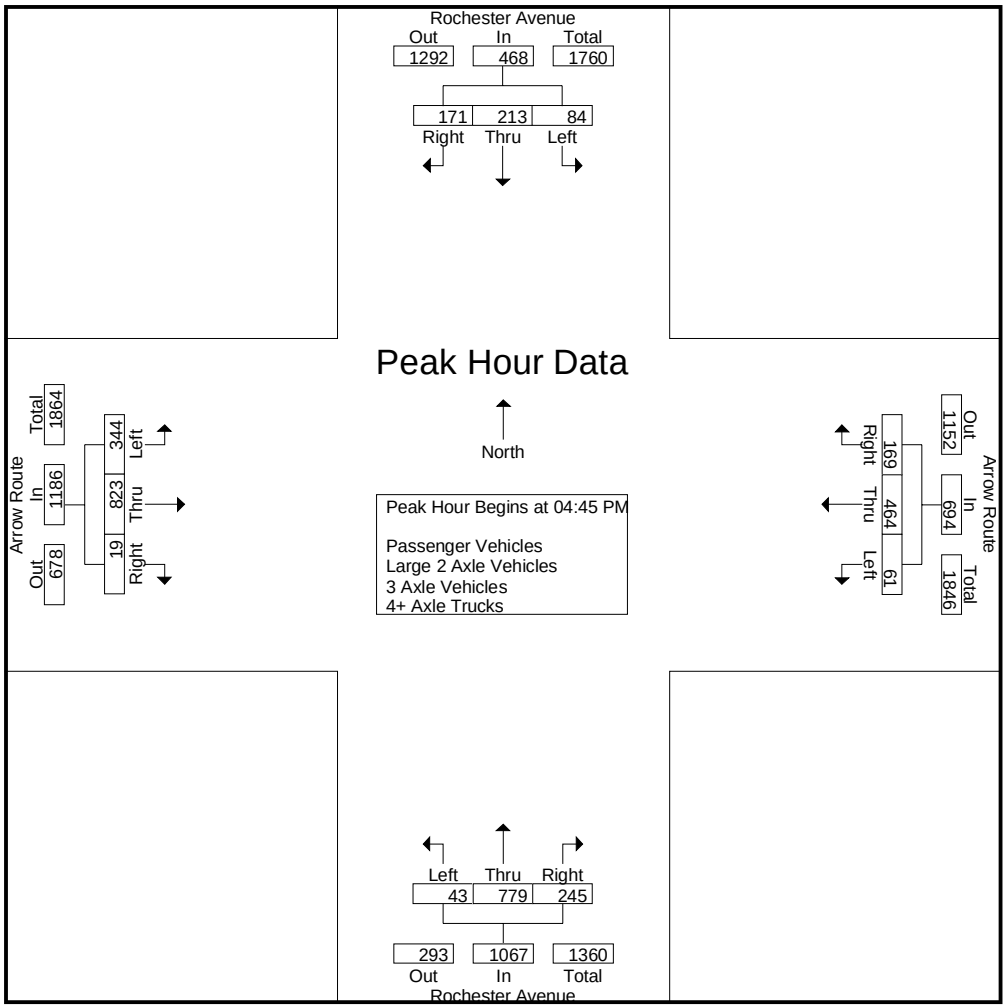

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				04:15 PM				04:45 PM			
+0 mins.	14	56	**58**	**128**	13	**126**	**50**	**189**	7	192	50	249	88	**220**	6	**314**
+15 mins.	**16**	51	46	113	10	108	41	159	**17**	198	60	275	81	193	3	277
+30 mins.	14	**60**	47	121	**26**	118	33	177	9	188	62	259	**89**	200	2	291
+45 mins.	16	44	50	110	12	112	45	169	13	**203**	**78**	**294**	86	210	**8**	304
Total Volume	60	211	201	472	61	464	169	694	46	781	250	1077	344	823	19	1186
% App. Total	12.7	44.7	42.6		8.8	66.9	24.4		4.3	72.5	23.2		29	69.4	1.6	
PHF	.938	.879	.866	.922	.587	.921	.845	.918	.676	.962	.801	.916	.966	.935	.594	.944

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Groups Printed- Passenger Vehicles

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	13	55	56	124	16	87	39	142	13	190	63	266	97	181	5	283	815
04:15 PM	16	49	44	109	15	95	51	161	6	185	45	236	82	177	8	267	773
04:30 PM	12	58	47	117	16	92	29	137	17	197	55	269	82	167	7	256	779
04:45 PM	15	43	48	106	12	122	49	183	5	185	57	247	88	207	6	301	837
Total	56	205	195	456	59	396	168	623	41	757	220	1018	349	732	26	1107	3204
05:00 PM	23	48	43	114	10	103	40	153	11	199	76	286	81	182	2	265	818
05:15 PM	22	60	31	113	24	114	32	170	6	187	39	232	89	190	2	281	796
05:30 PM	22	56	43	121	11	109	44	164	13	195	62	270	84	201	8	293	848
05:45 PM	28	38	45	111	15	107	41	163	6	172	52	230	58	159	4	221	725
Total	95	202	162	459	60	433	157	650	36	753	229	1018	312	732	16	1060	3187
Grand Total	151	407	357	915	119	829	325	1273	77	1510	449	2036	661	1464	42	2167	6391
Apprch %	16.5	44.5	39		9.3	65.1	25.5		3.8	74.2	22.1		30.5	67.6	1.9		
Total %	2.4	6.4	5.6	14.3	1.9	13	5.1	19.9	1.2	23.6	7	31.9	10.3	22.9	0.7	33.9	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	15	43	**48**	106	12	**122**	**49**	**183**	5	185	57	247	88	**207**	6	**301**	837
05:00 PM	**23**	48	43	114	10	103	40	153	11	**199**	**76**	**286**	81	182	2	265	818
05:15 PM	22	**60**	31	113	**24**	114	32	170	6	187	39	232	**89**	190	2	281	796
05:30 PM	22	56	43	**121**	11	109	44	164	**13**	195	62	270	84	201	**8**	293	**848**
Total Volume	82	207	165	454	57	448	165	670	35	766	234	1035	342	780	18	1140	3299
% App. Total	18.1	45.6	36.3		8.5	66.9	24.6		3.4	74	22.6		30	68.4	1.6		
PHF	.891	.863	.859	.938	.594	.918	.842	.915	.673	.962	.770	.905	.961	.942	.563	.947	.973

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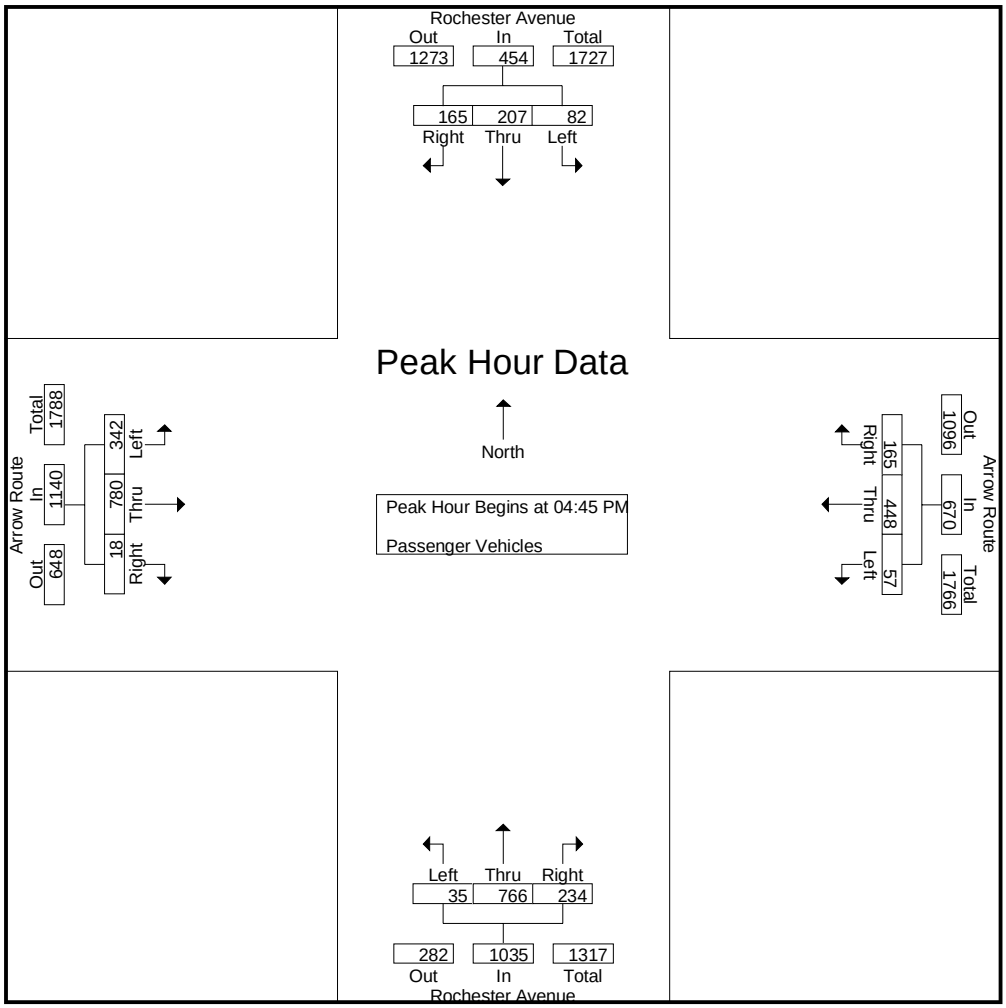

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	15	43	**48**	106	12	**122**	**49**	**183**	5	185	57	247	88	**207**	6	**301**
+15 mins.	**23**	48	43	114	10	103	40	153	11	**199**	**76**	**286**	81	182	2	265
+30 mins.	22	**60**	31	113	**24**	114	32	170	6	187	39	232	**89**	190	2	281
+45 mins.	22	56	43	**121**	11	109	44	164	**13**	195	62	270	84	201	**8**	293
Total Volume	82	207	165	454	57	448	165	670	35	766	234	1035	342	780	18	1140
% App. Total	18.1	45.6	36.3		8.5	66.9	24.6		3.4	74	22.6		30	68.4	1.6	
PHF	.891	.863	.859	.938	.594	.918	.842	.915	.673	.962	.770	.905	.961	.942	.563	.947

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Groups Printed- Large 2 Axle Vehicles

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	1	1	3	1	1	0	2	1	1	4	6	2	0	1	3	14
04:15 PM	0	1	2	3	0	4	1	5	0	4	1	5	0	7	0	7	20
04:30 PM	1	1	0	2	2	3	0	5	0	1	0	1	0	3	1	4	12
04:45 PM	0	0	2	2	0	1	1	2	1	1	2	4	0	8	0	8	16
Total	2	3	5	10	3	9	2	14	2	7	7	16	2	18	2	22	62
05:00 PM	0	0	0	0	0	2	0	2	1	4	2	7	0	4	0	4	13
05:15 PM	0	1	0	1	0	0	1	1	0	3	0	3	0	2	0	2	7
05:30 PM	0	3	1	4	0	0	1	1	0	1	1	2	1	0	0	1	8
05:45 PM	1	0	1	2	1	1	0	2	0	1	3	4	0	0	0	0	8
Total	1	4	2	7	1	3	2	6	1	9	6	16	1	6	0	7	36
Grand Total	3	7	7	17	4	12	4	20	3	16	13	32	3	24	2	29	98
Apprch %	17.6	41.2	41.2		20	60	20		9.4	50	40.6		10.3	82.8	6.9		
Total %	3.1	7.1	7.1	17.3	4.1	12.2	4.1	20.4	3.1	16.3	13.3	32.7	3.1	24.5	2	29.6	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	**2**	2	0	1	**1**	**2**	**1**	1	**2**	4	0	**8**	0	**8**	**16**
05:00 PM	0	0	0	0	0	**2**	0	2	1	**4**	2	**7**	0	4	0	4	13
05:15 PM	0	1	0	1	0	0	1	1	0	3	0	3	0	2	0	2	7
05:30 PM	0	**3**	1	**4**	0	0	1	1	0	1	1	2	**1**	0	0	1	8
Total Volume	0	4	3	7	0	3	3	6	2	9	5	16	1	14	0	15	44
% App. Total	0	57.1	42.9		0	50	50		12.5	56.2	31.2		6.7	93.3	0		
PHF	.000	.333	.375	.438	.000	.375	.750	.750	.500	.563	.625	.571	.250	.438	.000	.469	.688

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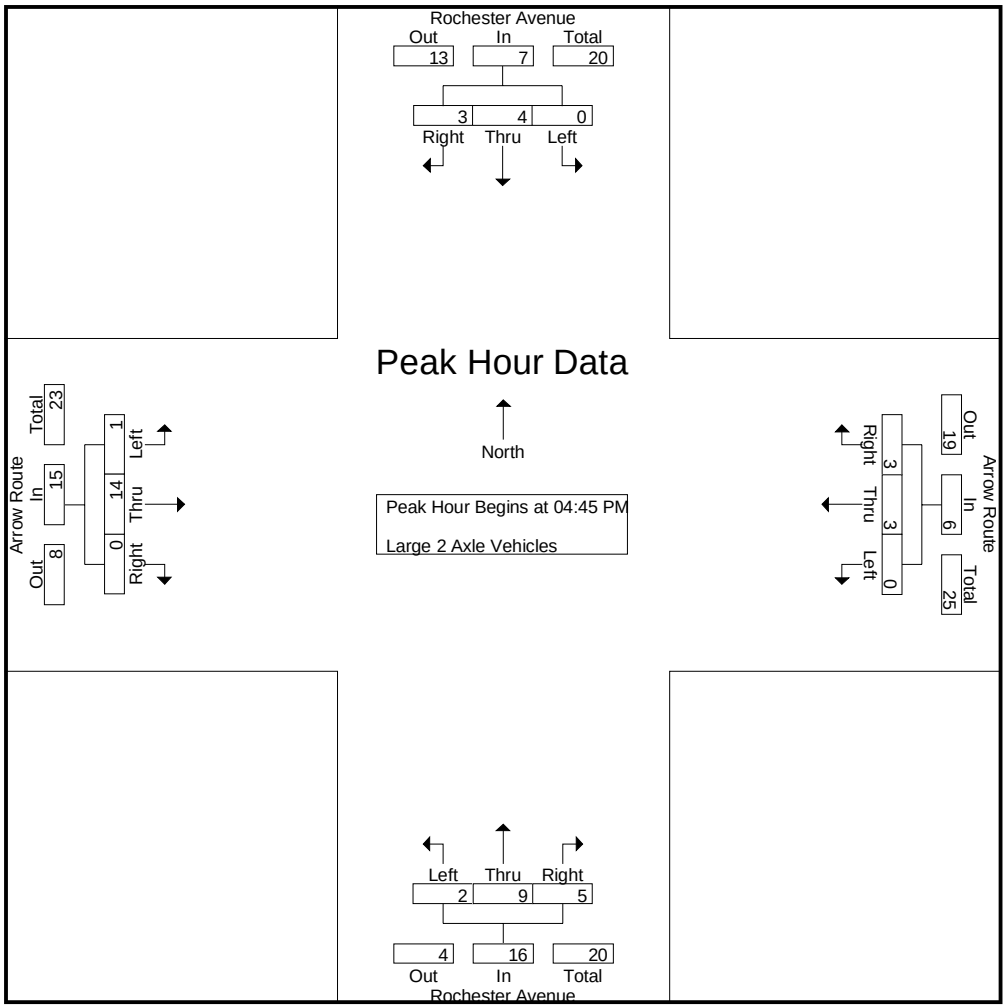
City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	**2**	2	0	1	**1**	**2**	**1**	1	**2**	4	0	**8**	0	**8**
+15 mins.	0	0	0	0	0	**2**	0	2	1	**4**	2	**7**	0	4	0	4
+30 mins.	0	1	0	1	0	0	1	1	0	3	0	3	0	2	0	2
+45 mins.	0	**3**	1	**4**	0	0	1	1	0	1	1	2	**1**	0	0	1
Total Volume	0	4	3	7	0	3	3	6	2	9	5	16	1	14	0	15
% App. Total	0	57.1	42.9		0	50	50		12.5	56.2	31.2		6.7	93.3	0	
PHF	.000	.333	.375	.438	.000	.375	.750	.750	.500	.563	.625	.571	.250	.438	.000	.469

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
04:15 PM	0	0	0	0	0	3	0	3	0	1	4	5	0	8	0	8	16
04:30 PM	1	0	0	1	0	1	1	2	0	0	2	2	0	8	1	9	14
04:45 PM	1	0	0	1	0	1	0	1	0	0	1	1	0	2	0	2	5
Total	2	0	0	2	0	6	1	7	0	1	7	8	0	21	1	22	39
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	4	0	4	6
05:30 PM	0	0	0	0	1	1	0	2	1	0	1	2	0	2	0	2	6
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	1	1	0	2	1	1	2	4	1	7	0	8	14
Grand Total	2	0	0	2	1	7	1	9	1	2	9	12	1	28	1	30	53
Apprch %	100	0	0		11.1	77.8	11.1		8.3	16.7	75		3.3	93.3	3.3		
Total %	3.8	0	0	3.8	1.9	13.2	1.9	17	1.9	3.8	17	22.6	1.9	52.8	1.9	56.6	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	0	0	**1**	0	**1**	0	1	0	0	**1**	1	0	2	0	2	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	**1**	1	**2**	0	**4**	0	**4**	**6**
05:30 PM	0	0	0	0	**1**	1	0	**2**	**1**	0	1	2	0	2	0	2	6
Total Volume	1	0	0	1	1	2	0	3	1	1	3	5	0	9	0	9	18
% App. Total	100	0	0		33.3	66.7	0		20	20	60		0	100	0		
PHF	.250	.000	.000	.250	.250	.500	.000	.375	.250	.250	.750	.625	.000	.563	.000	.563	.750

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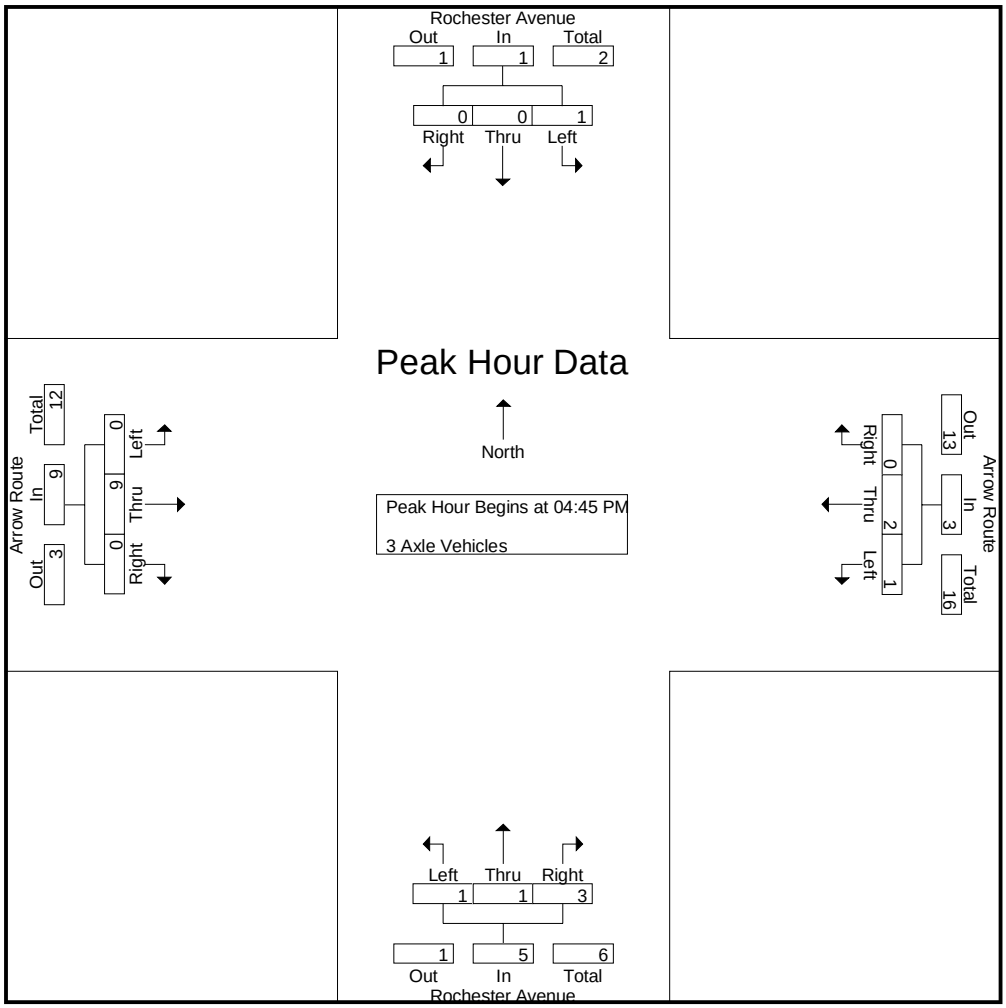
City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	**1**	0	0	**1**	0	**1**	0	1	0	0	**1**	1	0	2	0	2
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	1	**2**	0	**4**	0	**4**
+45 mins.	0	0	0	0	**1**	1	0	**2**	**1**	0	1	2	0	2	0	2
Total Volume	1	0	0	1	1	2	0	3	1	1	3	5	0	9	0	9
% App. Total	100	0	0		33.3	66.7	0		20	20	60		0	100	0	
PHF	.250	.000	.000	.250	.250	.500	.000	.375	.250	.250	.750	.625	.000	.563	.000	.563

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	1	1	0	2	0	2	3	0	0	3	1	2	0	3	9
04:15 PM	0	1	0	1	1	2	1	4	1	2	0	3	0	4	0	4	12
04:30 PM	0	1	0	1	1	2	2	5	0	0	3	3	0	7	0	7	16
04:45 PM	0	1	0	1	1	2	0	3	3	2	2	7	0	3	0	3	14
Total	0	3	1	4	3	8	3	14	7	4	5	16	1	16	0	17	51
05:00 PM	0	0	1	1	0	3	1	4	1	0	0	1	0	6	1	7	13
05:15 PM	0	1	2	3	2	4	0	6	1	0	1	2	0	4	0	4	15
05:30 PM	1	0	0	1	0	2	0	2	0	1	0	1	1	7	0	8	12
05:45 PM	0	1	0	1	0	4	0	4	0	5	1	6	1	5	0	6	17
Total	1	2	3	6	2	13	1	16	2	6	2	10	2	22	1	25	57
Grand Total	1	5	4	10	5	21	4	30	9	10	7	26	3	38	1	42	108
Apprch %	10	50	40		16.7	70	13.3		34.6	38.5	26.9		7.1	90.5	2.4		
Total %	0.9	4.6	3.7	9.3	4.6	19.4	3.7	27.8	8.3	9.3	6.5	24.1	2.8	35.2	0.9	38.9	

	Rochester Avenue Southbound				Arrow Route Westbound				Rochester Avenue Northbound				Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	**1**	0	1	1	2	0	3	**3**	**2**	**2**	**7**	0	3	0	3	14
05:00 PM	0	0	1	1	0	3	**1**	4	1	0	0	1	0	6	**1**	7	13
05:15 PM	0	1	**2**	**3**	**2**	**4**	0	**6**	1	0	1	2	0	4	0	4	**15**
05:30 PM	**1**	0	0	1	0	2	0	2	0	1	0	1	**1**	**7**	0	**8**	12
Total Volume	1	2	3	6	3	11	1	15	5	3	3	11	1	20	1	22	54
% App. Total	16.7	33.3	50		20	73.3	6.7		45.5	27.3	27.3		4.5	90.9	4.5		
PHF	.250	.500	.375	.500	.375	.688	.250	.625	.417	.375	.375	.393	.250	.714	.250	.688	.900

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City of Fontana
N/S: Rochester Avenue
E/W: Arrow Route
Weather: Clear

File Name : 13_FON_Rochester_Arrow PM
Site Code : 10821516
Start Date : 9/28/2021
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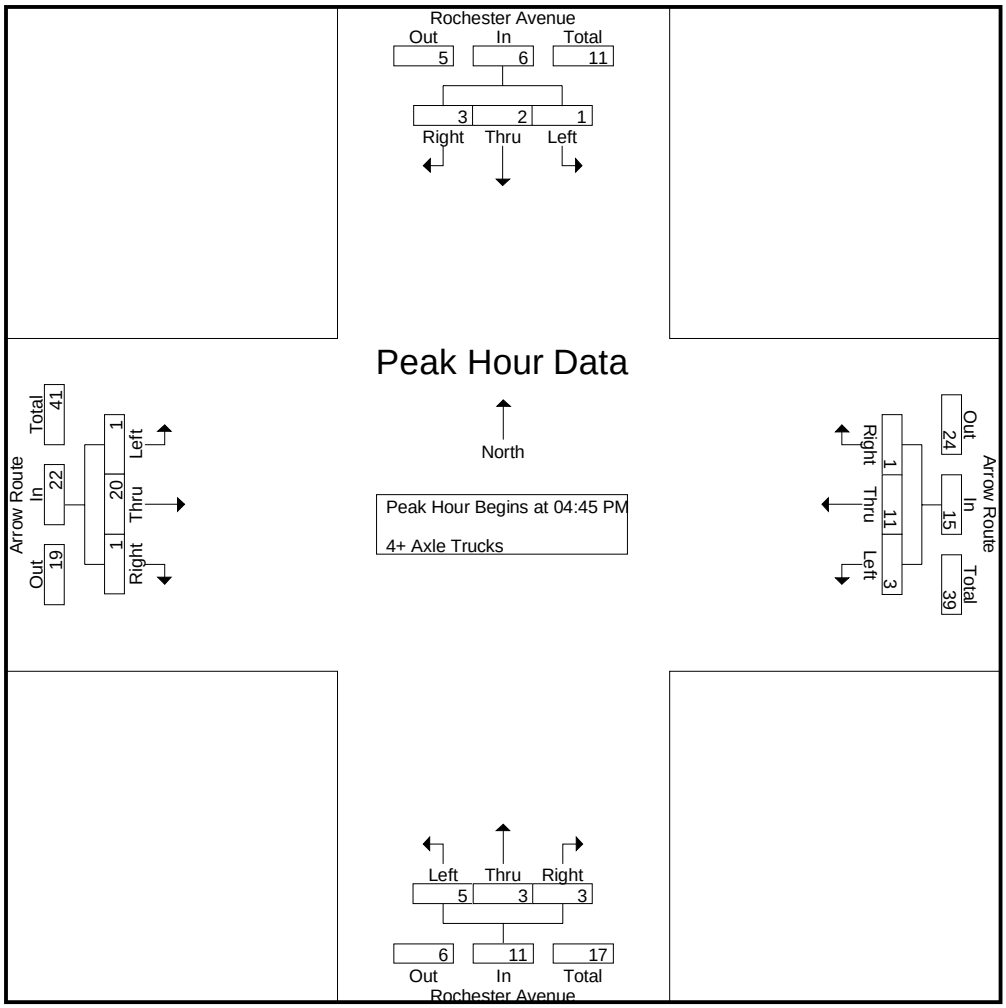

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	**1**	0	1	1	2	0	3	**3**	**2**	**2**	**7**	0	3	0	3
+15 mins.	0	0	1	1	0	3	**1**	4	1	0	0	1	0	6	**1**	7
+30 mins.	0	1	**2**	**3**	**2**	**4**	0	**6**	1	0	1	2	0	4	0	4
+45 mins.	**1**	0	0	1	0	2	0	2	0	1	0	1	**1**	**7**	0	**8**
Total Volume	1	2	3	6	3	11	1	15	5	3	3	11	1	20	1	22
% App. Total	16.7	33.3	50		20	73.3	6.7		45.5	27.3	27.3		4.5	90.9	4.5	
PHF	.250	.500	.375	.500	.375	.688	.250	.625	.417	.375	.375	.393	.250	.714	.250	.688

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

File Name : 14_FON_Cherry_Slover AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	55	171	111	337	5	38	57	100	8	158	2	168	42	20	4	66	671
07:15 AM	65	206	84	355	17	47	62	126	7	191	9	207	66	20	8	94	782
07:30 AM	78	215	87	380	13	41	56	110	5	185	5	195	47	34	7	88	773
07:45 AM	76	299	74	449	10	60	66	136	5	232	17	254	51	44	8	103	942
Total	274	891	356	1521	45	186	241	472	25	766	33	824	206	118	27	351	3168
08:00 AM	75	242	99	416	12	44	45	101	6	203	11	220	68	35	9	112	849
08:15 AM	80	223	82	385	13	43	49	105	11	227	15	253	44	29	3	76	819
08:30 AM	54	153	96	303	13	33	67	113	10	224	14	248	60	39	5	104	768
08:45 AM	67	112	103	282	6	35	53	94	8	129	9	146	60	30	6	96	618
Total	276	730	380	1386	44	155	214	413	35	783	49	867	232	133	23	388	3054
Grand Total	550	1621	736	2907	89	341	455	885	60	1549	82	1691	438	251	50	739	6222
Apprch %	18.9	55.8	25.3		10.1	38.5	51.4		3.5	91.6	4.8		59.3	34	6.8		
Total %	8.8	26.1	11.8	46.7	1.4	5.5	7.3	14.2	1	24.9	1.3	27.2	7	4	0.8	11.9	
Passenger Vehicles	417	1454	524	2395	79	257	274	610	53	1406	70	1529	189	154	27	370	4904
% Passenger Vehicles	75.8	89.7	71.2	82.4	88.8	75.4	60.2	68.9	88.3	90.8	85.4	90.4	43.2	61.4	54	50.1	78.8
Large 2 Axle Vehicles	21	46	22	89	5	22	29	56	0	39	5	44	43	25	9	77	266
% Large 2 Axle Vehicles	3.8	2.8	3	3.1	5.6	6.5	6.4	6.3	0	2.5	6.1	2.6	9.8	10	18	10.4	4.3
3 Axle Vehicles	50	33	38	121	2	14	33	49	3	36	6	45	55	26	3	84	299
% 3 Axle Vehicles	9.1	2	5.2	4.2	2.2	4.1	7.3	5.5	5	2.3	7.3	2.7	12.6	10.4	6	11.4	4.8
4+ Axle Trucks	62	88	152	302	3	48	119	170	4	68	1	73	151	46	11	208	753
% 4+ Axle Trucks	11.3	5.4	20.7	10.4	3.4	14.1	26.2	19.2	6.7	4.4	1.2	4.3	34.5	18.3	22	28.1	12.1

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	78	215	87	380	**13**	41	56	110	5	185	5	195	47	34	7	88	773
07:45 AM	76	**299**	74	**449**	10	**60**	**66**	**136**	5	**232**	**17**	**254**	51	**44**	8	103	**942**
08:00 AM	75	242	**99**	416	12	44	45	101	6	203	11	220	**68**	35	**9**	**112**	849
08:15 AM	**80**	223	82	385	13	43	49	105	**11**	227	15	253	44	29	3	76	819
Total Volume	309	979	342	1630	48	188	216	452	27	847	48	922	210	142	27	379	3383
% App. Total	19	60.1	21		10.6	41.6	47.8		2.9	91.9	5.2		55.4	37.5	7.1		
PHF	.966	.819	.864	.908	.923	.783	.818	.831	.614	.913	.706	.907	.772	.807	.750	.846	.898

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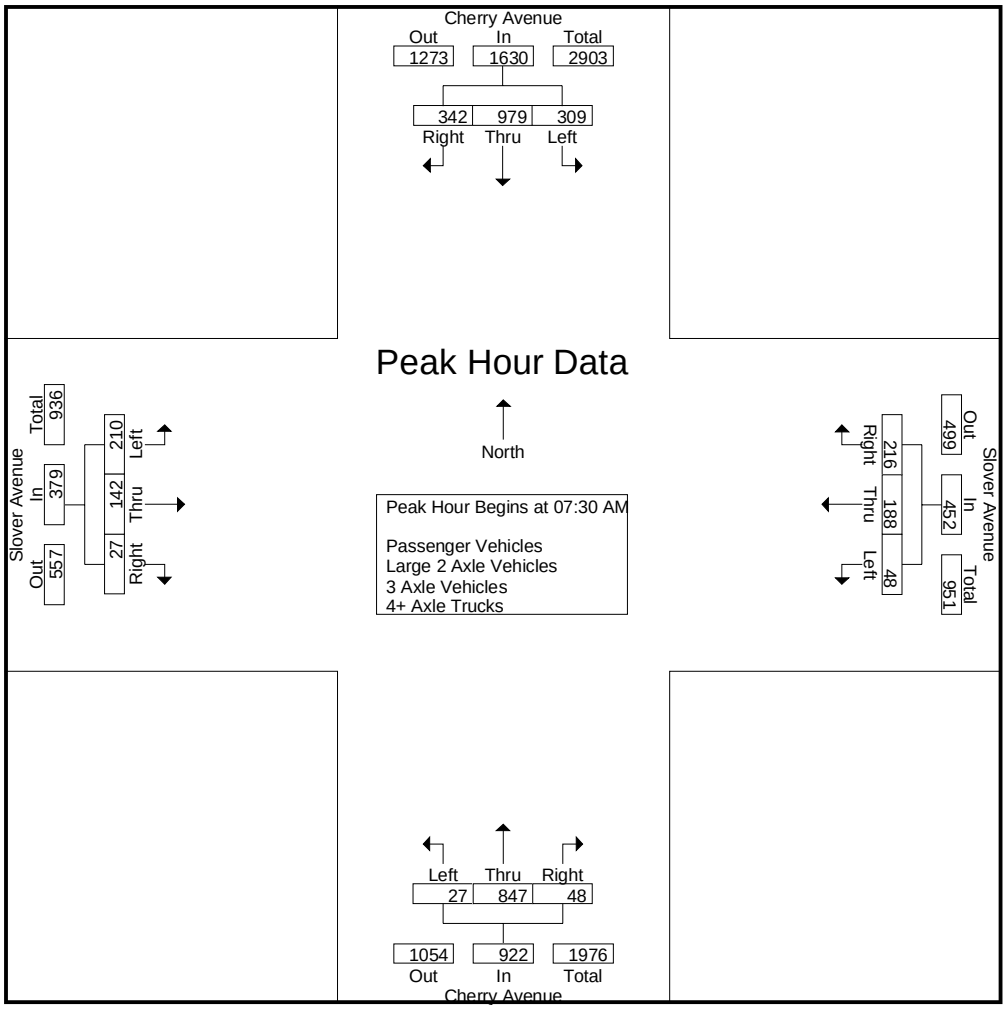
City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

File Name : 14_FON_Cherry_Slover AM
Site Code : 10821516
Start Date : 9/28/2021



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:45 AM				07:15 AM			
+0 mins.	78	215	87	380	**17**	47	62	126	5	**232**	**17**	**254**	66	20	8	94
+15 mins.	76	**299**	74	**449**	13	41	56	110	6	203	11	220	47	34	7	88
+30 mins.	75	242	**99**	416	10	**60**	**66**	**136**	**11**	227	15	253	51	**44**	8	103
+45 mins.	**80**	223	82	385	12	44	45	101	10	224	14	248	**68**	35	**9**	**112**
Total Volume	309	979	342	1630	52	192	229	473	32	886	57	975	232	133	32	397
% App. Total	19	60.1	21		11	40.6	48.4		3.3	90.9	5.8		58.4	33.5	8.1	
PHF	.966	.819	.864	.908	.765	.800	.867	.869	.727	.955	.838	.960	.853	.756	.889	.886

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

File Name : 14_FON_Cherry_Slover AM
Site Code : 10821516
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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	46	153	81	280	4	33	36	73	7	137	2	146	22	12	2	36	535
07:15 AM	45	188	66	299	16	34	43	93	6	174	7	187	28	14	2	44	623
07:30 AM	61	196	61	318	11	30	36	77	5	170	5	180	17	21	1	39	614
07:45 AM	59	280	61	400	9	53	45	107	5	217	16	238	13	27	6	46	791
Total	211	817	269	1297	40	150	160	350	23	698	30	751	80	74	11	165	2563
08:00 AM	54	213	67	334	10	29	22	61	6	186	8	200	31	22	5	58	653
08:15 AM	64	199	58	321	13	29	27	69	10	207	11	228	20	16	2	38	656
08:30 AM	38	131	64	233	10	24	38	72	8	204	12	224	28	23	3	54	583
08:45 AM	50	94	66	210	6	25	27	58	6	111	9	126	30	19	6	55	449
Total	206	637	255	1098	39	107	114	260	30	708	40	778	109	80	16	205	2341
Grand Total	417	1454	524	2395	79	257	274	610	53	1406	70	1529	189	154	27	370	4904
Apprch %	17.4	60.7	21.9		13	42.1	44.9		3.5	92	4.6		51.1	41.6	7.3		
Total %	8.5	29.6	10.7	48.8	1.6	5.2	5.6	12.4	1.1	28.7	1.4	31.2	3.9	3.1	0.6	7.5	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	61	196	61	318	11	30	36	77	5	170	5	180	17	21	1	39	614
07:45 AM	59	**280**	61	**400**	9	**53**	**45**	**107**	5	**217**	**16**	**238**	13	**27**	**6**	46	**791**
08:00 AM	54	213	**67**	334	10	29	22	61	6	186	8	200	**31**	22	5	**58**	653
08:15 AM	**64**	199	58	321	**13**	29	27	69	**10**	207	11	228	20	16	2	38	656
Total Volume	238	888	247	1373	43	141	130	314	26	780	40	846	81	86	14	181	2714
% App. Total	17.3	64.7	18		13.7	44.9	41.4		3.1	92.2	4.7		44.8	47.5	7.7		
PHF	.930	.793	.922	.858	.827	.665	.722	.734	.650	.899	.625	.889	.653	.796	.583	.780	.858

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

File Name : 14_FON_Cherry_Slover AM
Site Code : 10821516
Start Date : 9/28/2021
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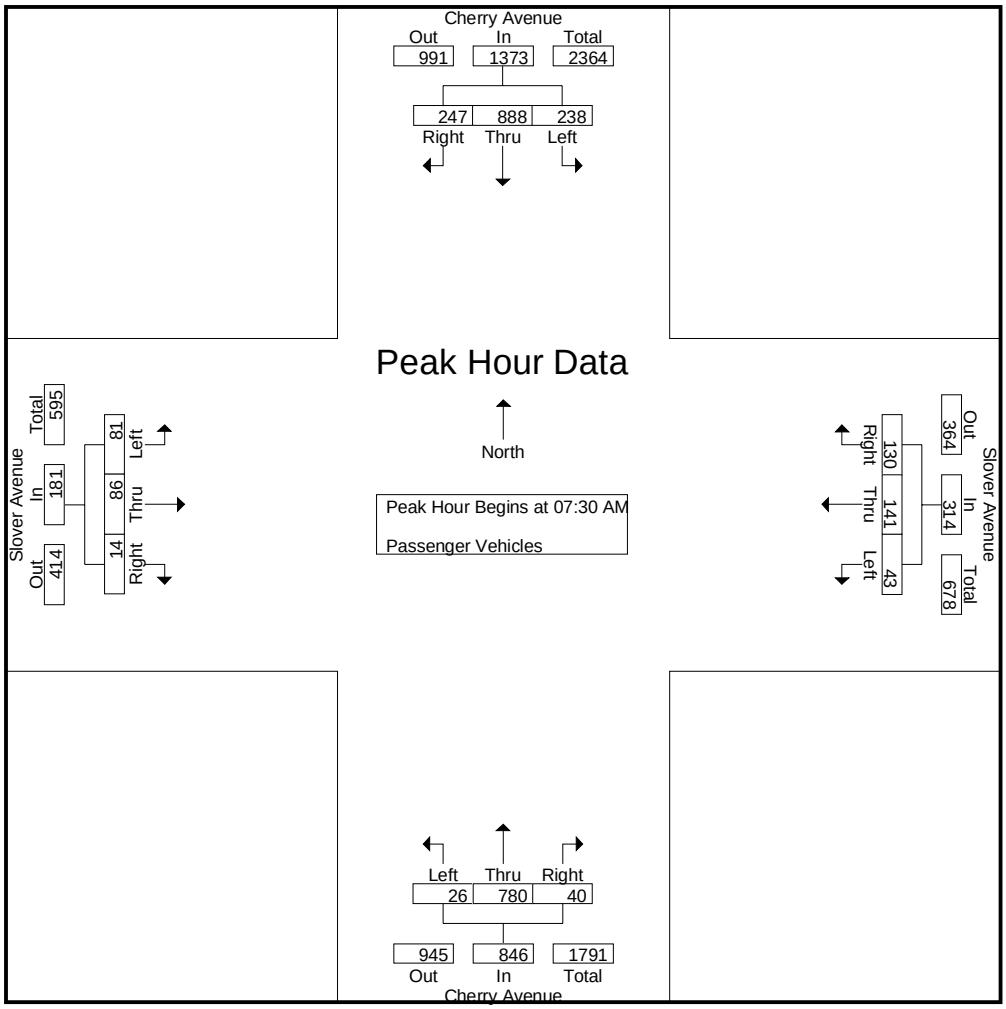

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	61	196	61	318	11	30	36	77	5	170	5	180	17	21	1	39
+15 mins.	59	**280**	61	**400**	9	**53**	**45**	**107**	5	**217**	**16**	**238**	13	**27**	**6**	46
+30 mins.	54	213	**67**	334	10	29	22	61	6	186	8	200	**31**	22	5	**58**
+45 mins.	**64**	199	58	321	**13**	29	27	69	**10**	207	11	228	20	16	2	38
Total Volume	238	888	247	1373	43	141	130	314	26	780	40	846	81	86	14	181
% App. Total	17.3	64.7	18		13.7	44.9	41.4		3.1	92.2	4.7		44.8	47.5	7.7	
PHF	.930	.793	.922	.858	.827	.665	.722	.734	.650	.899	.625	.889	.653	.796	.583	.780

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

File Name : 14_FON_Cherry_Slover AM
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Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	7	2	13	0	2	1	3	0	8	0	8	5	1	1	7	31
07:15 AM	1	2	2	5	1	5	4	10	0	4	1	5	7	4	1	12	32
07:30 AM	1	6	3	10	1	2	1	4	0	5	0	5	3	4	3	10	29
07:45 AM	2	3	1	6	1	2	4	7	0	5	0	5	10	5	1	16	34
Total	8	18	8	34	3	11	10	24	0	22	1	23	25	14	6	45	126
08:00 AM	2	7	2	11	1	3	4	8	0	5	2	7	4	4	1	9	35
08:15 AM	5	9	3	17	0	2	6	8	0	3	1	4	3	1	1	5	34
08:30 AM	2	7	4	13	1	3	4	8	0	7	1	8	6	3	1	10	39
08:45 AM	4	5	5	14	0	3	5	8	0	2	0	2	5	3	0	8	32
Total	13	28	14	55	2	11	19	32	0	17	4	21	18	11	3	32	140
Grand Total	21	46	22	89	5	22	29	56	0	39	5	44	43	25	9	77	266
Apprch %	23.6	51.7	24.7		8.9	39.3	51.8		0	88.6	11.4		55.8	32.5	11.7		
Total %	7.9	17.3	8.3	33.5	1.9	8.3	10.9	21.1	0	14.7	1.9	16.5	16.2	9.4	3.4	28.9	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	6	**3**	10	**1**	2	1	4	0	**5**	0	5	3	4	**3**	10	29
07:45 AM	2	3	1	6	1	2	4	7	0	5	0	5	**10**	**5**	1	**16**	34
08:00 AM	2	7	2	11	1	**3**	4	**8**	0	5	**2**	**7**	4	4	1	9	**35**
08:15 AM	**5**	**9**	3	**17**	0	2	**6**	8	0	3	1	4	3	1	1	5	34
Total Volume	10	25	9	44	3	9	15	27	0	18	3	21	20	14	6	40	132
% App. Total	22.7	56.8	20.5		11.1	33.3	55.6		0	85.7	14.3		50	35	15		
PHF	.500	.694	.750	.647	.750	.750	.625	.844	.000	.900	.375	.750	.500	.700	.500	.625	.943

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City of Fontana
N/S: Cherry Avenue
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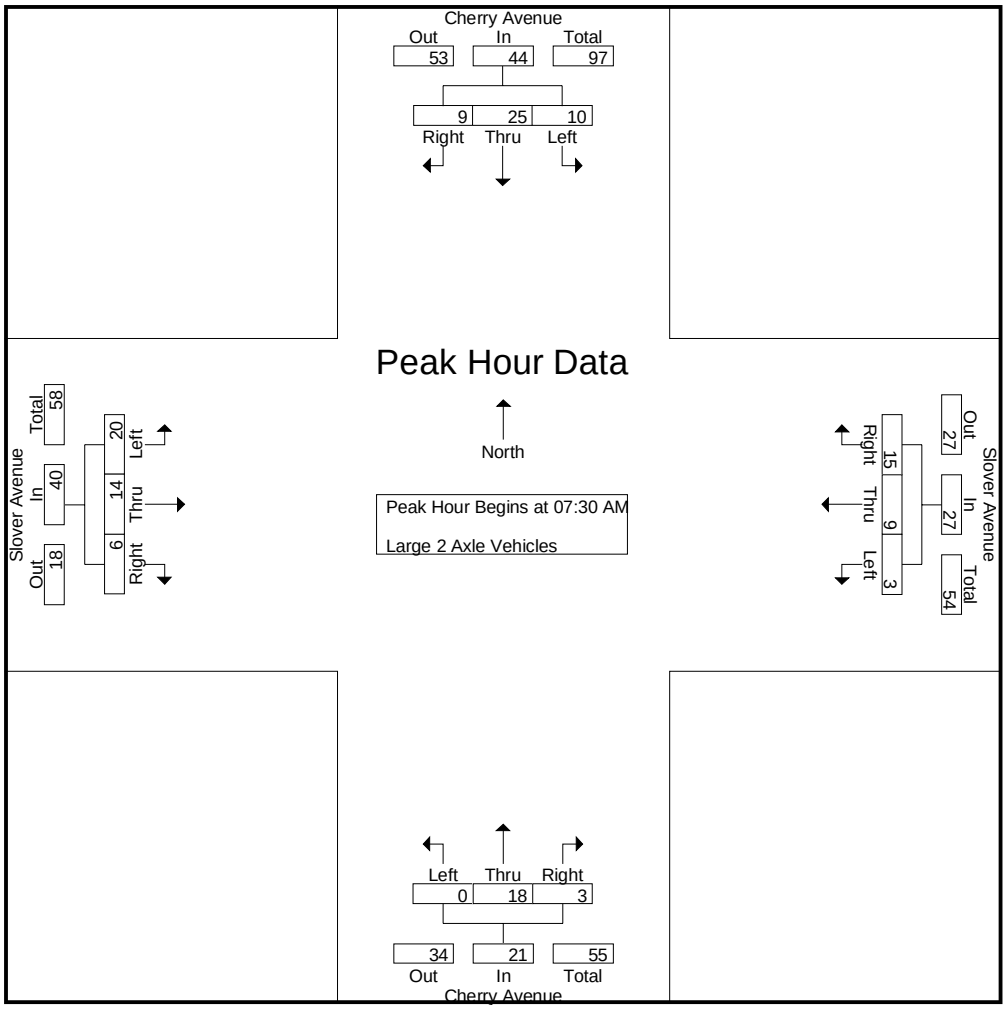

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	1	6	**3**	10	**1**	2	1	4	0	**5**	0	5	3	4	**3**	10
+15 mins.	2	3	1	6	1	2	4	7	0	5	0	5	**10**	**5**	1	**16**
+30 mins.	2	7	2	11	1	**3**	4	**8**	0	5	**2**	**7**	4	4	1	9
+45 mins.	**5**	**9**	3	**17**	0	2	**6**	8	0	3	1	4	3	1	1	5
Total Volume	10	25	9	44	3	9	15	27	0	18	3	21	20	14	6	40
% App. Total	22.7	56.8	20.5		11.1	33.3	55.6		0	85.7	14.3		50	35	15	
PHF	.500	.694	.750	.647	.750	.750	.625	.844	.000	.900	.375	.750	.500	.700	.500	.625

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

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Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	4	3	9	0	1	4	5	1	5	0	6	2	3	1	6	26
07:15 AM	7	7	4	18	0	1	4	5	0	5	1	6	11	0	0	11	40
07:30 AM	9	2	6	17	0	1	5	6	0	4	0	4	7	3	2	12	39
07:45 AM	4	5	3	12	0	2	4	6	0	3	1	4	10	2	0	12	34
Total	22	18	16	56	0	5	17	22	1	17	2	20	30	8	3	41	139
08:00 AM	9	6	6	21	1	3	3	7	0	3	1	4	9	3	0	12	44
08:15 AM	5	1	2	8	0	5	3	8	1	7	3	11	5	5	0	10	37
08:30 AM	6	3	7	16	1	0	3	4	0	3	0	3	7	8	0	15	38
08:45 AM	8	5	7	20	0	1	7	8	1	6	0	7	4	2	0	6	41
Total	28	15	22	65	2	9	16	27	2	19	4	25	25	18	0	43	160
Grand Total	50	33	38	121	2	14	33	49	3	36	6	45	55	26	3	84	299
Apprch %	41.3	27.3	31.4		4.1	28.6	67.3		6.7	80	13.3		65.5	31	3.6		
Total %	16.7	11	12.7	40.5	0.7	4.7	11	16.4	1	12	2	15.1	18.4	8.7	1	28.1	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**9**	2	**6**	17	0	1	**5**	6	0	4	0	4	7	3	**2**	**12**	39
07:45 AM	4	5	3	12	0	2	4	6	0	3	1	4	**10**	2	0	12	34
08:00 AM	9	**6**	6	**21**	**1**	3	3	7	0	3	1	4	9	3	0	12	**44**
08:15 AM	5	1	2	8	0	**5**	3	**8**	**1**	**7**	**3**	**11**	5	**5**	0	10	37
Total Volume	27	14	17	58	1	11	15	27	1	17	5	23	31	13	2	46	154
% App. Total	46.6	24.1	29.3		3.7	40.7	55.6		4.3	73.9	21.7		67.4	28.3	4.3		
PHF	.750	.583	.708	.690	.250	.550	.750	.844	.250	.607	.417	.523	.775	.650	.250	.958	.875

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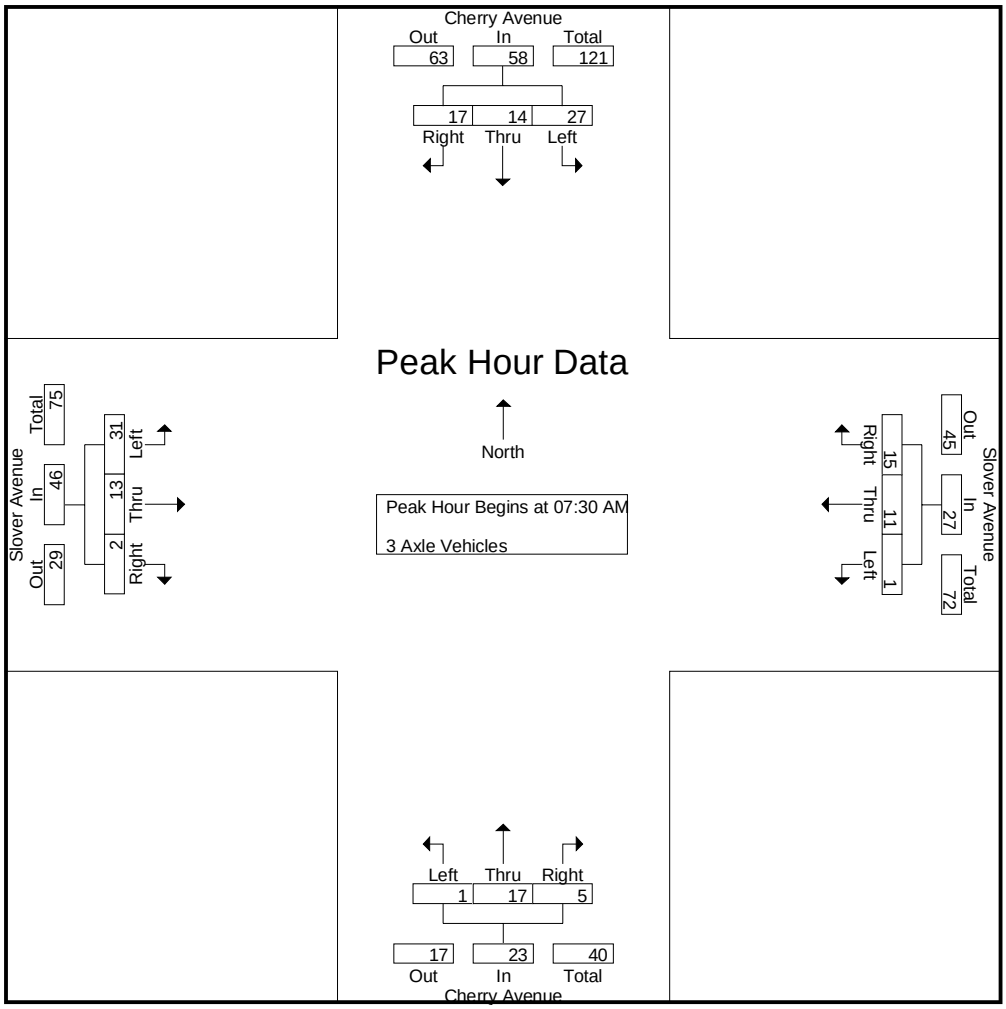

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**9**	2	**6**	17	0	1	**5**	6	0	4	0	4	7	3	**2**	**12**
+15 mins.	4	5	3	12	0	2	4	6	0	3	1	4	**10**	2	0	12
+30 mins.	9	**6**	6	**21**	**1**	3	3	7	0	3	1	4	9	3	0	12
+45 mins.	5	1	2	8	0	**5**	3	**8**	**1**	**7**	**3**	**11**	5	**5**	0	10
Total Volume	27	14	17	58	1	11	15	27	1	17	5	23	31	13	2	46
% App. Total	46.6	24.1	29.3		3.7	40.7	55.6		4.3	73.9	21.7		67.4	28.3	4.3	
PHF	.750	.583	.708	.690	.250	.550	.750	.844	.250	.607	.417	.523	.775	.650	.250	.958

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City of Fontana
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	7	25	35	1	2	16	19	0	8	0	8	13	4	0	17	79
07:15 AM	12	9	12	33	0	7	11	18	1	8	0	9	20	2	5	27	87
07:30 AM	7	11	17	35	1	8	14	23	0	6	0	6	20	6	1	27	91
07:45 AM	11	11	9	31	0	3	13	16	0	7	0	7	18	10	1	29	83
Total	33	38	63	134	2	20	54	76	1	29	0	30	71	22	7	100	340
08:00 AM	10	16	24	50	0	9	16	25	0	9	0	9	24	6	3	33	117
08:15 AM	6	14	19	39	0	7	13	20	0	10	0	10	16	7	0	23	92
08:30 AM	8	12	21	41	1	6	22	29	2	10	1	13	19	5	1	25	108
08:45 AM	5	8	25	38	0	6	14	20	1	10	0	11	21	6	0	27	96
Total	29	50	89	168	1	28	65	94	3	39	1	43	80	24	4	108	413
Grand Total	62	88	152	302	3	48	119	170	4	68	1	73	151	46	11	208	753
Apprch %	20.5	29.1	50.3		1.8	28.2	70		5.5	93.2	1.4		72.6	22.1	5.3		
Total %	8.2	11.7	20.2	40.1	0.4	6.4	15.8	22.6	0.5	9	0.1	9.7	20.1	6.1	1.5	27.6	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	11	17	35	**1**	8	14	23	0	6	0	6	20	6	1	27	91
07:45 AM	**11**	11	9	31	0	3	13	16	0	7	0	7	18	**10**	1	29	83
08:00 AM	10	**16**	**24**	**50**	0	**9**	**16**	**25**	0	9	0	9	**24**	6	**3**	**33**	**117**
08:15 AM	6	14	19	39	0	7	13	20	0	**10**	0	**10**	16	7	0	23	92
Total Volume	34	52	69	155	1	27	56	84	0	32	0	32	78	29	5	112	383
% App. Total	21.9	33.5	44.5		1.2	32.1	66.7		0	100	0		69.6	25.9	4.5		
PHF	.773	.813	.719	.775	.250	.750	.875	.840	.000	.800	.000	.800	.813	.725	.417	.848	.818

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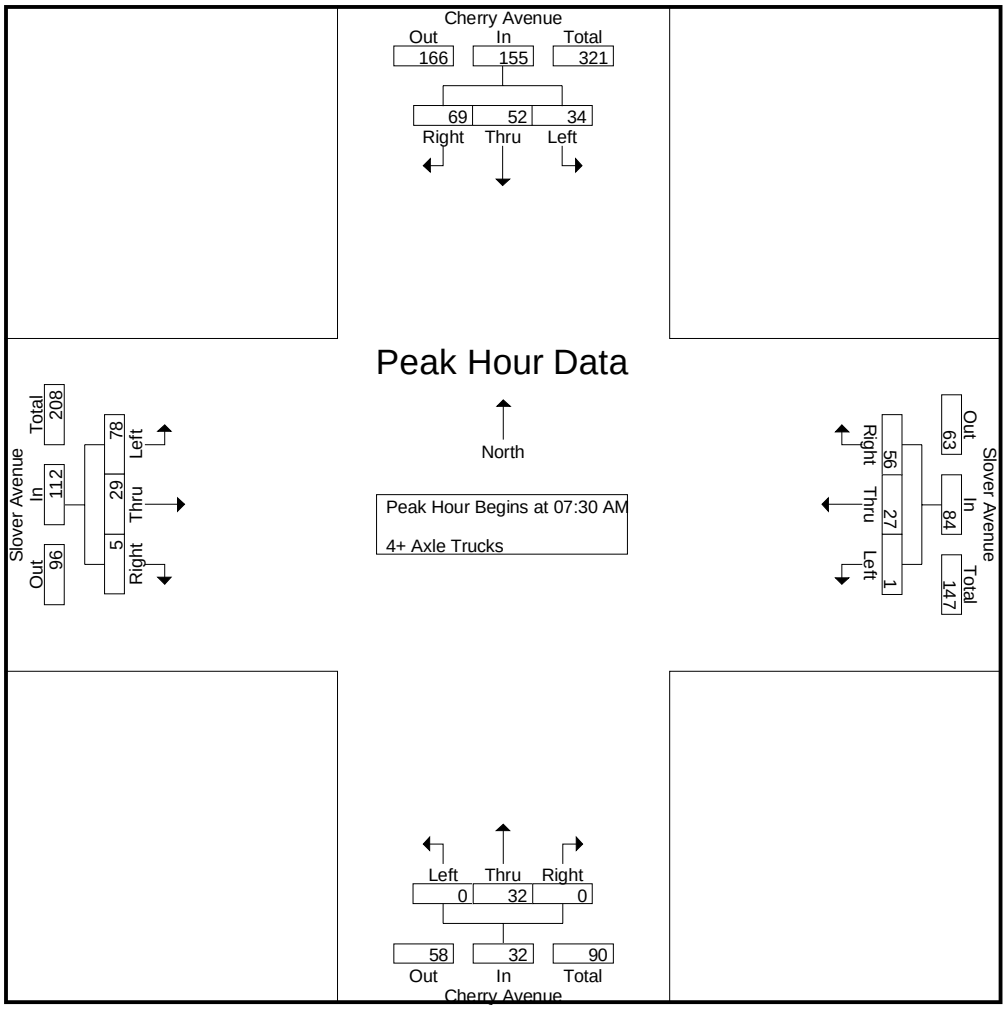

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	7	11	17	35	**1**	8	14	23	0	6	0	6	20	6	1	27
+15 mins.	**11**	11	9	31	0	3	13	16	0	7	0	7	18	**10**	1	29
+30 mins.	10	**16**	**24**	**50**	0	**9**	**16**	**25**	0	9	0	9	**24**	6	**3**	**33**
+45 mins.	6	14	19	39	0	7	13	20	0	**10**	0	**10**	16	7	0	23
Total Volume	34	52	69	155	1	27	56	84	0	32	0	32	78	29	5	112
% App. Total	21.9	33.5	44.5		1.2	32.1	66.7		0	100	0		69.6	25.9	4.5	
PHF	.773	.813	.719	.775	.250	.750	.875	.840	.000	.800	.000	.800	.813	.725	.417	.848

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City of Fontana
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	80	166	74	320	8	42	78	128	15	170	6	191	72	148	13	233	872
04:15 PM	71	221	58	350	12	33	68	113	8	218	21	247	64	111	12	187	897
04:30 PM	71	218	55	344	16	26	81	123	7	187	18	212	68	195	3	266	945
04:45 PM	72	230	50	352	8	33	79	120	8	183	11	202	75	141	13	229	903
Total	294	835	237	1366	44	134	306	484	38	758	56	852	279	595	41	915	3617
05:00 PM	60	224	71	355	17	34	70	121	8	190	9	207	101	101	19	221	904
05:15 PM	52	202	56	310	13	50	73	136	7	188	23	218	103	98	17	218	882
05:30 PM	60	218	75	353	11	26	70	107	3	179	12	194	70	63	19	152	806
05:45 PM	55	198	53	306	3	23	55	81	3	143	11	157	59	69	17	145	689
Total	227	842	255	1324	44	133	268	445	21	700	55	776	333	331	72	736	3281
Grand Total	521	1677	492	2690	88	267	574	929	59	1458	111	1628	612	926	113	1651	6898
Apprch %	19.4	62.3	18.3		9.5	28.7	61.8		3.6	89.6	6.8		37.1	56.1	6.8		
Total %	7.6	24.3	7.1	39	1.3	3.9	8.3	13.5	0.9	21.1	1.6	23.6	8.9	13.4	1.6	23.9	
Passenger Vehicles	377	1550	249	2176	79	198	467	744	48	1366	101	1515	442	795	41	1278	5713
% Passenger Vehicles	72.4	92.4	50.6	80.9	89.8	74.2	81.4	80.1	81.4	93.7	91	93.1	72.2	85.9	36.3	77.4	82.8
Large 2 Axle Vehicles	28	33	24	85	3	9	18	30	2	21	5	28	29	25	1	55	198
% Large 2 Axle Vehicles	5.4	2	4.9	3.2	3.4	3.4	3.1	3.2	3.4	1.4	4.5	1.7	4.7	2.7	0.9	3.3	2.9
3 Axle Vehicles	37	24	60	121	4	23	39	66	3	24	2	29	37	24	60	121	337
% 3 Axle Vehicles	7.1	1.4	12.2	4.5	4.5	8.6	6.8	7.1	5.1	1.6	1.8	1.8	6	2.6	53.1	7.3	4.9
4+ Axle Trucks	79	70	159	308	2	37	50	89	6	47	3	56	104	82	11	197	650
% 4+ Axle Trucks	15.2	4.2	32.3	11.4	2.3	13.9	8.7	9.6	10.2	3.2	2.7	3.4	17	8.9	9.7	11.9	9.4

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	71	221	58	350	12	33	68	113	**8**	**218**	**21**	**247**	64	111	12	187	897
04:30 PM	71	218	55	344	16	26	**81**	**123**	7	187	18	212	68	**195**	3	**266**	**945**
04:45 PM	**72**	**230**	50	352	8	33	79	120	8	183	11	202	75	141	13	229	903
05:00 PM	60	224	**71**	**355**	**17**	**34**	70	121	8	190	9	207	**101**	101	**19**	221	904
Total Volume	274	893	234	1401	53	126	298	477	31	778	59	868	308	548	47	903	3649
% App. Total	19.6	63.7	16.7		11.1	26.4	62.5		3.6	89.6	6.8		34.1	60.7	5.2		
PHF	.951	.971	.824	.987	.779	.926	.920	.970	.969	.892	.702	.879	.762	.703	.618	.849	.965

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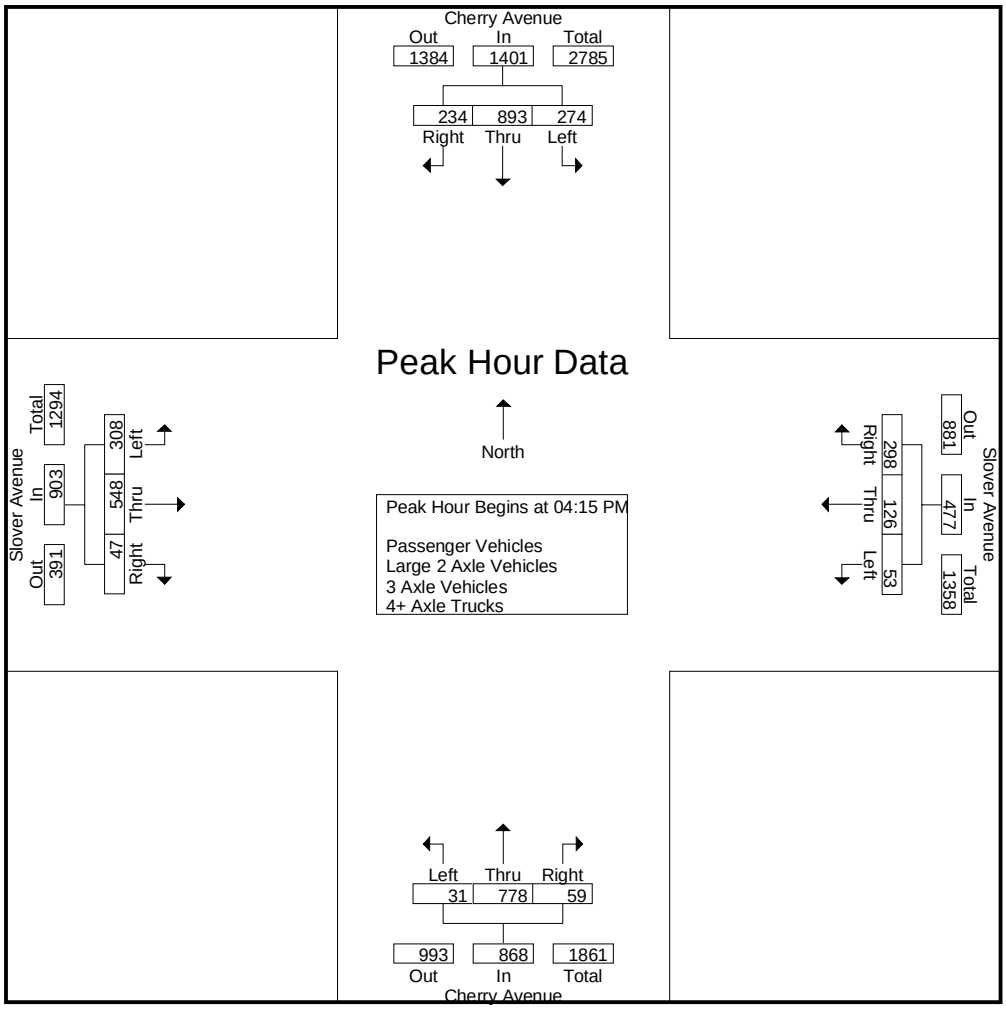
City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

File Name : 14_FON_Cherry_Slover PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:30 PM				04:15 PM				04:30 PM			
+0 mins.	71	221	58	350	16	26	**81**	123	**8**	**218**	**21**	**247**	68	**195**	3	**266**
+15 mins.	71	218	55	344	8	33	79	120	7	187	18	212	75	141	13	229
+30 mins.	**72**	**230**	50	352	**17**	34	70	121	8	183	11	202	101	101	**19**	221
+45 mins.	60	224	**71**	**355**	13	**50**	73	**136**	8	190	9	207	**103**	98	17	218
Total Volume	274	893	234	1401	54	143	303	500	31	778	59	868	347	535	52	934
% App. Total	19.6	63.7	16.7		10.8	28.6	60.6		3.6	89.6	6.8		37.2	57.3	5.6	
PHF	.951	.971	.824	.987	.794	.715	.935	.919	.969	.892	.702	.879	.842	.686	.684	.878

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	60	150	36	246	8	32	58	98	10	157	6	173	51	132	6	189	706
04:15 PM	52	203	37	292	9	24	59	92	8	198	20	226	41	88	5	134	744
04:30 PM	43	199	31	273	15	21	69	105	7	175	14	196	45	176	0	221	795
04:45 PM	60	216	33	309	8	22	64	94	7	173	11	191	48	115	6	169	763
Total	215	768	137	1120	40	99	250	389	32	703	51	786	185	511	17	713	3008
05:00 PM	45	210	29	284	15	25	60	100	6	176	8	190	84	90	5	179	753
05:15 PM	36	186	26	248	11	38	59	108	5	182	22	209	80	80	6	166	731
05:30 PM	41	204	36	281	10	18	57	85	3	171	9	183	51	53	6	110	659
05:45 PM	40	182	21	243	3	18	41	62	2	134	11	147	42	61	7	110	562
Total	162	782	112	1056	39	99	217	355	16	663	50	729	257	284	24	565	2705
Grand Total	377	1550	249	2176	79	198	467	744	48	1366	101	1515	442	795	41	1278	5713
Apprch %	17.3	71.2	11.4		10.6	26.6	62.8		3.2	90.2	6.7		34.6	62.2	3.2		
Total %	6.6	27.1	4.4	38.1	1.4	3.5	8.2	13	0.8	23.9	1.8	26.5	7.7	13.9	0.7	22.4	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	52	203	**37**	292	9	24	59	92	**8**	**198**	**20**	**226**	41	88	5	134	744
04:30 PM	43	199	31	273	**15**	21	**69**	**105**	7	175	14	196	45	**176**	0	**221**	**795**
04:45 PM	**60**	**216**	33	**309**	8	22	64	94	7	173	11	191	48	115	**6**	169	763
05:00 PM	45	210	29	284	15	**25**	60	100	6	176	8	190	**84**	90	5	179	753
Total Volume	200	828	130	1158	47	92	252	391	28	722	53	803	218	469	16	703	3055
% App. Total	17.3	71.5	11.2		12	23.5	64.5		3.5	89.9	6.6		31	66.7	2.3		
PHF	.833	.958	.878	.937	.783	.920	.913	.931	.875	.912	.663	.888	.649	.666	.667	.795	.961

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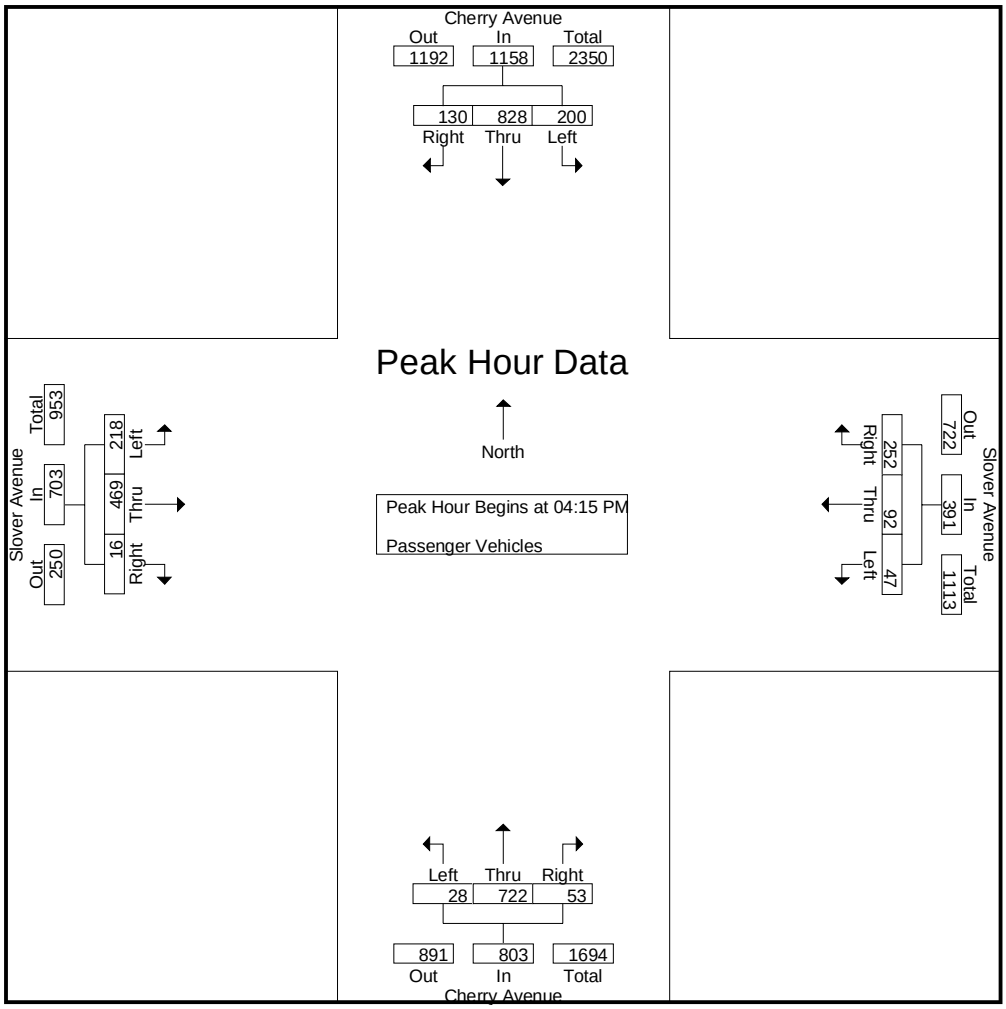

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	52	203	**37**	292	9	24	59	92	**8**	**198**	**20**	**226**	41	88	5	134
+15 mins.	43	199	31	273	**15**	21	**69**	**105**	7	175	14	196	45	**176**	0	**221**
+30 mins.	**60**	**216**	33	**309**	8	22	64	94	7	173	11	191	48	115	**6**	169
+45 mins.	45	210	29	284	15	**25**	60	100	6	176	8	190	**84**	90	5	179
Total Volume	200	828	130	1158	47	92	252	391	28	722	53	803	218	469	16	703
% App. Total	17.3	71.5	11.2		12	23.5	64.5		3.5	89.9	6.6		31	66.7	2.3	
PHF	.833	.958	.878	.937	.783	.920	.913	.931	.875	.912	.663	.888	.649	.666	.667	.795

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City of Fontana
N/S: Cherry Avenue
E/W: Slover Avenue
Weather: Clear

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Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	5	5	7	17	0	1	1	2	1	4	0	5	1	7	1	9	33
04:15 PM	3	5	2	10	1	3	2	6	0	4	0	4	5	3	0	8	28
04:30 PM	6	4	2	12	0	0	2	2	0	4	1	5	4	6	0	10	29
04:45 PM	3	3	1	7	0	1	1	2	0	3	0	3	5	5	0	10	22
Total	17	17	12	46	1	5	6	12	1	15	1	17	15	21	1	37	112
05:00 PM	4	7	3	14	1	1	1	3	1	2	1	4	4	1	0	5	26
05:15 PM	2	2	3	7	1	2	3	6	0	1	1	2	4	1	0	5	20
05:30 PM	4	3	2	9	0	1	4	5	0	1	2	3	4	0	0	4	21
05:45 PM	1	4	4	9	0	0	4	4	0	2	0	2	2	2	0	4	19
Total	11	16	12	39	2	4	12	18	1	6	4	11	14	4	0	18	86
Grand Total	28	33	24	85	3	9	18	30	2	21	5	28	29	25	1	55	198
Apprch %	32.9	38.8	28.2		10	30	60		7.1	75	17.9		52.7	45.5	1.8		
Total %	14.1	16.7	12.1	42.9	1.5	4.5	9.1	15.2	1	10.6	2.5	14.1	14.6	12.6	0.5	27.8	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	3	5	2	10	**1**	**3**	**2**	**6**	0	**4**	0	4	**5**	3	0	8	28
04:30 PM	**6**	4	2	12	0	0	2	2	0	4	**1**	**5**	4	**6**	0	**10**	**29**
04:45 PM	3	3	1	7	0	1	1	2	0	3	0	3	5	5	0	10	22
05:00 PM	4	**7**	**3**	**14**	1	1	1	3	**1**	2	1	4	4	1	0	5	26
Total Volume	16	19	8	43	2	5	6	13	1	13	2	16	18	15	0	33	105
% App. Total	37.2	44.2	18.6		15.4	38.5	46.2		6.2	81.2	12.5		54.5	45.5	0		
PHF	.667	.679	.667	.768	.500	.417	.750	.542	.250	.813	.500	.800	.900	.625	.000	.825	.905

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City of Fontana
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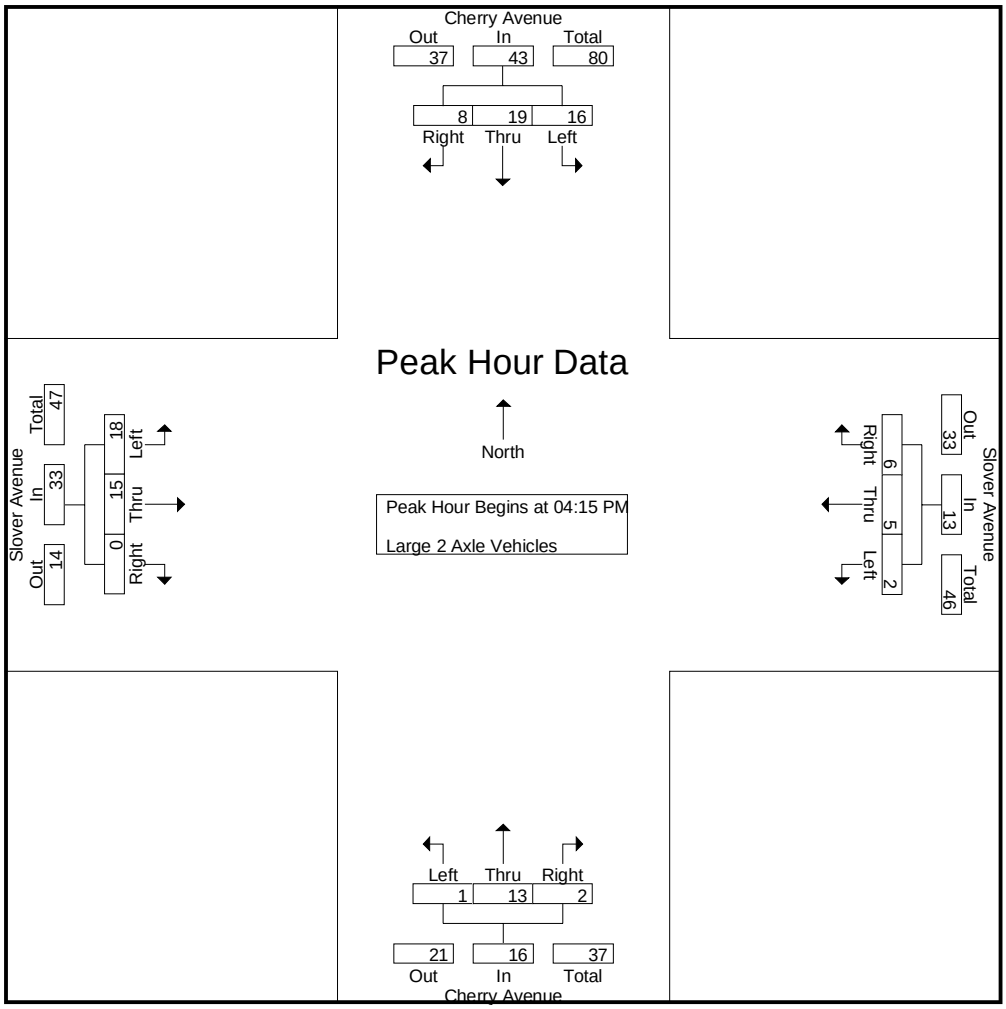

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	3	5	2	10	**1**	**3**	**2**	**6**	0	**4**	0	4	**5**	3	0	8
+15 mins.	**6**	4	2	12	0	0	2	2	0	4	**1**	**5**	4	**6**	0	**10**
+30 mins.	3	3	1	7	0	1	1	2	0	3	0	3	5	5	0	10
+45 mins.	4	**7**	**3**	**14**	1	1	1	3	**1**	2	1	4	4	1	0	5
Total Volume	16	19	8	43	2	5	6	13	1	13	2	16	18	15	0	33
% App. Total	37.2	44.2	18.6		15.4	38.5	46.2		6.2	81.2	12.5		54.5	45.5	0	
PHF	.667	.679	.667	.768	.500	.417	.750	.542	.250	.813	.500	.800	.900	.625	.000	.825

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City of Fontana
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Weather: Clear

File Name : 14_FON_Cherry_Slover PM
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Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	6	3	6	15	0	3	7	10	2	5	0	7	6	3	6	15	47
04:15 PM	7	2	6	15	2	2	2	6	0	5	1	6	7	2	6	15	42
04:30 PM	5	5	3	13	0	0	5	5	0	3	1	4	5	5	3	13	35
04:45 PM	5	4	3	12	0	5	8	13	0	1	0	1	5	4	3	12	38
Total	23	14	18	55	2	10	22	34	2	14	2	18	23	14	18	55	162
05:00 PM	4	1	13	18	0	3	2	5	1	5	0	6	4	1	13	18	47
05:15 PM	3	6	10	19	1	4	4	9	0	2	0	2	3	6	10	19	49
05:30 PM	4	1	11	16	1	4	3	8	0	0	0	0	4	1	11	16	40
05:45 PM	3	2	8	13	0	2	8	10	0	3	0	3	3	2	8	13	39
Total	14	10	42	66	2	13	17	32	1	10	0	11	14	10	42	66	175
Grand Total	37	24	60	121	4	23	39	66	3	24	2	29	37	24	60	121	337
Apprch %	30.6	19.8	49.6		6.1	34.8	59.1		10.3	82.8	6.9		30.6	19.8	49.6		
Total %	11	7.1	17.8	35.9	1.2	6.8	11.6	19.6	0.9	7.1	0.6	8.6	11	7.1	17.8	35.9	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**7**	2	6	15	**2**	2	2	6	0	**5**	**1**	**6**	**7**	2	6	15	42
04:30 PM	5	**5**	3	13	0	0	5	5	0	3	1	4	5	**5**	3	13	35
04:45 PM	5	4	3	12	0	**5**	**8**	**13**	0	1	0	1	5	4	3	12	38
05:00 PM	4	1	**13**	**18**	0	3	2	5	**1**	5	0	6	4	1	**13**	**18**	**47**
Total Volume	21	12	25	58	2	10	17	29	1	14	2	17	21	12	25	58	162
% App. Total	36.2	20.7	43.1		6.9	34.5	58.6		5.9	82.4	11.8		36.2	20.7	43.1		
PHF	.750	.600	.481	.806	.250	.500	.531	.558	.250	.700	.500	.708	.750	.600	.481	.806	.862

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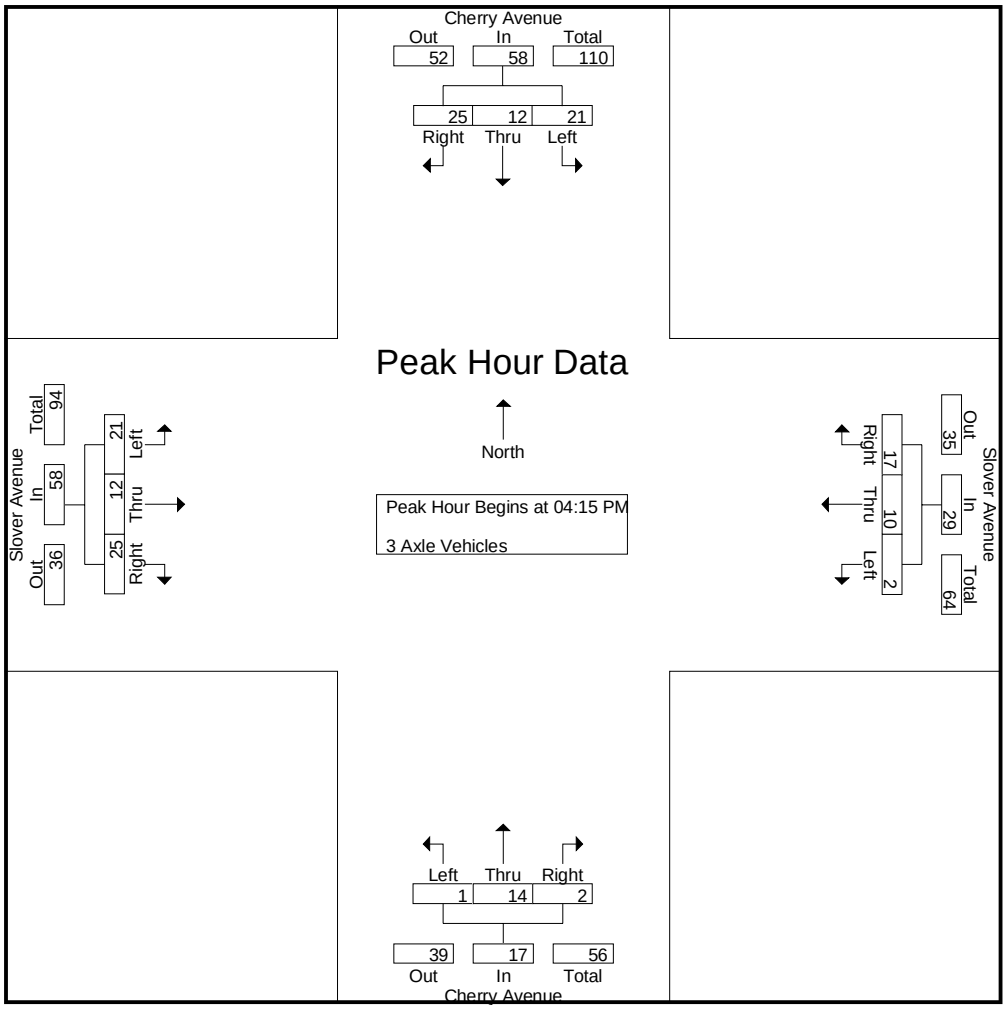

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	**7**	2	6	15	**2**	2	2	6	0	**5**	**1**	**6**	**7**	2	6	15
+15 mins.	5	**5**	3	13	0	0	5	5	0	3	1	4	5	**5**	3	13
+30 mins.	5	4	3	12	0	**5**	**8**	**13**	0	1	0	1	5	4	3	12
+45 mins.	4	1	**13**	**18**	0	3	2	5	**1**	5	0	6	4	1	**13**	**18**
Total Volume	21	12	25	58	2	10	17	29	1	14	2	17	21	12	25	58
% App. Total	36.2	20.7	43.1		6.9	34.5	58.6		5.9	82.4	11.8		36.2	20.7	43.1	
PHF	.750	.600	.481	.806	.250	.500	.531	.558	.250	.700	.500	.708	.750	.600	.481	.806

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City of Fontana
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	9	8	25	42	0	6	12	18	2	4	0	6	14	6	0	20	86
04:15 PM	9	11	13	33	0	4	5	9	0	11	0	11	11	18	1	30	83
04:30 PM	17	10	19	46	1	5	5	11	0	5	2	7	14	8	0	22	86
04:45 PM	4	7	13	24	0	5	6	11	1	6	0	7	17	17	4	38	80
Total	39	36	70	145	1	20	28	49	3	26	2	31	56	49	5	110	335
05:00 PM	7	6	26	39	1	5	7	13	0	7	0	7	9	9	1	19	78
05:15 PM	11	8	17	36	0	6	7	13	2	3	0	5	16	11	1	28	82
05:30 PM	11	10	26	47	0	3	6	9	0	7	1	8	11	9	2	22	86
05:45 PM	11	10	20	41	0	3	2	5	1	4	0	5	12	4	2	18	69
Total	40	34	89	163	1	17	22	40	3	21	1	25	48	33	6	87	315
Grand Total	79	70	159	308	2	37	50	89	6	47	3	56	104	82	11	197	650
Apprch %	25.6	22.7	51.6		2.2	41.6	56.2		10.7	83.9	5.4		52.8	41.6	5.6		
Total %	12.2	10.8	24.5	47.4	0.3	5.7	7.7	13.7	0.9	7.2	0.5	8.6	16	12.6	1.7	30.3	

	Cherry Avenue Southbound				Slover Avenue Westbound				Cherry Avenue Northbound				Slover Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	9	**11**	13	33	0	4	5	9	0	**11**	0	**11**	11	**18**	1	30	83
04:30 PM	**17**	10	19	**46**	**1**	**5**	5	11	0	5	**2**	7	14	8	0	22	**86**
04:45 PM	4	7	13	24	0	5	6	11	**1**	6	0	7	**17**	17	**4**	**38**	80
05:00 PM	7	6	**26**	39	1	5	**7**	**13**	0	7	0	7	9	9	1	19	78
Total Volume	37	34	71	142	2	19	23	44	1	29	2	32	51	52	6	109	327
% App. Total	26.1	23.9	50		4.5	43.2	52.3		3.1	90.6	6.2		46.8	47.7	5.5		
PHF	.544	.773	.683	.772	.500	.950	.821	.846	.250	.659	.250	.727	.750	.722	.375	.717	.951

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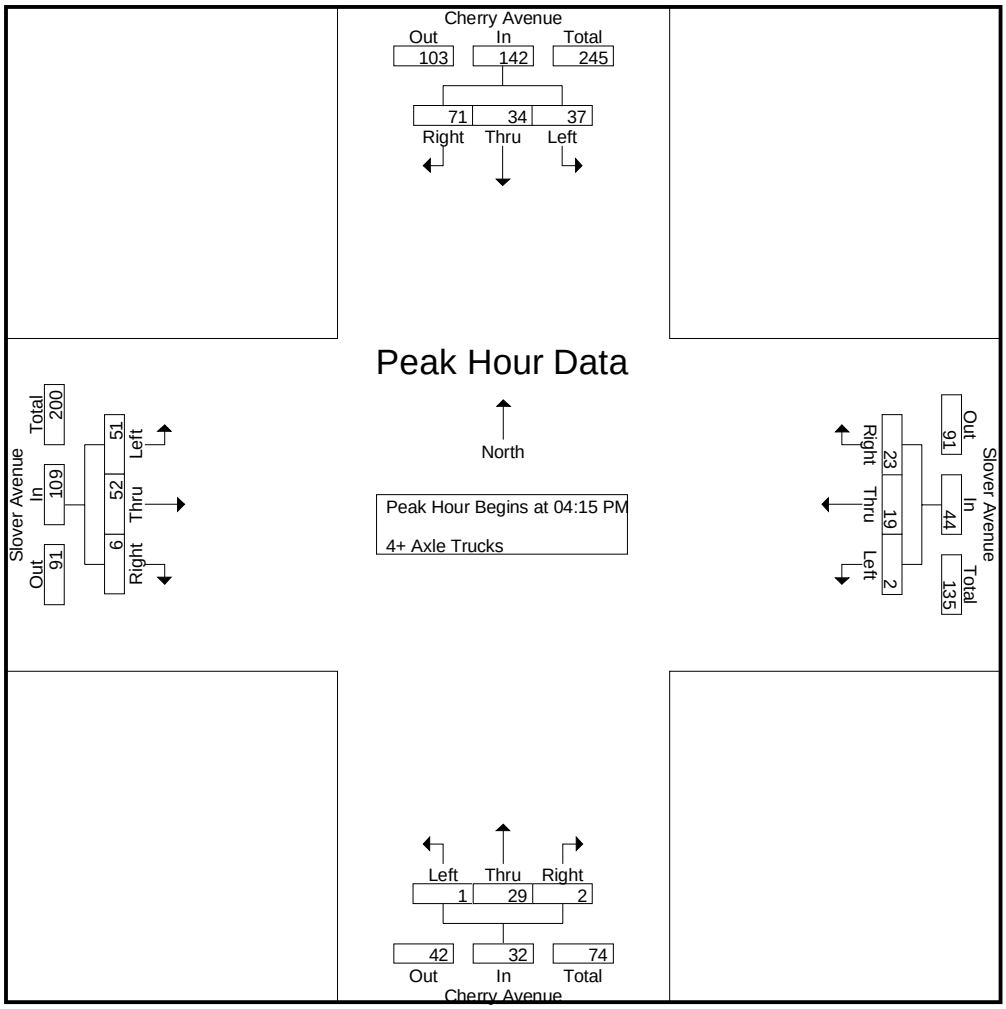

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	9	**11**	13	33	0	4	5	9	0	**11**	0	**11**	11	**18**	1	30
+15 mins.	**17**	10	19	**46**	**1**	**5**	5	11	0	5	**2**	7	14	8	0	22
+30 mins.	4	7	13	24	0	5	6	11	**1**	6	0	7	**17**	17	**4**	**38**
+45 mins.	7	6	**26**	39	1	5	**7**	**13**	0	7	0	7	9	9	1	19
Total Volume	37	34	71	142	2	19	23	44	1	29	2	32	51	52	6	109
% App. Total	26.1	23.9	50		4.5	43.2	52.3		3.1	90.6	6.2		46.8	47.7	5.5	
PHF	.544	.773	.683	.772	.500	.950	.821	.846	.250	.659	.250	.727	.750	.722	.375	.717

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City of Fontana
N/S: Cherry Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Cherry_Santa Ana AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	9	127	40	176	4	1	7	12	1	153	4	158	26	6	1	33	379
07:15 AM	11	165	67	243	3	6	7	16	2	161	4	167	32	0	2	34	460
07:30 AM	18	173	40	231	4	6	7	17	7	179	1	187	22	6	4	32	467
07:45 AM	16	181	79	276	1	4	9	14	5	184	5	194	58	13	18	89	573
Total	54	646	226	926	12	17	30	59	15	677	14	706	138	25	25	188	1879
08:00 AM	15	178	100	293	2	4	10	16	5	162	4	171	69	7	30	106	586
08:15 AM	14	127	82	223	0	3	12	15	10	159	1	170	79	6	22	107	515
08:30 AM	5	114	52	171	2	4	4	10	2	156	2	160	66	9	11	86	427
08:45 AM	11	89	34	134	5	1	5	11	8	126	2	136	24	3	5	32	313
Total	45	508	268	821	9	12	31	52	25	603	9	637	238	25	68	331	1841
Grand Total	99	1154	494	1747	21	29	61	111	40	1280	23	1343	376	50	93	519	3720
Apprch %	5.7	66.1	28.3		18.9	26.1	55		3	95.3	1.7		72.4	9.6	17.9		
Total %	2.7	31	13.3	47	0.6	0.8	1.6	3	1.1	34.4	0.6	36.1	10.1	1.3	2.5	14	
Passenger Vehicles	61	1064	430	1555	12	24	34	70	30	1174	21	1225	331	39	84	454	3304
% Passenger Vehicles	61.6	92.2	87	89	57.1	82.8	55.7	63.1	75	91.7	91.3	91.2	88	78	90.3	87.5	88.8
Large 2 Axle Vehicles	6	36	24	66	6	2	5	13	2	26	0	28	17	3	3	23	130
% Large 2 Axle Vehicles	6.1	3.1	4.9	3.8	28.6	6.9	8.2	11.7	5	2	0	2.1	4.5	6	3.2	4.4	3.5
3 Axle Vehicles	0	16	15	31	1	0	9	10	1	21	1	23	10	5	6	21	85
% 3 Axle Vehicles	0	1.4	3	1.8	4.8	0	14.8	9	2.5	1.6	4.3	1.7	2.7	10	6.5	4	2.3
4+ Axle Trucks	32	38	25	95	2	3	13	18	7	59	1	67	18	3	0	21	201
% 4+ Axle Trucks	32.3	3.3	5.1	5.4	9.5	10.3	21.3	16.2	17.5	4.6	4.3	5	4.8	6	0	4	5.4

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**18**	173	40	231	**4**	**6**	7	**17**	7	179	1	187	22	6	4	32	467
07:45 AM	16	**181**	79	276	1	4	9	14	5	**184**	**5**	**194**	58	**13**	18	89	573
08:00 AM	15	178	**100**	**293**	2	4	10	16	5	162	4	171	69	7	**30**	106	**586**
08:15 AM	14	127	82	223	0	3	**12**	15	**10**	159	1	170	**79**	6	22	**107**	515
Total Volume	63	659	301	1023	7	17	38	62	27	684	11	722	228	32	74	334	2141
% App. Total	6.2	64.4	29.4		11.3	27.4	61.3		3.7	94.7	1.5		68.3	9.6	22.2		
PHF	.875	.910	.753	.873	.438	.708	.792	.912	.675	.929	.550	.930	.722	.615	.617	.780	.913

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City of Fontana
N/S: Cherry Avenue
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Weather: Clear

File Name : 15_FON_Cherry_Santa Ana AM
Site Code : 10821516
Start Date : 9/28/2021
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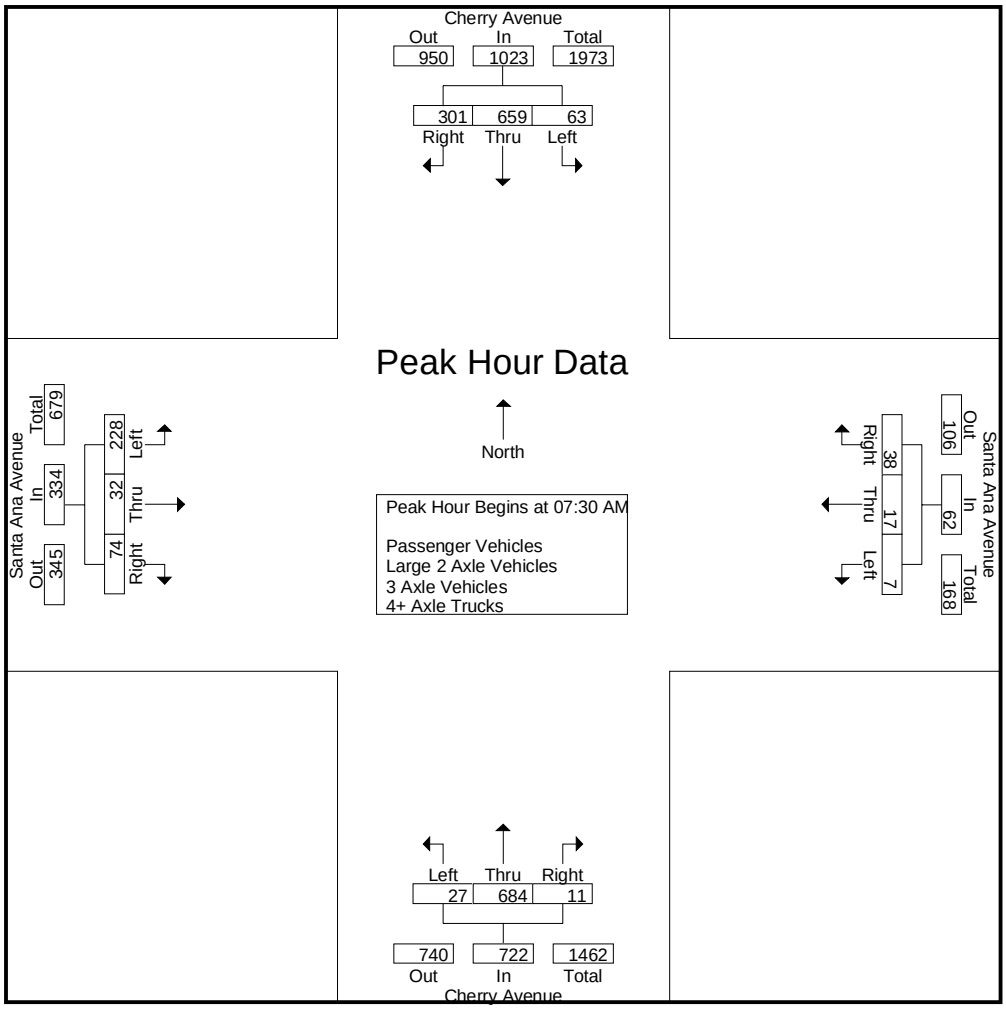

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:30 AM				07:45 AM			
+0 mins.	11	165	67	243	3	**6**	7	16	7	179	1	187	58	**13**	18	89
+15 mins.	**18**	173	40	231	**4**	6	7	**17**	5	**184**	**5**	**194**	69	7	**30**	106
+30 mins.	16	**181**	79	276	1	4	9	14	5	162	4	171	**79**	6	22	**107**
+45 mins.	15	178	**100**	**293**	2	4	**10**	16	**10**	159	1	170	66	9	11	86
Total Volume	60	697	286	1043	10	20	33	63	27	684	11	722	272	35	81	388
% App. Total	5.8	66.8	27.4		15.9	31.7	52.4		3.7	94.7	1.5		70.1	9	20.9	
PHF	.833	.963	.715	.890	.625	.833	.825	.926	.675	.929	.550	.930	.861	.673	.675	.907

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Site Code : 10821516
Start Date : 9/28/2021
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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	9	119	30	158	1	1	5	7	1	137	3	141	21	5	1	27	333
07:15 AM	11	153	54	218	1	5	6	12	1	149	4	154	26	0	1	27	411
07:30 AM	8	161	34	203	1	5	5	11	6	166	1	173	20	4	3	27	414
07:45 AM	10	170	75	255	1	4	6	11	3	176	5	184	52	11	16	79	529
Total	38	603	193	834	4	15	22	41	11	628	13	652	119	20	21	160	1687
08:00 AM	8	163	94	265	2	4	4	10	4	150	4	158	66	5	28	99	532
08:15 AM	7	118	74	199	0	2	3	5	8	138	1	147	75	5	20	100	451
08:30 AM	1	98	42	141	2	3	1	6	1	147	2	150	58	7	11	76	373
08:45 AM	7	82	27	116	4	0	4	8	6	111	1	118	13	2	4	19	261
Total	23	461	237	721	8	9	12	29	19	546	8	573	212	19	63	294	1617
Grand Total	61	1064	430	1555	12	24	34	70	30	1174	21	1225	331	39	84	454	3304
Apprch %	3.9	68.4	27.7		17.1	34.3	48.6		2.4	95.8	1.7		72.9	8.6	18.5		
Total %	1.8	32.2	13	47.1	0.4	0.7	1	2.1	0.9	35.5	0.6	37.1	10	1.2	2.5	13.7	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	161	34	203	1	**5**	5	**11**	6	166	1	173	20	4	3	27	414
07:45 AM	**10**	**170**	75	255	1	4	**6**	11	3	**176**	**5**	**184**	52	**11**	16	79	529
08:00 AM	8	163	**94**	**265**	**2**	4	4	10	4	150	4	158	66	5	**28**	99	**532**
08:15 AM	7	118	74	199	0	2	3	5	**8**	138	1	147	**75**	5	20	**100**	451
Total Volume	33	612	277	922	4	15	18	37	21	630	11	662	213	25	67	305	1926
% App. Total	3.6	66.4	30		10.8	40.5	48.6		3.2	95.2	1.7		69.8	8.2	22		
PHF	.825	.900	.737	.870	.500	.750	.750	.841	.656	.895	.550	.899	.710	.568	.598	.763	.905

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Site Code : 10821516
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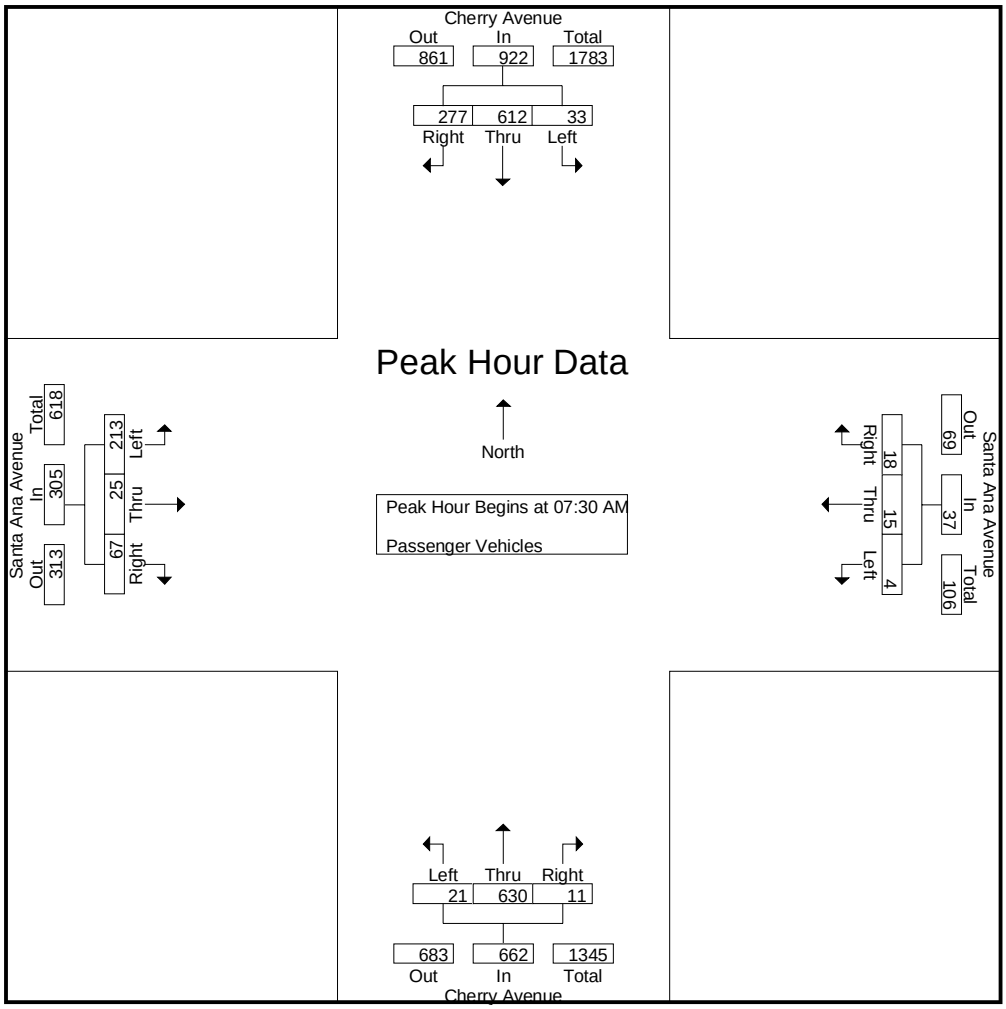

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	8	161	34	203	1	**5**	5	**11**	6	166	1	173	20	4	3	27
+15 mins.	**10**	**170**	75	255	1	4	**6**	11	3	**176**	**5**	**184**	52	**11**	16	79
+30 mins.	8	163	**94**	**265**	**2**	4	4	10	4	150	4	158	66	5	**28**	99
+45 mins.	7	118	74	199	0	2	3	5	**8**	138	1	147	**75**	5	20	**100**
Total Volume	33	612	277	922	4	15	18	37	21	630	11	662	213	25	67	305
% App. Total	3.6	66.4	30		10.8	40.5	48.6		3.2	95.2	1.7		69.8	8.2	22	
PHF	.825	.900	.737	.870	.500	.750	.750	.841	.656	.895	.550	.899	.710	.568	.598	.763

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City of Fontana
N/S: Cherry Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Cherry_Santa Ana AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	6	3	9	3	0	0	3	0	8	0	8	1	0	0	1	21
07:15 AM	0	4	4	8	1	1	0	2	0	2	0	2	1	0	1	2	14
07:30 AM	3	4	4	11	2	0	0	2	1	5	0	6	1	1	0	2	21
07:45 AM	0	4	0	4	0	0	0	0	0	2	0	2	2	1	0	3	9
Total	3	18	11	32	6	1	0	7	1	17	0	18	5	2	1	8	65
08:00 AM	2	4	2	8	0	0	1	1	0	5	0	5	2	0	1	3	17
08:15 AM	1	5	3	9	0	0	3	3	1	1	0	2	3	0	1	4	18
08:30 AM	0	7	5	12	0	1	1	2	0	1	0	1	4	0	0	4	19
08:45 AM	0	2	3	5	0	0	0	0	0	2	0	2	3	1	0	4	11
Total	3	18	13	34	0	1	5	6	1	9	0	10	12	1	2	15	65
Grand Total	6	36	24	66	6	2	5	13	2	26	0	28	17	3	3	23	130
Apprch %	9.1	54.5	36.4		46.2	15.4	38.5		7.1	92.9	0		73.9	13	13		
Total %	4.6	27.7	18.5	50.8	4.6	1.5	3.8	10	1.5	20	0	21.5	13.1	2.3	2.3	17.7	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**3**	4	**4**	**11**	**2**	0	0	2	**1**	**5**	0	**6**	1	**1**	0	2	**21**
07:45 AM	0	4	0	4	0	0	0	0	0	2	0	2	2	1	0	3	9
08:00 AM	2	4	2	8	0	0	1	1	0	5	0	5	2	0	**1**	3	17
08:15 AM	1	**5**	3	9	0	0	**3**	**3**	1	1	0	2	**3**	0	1	**4**	18
Total Volume	6	17	9	32	2	0	4	6	2	13	0	15	8	2	2	12	65
% App. Total	18.8	53.1	28.1		33.3	0	66.7		13.3	86.7	0		66.7	16.7	16.7		
PHF	.500	.850	.563	.727	.250	.000	.333	.500	.500	.650	.000	.625	.667	.500	.500	.750	.774

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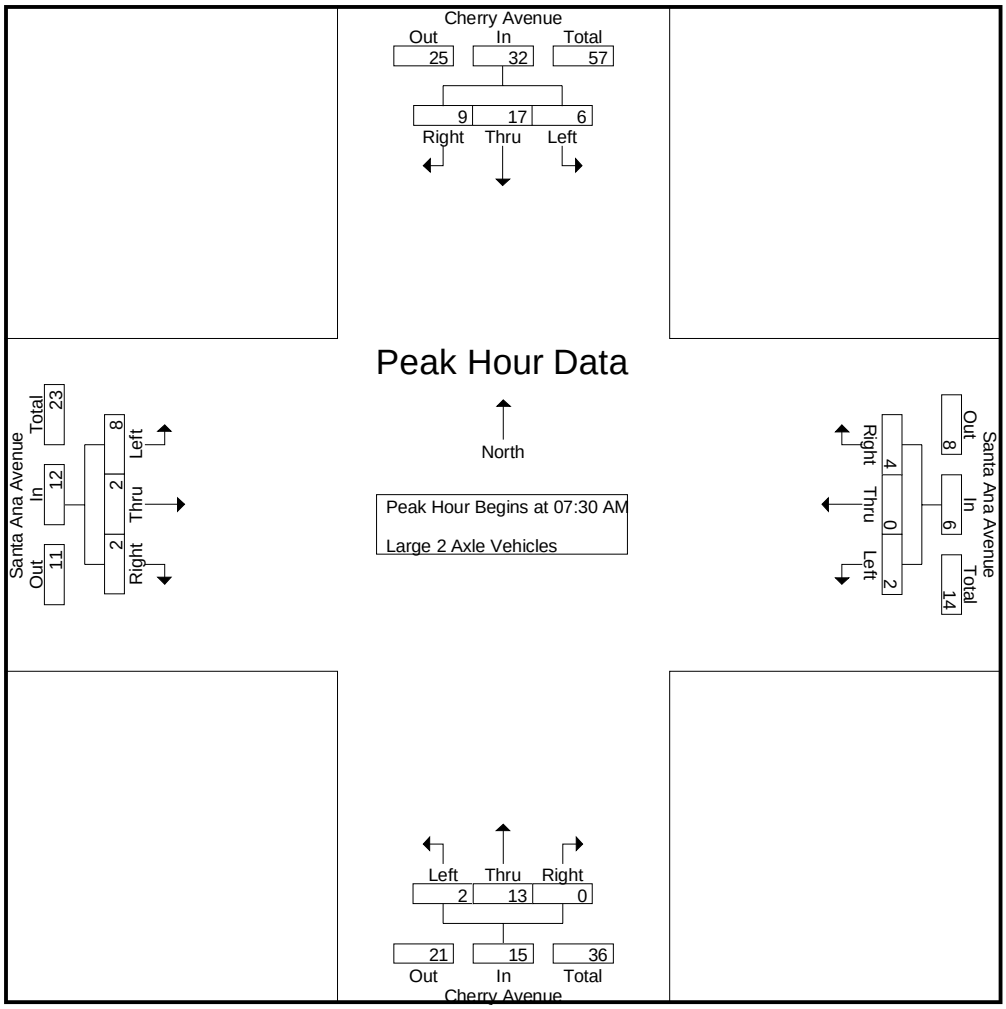

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**3**	4	**4**	**11**	**2**	0	0	2	**1**	**5**	0	**6**	1	**1**	0	2
+15 mins.	0	4	0	4	0	0	0	0	0	2	0	2	2	1	0	3
+30 mins.	2	4	2	8	0	0	1	1	0	5	0	5	2	0	**1**	3
+45 mins.	1	**5**	3	9	0	0	**3**	**3**	1	1	0	2	**3**	0	1	**4**
Total Volume	6	17	9	32	2	0	4	6	2	13	0	15	8	2	2	12
% App. Total	18.8	53.1	28.1		33.3	0	66.7		13.3	86.7	0		66.7	16.7	16.7	
PHF	.500	.850	.563	.727	.250	.000	.333	.500	.500	.650	.000	.625	.667	.500	.500	.750

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City of Fontana
N/S: Cherry Avenue
E/W: Santa Ana Avenue
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File Name : 15_FON_Cherry_Santa Ana AM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	2	2	0	0	1	1	0	4	1	5	1	0	0	1	9
07:15 AM	0	1	5	6	0	0	1	1	0	2	0	2	4	0	0	4	13
07:30 AM	0	2	2	4	1	0	1	2	0	1	0	1	0	1	1	2	9
07:45 AM	0	2	1	3	0	0	3	3	0	0	0	0	1	1	2	4	10
Total	0	5	10	15	1	0	6	7	0	7	1	8	6	2	3	11	41
08:00 AM	0	4	2	6	0	0	1	1	0	2	0	2	0	1	1	2	11
08:15 AM	0	0	0	0	0	0	1	1	0	8	0	8	0	1	1	2	11
08:30 AM	0	4	1	5	0	0	0	0	0	2	0	2	1	1	0	2	9
08:45 AM	0	3	2	5	0	0	1	1	1	2	0	3	3	0	1	4	13
Total	0	11	5	16	0	0	3	3	1	14	0	15	4	3	3	10	44
Grand Total	0	16	15	31	1	0	9	10	1	21	1	23	10	5	6	21	85
Apprch %	0	51.6	48.4		10	0	90		4.3	91.3	4.3		47.6	23.8	28.6		
Total %	0	18.8	17.6	36.5	1.2	0	10.6	11.8	1.2	24.7	1.2	27.1	11.8	5.9	7.1	24.7	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	2	**2**	4	**1**	0	1	2	0	1	0	1	0	**1**	1	2	9
07:45 AM	0	2	1	3	0	0	**3**	**3**	0	0	0	0	**1**	1	**2**	**4**	10
08:00 AM	0	**4**	2	**6**	0	0	1	1	0	2	0	2	0	1	1	2	**11**
08:15 AM	0	0	0	0	0	0	1	1	0	**8**	0	**8**	0	1	1	2	11
Total Volume	0	8	5	13	1	0	6	7	0	11	0	11	1	4	5	10	41
% App. Total	0	61.5	38.5		14.3	0	85.7		0	100	0		10	40	50		
PHF	.000	.500	.625	.542	.250	.000	.500	.583	.000	.344	.000	.344	.250	1.00	.625	.625	.932

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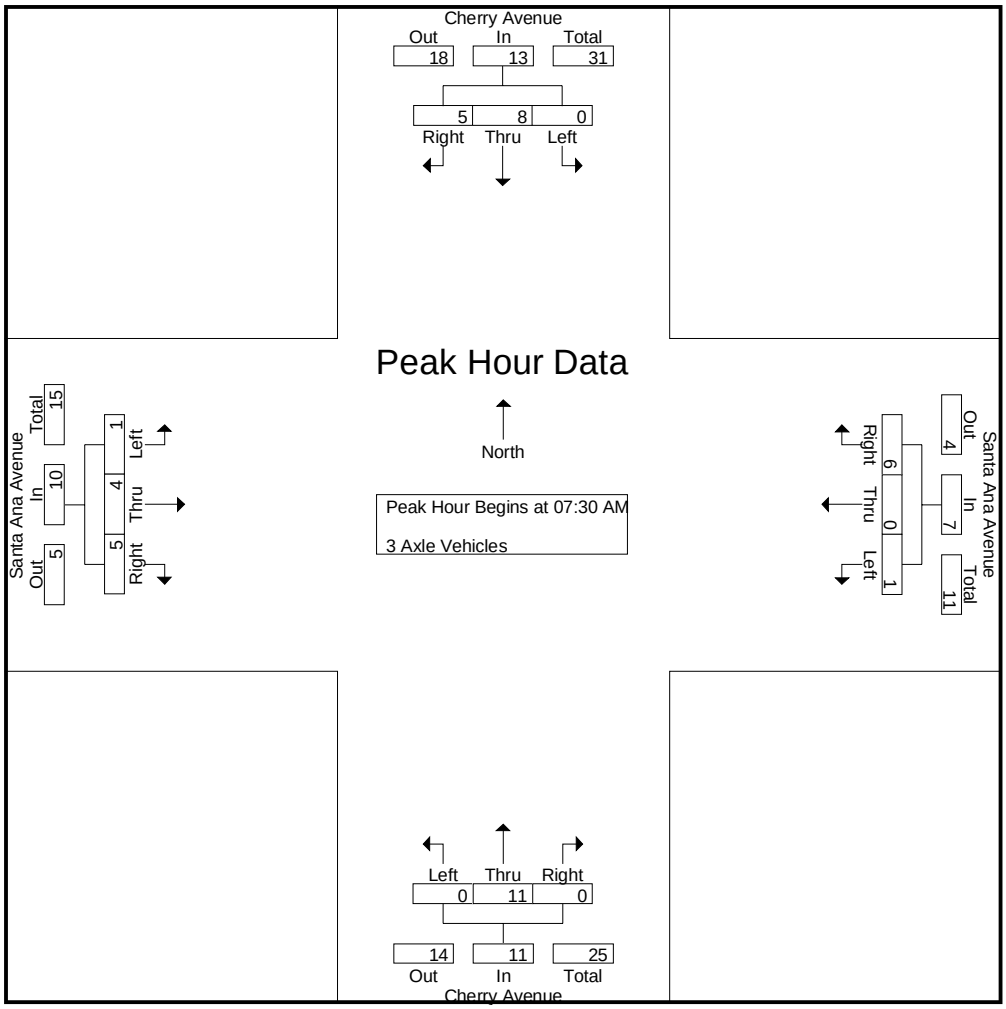

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	2	**2**	4	**1**	0	1	2	0	1	0	1	0	**1**	1	2
+15 mins.	0	2	1	3	0	0	**3**	**3**	0	0	0	0	**1**	1	**2**	**4**
+30 mins.	0	**4**	2	**6**	0	0	1	1	0	2	0	2	0	1	1	2
+45 mins.	0	0	0	0	0	0	1	1	0	**8**	0	**8**	0	1	1	2
Total Volume	0	8	5	13	1	0	6	7	0	11	0	11	1	4	5	10
% App. Total	0	61.5	38.5		14.3	0	85.7		0	100	0		10	40	50	
PHF	.000	.500	.625	.542	.250	.000	.500	.583	.000	.344	.000	.344	.250	1.000	.625	.625

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City of Fontana
N/S: Cherry Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Cherry_Santa Ana AM
Site Code : 10821516
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	2	5	7	0	0	1	1	0	4	0	4	3	1	0	4	16
07:15 AM	0	7	4	11	1	0	0	1	1	8	0	9	1	0	0	1	22
07:30 AM	7	6	0	13	0	1	1	2	0	7	0	7	1	0	0	1	23
07:45 AM	6	5	3	14	0	0	0	0	2	6	0	8	3	0	0	3	25
Total	13	20	12	45	1	1	2	4	3	25	0	28	8	1	0	9	86
08:00 AM	5	7	2	14	0	0	4	4	1	5	0	6	1	1	0	2	26
08:15 AM	6	4	5	15	0	1	5	6	1	12	0	13	1	0	0	1	35
08:30 AM	4	5	4	13	0	0	2	2	1	6	0	7	3	1	0	4	26
08:45 AM	4	2	2	8	1	1	0	2	1	11	1	13	5	0	0	5	28
Total	19	18	13	50	1	2	11	14	4	34	1	39	10	2	0	12	115
Grand Total	32	38	25	95	2	3	13	18	7	59	1	67	18	3	0	21	201
Apprch %	33.7	40	26.3		11.1	16.7	72.2		10.4	88.1	1.5		85.7	14.3	0		
Total %	15.9	18.9	12.4	47.3	1	1.5	6.5	9	3.5	29.4	0.5	33.3	9	1.5	0	10.4	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**7**	6	0	13	0	**1**	1	2	0	7	0	7	1	0	0	1	23
07:45 AM	6	5	3	14	0	0	0	0	**2**	6	0	8	**3**	0	0	**3**	25
08:00 AM	5	**7**	2	14	0	0	4	4	1	5	0	6	1	**1**	0	2	26
08:15 AM	6	4	**5**	**15**	0	1	**5**	**6**	1	**12**	0	**13**	1	0	0	1	**35**
Total Volume	24	22	10	56	0	2	10	12	4	30	0	34	6	1	0	7	109
% App. Total	42.9	39.3	17.9		0	16.7	83.3		11.8	88.2	0		85.7	14.3	0		
PHF	.857	.786	.500	.933	.000	.500	.500	.500	.500	.625	.000	.654	.500	.250	.000	.583	.779

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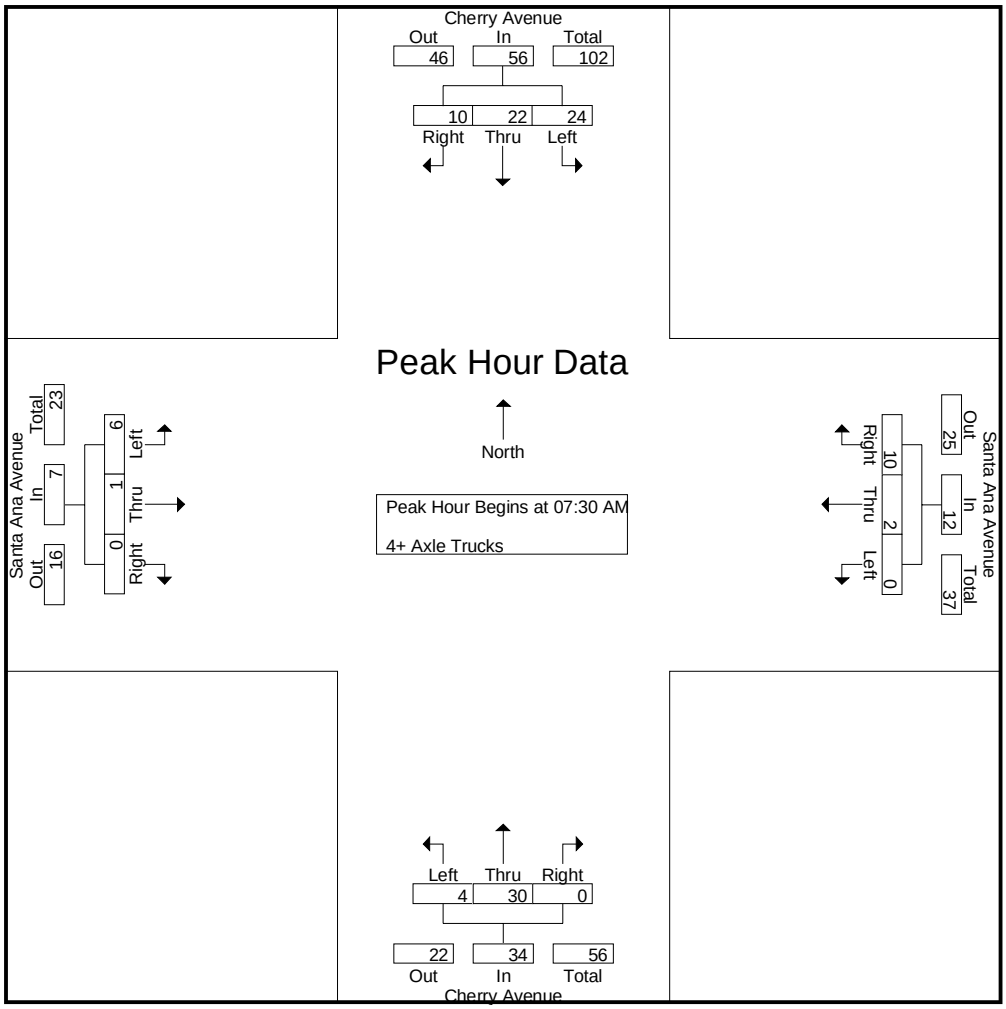

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	**7**	6	0	13	0	**1**	1	2	0	7	0	7	1	0	0	1
+15 mins.	6	5	3	14	0	0	0	0	**2**	6	0	8	**3**	0	0	**3**
+30 mins.	5	**7**	2	14	0	0	4	4	1	5	0	6	1	**1**	0	2
+45 mins.	6	4	**5**	**15**	0	1	**5**	**6**	1	**12**	0	**13**	1	0	0	1
Total Volume	24	22	10	56	0	2	10	12	4	30	0	34	6	1	0	7
% App. Total	42.9	39.3	17.9		0	16.7	83.3		11.8	88.2	0		85.7	14.3	0	
PHF	.857	.786	.500	.933	.000	.500	.500	.500	.500	.625	.000	.654	.500	.250	.000	.583

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Site Code : 10821516
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	11	163	30	204	2	4	11	17	4	134	6	144	36	16	4	56	421
04:15 PM	6	194	35	235	3	4	13	20	5	136	2	143	32	8	4	44	442
04:30 PM	12	199	35	246	3	4	11	18	1	149	3	153	59	14	8	81	498
04:45 PM	11	220	28	259	3	4	5	12	1	124	2	127	69	9	5	83	481
Total	40	776	128	944	11	16	40	67	11	543	13	567	196	47	21	264	1842
05:00 PM	7	243	20	270	4	4	11	19	1	133	5	139	51	16	10	77	505
05:15 PM	15	188	14	217	1	4	15	20	2	154	7	163	40	5	4	49	449
05:30 PM	9	205	14	228	7	1	7	15	3	144	3	150	40	7	6	53	446
05:45 PM	13	213	19	245	5	1	5	11	1	130	1	132	17	1	3	21	409
Total	44	849	67	960	17	10	38	65	7	561	16	584	148	29	23	200	1809
Grand Total	84	1625	195	1904	28	26	78	132	18	1104	29	1151	344	76	44	464	3651
Apprch %	4.4	85.3	10.2		21.2	19.7	59.1		1.6	95.9	2.5		74.1	16.4	9.5		
Total %	2.3	44.5	5.3	52.2	0.8	0.7	2.1	3.6	0.5	30.2	0.8	31.5	9.4	2.1	1.2	12.7	
Passenger Vehicles	58	1562	145	1765	25	19	72	116	14	1039	20	1073	309	69	41	419	3373
% Passenger Vehicles	69	96.1	74.4	92.7	89.3	73.1	92.3	87.9	77.8	94.1	69	93.2	89.8	90.8	93.2	90.3	92.4
Large 2 Axle Vehicles	3	24	15	42	0	3	0	3	1	19	3	23	10	1	1	12	80
% Large 2 Axle Vehicles	3.6	1.5	7.7	2.2	0	11.5	0	2.3	5.6	1.7	10.3	2	2.9	1.3	2.3	2.6	2.2
3 Axle Vehicles	3	14	9	26	3	2	2	7	3	16	0	19	8	3	1	12	64
% 3 Axle Vehicles	3.6	0.9	4.6	1.4	10.7	7.7	2.6	5.3	16.7	1.4	0	1.7	2.3	3.9	2.3	2.6	1.8
4+ Axle Trucks	20	25	26	71	0	2	4	6	0	30	6	36	17	3	1	21	134
% 4+ Axle Trucks	23.8	1.5	13.3	3.7	0	7.7	5.1	4.5	0	2.7	20.7	3.1	4.9	3.9	2.3	4.5	3.7

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	12	199	**35**	246	3	**4**	11	18	1	149	3	153	59	14	8	81	498
04:45 PM	11	220	28	259	3	4	5	12	1	124	2	127	**69**	9	5	**83**	481
05:00 PM	7	**243**	20	**270**	**4**	4	11	19	1	133	5	139	51	**16**	**10**	77	**505**
05:15 PM	**15**	188	14	217	1	4	**15**	**20**	**2**	**154**	**7**	**163**	40	5	4	49	449
Total Volume	45	850	97	992	11	16	42	69	5	560	17	582	219	44	27	290	1933
% App. Total	4.5	85.7	9.8		15.9	23.2	60.9		0.9	96.2	2.9		75.5	15.2	9.3		
PHF	.750	.874	.693	.919	.688	1.00	.700	.863	.625	.909	.607	.893	.793	.688	.675	.873	.957

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Weather: Clear

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Site Code : 10821516
Start Date : 9/28/2021
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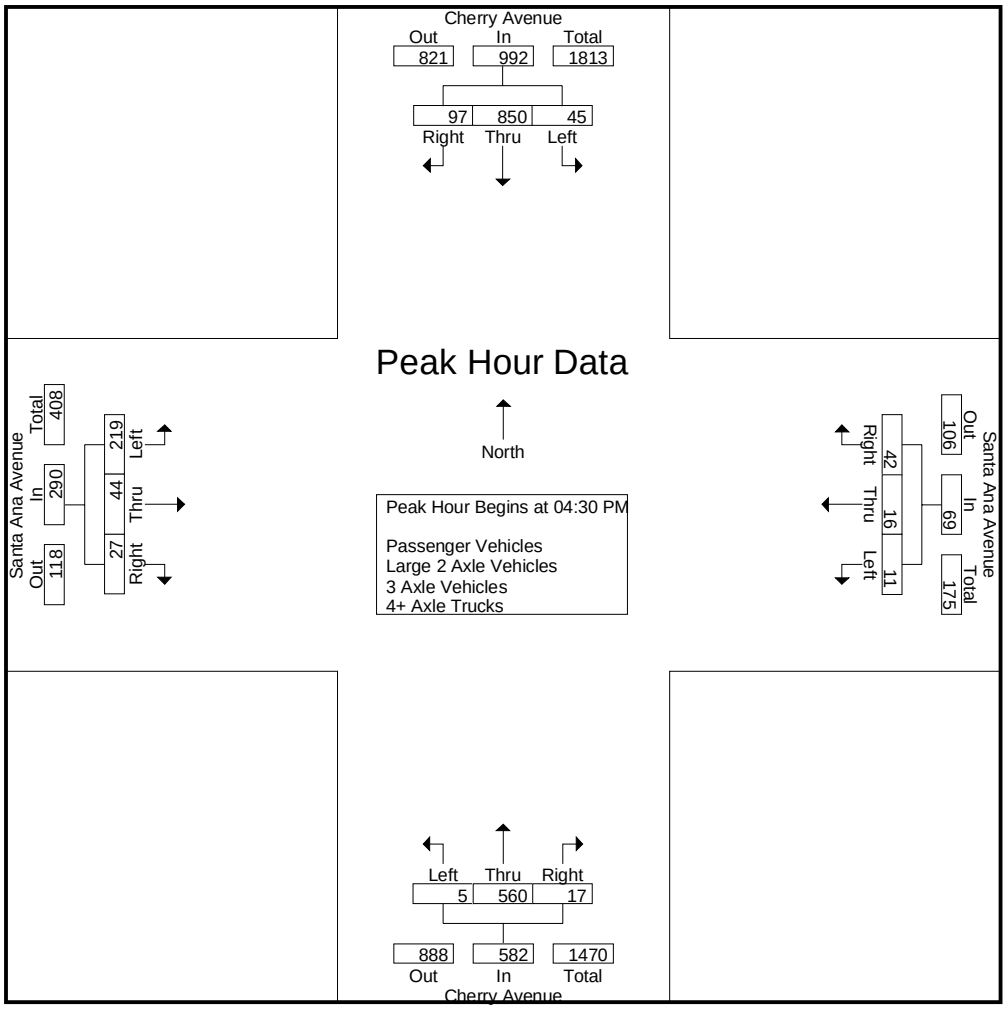

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				05:00 PM				04:30 PM			
+0 mins.	6	194	**35**	235	3	**4**	**13**	**20**	1	133	5	139	59	14	8	81
+15 mins.	**12**	199	35	246	3	4	11	18	2	**154**	**7**	**163**	**69**	9	5	**83**
+30 mins.	11	220	28	259	3	4	5	12	**3**	144	3	150	51	**16**	**10**	77
+45 mins.	7	**243**	20	**270**	**4**	4	11	19	1	130	1	132	40	5	4	49
Total Volume	36	856	118	1010	13	16	40	69	7	561	16	584	219	44	27	290
% App. Total	3.6	84.8	11.7		18.8	23.2	58		1.2	96.1	2.7		75.5	15.2	9.3	
PHF	.750	.881	.843	.935	.813	1.000	.769	.863	.583	.911	.571	.896	.793	.688	.675	.873

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City of Fontana
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Site Code : 10821516
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Groups Printed- Passenger Vehicles

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	8	158	19	185	2	3	10	15	4	126	6	136	30	15	4	49	385
04:15 PM	2	185	29	216	3	4	12	19	5	124	2	131	26	7	4	37	403
04:30 PM	8	193	28	229	3	3	11	17	0	140	3	143	56	14	7	77	466
04:45 PM	9	215	19	243	1	3	5	9	0	116	1	117	64	8	4	76	445
Total	27	751	95	873	9	13	38	60	9	506	12	527	176	44	19	239	1699
05:00 PM	5	234	16	255	4	2	10	16	0	126	1	127	44	14	10	68	466
05:15 PM	11	173	10	194	1	3	15	19	2	147	4	153	37	4	4	45	411
05:30 PM	4	199	12	215	6	1	5	12	2	135	3	140	37	6	5	48	415
05:45 PM	11	205	12	228	5	0	4	9	1	125	0	126	15	1	3	19	382
Total	31	811	50	892	16	6	34	56	5	533	8	546	133	25	22	180	1674
Grand Total	58	1562	145	1765	25	19	72	116	14	1039	20	1073	309	69	41	419	3373
Apprch %	3.3	88.5	8.2		21.6	16.4	62.1		1.3	96.8	1.9		73.7	16.5	9.8		
Total %	1.7	46.3	4.3	52.3	0.7	0.6	2.1	3.4	0.4	30.8	0.6	31.8	9.2	2	1.2	12.4	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	8	193	**28**	229	3	**3**	11	17	0	140	3	143	56	**14**	7	**77**	**466**
04:45 PM	9	215	19	243	1	3	5	9	0	116	1	117	**64**	8	4	76	445
05:00 PM	5	**234**	16	**255**	**4**	2	10	16	0	126	1	127	44	14	**10**	68	466
05:15 PM	**11**	173	10	194	1	3	**15**	**19**	**2**	**147**	**4**	**153**	37	4	4	45	411
Total Volume	33	815	73	921	9	11	41	61	2	529	9	540	201	40	25	266	1788
% App. Total	3.6	88.5	7.9		14.8	18	67.2		0.4	98	1.7		75.6	15	9.4		
PHF	.750	.871	.652	.903	.563	.917	.683	.803	.250	.900	.563	.882	.785	.714	.625	.864	.959

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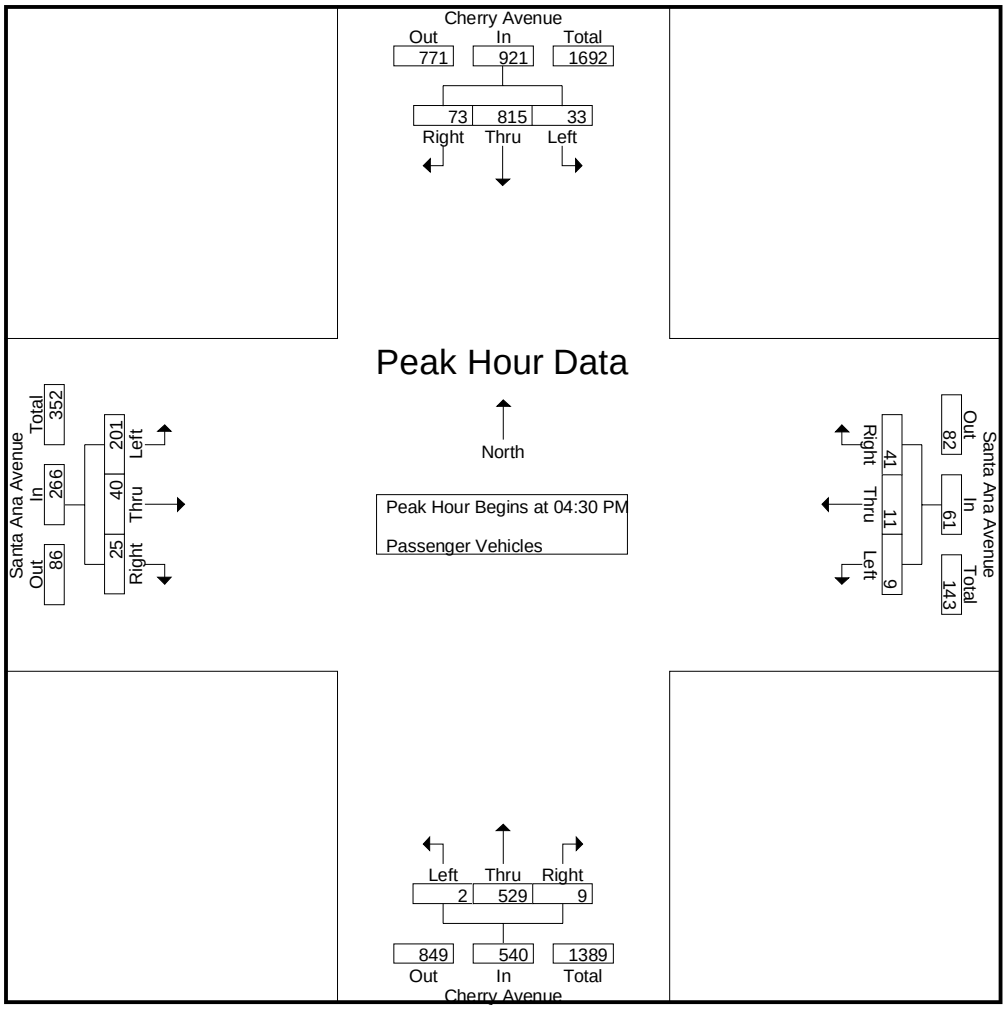

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	8	193	**28**	229	3	**3**	11	17	0	140	3	143	56	**14**	7	**77**
+15 mins.	9	215	19	243	1	3	5	9	0	116	1	117	**64**	8	4	76
+30 mins.	5	**234**	16	**255**	**4**	2	10	16	0	126	1	127	44	14	**10**	68
+45 mins.	**11**	173	10	194	1	3	**15**	**19**	**2**	**147**	**4**	**153**	37	4	4	45
Total Volume	33	815	73	921	9	11	41	61	2	529	9	540	201	40	25	266
% App. Total	3.6	88.5	7.9		14.8	18	67.2		0.4	98	1.7		75.6	15	9.4	
PHF	.750	.871	.652	.903	.563	.917	.683	.803	.250	.900	.563	.882	.785	.714	.625	.864

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File Name : 15_FON_Cherry_Santa Ana PM
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Groups Printed- Large 2 Axle Vehicles

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	3	3	6	0	1	0	1	0	3	0	3	2	0	0	2	12
04:15 PM	2	3	2	7	0	0	0	0	0	3	0	3	1	0	0	1	11
04:30 PM	0	3	2	5	0	1	0	1	0	3	0	3	1	0	0	1	10
04:45 PM	0	1	2	3	0	1	0	1	0	1	0	1	3	1	0	4	9
Total	2	10	9	21	0	3	0	3	0	10	0	10	7	1	0	8	42
05:00 PM	0	6	2	8	0	0	0	0	1	2	3	6	1	0	0	1	15
05:15 PM	1	3	2	6	0	0	0	0	0	2	0	2	1	0	0	1	9
05:30 PM	0	2	2	4	0	0	0	0	0	3	0	3	1	0	1	2	9
05:45 PM	0	3	0	3	0	0	0	0	0	2	0	2	0	0	0	0	5
Total	1	14	6	21	0	0	0	0	1	9	3	13	3	0	1	4	38
Grand Total	3	24	15	42	0	3	0	3	1	19	3	23	10	1	1	12	80
Apprch %	7.1	57.1	35.7		0	100	0		4.3	82.6	13		83.3	8.3	8.3		
Total %	3.8	30	18.8	52.5	0	3.8	0	3.8	1.2	23.8	3.8	28.8	12.5	1.2	1.2	15	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	3	**2**	5	0	**1**	0	**1**	0	**3**	0	3	1	0	0	1	10
04:45 PM	0	1	2	3	0	1	0	1	0	1	0	1	**3**	**1**	0	**4**	9
05:00 PM	0	**6**	2	**8**	0	0	0	0	**1**	2	**3**	**6**	1	0	0	1	**15**
05:15 PM	**1**	3	2	6	0	0	0	0	0	2	0	2	1	0	0	1	9
Total Volume	1	13	8	22	0	2	0	2	1	8	3	12	6	1	0	7	43
% App. Total	4.5	59.1	36.4		0	100	0		8.3	66.7	25		85.7	14.3	0		
PHF	.250	.542	1.00	.688	.000	.500	.000	.500	.250	.667	.250	.500	.500	.250	.000	.438	.717

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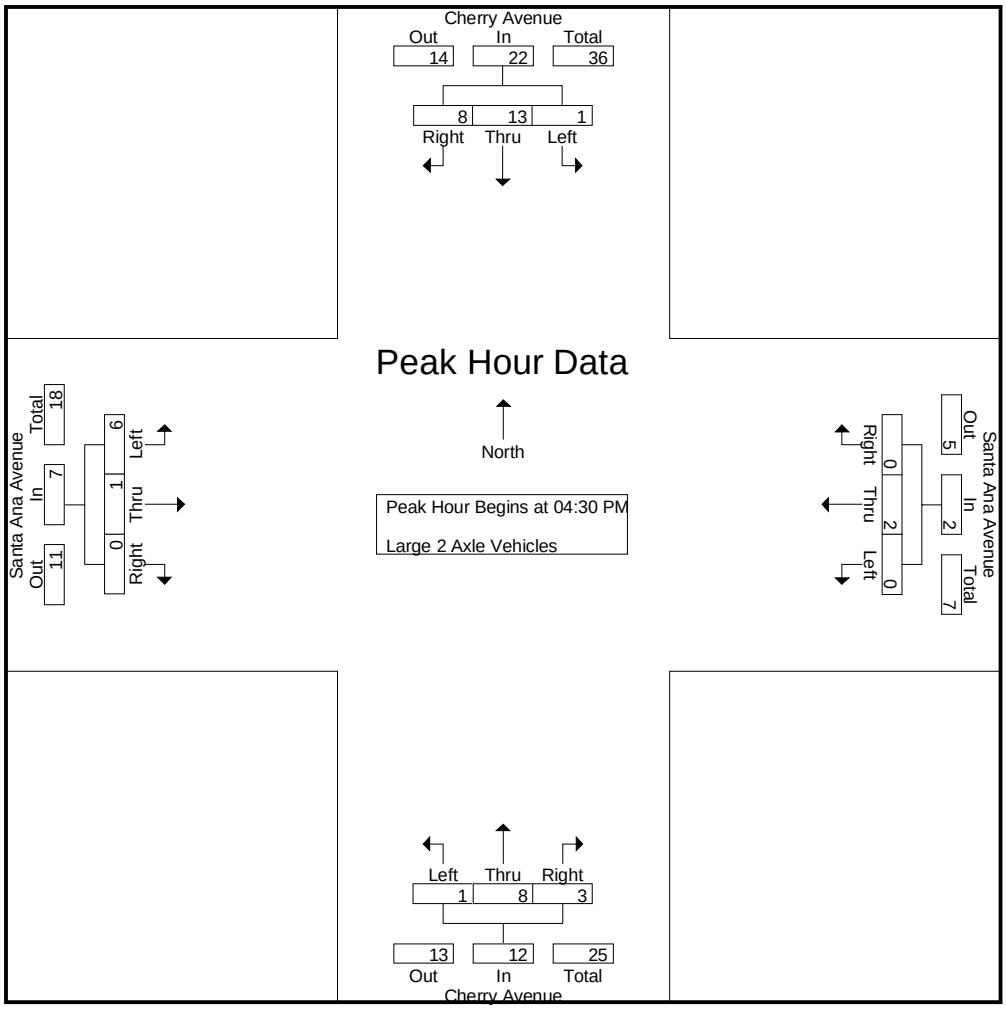

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	3	**2**	5	0	**1**	0	**1**	0	**3**	0	3	1	0	0	1
+15 mins.	0	1	2	3	0	1	0	1	0	1	0	1	**3**	**1**	0	**4**
+30 mins.	0	**6**	2	**8**	0	0	0	0	**1**	2	**3**	**6**	1	0	0	1
+45 mins.	**1**	3	2	6	0	0	0	0	0	2	0	2	1	0	0	1
Total Volume	1	13	8	22	0	2	0	2	1	8	3	12	6	1	0	7
% App. Total	4.5	59.1	36.4		0	100	0		8.3	66.7	25		85.7	14.3	0	
PHF	.250	.542	1.000	.688	.000	.500	.000	.500	.250	.667	.250	.500	.500	.250	.000	.438

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File Name : 15_FON_Cherry_Santa Ana PM
Site Code : 10821516
Start Date : 9/28/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	2	3	0	0	1	1	0	2	0	2	3	0	0	3	9
04:15 PM	0	2	1	3	0	0	0	0	0	2	0	2	2	1	0	3	8
04:30 PM	1	1	0	2	0	0	0	0	1	4	0	5	0	0	1	1	8
04:45 PM	0	3	2	5	2	0	0	2	1	0	0	1	1	0	0	1	9
Total	2	6	5	13	2	0	1	3	2	8	0	10	6	1	1	8	34
05:00 PM	0	0	0	0	0	1	1	2	0	3	0	3	2	1	0	3	8
05:15 PM	0	7	1	8	0	1	0	1	0	2	0	2	0	1	0	1	12
05:30 PM	1	1	0	2	1	0	0	1	1	2	0	3	0	0	0	0	6
05:45 PM	0	0	3	3	0	0	0	0	0	1	0	1	0	0	0	0	4
Total	1	8	4	13	1	2	1	4	1	8	0	9	2	2	0	4	30
Grand Total	3	14	9	26	3	2	2	7	3	16	0	19	8	3	1	12	64
Apprch %	11.5	53.8	34.6		42.9	28.6	28.6		15.8	84.2	0		66.7	25	8.3		
Total %	4.7	21.9	14.1	40.6	4.7	3.1	3.1	10.9	4.7	25	0	29.7	12.5	4.7	1.6	18.8	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**1**	1	0	2	0	0	0	0	**1**	**4**	0	**5**	0	0	**1**	1	8
04:45 PM	0	3	**2**	5	**2**	0	0	**2**	1	0	0	1	1	0	0	1	9
05:00 PM	0	0	0	0	0	**1**	**1**	2	0	3	0	3	**2**	**1**	0	**3**	8
05:15 PM	0	**7**	1	**8**	0	1	0	1	0	2	0	2	0	1	0	1	**12**
Total Volume	1	11	3	15	2	2	1	5	2	9	0	11	3	2	1	6	37
% App. Total	6.7	73.3	20		40	40	20		18.2	81.8	0		50	33.3	16.7		
PHF	.250	.393	.375	.469	.250	.500	.250	.625	.500	.563	.000	.550	.375	.500	.250	.500	.771

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Fontana
N/S: Cherry Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Cherry_Santa Ana PM
Site Code : 10821516
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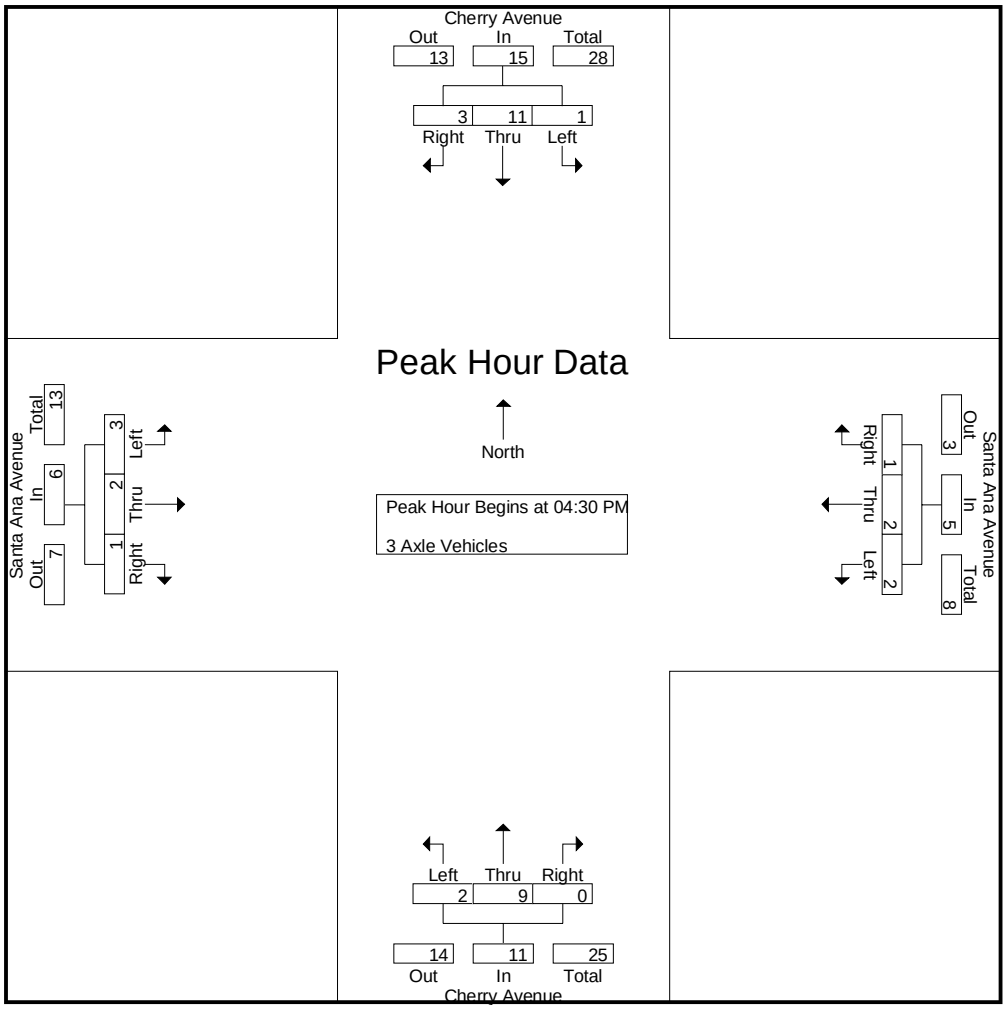

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	**1**	1	0	2	0	0	0	0	**1**	**4**	0	**5**	0	0	**1**	1
+15 mins.	0	3	**2**	5	**2**	0	0	**2**	1	0	0	1	1	0	0	1
+30 mins.	0	0	0	0	0	**1**	**1**	2	0	3	0	3	**2**	**1**	0	**3**
+45 mins.	0	**7**	1	**8**	0	1	0	1	0	2	0	2	0	1	0	1
Total Volume	1	11	3	15	2	2	1	5	2	9	0	11	3	2	1	6
% App. Total	6.7	73.3	20		40	40	20		18.2	81.8	0		50	33.3	16.7	
PHF	.250	.393	.375	.469	.250	.500	.250	.625	.500	.563	.000	.550	.375	.500	.250	.500

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City of Fontana
N/S: Cherry Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Cherry_Santa Ana PM
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Groups Printed- 4+ Axle Trucks

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	2	2	6	10	0	0	0	0	0	3	0	3	1	1	0	2	15
04:15 PM	2	4	3	9	0	0	1	1	0	7	0	7	3	0	0	3	20
04:30 PM	3	2	5	10	0	0	0	0	0	2	0	2	2	0	0	2	14
04:45 PM	2	1	5	8	0	0	0	0	0	7	1	8	1	0	1	2	18
Total	9	9	19	37	0	0	1	1	0	19	1	20	7	1	1	9	67
05:00 PM	2	3	2	7	0	1	0	1	0	2	1	3	4	1	0	5	16
05:15 PM	3	5	1	9	0	0	0	0	0	3	3	6	2	0	0	2	17
05:30 PM	4	3	0	7	0	0	2	2	0	4	0	4	2	1	0	3	16
05:45 PM	2	5	4	11	0	1	1	2	0	2	1	3	2	0	0	2	18
Total	11	16	7	34	0	2	3	5	0	11	5	16	10	2	0	12	67
Grand Total	20	25	26	71	0	2	4	6	0	30	6	36	17	3	1	21	134
Apprch %	28.2	35.2	36.6		0	33.3	66.7		0	83.3	16.7		81	14.3	4.8		
Total %	14.9	18.7	19.4	53	0	1.5	3	4.5	0	22.4	4.5	26.9	12.7	2.2	0.7	15.7	

	Cherry Avenue Southbound				Santa Ana Avenue Westbound				Cherry Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**3**	2	**5**	**10**	0	0	0	0	0	2	0	2	2	0	0	2	14
04:45 PM	2	1	5	8	0	0	0	0	0	**7**	1	**8**	1	0	**1**	2	**18**
05:00 PM	2	3	2	7	0	**1**	0	**1**	0	2	1	3	**4**	**1**	0	**5**	16
05:15 PM	3	**5**	1	9	0	0	0	0	0	3	**3**	6	2	0	0	2	17
Total Volume	10	11	13	34	0	1	0	1	0	14	5	19	9	1	1	11	65
% App. Total	29.4	32.4	38.2		0	100	0		0	73.7	26.3		81.8	9.1	9.1		
PHF	.833	.550	.650	.850	.000	.250	.000	.250	.000	.500	.417	.594	.563	.250	.250	.550	.903

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Weather: Clear

File Name : 15_FON_Cherry_Santa Ana PM
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Start Date : 9/28/2021
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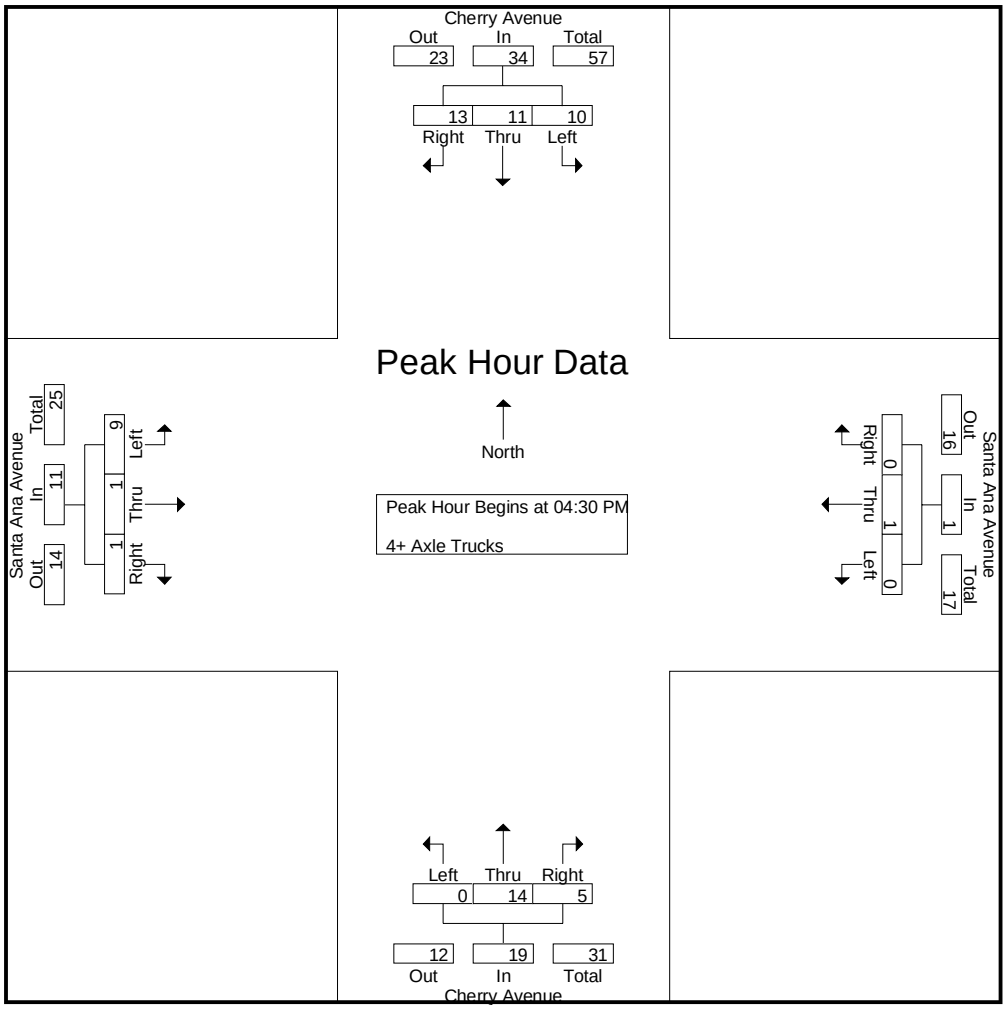


Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	**3**	2	**5**	**10**	0	0	0	0	0	2	0	2	2	0	0	2
+15 mins.	2	1	5	8	0	0	0	0	0	**7**	1	**8**	1	0	**1**	2
+30 mins.	2	3	2	7	0	**1**	0	**1**	0	2	1	3	**4**	**1**	0	**5**
+45 mins.	3	**5**	1	9	0	0	0	0	0	3	**3**	6	2	0	0	2
Total Volume	10	11	13	34	0	1	0	1	0	14	5	19	9	1	1	11
% App. Total	29.4	32.4	38.2		0	100	0		0	73.7	26.3		81.8	9.1	9.1	
PHF	.833	.550	.650	.850	.000	.250	.000	.250	.000	.500	.417	.594	.563	.250	.250	.550

APPENDIX C

PCE WORKSHEETS

Existing Peak Hour Volumes - Classification Counts

1 Cherry Ave at SR-210 WB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	150	2	2	3	7	4.5%	16	2.3	166	285	1	0	5	6	2.1%	17	2.8	302
NT	265	10	4	5	19	6.7%	38	2.0	303	515	8	4	12	24	4.5%	56	2.3	571
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	632	12	7	16	35	5.2%	80	2.3	712	416	3	8	8	19	4.4%	45	2.4	461
SR	197	0	0	1	1	0.5%	3	3.0	200	141	0	1	1	2	1.4%	5	2.5	146
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	299	6	5	14	25	7.7%	61	2.4	360	263	4	3	4	11	4.0%	24	2.2	287
WT	4	0	0	0	0	0.0%	0	0.0	4	0	0	0	0	0	0.0%	0	0.0	0
WR	238	8	1	0	9	3.6%	14	1.6	252	124	4	1	1	6	4.6%	11	1.8	135
									1,997									1,902
North Leg Volumes																		
Approach	829	12	7	17	36		83		912	557	3	9	9	21		50		607
Depart	503	18	5	5	28		52		555	639	12	5	13	30		67		706
Total	1,332	30	12	22	64	4.6%	135	2.1	1,467	1,196	15	14	22	51	4.1%	117	2.3	1,313
South Leg Volumes																		
Approach	415	12	6	8	26		54		469	800	9	4	17	30		73		873
Depart	931	18	12	30	60		141		1,072	679	7	11	12	30		69		748
Total	1,346	30	18	38	86	6.0%	195	2.3	1,541	1,479	16	15	29	60	3.9%	142	2.4	1,621
East Leg Volumes																		
Approach	541	14	6	14	34		75		616	387	8	4	5	17		35		422
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	541	14	6	14	34	5.9%	75	2.2	616	387	8	4	5	17	4.2%	35	2.1	422
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	351	2	2	4	8		19		370	426	1	1	6	8		22		448
Total	351	2	2	4	8	2.2%	19	2.4	370	426	1	1	6	8	1.8%	22	2.8	448
All Legs																		
Approach	1,785	38	19	39	96		212		1,997	1,744	20	17	31	68		158		1,902
Depart	1,785	38	19	39	96		212		1,997	1,744	20	17	31	68		158		1,902
Total	3,570	76	38	78	192	5.1%	424	2.2	3,994	3,488	40	34	62	136	3.8%	316	2.3	3,804

Existing Peak Hour Volumes - Classification Counts

2 Citrus Ave at SR-210 WB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	267	5	0	9	14	5.0%	35	2.5	302	311	2	0	3	5	1.6%	12	2.4	323
NT	865	13	3	5	21	2.4%	41	2.0	906	1,028	2	2	1	5	0.5%	10	2.0	1,038
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	789	5	2	7	14	1.7%	33	2.4	822	708	8	3	2	13	1.8%	24	1.8	732
SR	340	4	0	3	7	2.0%	15	2.1	355	380	6	0	2	8	2.1%	15	1.9	395
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	377	7	0	11	18	4.6%	44	2.4	421	324	3	3	2	8	2.4%	17	2.1	341
WT	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
WR	291	2	0	5	7	2.3%	18	2.6	309	329	2	0	0	2	0.6%	3	1.5	332
									3,116									3,161
North Leg Volumes																		
Approach	1,129	9	2	10	21		48		1,177	1,088	14	3	4	21		39		1,127
Depart	1,156	15	3	10	28		59		1,215	1,357	4	2	1	7		13		1,370
Total	2,285	24	5	20	49	2.1%	107	2.2	2,392	2,445	18	5	5	28	1.1%	52	1.9	2,497
South Leg Volumes																		
Approach	1,132	18	3	14	35		76		1,208	1,339	4	2	4	10		22		1,361
Depart	1,166	12	2	18	32		77		1,243	1,032	11	6	4	21		41		1,073
Total	2,298	30	5	32	67	2.8%	153	2.3	2,451	2,371	15	8	8	31	1.3%	63	2.0	2,434
East Leg Volumes																		
Approach	669	9	0	16	25		62		731	653	5	3	2	10		20		673
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	669	9	0	16	25	3.6%	62	2.5	731	653	5	3	2	10	1.5%	20	2.0	673
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	608	9	0	12	21		50		658	691	8	0	5	13		27		718
Total	608	9	0	12	21	3.3%	50	2.4	658	691	8	0	5	13	1.8%	27	2.1	718
All Legs																		
Approach	2,930	36	5	40	81		186		3,116	3,080	23	8	10	41		81		3,161
Depart	2,930	36	5	40	81		186		3,116	3,080	23	8	10	41		81		3,161
Total	5,860	72	10	80	162	2.7%	372	2.3	6,232	6,160	46	16	20	82	1.3%	162	2.0	6,322

Existing Peak Hour Volumes - Classification Counts

3 Sierra Ave at SR-210 WB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	726	12	6	12	30	4.0%	66	2.2	792	1,067	7	3	16	26	2.4%	65	2.5	1,132
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	1,022	15	2	10	27	2.6%	57	2.1	1,079	1,147	8	2	3	13	1.1%	25	1.9	1,172
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	485	3	1	6	10	2.0%	25	2.5	510	284	3	1	2	6	2.1%	13	2.2	297
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	278	4	2	1	7	2.5%	13	1.9	291	393	3	1	0	4	1.0%	7	1.8	400
									2,672									3,001
North Leg Volumes																		
Approach	1,022	15	2	10	27		57		1,079	1,147	8	2	3	13		25		1,172
Depart	1,004	16	8	13	37		79		1,083	1,460	10	4	16	30		72		1,532
Total	2,026	31	10	23	64	3.1%	136	2.1	2,162	2,607	18	6	19	43	1.6%	97	2.3	2,704
South Leg Volumes																		
Approach	726	12	6	12	30		66		792	1,067	7	3	16	26		65		1,132
Depart	1,507	18	3	16	37		82		1,589	1,431	11	3	5	19		38		1,469
Total	2,233	30	9	28	67	2.9%	148	2.2	2,381	2,498	18	6	21	45	1.8%	103	2.3	2,601
East Leg Volumes																		
Approach	763	7	3	7	17		38		801	677	6	2	2	10		20		697
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	763	7	3	7	17	2.2%	38	2.2	801	677	6	2	2	10	1.5%	20	2.0	697
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	2,511	34	11	29	74		161		2,672	2,891	21	7	21	49		110		3,001
Depart	2,511	34	11	29	74		161		2,672	2,891	21	7	21	49		110		3,001
Total	5,022	68	22	58	148	2.9%	322	2.2	5,344	5,782	42	14	42	98	1.7%	220	2.2	6,002

Existing Peak Hour Volumes - Classification Counts

4 Cherry Ave at SR-210 EB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	352	15	11	10	36	9.3%	75	2.1	427	620	5	4	17	26	4.0%	67	2.6	687
NR	272	10	4	8	22	7.5%	47	2.1	319	274	5	2	7	14	4.9%	33	2.4	307
SL	154	2	0	1	3	1.9%	6	2.0	160	72	0	0	0	0	0.0%	0	0.0	72
ST	678	16	8	29	53	7.3%	127	2.4	805	606	9	10	11	30	4.7%	67	2.2	673
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	148	2	1	0	3	2.0%	5	1.7	153	187	4	0	0	4	2.1%	6	1.5	193
ET	5	0	0	0	0	0.0%	0	0.0	5	2	0	0	0	0	0.0%	0	0.0	2
ER	232	10	2	15	27	10.4%	64	2.4	296	316	6	2	10	18	5.4%	43	2.4	359
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									2,165									2,293
North Leg Volumes																		
Approach	832	18	8	30	56		133		965	678	9	10	11	30		67		745
Depart	500	17	12	10	39		80		580	807	9	4	17	30		73		880
Total	1,332	35	20	40	95	6.7%	213	2.2	1,545	1,485	18	14	28	60	3.9%	140	2.3	1,625
South Leg Volumes																		
Approach	624	25	15	18	58		122		746	894	10	6	24	40		100		994
Depart	910	26	10	44	80		191		1,101	922	15	12	21	48		110		1,032
Total	1,534	51	25	62	138	8.3%	313	2.3	1,847	1,816	25	18	45	88	4.6%	210	2.4	2,026
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	431	12	4	9	25		53		484	348	5	2	7	14		33		381
Total	431	12	4	9	25	5.5%	53	2.1	484	348	5	2	7	14	3.9%	33	2.4	381
West Leg Volumes																		
Approach	385	12	3	15	30		69		454	505	10	2	10	22		49		554
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	385	12	3	15	30	7.2%	69	2.3	454	505	10	2	10	22	4.2%	49	2.2	554
All Legs																		
Approach	1,841	55	26	63	144		324		2,165	2,077	29	18	45	92		216		2,293
Depart	1,841	55	26	63	144		324		2,165	2,077	29	18	45	92		216		2,293
Total	3,682	110	52	126	288	7.3%	648	2.3	4,330	4,154	58	36	90	184	4.2%	432	2.3	4,586

Existing Peak Hour Volumes - Classification Counts

5 Citrus Ave at SR-210 EB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	754	17	2	11	30	3.8%	63	2.1	817	1,021	7	1	3	11	1.1%	22	2.0	1,043
NR	380	5	4	4	13	3.3%	28	2.2	408	260	1	2	1	4	1.5%	9	2.3	269
SL	290	4	0	2	6	2.0%	12	2.0	302	201	2	0	0	2	1.0%	3	1.5	204
ST	868	9	2	15	26	2.9%	63	2.4	931	666	1	1	4	6	0.9%	16	2.7	682
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	396	1	2	3	6	1.5%	15	2.5	411	493	2	0	0	2	0.4%	3	1.5	496
ET	3	0	0	0	0	0.0%	0	0.0	3	3	0	0	0	0	0.0%	0	0.0	3
ER	374	4	2	6	12	3.1%	28	2.3	402	332	5	2	0	7	2.1%	12	1.7	344
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									3,274									3,041
North Leg Volumes																		
Approach	1,158	13	2	17	32		75		1,233	867	3	1	4	8		19		886
Depart	1,150	18	4	14	36		78		1,228	1,514	9	1	3	13		25		1,539
Total	2,308	31	6	31	68	2.9%	153	2.3	2,461	2,381	12	2	7	21	0.9%	44	2.1	2,425
South Leg Volumes																		
Approach	1,134	22	6	15	43		91		1,225	1,281	8	3	4	15		31		1,312
Depart	1,242	13	4	21	38		91		1,333	998	6	3	4	13		28		1,026
Total	2,376	35	10	36	81	3.3%	182	2.2	2,558	2,279	14	6	8	28	1.2%	59	2.1	2,338
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	673	9	4	6	19		40		713	464	3	2	1	6		12		476
Total	673	9	4	6	19	2.7%	40	2.1	713	464	3	2	1	6	1.3%	12	2.0	476
West Leg Volumes																		
Approach	773	5	4	9	18		43		816	828	7	2	0	9		15		843
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	773	5	4	9	18	2.3%	43	2.4	816	828	7	2	0	9	1.1%	15	1.7	843
All Legs																		
Approach	3,065	40	12	41	93		209		3,274	2,976	18	6	8	32		65		3,041
Depart	3,065	40	12	41	93		209		3,274	2,976	18	6	8	32		65		3,041
Total	6,130	80	24	82	186	2.9%	418	2.2	6,548	5,952	36	12	16	64	1.1%	130	2.0	6,082

Existing Peak Hour Volumes - Classification Counts

6 Sierra Ave at SR-210 EB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	894	11	4	9	24	2.6%	52	2.2	946	1,370	11	3	8	22	1.6%	47	2.1	1,417
NR	453	5	1	0	6	1.3%	10	1.7	463	635	5	0	0	5	0.8%	8	1.6	643
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	1,218	15	6	4	25	2.0%	47	1.9	1,265	1,157	10	1	5	16	1.4%	32	2.0	1,189
SR	0	8	4	2	14	100.0%	26	1.9	26	0	8	1	9	18	100.0%	41	2.3	41
EL	118	4	3	10	17	12.6%	42	2.5	160	163	2	3	7	12	6.9%	30	2.5	193
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	511	11	2	7	20	3.8%	42	2.1	553	398	6	1	0	7	1.7%	11	1.6	409
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									3,413									3,892
North Leg Volumes																		
Approach	1,218	23	10	6	39		73		1,291	1,157	18	2	14	34		73		1,230
Depart	1,012	15	7	19	41		94		1,106	1,533	13	6	15	34		77		1,610
Total	2,230	38	17	25	80	3.5%	167	2.1	2,397	2,690	31	8	29	68	2.5%	150	2.2	2,840
South Leg Volumes																		
Approach	1,347	16	5	9	30		62		1,409	2,005	16	3	8	27		55		2,060
Depart	1,729	26	8	11	45		89		1,818	1,555	16	2	5	23		43		1,598
Total	3,076	42	13	20	75	2.4%	151	2.0	3,227	3,560	32	5	13	50	1.4%	98	2.0	3,658
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	453	5	1	0	6		10		463	635	5	0	0	5		8		643
Total	453	5	1	0	6	1.3%	10	1.7	463	635	5	0	0	5	0.8%	8	1.6	643
West Leg Volumes																		
Approach	629	15	5	17	37		84		713	561	8	4	7	19		41		602
Depart	0	8	4	2	14		26		26	0	8	1	9	18		41		41
Total	629	23	9	19	51	7.5%	110	2.2	739	561	16	5	16	37	6.2%	82	2.2	643
All Legs																		
Approach	3,194	54	20	32	106		219		3,413	3,723	42	9	29	80		169		3,892
Depart	3,194	54	20	32	106		219		3,413	3,723	42	9	29	80		169		3,892
Total	6,388	108	40	64	212	3.2%	438	2.1	6,826	7,446	84	18	58	160	2.1%	338	2.1	7,784

Existing Peak Hour Volumes - Classification Counts

7 Beech Ave at Highland Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	34	2	0	0	2	5.6%	3	1.5	37	26	0	0	0	0	0.0%	0	0.0	26
NT	561	6	0	0	6	1.1%	9	1.5	570	384	0	0	0	0	0.0%	0	0.0	384
NR	65	0	1	0	1	1.5%	2	2.0	67	85	1	0	0	1	1.2%	2	2.0	87
SL	53	1	0	0	1	1.9%	2	2.0	55	98	1	0	0	1	1.0%	2	2.0	100
ST	497	2	1	0	3	0.6%	5	1.7	502	383	2	0	0	2	0.5%	3	1.5	386
SR	87	2	0	1	3	3.3%	6	2.0	93	52	1	0	0	1	1.9%	2	2.0	54
EL	117	0	0	0	0	0.0%	0	0.0	117	65	0	0	0	0	0.0%	0	0.0	65
ET	193	4	0	0	4	2.0%	6	1.5	199	322	1	0	0	1	0.3%	2	2.0	324
ER	75	0	0	0	0	0.0%	0	0.0	75	60	0	0	0	0	0.0%	0	0.0	60
WL	88	1	0	0	1	1.1%	2	2.0	90	68	0	0	0	0	0.0%	0	0.0	68
WT	196	2	0	3	5	2.5%	12	2.4	208	181	1	1	0	2	1.1%	4	2.0	185
WR	59	1	0	0	1	1.7%	2	2.0	61	82	0	0	0	0	0.0%	0	0.0	82
									2,074									1,821
North Leg Volumes																		
Approach	637	5	1	1	7		13		650	533	4	0	0	4		7		540
Depart	737	7	0	0	7		11		748	531	0	0	0	0		0		531
Total	1,374	12	1	1	14	1.0%	24	1.7	1,398	1,064	4	0	0	4	0.4%	7	1.8	1,071
South Leg Volumes																		
Approach	660	8	1	0	9		14		674	495	1	0	0	1		2		497
Depart	660	3	1	0	4		7		667	511	2	0	0	2		3		514
Total	1,320	11	2	0	13	1.0%	21	1.6	1,341	1,006	3	0	0	3	0.3%	5	1.7	1,011
East Leg Volumes																		
Approach	343	4	0	3	7		16		359	331	1	1	0	2		4		335
Depart	311	5	1	0	6		10		321	505	3	0	0	3		6		511
Total	654	9	1	3	13	1.9%	26	2.0	680	836	4	1	0	5	0.6%	10	2.0	846
West Leg Volumes																		
Approach	385	4	0	0	4		6		391	447	1	0	0	1		2		449
Depart	317	6	0	4	10		21		338	259	2	1	0	3		6		265
Total	702	10	0	4	14	2.0%	27	1.9	729	706	3	1	0	4	0.6%	8	2.0	714
All Legs																		
Approach	2,025	21	2	4	27		49		2,074	1,806	7	1	0	8		15		1,821
Depart	2,025	21	2	4	27		49		2,074	1,806	7	1	0	8		15		1,821
Total	4,050	42	4	8	54	1.3%	98	1.8	4,148	3,612	14	2	0	16	0.4%	30	1.9	3,642

Existing Peak Hour Volumes - Classification Counts

8 Citrus Ave at Highland Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	75	0	0	0	0	0.0%	0	0.0	75	59	0	0	1	1	1.7%	3	3.0	62
NT	650	18	3	14	35	5.1%	75	2.1	725	729	6	3	2	11	1.5%	21	1.9	750
NR	69	2	0	0	2	2.8%	3	1.5	72	73	0	1	0	1	1.4%	2	2.0	75
SL	329	2	1	1	4	1.2%	8	2.0	337	289	2	1	0	3	1.0%	5	1.7	294
ST	854	11	4	21	36	4.0%	88	2.4	942	607	3	2	3	8	1.3%	18	2.3	625
SR	145	1	0	1	2	1.4%	5	2.5	150	106	0	0	0	0	0.0%	0	0.0	106
EL	211	1	1	0	2	0.9%	4	2.0	215	192	0	0	0	0	0.0%	0	0.0	192
ET	192	0	0	0	0	0.0%	0	0.0	192	295	3	0	0	3	1.0%	5	1.7	300
ER	50	0	0	1	1	2.0%	3	3.0	53	54	0	0	0	0	0.0%	0	0.0	54
WL	83	3	0	1	4	4.6%	8	2.0	91	116	2	1	1	4	3.3%	8	2.0	124
WT	194	0	0	1	1	0.5%	3	3.0	197	294	0	1	0	1	0.3%	2	2.0	296
WR	237	2	0	2	4	1.7%	9	2.3	246	355	1	0	2	3	0.8%	8	2.7	363
									3,295									3,241
North Leg Volumes																		
Approach	1,328	14	5	23	42		101		1,429	1,002	5	3	3	11		23		1,025
Depart	1,098	21	4	16	41		88		1,186	1,276	7	3	4	14		29		1,305
Total	2,426	35	9	39	83	3.3%	189	2.3	2,615	2,278	12	6	7	25	1.1%	52	2.1	2,330
South Leg Volumes																		
Approach	794	20	3	14	37		78		872	861	6	4	3	13		26		887
Depart	987	14	4	23	41		99		1,086	777	5	3	4	12		26		803
Total	1,781	34	7	37	78	4.2%	177	2.3	1,958	1,638	11	7	7	25	1.5%	52	2.1	1,690
East Leg Volumes																		
Approach	514	5	0	4	9		20		534	765	3	2	3	8		18		783
Depart	590	4	1	1	6		11		601	657	5	2	0	7		12		669
Total	1,104	9	1	5	15	1.3%	31	2.1	1,135	1,422	8	4	3	15	1.0%	30	2.0	1,452
West Leg Volumes																		
Approach	453	1	1	1	3		7		460	541	3	0	0	3		5		546
Depart	414	1	0	2	3		8		422	459	0	1	1	2		5		464
Total	867	2	1	3	6	0.7%	15	2.5	882	1,000	3	1	1	5	0.5%	10	2.0	1,010
All Legs																		
Approach	3,089	40	9	42	91		206		3,295	3,169	17	9	9	35		72		3,241
Depart	3,089	40	9	42	91		206		3,295	3,169	17	9	9	35		72		3,241
Total	6,178	80	18	84	182	2.9%	412	2.3	6,590	6,338	34	18	18	70	1.1%	144	2.1	6,482

Existing Peak Hour Volumes - Classification Counts

9 Sierra Ave at Highland Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	157	2	0	0	2	1.3%	3	1.5	160	59	0	0	0	0	0.0%	0	0.0	59
NT	875	15	3	5	23	2.6%	44	1.9	919	1,275	9	3	7	19	1.5%	41	2.2	1,316
NR	36	1	0	0	1	2.7%	2	2.0	38	63	0	1	0	1	1.6%	2	2.0	65
SL	192	4	0	7	11	5.4%	27	2.5	219	348	0	0	3	3	0.9%	9	3.0	357
ST	1,142	19	4	4	27	2.3%	49	1.8	1,191	936	14	2	4	20	2.1%	37	1.9	973
SR	395	4	1	0	5	1.3%	8	1.6	403	236	3	0	0	3	1.3%	5	1.7	241
EL	285	2	0	1	3	1.0%	6	2.0	291	412	5	0	2	7	1.7%	14	2.0	426
ET	248	1	1	0	2	0.8%	4	2.0	252	249	1	0	0	1	0.4%	2	2.0	251
ER	168	1	0	1	2	1.2%	5	2.5	173	48	2	0	0	2	4.0%	3	1.5	51
WL	16	0	0	0	0	0.0%	0	0.0	16	66	2	0	0	2	2.9%	3	1.5	69
WT	249	0	0	1	1	0.4%	3	3.0	252	166	2	1	0	3	1.8%	5	1.7	171
WR	185	0	1	4	5	2.6%	14	2.8	199	351	0	0	1	1	0.3%	3	3.0	354
									4,113									4,333
North Leg Volumes																		
Approach	1,729	27	5	11	43		84		1,813	1,520	17	2	7	26		51		1,571
Depart	1,345	17	4	10	31		64		1,409	2,038	14	3	10	27		58		2,096
Total	3,074	44	9	21	74	2.4%	148	2.0	3,222	3,558	31	5	17	53	1.5%	109	2.1	3,667
South Leg Volumes																		
Approach	1,068	18	3	5	26		49		1,117	1,397	9	4	7	20		43		1,440
Depart	1,326	20	4	5	29		54		1,380	1,050	18	2	4	24		43		1,093
Total	2,394	38	7	10	55	2.2%	103	1.9	2,497	2,447	27	6	11	44	1.8%	86	2.0	2,533
East Leg Volumes																		
Approach	450	0	1	5	6		17		467	583	4	1	1	6		11		594
Depart	476	6	1	7	14		33		509	660	1	1	3	5		13		673
Total	926	6	2	12	20	2.1%	50	2.5	976	1,243	5	2	4	11	0.9%	24	2.2	1,267
West Leg Volumes																		
Approach	701	4	1	2	7		15		716	709	8	0	2	10		19		728
Depart	801	6	1	1	8		14		815	461	5	1	0	6		10		471
Total	1,502	10	2	3	15	1.0%	29	1.9	1,531	1,170	13	1	2	16	1.3%	29	1.8	1,199
All Legs																		
Approach	3,948	49	10	23	82		165		4,113	4,209	38	7	17	62		124		4,333
Depart	3,948	49	10	23	82		165		4,113	4,209	38	7	17	62		124		4,333
Total	7,896	98	20	46	164	2.0%	330	2.0	8,226	8,418	76	14	34	124	1.5%	248	2.0	8,666

Existing Peak Hour Volumes - Classification Counts

10 Etiwanda Ave at Base Line Rd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	105	1	3	0	4	3.7%	8	2.0	113	102	0	0	0	0	0.0%	0	0.0	102
NT	266	0	1	0	1	0.4%	2	2.0	268	161	1	0	0	1	0.6%	2	2.0	163
NR	99	2	0	0	2	2.0%	3	1.5	102	201	1	0	1	2	1.0%	5	2.5	206
SL	144	2	0	0	2	1.4%	3	1.5	147	45	1	1	0	2	4.3%	4	2.0	49
ST	286	0	0	0	0	0.0%	0	0.0	286	81	0	5	1	6	6.9%	13	2.2	94
SR	257	0	0	0	0	0.0%	0	0.0	257	59	1	0	0	1	1.7%	2	2.0	61
EL	107	0	0	0	0	0.0%	0	0.0	107	74	0	0	0	0	0.0%	0	0.0	74
ET	492	2	3	2	7	1.4%	15	2.1	507	971	5	0	4	9	0.9%	20	2.2	991
ER	76	0	1	0	1	1.3%	2	2.0	78	105	0	5	0	5	4.5%	10	2.0	115
WL	169	0	0	1	1	0.6%	3	3.0	172	126	1	0	0	1	0.8%	2	2.0	128
WT	1,076	10	3	5	18	1.6%	36	2.0	1,112	614	4	0	0	4	0.6%	6	1.5	620
WR	232	1	1	0	2	0.9%	4	2.0	236	44	0	1	0	1	2.2%	2	2.0	46
									3,385									2,649
North Leg Volumes																		
Approach	687	2	0	0	2		3		690	185	2	6	1	9		19		204
Depart	605	1	2	0	3		6		611	279	1	1	0	2		4		283
Total	1,292	3	2	0	5	0.4%	9	1.8	1,301	464	3	7	1	11	2.3%	23	2.1	487
South Leg Volumes																		
Approach	470	3	4	0	7		13		483	464	2	0	1	3		7		471
Depart	531	0	1	1	2		5		536	312	1	10	1	12		25		337
Total	1,001	3	5	1	9	0.9%	18	2.0	1,019	776	3	10	2	15	1.9%	32	2.1	808
East Leg Volumes																		
Approach	1,477	11	4	6	21		43		1,520	784	5	1	0	6		10		794
Depart	735	6	3	2	11		21		756	1,217	7	1	5	13		29		1,246
Total	2,212	17	7	8	32	1.4%	64	2.0	2,276	2,001	12	2	5	19	0.9%	39	2.1	2,040
West Leg Volumes																		
Approach	675	2	4	2	8		17		692	1,150	5	5	4	14		30		1,180
Depart	1,438	11	6	5	22		44		1,482	775	5	0	0	5		8		783
Total	2,113	13	10	7	30	1.4%	61	2.0	2,174	1,925	10	5	4	19	1.0%	38	2.0	1,963
All Legs																		
Approach	3,309	18	12	8	38		76		3,385	2,583	14	12	6	32		66		2,649
Depart	3,309	18	12	8	38		76		3,385	2,583	14	12	6	32		66		2,649
Total	6,618	36	24	16	76	1.1%	152	2.0	6,770	5,166	28	24	12	64	1.2%	132	2.1	5,298

Existing Peak Hour Volumes - Classification Counts

11 I-15 SB Ramps at Base Line Rd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	353	0	1	4	5	1.4%	14	2.8	367	245	3	1	2	6	2.4%	13	2.2	258
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	551	3	1	3	7	1.3%	16	2.3	567	250	0	0	0	0	0.0%	0	0.0	250
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	524	3	1	2	6	1.1%	13	2.2	537	1,024	6	1	4	11	1.1%	23	2.1	1,047
ER	231	3	0	0	3	1.3%	5	1.7	236	166	2	0	0	2	1.2%	3	1.5	169
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	916	10	3	3	16	1.7%	30	1.9	946	546	5	2	0	7	1.3%	12	1.7	558
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									2,653									2,282
North Leg Volumes																		
Approach	904	3	2	7	12		30		934	495	3	1	2	6		13		508
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	904	3	2	7	12	1.3%	30	2.5	934	495	3	1	2	6	1.2%	13	2.2	508
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	231	3	0	0	3		5		236	166	2	0	0	2		3		169
Total	231	3	0	0	3	1.3%	5	1.7	236	166	2	0	0	2	1.2%	3	1.5	169
East Leg Volumes																		
Approach	916	10	3	3	16		30		946	546	5	2	0	7		12		558
Depart	877	3	2	6	11		27		904	1,269	9	2	6	17		36		1,305
Total	1,793	13	5	9	27	1.5%	57	2.1	1,850	1,815	14	4	6	24	1.3%	48	2.0	1,863
West Leg Volumes																		
Approach	755	6	1	2	9		18		773	1,190	8	1	4	13		26		1,216
Depart	1,467	13	4	6	23		46		1,513	796	5	2	0	7		12		808
Total	2,222	19	5	8	32	1.4%	64	2.0	2,286	1,986	13	3	4	20	1.0%	38	1.9	2,024
All Legs																		
Approach	2,575	19	6	12	37		78		2,653	2,231	16	4	6	26		51		2,282
Depart	2,575	19	6	12	37		78		2,653	2,231	16	4	6	26		51		2,282
Total	5,150	38	12	24	74	1.4%	156	2.1	5,306	4,462	32	8	12	52	1.2%	102	2.0	4,564

Existing Peak Hour Volumes - Classification Counts

12 I-15 NB Ramps at Baseline Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	260	4	0	4	8	3.0%	18	2.3	278	270	1	2	0	3	1.1%	6	2.0	276
NT	2	0	0	0	0	0.0%	0	0.0	2	0	0	0	0	0	0.0%	0	0.0	0
NR	286	7	0	3	10	3.4%	20	2.0	306	506	4	1	0	5	1.0%	8	1.6	514
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	339	2	3	2	7	2.0%	15	2.1	354	431	1	0	2	3	0.7%	8	2.7	439
ET	551	3	0	3	6	1.1%	14	2.3	565	897	6	0	2	8	0.9%	15	1.9	912
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	1,552	14	5	4	23	1.5%	43	1.9	1,595	767	11	4	2	17	2.2%	31	1.8	798
WR	159	3	0	5	8	4.8%	20	2.5	179	147	2	0	4	6	3.9%	15	2.5	162
									3,279									3,101
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	500	5	3	7	15		35		535	578	3	0	6	9		23		601
Total	500	5	3	7	15	2.9%	35	2.3	535	578	3	0	6	9	1.5%	23	2.6	601
South Leg Volumes																		
Approach	548	11	0	7	18		38		586	776	5	3	0	8		14		790
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	548	11	0	7	18	3.2%	38	2.1	586	776	5	3	0	8	1.0%	14	1.8	790
East Leg Volumes																		
Approach	1,711	17	5	9	31		63		1,774	914	13	4	6	23		46		960
Depart	837	10	0	6	16		34		871	1,403	10	1	2	13		23		1,426
Total	2,548	27	5	15	47	1.8%	97	2.1	2,645	2,317	23	5	8	36	1.5%	69	1.9	2,386
West Leg Volumes																		
Approach	890	5	3	5	13		29		919	1,328	7	0	4	11		23		1,351
Depart	1,812	18	5	8	31		61		1,873	1,037	12	6	2	20		37		1,074
Total	2,702	23	8	13	44	1.6%	90	2.0	2,792	2,365	19	6	6	31	1.3%	60	1.9	2,425
All Legs																		
Approach	3,149	33	8	21	62		130		3,279	3,018	25	7	10	42		83		3,101
Depart	3,149	33	8	21	62		130		3,279	3,018	25	7	10	42		83		3,101
Total	6,298	66	16	42	124	1.9%	260	2.1	6,558	6,036	50	14	20	84	1.4%	166	2.0	6,202

Existing Peak Hour Volumes - Classification Counts

13 Cherry Ave at Baseline Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	43	4	1	4	9	17.3%	20	2.2	63	132	3	1	5	9	6.4%	22	2.4	154
NT	438	20	8	15	43	8.9%	91	2.1	529	852	2	10	17	29	3.3%	74	2.6	926
NR	136	5	1	3	9	6.2%	19	2.1	155	316	1	1	6	8	2.5%	22	2.8	338
SL	67	0	1	0	1	1.5%	2	2.0	69	105	1	0	0	1	0.9%	2	2.0	107
ST	658	15	12	41	68	9.4%	170	2.5	828	372	4	12	11	27	6.8%	63	2.3	435
SR	400	5	1	0	6	1.5%	10	1.7	410	83	2	0	0	2	2.4%	3	1.5	86
EL	227	3	0	0	3	1.3%	5	1.7	232	303	1	0	0	1	0.3%	2	2.0	305
ET	480	7	1	3	11	2.2%	22	2.0	502	1,048	6	0	1	7	0.7%	12	1.7	1,060
ER	125	2	1	3	6	4.6%	14	2.3	139	79	0	1	0	1	1.3%	2	2.0	81
WL	392	4	2	4	10	2.5%	22	2.2	414	276	3	4	1	8	2.8%	16	2.0	292
WT	1,311	7	1	4	12	0.9%	25	2.1	1,336	565	10	2	2	14	2.4%	25	1.8	590
WR	66	0	0	0	0	0.0%	0	0.0	66	58	0	0	1	1	1.7%	3	3.0	61
									4,743									4,435
North Leg Volumes																		
Approach	1,125	20	14	41	75		182		1,307	560	7	12	11	30		68		628
Depart	731	23	8	15	46		96		827	1,213	3	10	18	31		79		1,292
Total	1,856	43	22	56	121	6.1%	278	2.3	2,134	1,773	10	22	29	61	3.3%	147	2.4	1,920
South Leg Volumes																		
Approach	617	29	10	22	61		130		747	1,300	6	12	28	46		118		1,418
Depart	1,175	21	15	48	84		206		1,381	727	7	17	12	36		81		808
Total	1,792	50	25	70	145	7.5%	336	2.3	2,128	2,027	13	29	40	82	3.9%	199	2.4	2,226
East Leg Volumes																		
Approach	1,769	11	3	8	22		47		1,816	899	13	6	4	23		44		943
Depart	683	12	3	6	21		43		726	1,469	8	1	7	16		36		1,505
Total	2,452	23	6	14	43	1.7%	90	2.1	2,542	2,368	21	7	11	39	1.6%	80	2.1	2,448
West Leg Volumes																		
Approach	832	12	2	6	20		41		873	1,430	7	1	1	9		16		1,446
Depart	1,754	16	3	8	27		55		1,809	780	15	3	7	25		50		830
Total	2,586	28	5	14	47	1.8%	96	2.0	2,682	2,210	22	4	8	34	1.5%	66	1.9	2,276
All Legs																		
Approach	4,343	72	29	77	178		400		4,743	4,189	33	31	44	108		246		4,435
Depart	4,343	72	29	77	178		400		4,743	4,189	33	31	44	108		246		4,435
Total	8,686	144	58	154	356	3.9%	800	2.2	9,486	8,378	66	62	88	216	2.5%	492	2.3	8,870

Existing Peak Hour Volumes - Classification Counts

14 Beech Ave at Baseline Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	63	1	0	0	1	1.6%	2	2.0	65	94	0	0	0	0	0.0%	0	0.0	94
NT	239	0	0	0	0	0.0%	0	0.0	239	247	2	0	0	2	0.8%	3	1.5	250
NR	13	0	0	0	0	0.0%	0	0.0	13	22	1	0	0	1	4.3%	2	2.0	24
SL	92	1	0	0	1	1.1%	2	2.0	94	128	2	0	0	2	1.5%	3	1.5	131
ST	236	2	0	0	2	0.8%	3	1.5	239	188	0	0	1	1	0.5%	3	3.0	191
SR	190	2	2	0	4	2.1%	7	1.8	197	90	0	0	0	0	0.0%	0	0.0	90
EL	130	1	0	0	1	0.8%	2	2.0	132	211	0	0	0	0	0.0%	0	0.0	211
ET	389	3	2	7	12	3.0%	30	2.5	419	953	4	1	6	11	1.1%	26	2.4	979
ER	37	0	0	0	0	0.0%	0	0.0	37	71	1	0	0	1	1.4%	2	2.0	73
WL	45	0	0	0	0	0.0%	0	0.0	45	61	1	1	0	2	3.2%	4	2.0	65
WT	547	7	2	9	18	3.2%	42	2.3	589	525	5	2	5	12	2.2%	27	2.3	552
WR	82	0	0	0	0	0.0%	0	0.0	82	121	0	0	0	0	0.0%	0	0.0	121
									2,151									2,781
North Leg Volumes																		
Approach	518	5	2	0	7		12		530	406	2	0	1	3		6		412
Depart	451	1	0	0	1		2		453	579	2	0	0	2		3		582
Total	969	6	2	0	8	0.8%	14	1.8	983	985	4	0	1	5	0.5%	9	1.8	994
South Leg Volumes																		
Approach	315	1	0	0	1		2		317	363	3	0	0	3		5		368
Depart	318	2	0	0	2		3		321	320	2	1	1	4		9		329
Total	633	3	0	0	3	0.5%	5	1.7	638	683	5	1	1	7	1.0%	14	2.0	697
East Leg Volumes																		
Approach	674	7	2	9	18		42		716	707	6	3	5	14		31		738
Depart	494	4	2	7	13		32		526	1,103	7	1	6	14		31		1,134
Total	1,168	11	4	16	31	2.6%	74	2.4	1,242	1,810	13	4	11	28	1.5%	62	2.2	1,872
West Leg Volumes																		
Approach	556	4	2	7	13		32		588	1,235	5	1	6	12		28		1,263
Depart	800	10	4	9	23		51		851	709	5	2	5	12		27		736
Total	1,356	14	6	16	36	2.6%	83	2.3	1,439	1,944	10	3	11	24	1.2%	55	2.3	1,999
All Legs																		
Approach	2,063	17	6	16	39		88		2,151	2,711	16	4	12	32		70		2,781
Depart	2,063	17	6	16	39		88		2,151	2,711	16	4	12	32		70		2,781
Total	4,126	34	12	32	78	1.9%	176	2.3	4,302	5,422	32	8	24	64	1.2%	140	2.2	5,562

Existing Peak Hour Volumes - Classification Counts

15 Citrus Ave at Baseline Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	111	4	0	1	5	4.3%	9	1.8	120	95	0	0	0	0	0.0%	0	0.0	95
NT	522	7	1	12	20	3.7%	49	2.5	571	589	4	3	2	9	1.5%	18	2.0	607
NR	733	0	0	0	0	0.0%	0	0.0	733	63	0	0	2	2	3.1%	6	3.0	69
SL	112	2	3	1	6	5.1%	12	2.0	124	124	2	0	0	2	1.6%	3	1.5	127
ST	708	7	5	14	26	3.5%	63	2.4	771	422	1	2	5	8	1.9%	21	2.6	443
SR	225	4	0	2	6	2.6%	12	2.0	237	95	2	1	2	5	5.0%	11	2.2	106
EL	263	4	1	1	6	2.2%	11	1.8	274	291	3	0	1	4	1.4%	8	2.0	299
ET	328	3	2	3	8	2.4%	18	2.3	346	689	5	1	7	13	1.9%	31	2.4	720
ER	104	0	1	1	2	1.9%	5	2.5	109	115	0	0	0	0	0.0%	0	0.0	115
WL	134	3	1	5	9	6.3%	22	2.4	156	146	0	4	2	6	3.9%	14	2.3	160
WT	623	6	3	7	16	2.5%	36	2.3	659	496	3	5	5	13	2.6%	30	2.3	526
WR	92	4	2	0	6	6.1%	10	1.7	102	58	0	0	0	0	0.0%	0	0.0	58
									4,202									3,325
North Leg Volumes																		
Approach	1,045	13	8	17	38		87		1,132	641	5	3	7	15		35		676
Depart	877	15	4	13	32		70		947	938	7	3	3	13		26		964
Total	1,922	28	12	30	70	3.5%	157	2.2	2,079	1,579	12	6	10	28	1.7%	61	2.2	1,640
South Leg Volumes																		
Approach	1,366	11	1	13	25		58		1,424	747	4	3	4	11		24		771
Depart	946	10	7	20	37		90		1,036	683	1	6	7	14		35		718
Total	2,312	21	8	33	62	2.6%	148	2.4	2,460	1,430	5	9	11	25	1.7%	59	2.4	1,489
East Leg Volumes																		
Approach	849	13	6	12	31		68		917	700	3	9	7	19		44		744
Depart	1,173	5	5	4	14		30		1,203	876	7	1	9	17		40		916
Total	2,022	18	11	16	45	2.2%	98	2.2	2,120	1,576	10	10	16	36	2.2%	84	2.3	1,660
West Leg Volumes																		
Approach	695	7	4	5	16		34		729	1,095	8	1	8	17		39		1,134
Depart	959	14	3	10	27		57		1,016	686	5	6	7	18		41		727
Total	1,654	21	7	15	43	2.5%	91	2.1	1,745	1,781	13	7	15	35	1.9%	80	2.3	1,861
All Legs																		
Approach	3,955	44	19	47	110		247		4,202	3,183	20	16	26	62		142		3,325
Depart	3,955	44	19	47	110		247		4,202	3,183	20	16	26	62		142		3,325
Total	7,910	88	38	94	220	2.7%	494	2.2	8,404	6,366	40	32	52	124	1.9%	284	2.3	6,650

Existing Peak Hour Volumes - Classification Counts

16 Sierra Ave at Baseline Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	155	0	1	0	1	0.6%	2	2.0	157	104	0	0	0	0	0.0%	0	0.0	104
NT	585	8	1	10	19	3.1%	44	2.3	629	952	7	1	3	11	1.1%	22	2.0	974
NR	49	1	1	1	3	5.8%	7	2.3	56	61	0	0	0	0	0.0%	0	0.0	61
SL	213	2	2	0	4	1.8%	7	1.8	220	223	2	0	0	2	0.9%	3	1.5	226
ST	1,015	9	2	7	18	1.7%	39	2.2	1,054	490	6	1	3	10	2.0%	20	2.0	510
SR	95	2	3	0	5	5.0%	9	1.8	104	55	0	0	0	0	0.0%	0	0.0	55
EL	90	1	1	0	2	2.2%	4	2.0	94	134	0	1	0	1	0.7%	2	2.0	136
ET	393	1	2	2	5	1.3%	12	2.4	405	565	4	1	8	13	2.2%	32	2.5	597
ER	106	2	0	0	2	1.9%	3	1.5	109	90	0	0	0	0	0.0%	0	0.0	90
WL	83	0	2	1	3	3.5%	7	2.3	90	89	0	0	1	1	1.1%	3	3.0	92
WT	424	9	6	14	29	6.4%	68	2.3	492	588	5	10	8	23	3.8%	52	2.3	640
WR	127	2	0	3	5	3.8%	12	2.4	139	215	4	1	4	9	4.0%	20	2.2	235
									3,549									3,720
North Leg Volumes																		
Approach	1,323	13	7	7	27		55		1,378	768	8	1	3	12		23		791
Depart	802	11	2	13	26		60		862	1,301	11	3	7	21		44		1,345
Total	2,125	24	9	20	53	2.4%	115	2.2	2,240	2,069	19	4	10	33	1.6%	67	2.0	2,136
South Leg Volumes																		
Approach	789	9	3	11	23		53		842	1,117	7	1	3	11		22		1,139
Depart	1,204	11	4	8	23		49		1,253	669	6	1	4	11		23		692
Total	1,993	20	7	19	46	2.3%	102	2.2	2,095	1,786	13	2	7	22	1.2%	45	2.0	1,831
East Leg Volumes																		
Approach	634	11	8	18	37		87		721	892	9	11	13	33		75		967
Depart	655	4	5	3	12		26		681	849	6	1	8	15		35		884
Total	1,289	15	13	21	49	3.7%	113	2.3	1,402	1,741	15	12	21	48	2.7%	110	2.3	1,851
West Leg Volumes																		
Approach	589	4	3	2	9		19		608	789	4	2	8	14		34		823
Depart	674	11	10	14	35		79		753	747	5	10	8	23		52		799
Total	1,263	15	13	16	44	3.4%	98	2.2	1,361	1,536	9	12	16	37	2.4%	86	2.3	1,622
All Legs																		
Approach	3,335	37	21	38	96		214		3,549	3,566	28	15	27	70		154		3,720
Depart	3,335	37	21	38	96		214		3,549	3,566	28	15	27	70		154		3,720
Total	6,670	74	42	76	192	2.8%	428	2.2	7,098	7,132	56	30	54	140	1.9%	308	2.2	7,440

Existing Peak Hour Volumes - Classification Counts

1 Etiwanda Ave at Church St/Miller Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	141	0	0	0	0	0.0%	0	0.0	141	126	3	1	0	4	3.1%	7	1.8	133
NT	234	2	1	0	3	1.3%	5	1.7	239	254	1	0	0	1	0.4%	2	2.0	256
NR	142	2	0	0	2	1.4%	3	1.5	145	93	3	0	0	3	3.1%	5	1.7	98
SL	74	1	0	0	1	1.3%	2	2.0	76	23	0	0	0	0	0.0%	0	0.0	23
ST	280	1	0	0	1	0.4%	2	2.0	282	187	2	17	0	19	9.2%	37	1.9	224
SR	121	0	0	0	0	0.0%	0	0.0	121	93	0	0	0	0	0.0%	0	0.0	93
EL	84	2	0	0	2	2.3%	3	1.5	87	137	0	0	0	0	0.0%	0	0.0	137
ET	247	1	0	0	1	0.4%	2	2.0	249	435	1	1	0	2	0.5%	4	2.0	439
ER	106	1	0	0	1	0.9%	2	2.0	108	163	0	2	0	2	1.2%	4	2.0	167
WL	91	2	0	0	2	2.2%	3	1.5	94	42	0	0	0	0	0.0%	0	0.0	42
WT	462	1	0	0	1	0.2%	2	2.0	464	254	1	0	0	1	0.4%	2	2.0	256
WR	67	1	0	0	1	1.5%	2	2.0	69	30	0	0	0	0	0.0%	0	0.0	30
									2,075									1,898
North Leg Volumes																		
Approach	475	2	0	0	2		4		479	303	2	17	0	19		37		340
Depart	385	5	1	0	6		10		395	421	1	0	0	1		2		423
Total	860	7	1	0	8	0.9%	14	1.8	874	724	3	17	0	20	2.7%	39	2.0	763
South Leg Volumes																		
Approach	517	4	1	0	5		8		525	473	7	1	0	8		14		487
Depart	477	4	0	0	4		7		484	392	2	19	0	21		41		433
Total	994	8	1	0	9	0.9%	15	1.7	1,009	865	9	20	0	29	3.2%	55	1.9	920
East Leg Volumes																		
Approach	620	4	0	0	4		7		627	326	1	0	0	1		2		328
Depart	463	4	0	0	4		7		470	551	4	1	0	5		9		560
Total	1,083	8	0	0	8	0.7%	14	1.8	1,097	877	5	1	0	6	0.7%	11	1.8	888
West Leg Volumes																		
Approach	437	4	0	0	4		7		444	735	1	3	0	4		8		743
Depart	724	1	0	0	1		2		726	473	4	1	0	5		9		482
Total	1,161	5	0	0	5	0.4%	9	1.8	1,170	1,208	5	4	0	9	0.7%	17	1.9	1,225
All Legs																		
Approach	2,049	14	1	0	15		26		2,075	1,837	11	21	0	32		61		1,898
Depart	2,049	14	1	0	15		26		2,075	1,837	11	21	0	32		61		1,898
Total	4,098	28	2	0	30	0.7%	52	1.7	4,150	3,674	22	42	0	64	1.7%	122	1.9	3,796

Existing Peak Hour Volumes - Classification Counts

2 I-15 SB Ramps at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	109	3	3	10	16	12.8%	41	2.6	150	118	2	2	14	18	13.2%	49	2.7	167
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	795	3	2	15	20	2.5%	54	2.7	849	513	1	0	7	8	1.5%	23	2.9	536
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	468	9	7	8	24	4.9%	52	2.2	520	1,828	13	4	14	31	1.7%	70	2.3	1,898
ER	743	12	2	11	25	3.3%	55	2.2	798	905	10	1	4	15	1.6%	29	1.9	934
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	1,340	28	7	13	48	3.5%	95	2.0	1,435	1,321	6	3	4	13	1.0%	27	2.1	1,348
WR	579	13	6	12	31	5.1%	68	2.2	647	419	4	0	12	16	3.7%	42	2.6	461
									4,399									5,344
North Leg Volumes																		
Approach	904	6	5	25	36		95		999	631	3	2	21	26		72		703
Depart	579	13	6	12	31		68		647	419	4	0	12	16		42		461
Total	1,483	19	11	37	67	4.3%	163	2.4	1,646	1,050	7	2	33	42	3.8%	114	2.7	1,164
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	743	12	2	11	25		55		798	905	10	1	4	15		29		934
Total	743	12	2	11	25	3.3%	55	2.2	798	905	10	1	4	15	1.6%	29	1.9	934
East Leg Volumes																		
Approach	1,919	41	13	25	79		163		2,082	1,740	10	3	16	29		69		1,809
Depart	577	12	10	18	40		93		670	1,946	15	6	28	49		119		2,065
Total	2,496	53	23	43	119	4.6%	256	2.2	2,752	3,686	25	9	44	78	2.1%	188	2.4	3,874
West Leg Volumes																		
Approach	1,211	21	9	19	49		107		1,318	2,733	23	5	18	46		99		2,832
Depart	2,135	31	9	28	68		149		2,284	1,834	7	3	11	21		50		1,884
Total	3,346	52	18	47	117	3.4%	256	2.2	3,602	4,567	30	8	29	67	1.4%	149	2.2	4,716
All Legs																		
Approach	4,034	68	27	69	164		365		4,399	5,104	36	10	55	101		240		5,344
Depart	4,034	68	27	69	164		365		4,399	5,104	36	10	55	101		240		5,344
Total	8,068	136	54	138	328	3.9%	730	2.2	8,798	10,208	72	20	110	202	1.9%	480	2.4	10,688

Existing Peak Hour Volumes - Classification Counts

3 I-15 NB Ramps at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	811	17	3	10	30	3.6%	62	2.1	873	711	2	4	3	9	1.3%	20	2.2	731
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	389	20	6	21	47	10.8%	105	2.2	494	417	9	2	10	21	4.8%	48	2.3	465
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	358	15	9	14	38	9.6%	83	2.2	441	1,008	14	6	17	37	3.5%	84	2.3	1,092
ER	234	5	1	5	11	4.5%	25	2.3	259	950	6	0	9	15	1.6%	36	2.4	986
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	1,127	23	9	13	45	3.8%	92	2.0	1,219	1,059	7	4	12	23	2.1%	55	2.4	1,114
WR	137	6	0	17	23	14.4%	60	2.6	197	255	7	1	8	16	5.9%	37	2.3	292
									3,483									4,680
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	137	6	0	17	23		60		197	255	7	1	8	16		37		292
Total	137	6	0	17	23	14.4%	60	2.6	197	255	7	1	8	16	5.9%	37	2.3	292
South Leg Volumes																		
Approach	1,200	37	9	31	77		167		1,367	1,128	11	6	13	30		68		1,196
Depart	234	5	1	5	11		25		259	950	6	0	9	15		36		986
Total	1,434	42	10	36	88	5.8%	192	2.2	1,626	2,078	17	6	22	45	2.1%	104	2.3	2,182
East Leg Volumes																		
Approach	1,264	29	9	30	68		152		1,416	1,314	14	5	20	39		92		1,406
Depart	747	35	15	35	85		188		935	1,425	23	8	27	58		132		1,557
Total	2,011	64	24	65	153	7.1%	340	2.2	2,351	2,739	37	13	47	97	3.4%	224	2.3	2,963
West Leg Volumes																		
Approach	592	20	10	19	49		108		700	1,958	20	6	26	52		120		2,078
Depart	1,938	40	12	23	75		154		2,092	1,770	9	8	15	32		75		1,845
Total	2,530	60	22	42	124	4.7%	262	2.1	2,792	3,728	29	14	41	84	2.2%	195	2.3	3,923
All Legs																		
Approach	3,056	86	28	80	194		427		3,483	4,400	45	17	59	121		280		4,680
Depart	3,056	86	28	80	194		427		3,483	4,400	45	17	59	121		280		4,680
Total	6,112	172	56	160	388	6.0%	854	2.2	6,966	8,800	90	34	118	242	2.7%	560	2.3	9,360

Existing Peak Hour Volumes - Classification Counts

4 Etiwanda Ave at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	109	3	6	9	18	14.2%	44	2.4	153	216	1	3	12	16	6.9%	44	2.8	260
NT	188	1	3	1	5	2.6%	11	2.2	199	343	2	1	0	3	0.9%	5	1.7	348
NR	59	3	0	1	4	6.3%	8	2.0	67	189	0	0	0	0	0.0%	0	0.0	189
SL	48	1	0	0	1	2.0%	2	2.0	50	60	0	1	0	1	1.6%	2	2.0	62
ST	331	3	1	1	5	1.5%	10	2.0	341	164	4	18	1	23	12.3%	45	2.0	209
SR	225	1	0	1	2	0.9%	5	2.5	230	150	0	1	1	2	1.3%	5	2.5	155
EL	96	0	2	0	2	2.0%	4	2.0	100	236	0	0	0	0	0.0%	0	0.0	236
ET	364	12	0	22	34	8.5%	84	2.5	448	888	8	2	9	19	2.1%	43	2.3	931
ER	120	7	5	23	35	22.6%	90	2.6	210	132	2	4	11	17	11.4%	44	2.6	176
WL	333	0	0	3	3	0.9%	9	3.0	342	95	0	3	1	4	4.0%	9	2.3	104
WT	1,129	6	7	16	29	2.5%	71	2.4	1,200	701	10	1	10	21	2.9%	47	2.2	748
WR	113	0	1	0	1	0.9%	2	2.0	115	47	0	0	0	0	0.0%	0	0.0	47
									3,455									3,465
North Leg Volumes																		
Approach	604	5	1	2	8		17		621	374	4	20	2	26		52		426
Depart	397	1	6	1	8		17		414	626	2	1	0	3		5		631
Total	1,001	6	7	3	16	1.6%	34	2.1	1,035	1,000	6	21	2	29	2.8%	57	2.0	1,057
South Leg Volumes																		
Approach	356	7	9	11	27		63		419	748	3	4	12	19		49		797
Depart	784	10	6	27	43		109		893	391	6	25	13	44		98		489
Total	1,140	17	15	38	70	5.8%	172	2.5	1,312	1,139	9	29	25	63	5.2%	147	2.3	1,286
East Leg Volumes																		
Approach	1,575	6	8	19	33		82		1,657	843	10	4	11	25		56		899
Depart	471	16	0	23	39		94		565	1,137	8	3	9	20		45		1,182
Total	2,046	22	8	42	72	3.4%	176	2.4	2,222	1,980	18	7	20	45	2.2%	101	2.2	2,081
West Leg Volumes																		
Approach	580	19	7	45	71		178		758	1,256	10	6	20	36		87		1,343
Depart	1,463	10	13	26	49		120		1,583	1,067	11	5	23	39		96		1,163
Total	2,043	29	20	71	120	5.5%	298	2.5	2,341	2,323	21	11	43	75	3.1%	183	2.4	2,506
All Legs																		
Approach	3,115	37	25	77	139		340		3,455	3,221	27	34	45	106		244		3,465
Depart	3,115	37	25	77	139		340		3,455	3,221	27	34	45	106		244		3,465
Total	6,230	74	50	154	278	4.3%	680	2.4	6,910	6,442	54	68	90	212	3.2%	488	2.3	6,930

Existing Peak Hour Volumes - Classification Counts

5 Cherry Ave at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	200	5	0	2	7	3.4%	14	2.0	214	251	3	4	4	11	4.2%	25	2.3	276
NT	319	14	5	18	37	10.4%	85	2.3	404	712	14	13	23	50	6.6%	116	2.3	828
NR	98	4	1	3	8	7.5%	17	2.1	115	200	3	5	5	13	6.1%	30	2.3	230
SL	159	0	1	1	2	1.2%	5	2.5	164	261	5	0	4	9	3.3%	20	2.2	281
ST	655	15	14	29	58	8.1%	138	2.4	793	465	17	22	33	72	13.4%	169	2.3	634
SR	175	2	2	7	11	5.9%	28	2.5	203	159	0	3	10	13	7.6%	36	2.8	195
EL	158	3	1	6	10	6.0%	25	2.5	183	239	0	1	2	3	1.2%	8	2.7	247
ET	370	10	1	9	20	5.1%	44	2.2	414	814	15	4	5	24	2.9%	46	1.9	860
ER	145	3	0	1	4	2.7%	8	2.0	153	94	2	0	1	3	3.1%	6	2.0	100
WL	250	4	5	6	15	5.7%	34	2.3	284	113	4	2	4	10	8.1%	22	2.2	135
WT	1,091	7	3	10	20	1.8%	47	2.4	1,138	533	13	1	4	18	3.3%	34	1.9	567
WR	80	2	0	5	7	8.0%	18	2.6	98	114	4	0	1	5	4.2%	9	1.8	123
									4,163									4,476
North Leg Volumes																		
Approach	989	17	17	37	71		171		1,160	885	22	25	47	94		225		1,110
Depart	557	19	6	29	54		128		685	1,065	18	14	26	58		133		1,198
Total	1,546	36	23	66	125	7.5%	299	2.4	1,845	1,950	40	39	73	152	7.2%	358	2.4	2,308
South Leg Volumes																		
Approach	617	23	6	23	52		116		733	1,163	20	22	32	74		171		1,334
Depart	1,050	22	19	36	77		180		1,230	672	23	24	38	85		197		869
Total	1,667	45	25	59	129	7.2%	296	2.3	1,963	1,835	43	46	70	159	8.0%	368	2.3	2,203
East Leg Volumes																		
Approach	1,421	13	8	21	42		99		1,520	760	21	3	9	33		65		825
Depart	627	14	3	13	30		66		693	1,275	23	9	14	46		96		1,371
Total	2,048	27	11	34	72	3.4%	165	2.3	2,213	2,035	44	12	23	79	3.7%	161	2.0	2,196
West Leg Volumes																		
Approach	673	16	2	16	34		77		750	1,147	17	5	8	30		60		1,207
Depart	1,466	14	5	19	38		89		1,555	943	16	8	18	42		95		1,038
Total	2,139	30	7	35	72	3.3%	166	2.3	2,305	2,090	33	13	26	72	3.3%	155	2.2	2,245
All Legs																		
Approach	3,700	69	33	97	199		463		4,163	3,955	80	55	96	231		521		4,476
Depart	3,700	69	33	97	199		463		4,163	3,955	80	55	96	231		521		4,476
Total	7,400	138	66	194	398	5.1%	926	2.3	8,326	7,910	160	110	192	462	5.5%	1,042	2.3	8,952

Existing Peak Hour Volumes - Classification Counts

6 Beech Ave at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	19	1	0	0	1	5.0%	2	2.0	21	57	0	0	1	1	1.7%	3	3.0	60
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	89	5	1	1	7	7.3%	13	1.9	102	118	0	0	0	0	0.0%	0	0.0	118
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	567	17	2	8	27	4.5%	54	2.0	621	1,255	24	7	7	38	2.9%	71	1.9	1,326
ER	31	1	0	1	2	6.1%	5	2.5	36	49	3	0	0	3	5.8%	5	1.7	54
WL	190	5	0	0	5	2.6%	8	1.6	198	99	3	0	0	3	2.9%	5	1.7	104
WT	1,478	10	3	9	22	1.5%	48	2.2	1,526	719	14	4	4	22	3.0%	41	1.9	760
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									2,504									2,422
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
South Leg Volumes																		
Approach	108	6	1	1	8		15		123	175	0	0	1	1		3		178
Depart	221	6	0	1	7		13		234	148	6	0	0	6		10		158
Total	329	12	1	2	15	4.4%	28	1.9	357	323	6	0	1	7	2.1%	13	1.9	336
East Leg Volumes																		
Approach	1,668	15	3	9	27		56		1,724	818	17	4	4	25		46		864
Depart	656	22	3	9	34		67		723	1,373	24	7	7	38		71		1,444
Total	2,324	37	6	18	61	2.6%	123	2.0	2,447	2,191	41	11	11	63	2.8%	117	1.9	2,308
West Leg Volumes																		
Approach	598	18	2	9	29		59		657	1,304	27	7	7	41		76		1,380
Depart	1,497	11	3	9	23		50		1,547	776	14	4	5	23		44		820
Total	2,095	29	5	18	52	2.4%	109	2.1	2,204	2,080	41	11	12	64	3.0%	120	1.9	2,200
All Legs																		
Approach	2,374	39	6	19	64		130		2,504	2,297	44	11	12	67		125		2,422
Depart	2,374	39	6	19	64		130		2,504	2,297	44	11	12	67		125		2,422
Total	4,748	78	12	38	128	2.6%	260	2.0	5,008	4,594	88	22	24	134	2.8%	250	1.9	4,844

Existing Peak Hour Volumes - Classification Counts

7 Citrus Ave at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	138	3	0	0	3	2.1%	5	1.7	143	133	2	1	0	3	2.2%	5	1.7	138
NT	474	10	1	8	19	3.9%	41	2.2	515	632	8	7	5	20	3.1%	41	2.1	673
NR	63	4	3	1	8	11.3%	15	1.9	78	83	1	1	0	2	2.4%	4	2.0	87
SL	122	3	1	1	5	3.9%	10	2.0	132	129	1	0	0	1	0.8%	2	2.0	131
ST	652	10	6	15	31	4.5%	72	2.3	724	503	7	8	7	22	4.2%	48	2.2	551
SR	148	0	1	4	5	3.3%	14	2.8	162	61	1	1	2	4	6.2%	10	2.5	71
EL	135	5	0	2	7	4.9%	14	2.0	149	254	1	0	0	1	0.4%	2	2.0	256
ET	391	18	2	2	22	5.3%	37	1.7	428	812	9	4	1	14	1.7%	25	1.8	837
ER	112	1	0	0	1	0.9%	2	2.0	114	171	2	0	1	3	1.7%	6	2.0	177
WL	223	4	0	2	6	2.6%	12	2.0	235	280	2	2	0	4	1.4%	7	1.8	287
WT	764	8	3	5	16	2.1%	33	2.1	797	533	11	0	1	12	2.2%	20	1.7	553
WR	75	2	0	0	2	2.6%	3	1.5	78	117	1	0	0	1	0.8%	2	2.0	119
									3,555									3,880
North Leg Volumes																		
Approach	922	13	8	20	41		96		1,018	693	9	9	9	27		60		753
Depart	684	17	1	10	28		58		742	1,003	10	7	5	22		45		1,048
Total	1,606	30	9	30	69	4.1%	154	2.2	1,760	1,696	19	16	14	49	2.8%	105	2.1	1,801
South Leg Volumes																		
Approach	675	17	4	9	30		61		736	848	11	9	5	25		50		898
Depart	987	15	6	17	38		86		1,073	954	11	10	8	29		61		1,015
Total	1,662	32	10	26	68	3.9%	147	2.2	1,809	1,802	22	19	13	54	2.9%	111	2.1	1,913
East Leg Volumes																		
Approach	1,062	14	3	7	24		48		1,110	930	14	2	1	17		29		959
Depart	576	25	6	4	35		62		638	1,024	11	5	1	17		31		1,055
Total	1,638	39	9	11	59	3.5%	110	1.9	1,748	1,954	25	7	2	34	1.7%	60	1.8	2,014
West Leg Volumes																		
Approach	638	24	2	4	30		53		691	1,237	12	4	2	18		33		1,270
Depart	1,050	11	4	9	24		52		1,102	727	14	2	3	19		35		762
Total	1,688	35	6	13	54	3.1%	105	1.9	1,793	1,964	26	6	5	37	1.8%	68	1.8	2,032
All Legs																		
Approach	3,297	68	17	40	125		258		3,555	3,708	46	24	17	87		172		3,880
Depart	3,297	68	17	40	125		258		3,555	3,708	46	24	17	87		172		3,880
Total	6,594	136	34	80	250	3.7%	516	2.1	7,110	7,416	92	48	34	174	2.3%	344	2.0	7,760

Existing Peak Hour Volumes - Classification Counts

8 Sierra Ave at Foothill Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	74	3	0	0	3	3.9%	5	1.7	79	103	0	0	0	0	0.0%	0	0.0	103
NT	392	5	3	10	18	4.4%	44	2.4	436	780	10	0	1	11	1.4%	18	1.6	798
NR	73	4	0	0	4	5.2%	6	1.5	79	127	5	0	0	5	3.8%	8	1.6	135
SL	180	2	3	1	6	3.2%	12	2.0	192	139	2	1	3	6	4.1%	14	2.3	153
ST	783	9	1	5	15	1.9%	31	2.1	814	480	3	0	1	4	0.8%	8	2.0	488
SR	117	0	0	3	3	2.5%	9	3.0	126	113	2	0	1	3	2.6%	6	2.0	119
EL	195	3	1	3	7	3.5%	16	2.3	211	194	1	2	0	3	1.5%	6	2.0	200
ET	351	14	0	1	15	4.1%	24	1.6	375	676	5	1	1	7	1.0%	13	1.9	689
ER	89	4	1	1	6	6.3%	11	1.8	100	129	3	0	0	3	2.3%	5	1.7	134
WL	145	4	0	0	4	2.7%	6	1.5	151	191	4	0	1	5	2.6%	9	1.8	200
WT	579	5	3	6	14	2.4%	32	2.3	611	490	6	1	0	7	1.4%	11	1.6	501
WR	121	1	1	0	2	1.6%	4	2.0	125	159	0	0	1	1	0.6%	3	3.0	162
									3,299									3,682
North Leg Volumes																		
Approach	1,080	11	4	9	24		52		1,132	732	7	1	5	13		28		760
Depart	708	9	5	13	27		64		772	1,133	11	2	2	15		27		1,160
Total	1,788	20	9	22	51	2.8%	116	2.3	1,904	1,865	18	3	7	28	1.5%	55	2.0	1,920
South Leg Volumes																		
Approach	539	12	3	10	25		55		594	1,010	15	0	1	16		26		1,036
Depart	1,017	17	2	6	25		48		1,065	800	10	0	2	12		22		822
Total	1,556	29	5	16	50	3.1%	103	2.1	1,659	1,810	25	0	3	28	1.5%	48	1.7	1,858
East Leg Volumes																		
Approach	845	10	4	6	20		42		887	840	10	1	2	13		23		863
Depart	604	20	3	2	25		42		646	942	12	2	4	18		35		977
Total	1,449	30	7	8	45	3.0%	84	1.9	1,533	1,782	22	3	6	31	1.7%	58	1.9	1,840
West Leg Volumes																		
Approach	635	21	2	5	28		51		686	999	9	3	1	13		24		1,023
Depart	770	8	3	9	20		46		816	706	8	1	1	10		17		723
Total	1,405	29	5	14	48	3.3%	97	2.0	1,502	1,705	17	4	2	23	1.3%	41	1.8	1,746
All Legs																		
Approach	3,099	54	13	30	97		200		3,299	3,581	41	5	9	55		101		3,682
Depart	3,099	54	13	30	97		200		3,299	3,581	41	5	9	55		101		3,682
Total	6,198	108	26	60	194	3.0%	400	2.1	6,598	7,162	82	10	18	110	1.5%	202	1.8	7,364

Existing Peak Hour Volumes - Classification Counts

9 Etiwanda Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	244	6	9	18	33	11.9%	81	2.5	325	122	5	3	9	17	12.2%	41	2.4	163
NT	117	2	4	11	17	12.7%	44	2.6	161	461	7	9	10	26	5.3%	59	2.3	520
NR	24	0	6	0	6	20.0%	12	2.0	36	107	2	0	2	4	3.6%	9	2.3	116
SL	109	1	0	3	4	3.5%	11	2.8	120	105	0	2	6	8	7.1%	22	2.8	127
ST	278	5	1	12	18	6.1%	46	2.6	324	163	19	8	9	36	18.1%	72	2.0	235
SR	343	1	1	15	17	4.7%	49	2.9	392	111	0	0	1	1	0.9%	3	3.0	114
EL	64	2	1	8	11	14.7%	29	2.6	93	335	3	0	3	6	1.8%	14	2.3	349
ET	215	4	6	4	14	6.1%	30	2.1	245	587	6	4	6	16	2.7%	35	2.2	622
ER	84	3	16	9	28	25.0%	64	2.3	148	292	15	9	18	42	12.6%	95	2.3	387
WL	101	1	4	10	15	12.9%	40	2.7	141	86	3	3	1	7	7.5%	14	2.0	100
WT	656	9	4	7	20	3.0%	43	2.2	699	339	5	2	3	10	2.9%	21	2.1	360
WR	104	1	0	9	10	8.8%	29	2.9	133	138	0	0	2	2	1.4%	6	3.0	144
									2,817									3,237
North Leg Volumes																		
Approach	730	7	2	30	39		106		836	379	19	10	16	45		97		476
Depart	285	5	5	28	38		102		387	934	10	9	15	34		79		1,013
Total	1,015	12	7	58	77	7.1%	208	2.7	1,223	1,313	29	19	31	79	5.7%	176	2.2	1,489
South Leg Volumes																		
Approach	385	8	19	29	56		137		522	690	14	12	21	47		109		799
Depart	463	9	21	31	61		150		613	541	37	20	28	85		181		722
Total	848	17	40	60	117	12.1%	287	2.5	1,135	1,231	51	32	49	132	9.7%	290	2.2	1,521
East Leg Volumes																		
Approach	861	11	8	26	45		112		973	563	8	5	6	19		41		604
Depart	348	5	12	7	24		53		401	799	8	6	14	28		66		865
Total	1,209	16	20	33	69	5.4%	165	2.4	1,374	1,362	16	11	20	47	3.3%	107	2.3	1,469
West Leg Volumes																		
Approach	363	9	23	21	53		123		486	1,214	24	13	27	64		144		1,358
Depart	1,243	16	14	40	70		173		1,416	572	10	5	13	28		65		637
Total	1,606	25	37	61	123	7.1%	296	2.4	1,902	1,786	34	18	40	92	4.9%	209	2.3	1,995
All Legs																		
Approach	2,339	35	52	106	193		478		2,817	2,846	65	40	70	175		391		3,237
Depart	2,339	35	52	106	193		478		2,817	2,846	65	40	70	175		391		3,237
Total	4,678	70	104	212	386	7.6%	956	2.5	5,634	5,692	130	80	140	350	5.8%	782	2.2	6,474

Existing Peak Hour Volumes - Classification Counts

10 Cherry Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	84	3	1	4	8	8.7%	19	2.4	103	114	2	0	7	9	7.3%	24	2.7	138
NT	564	19	6	22	47	7.7%	107	2.3	671	881	24	13	42	79	8.2%	188	2.4	1,069
NR	107	3	2	2	7	6.1%	15	2.1	122	201	2	6	1	9	4.3%	18	2.0	219
SL	45	0	1	2	3	6.3%	8	2.7	53	64	0	1	1	2	3.0%	5	2.5	69
ST	791	17	19	51	87	9.9%	217	2.5	1,008	619	21	18	30	69	10.0%	158	2.3	777
SR	65	11	2	3	16	19.8%	30	1.9	95	77	4	2	2	8	9.4%	16	2.0	93
EL	55	3	2	2	7	11.3%	15	2.1	70	70	2	1	3	6	7.9%	14	2.3	84
ET	334	8	7	10	25	7.0%	56	2.2	390	567	9	5	5	19	3.2%	39	2.1	606
ER	67	4	4	4	12	15.2%	26	2.2	93	82	2	2	3	7	7.9%	16	2.3	98
WL	129	6	2	4	12	8.5%	25	2.1	154	105	2	1	2	5	4.5%	11	2.2	116
WT	548	12	4	9	25	4.4%	53	2.1	601	491	9	8	7	24	4.7%	51	2.1	542
WR	53	1	2	0	3	5.4%	6	2.0	59	46	1	1	3	5	9.8%	13	2.6	59
									3,419									3,870
North Leg Volumes																		
Approach	901	28	22	56	106		255		1,156	760	25	21	33	79		179		939
Depart	672	23	10	24	57		128		800	997	27	15	48	90		215		1,212
Total	1,573	51	32	80	163	9.4%	383	2.3	1,956	1,757	52	36	81	169	8.8%	394	2.3	2,151
South Leg Volumes																		
Approach	755	25	9	28	62		141		896	1,196	28	19	50	97		230		1,426
Depart	987	27	25	59	111		268		1,255	806	25	21	35	81		185		991
Total	1,742	52	34	87	173	9.0%	409	2.4	2,151	2,002	53	40	85	178	8.2%	415	2.3	2,417
East Leg Volumes																		
Approach	730	19	8	13	40		84		814	642	12	10	12	34		75		717
Depart	486	11	10	14	35		79		565	832	11	12	7	30		62		894
Total	1,216	30	18	27	75	5.8%	163	2.2	1,379	1,474	23	22	19	64	4.2%	137	2.1	1,611
West Leg Volumes																		
Approach	456	15	13	16	44		97		553	719	13	8	11	32		69		788
Depart	697	26	7	16	49		102		799	682	15	10	16	41		91		773
Total	1,153	41	20	32	93	7.5%	199	2.1	1,352	1,401	28	18	27	73	5.0%	160	2.2	1,561
All Legs																		
Approach	2,842	87	52	113	252		577		3,419	3,317	78	58	106	242		553		3,870
Depart	2,842	87	52	113	252		577		3,419	3,317	78	58	106	242		553		3,870
Total	5,684	174	104	226	504	8.1%	1,154	2.3	6,838	6,634	156	116	212	484	6.8%	1,106	2.3	7,740

Existing Peak Hour Volumes - Classification Counts

11 Beech Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	81	1	0	0	1	1.2%	2	2.0	83	91	3	0	0	3	3.2%	5	1.7	96
NT	120	2	2	0	4	3.2%	7	1.8	127	149	1	0	0	1	0.7%	2	2.0	151
NR	99	3	2	2	7	6.6%	15	2.1	114	207	1	3	1	5	2.4%	11	2.2	218
SL	9	0	1	1	2	18.2%	5	2.5	14	13	1	0	1	2	13.3%	5	2.5	18
ST	148	2	0	1	3	2.0%	6	2.0	154	128	4	2	1	7	5.2%	13	1.9	141
SR	64	7	0	3	10	13.5%	20	2.0	84	20	0	1	0	1	4.8%	2	2.0	22
EL	30	4	1	1	6	16.7%	11	1.8	41	24	2	2	0	4	14.3%	7	1.8	31
ET	296	9	6	5	20	6.3%	41	2.1	337	615	4	3	3	10	1.6%	21	2.1	636
ER	50	3	0	1	4	7.4%	8	2.0	58	59	1	2	0	3	4.8%	6	2.0	65
WL	124	5	1	2	8	6.1%	16	2.0	140	87	0	0	1	1	1.1%	3	3.0	90
WT	547	12	3	9	24	4.2%	51	2.1	598	393	5	5	6	16	3.9%	36	2.3	429
WR	18	1	1	0	2	10.0%	4	2.0	22	27	0	0	0	0	0.0%	0	0.0	27
									1,772									1,924
North Leg Volumes																		
Approach	221	9	1	5	15		31		252	161	5	3	2	10		20		181
Depart	168	7	4	1	12		22		190	200	3	2	0	5		9		209
Total	389	16	5	6	27	6.5%	53	2.0	442	361	8	5	2	15	4.0%	29	1.9	390
South Leg Volumes																		
Approach	300	6	4	2	12		24		324	447	5	3	1	9		18		465
Depart	322	10	1	4	15		30		352	274	5	4	2	11		22		296
Total	622	16	5	6	27	4.2%	54	2.0	676	721	10	7	3	20	2.7%	40	2.0	761
East Leg Volumes																		
Approach	689	18	5	11	34		71		760	507	5	5	7	17		39		546
Depart	404	12	9	8	29		61		465	835	6	6	5	17		37		872
Total	1,093	30	14	19	63	5.4%	132	2.1	1,225	1,342	11	11	12	34	2.5%	76	2.2	1,418
West Leg Volumes																		
Approach	376	16	7	7	30		60		436	698	7	7	3	17		34		732
Depart	692	20	3	12	35		73		765	504	8	6	6	20		43		547
Total	1,068	36	10	19	65	5.7%	133	2.0	1,201	1,202	15	13	9	37	3.0%	77	2.1	1,279
All Legs																		
Approach	1,586	49	17	25	91		186		1,772	1,813	22	18	13	53		111		1,924
Depart	1,586	49	17	25	91		186		1,772	1,813	22	18	13	53		111		1,924
Total	3,172	98	34	50	182	5.4%	372	2.0	3,544	3,626	44	36	26	106	2.8%	222	2.1	3,848

Existing Peak Hour Volumes - Classification Counts

12 Citrus Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	184	3	2	5	10	5.2%	24	2.4	208	160	1	2	3	6	3.6%	15	2.5	175
NT	581	13	2	4	19	3.2%	36	1.9	617	809	13	7	6	26	3.1%	52	2.0	861
NR	173	2	1	9	12	6.5%	32	2.7	205	164	1	0	1	2	1.2%	5	2.5	169
SL	93	2	0	0	2	2.1%	3	1.5	96	136	1	0	0	1	0.7%	2	2.0	138
ST	721	13	4	14	31	4.1%	70	2.3	791	672	14	6	8	28	4.0%	57	2.0	729
SR	128	2	2	2	6	4.5%	13	2.2	141	55	1	5	0	6	9.8%	12	2.0	67
EL	55	5	2	2	9	14.1%	18	2.0	73	76	0	1	0	1	1.3%	2	2.0	78
ET	242	3	1	2	6	2.4%	13	2.2	255	546	6	2	2	10	1.8%	19	1.9	565
ER	86	3	1	4	8	8.5%	19	2.4	105	156	2	0	3	5	3.1%	12	2.4	168
WL	213	3	1	2	6	2.7%	13	2.2	226	139	3	0	0	3	2.1%	5	1.7	144
WT	427	4	2	0	6	1.4%	10	1.7	437	298	4	1	1	6	2.0%	11	1.8	309
WR	116	4	0	3	7	5.7%	15	2.1	131	88	1	1	0	2	2.2%	4	2.0	92
									3,285									3,495
North Leg Volumes																		
Approach	942	17	6	16	39		86		1,028	863	16	11	8	35		71		934
Depart	752	22	4	9	35		69		821	973	14	9	6	29		58		1,031
Total	1,694	39	10	25	74	4.2%	155	2.1	1,849	1,836	30	20	14	64	3.4%	129	2.0	1,965
South Leg Volumes																		
Approach	938	18	5	18	41		92		1,030	1,133	15	9	10	34		72		1,205
Depart	1,020	19	6	20	45		102		1,122	967	19	6	11	36		74		1,041
Total	1,958	37	11	38	86	4.2%	194	2.3	2,152	2,100	34	15	21	70	3.2%	146	2.1	2,246
East Leg Volumes																		
Approach	756	11	3	5	19		38		794	525	8	2	1	11		20		545
Depart	508	7	2	11	20		48		556	846	8	2	3	13		26		872
Total	1,264	18	5	16	39	3.0%	86	2.2	1,350	1,371	16	4	4	24	1.7%	46	1.9	1,417
West Leg Volumes																		
Approach	383	11	4	8	23		50		433	778	8	3	5	16		33		811
Depart	739	9	6	7	22		47		786	513	6	8	4	18		38		551
Total	1,122	20	10	15	45	3.9%	97	2.2	1,219	1,291	14	11	9	34	2.6%	71	2.1	1,362
All Legs																		
Approach	3,019	57	18	47	122		266		3,285	3,299	47	25	24	96		196		3,495
Depart	3,019	57	18	47	122		266		3,285	3,299	47	25	24	96		196		3,495
Total	6,038	114	36	94	244	3.9%	532	2.2	6,570	6,598	94	50	48	192	2.8%	392	2.0	6,990

Existing Peak Hour Volumes - Classification Counts

13 Sierra Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	80	2	2	0	4	4.8%	7	1.8	87	83	1	0	0	1	1.2%	2	2.0	85
NT	474	15	1	4	20	4.0%	37	1.9	511	745	13	1	1	15	2.0%	25	1.7	770
NR	32	0	0	1	1	3.0%	3	3.0	35	51	1	0	1	2	3.8%	5	2.5	56
SL	55	2	0	0	2	3.5%	3	1.5	58	106	1	0	0	1	0.9%	2	2.0	108
ST	670	16	1	7	24	3.5%	47	2.0	717	485	9	1	2	12	2.4%	22	1.8	507
SR	66	2	0	0	2	2.9%	3	1.5	69	73	1	1	0	2	2.7%	4	2.0	77
EL	37	2	0	9	11	22.9%	30	2.7	67	101	0	0	0	0	0.0%	0	0.0	101
ET	377	8	2	3	13	3.3%	25	1.9	402	460	4	0	3	7	1.5%	15	2.1	475
ER	82	0	0	0	0	0.0%	0	0.0	82	87	1	0	0	1	1.1%	2	2.0	89
WL	61	5	0	0	5	7.6%	8	1.6	69	62	1	0	0	1	1.6%	2	2.0	64
WT	510	5	3	1	9	1.7%	17	1.9	527	295	7	1	1	9	3.0%	16	1.8	311
WR	50	1	0	1	2	3.8%	5	2.5	55	51	1	0	0	1	1.9%	2	2.0	53
									2,679									2,696
North Leg Volumes																		
Approach	791	20	1	7	28		53		844	664	11	2	2	15		28		692
Depart	561	18	1	14	33		72		633	897	14	1	1	16		27		924
Total	1,352	38	2	21	61	4.3%	125	2.0	1,477	1,561	25	3	3	31	1.9%	55	1.8	1,616
South Leg Volumes																		
Approach	586	17	3	5	25		47		633	879	15	1	2	18		32		911
Depart	813	21	1	7	29		55		868	634	11	1	2	14		26		660
Total	1,399	38	4	12	54	3.7%	102	1.9	1,501	1,513	26	2	4	32	2.1%	58	1.8	1,571
East Leg Volumes																		
Approach	621	11	3	2	16		30		651	408	9	1	1	11		20		428
Depart	464	10	2	4	16		31		495	617	6	0	4	10		22		639
Total	1,085	21	5	6	32	2.9%	61	1.9	1,146	1,025	15	1	5	21	2.0%	42	2.0	1,067
West Leg Volumes																		
Approach	496	10	2	12	24		55		551	648	5	0	3	8		17		665
Depart	656	9	5	1	15		27		683	451	9	2	1	12		22		473
Total	1,152	19	7	13	39	3.3%	82	2.1	1,234	1,099	14	2	4	20	1.8%	39	2.0	1,138
All Legs																		
Approach	2,494	58	9	26	93		185		2,679	2,599	40	4	8	52		97		2,696
Depart	2,494	58	9	26	93		185		2,679	2,599	40	4	8	52		97		2,696
Total	4,988	116	18	52	186	3.6%	370	2.0	5,358	5,198	80	8	16	104	2.0%	194	1.9	5,392

Existing Peak Hour Volumes - Classification Counts

14 Etiwanda Ave at Whittram Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	292	7	26	21	54	15.6%	126	2.3	418	574	8	9	20	37	6.1%	90	2.4	664
NR	85	4	12	12	28	24.8%	66	2.4	151	187	4	12	22	38	16.9%	96	2.5	283
SL	44	1	2	5	8	15.4%	21	2.6	65	172	0	3	6	9	5.0%	24	2.7	196
ST	431	14	15	30	59	12.0%	141	2.4	572	345	13	42	22	77	18.2%	170	2.2	515
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	133	6	16	20	42	24.0%	101	2.4	234	115	4	28	8	40	25.8%	86	2.2	201
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	130	0	2	1	3	2.3%	7	2.3	137	72	1	4	2	7	8.9%	16	2.3	88
									1,577									1,947
North Leg Volumes																		
Approach	475	15	17	35	67		162		637	517	13	45	28	86		194		711
Depart	422	7	28	22	57		133		555	646	9	13	22	44		106		752
Total	897	22	45	57	124	12.1%	295	2.4	1,192	1,163	22	58	50	130	10.1%	300	2.3	1,463
South Leg Volumes																		
Approach	377	11	38	33	82		192		569	761	12	21	42	75		186		947
Depart	564	20	31	50	101		242		806	460	17	70	30	117		256		716
Total	941	31	69	83	183	16.3%	434	2.4	1,375	1,221	29	91	72	192	13.6%	442	2.3	1,663
East Leg Volumes																		
Approach	263	6	18	21	45		108		371	187	5	32	10	47		102		289
Depart	129	5	14	17	36		87		216	359	4	15	28	47		120		479
Total	392	11	32	38	81	17.1%	195	2.4	587	546	9	47	38	94	14.7%	222	2.4	768
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	1,115	32	73	89	194		462		1,577	1,465	30	98	80	208		482		1,947
Depart	1,115	32	73	89	194		462		1,577	1,465	30	98	80	208		482		1,947
Total	2,230	64	146	178	388	14.8%	924	2.4	3,154	2,930	60	196	160	416	12.4%	964	2.3	3,894

Existing Peak Hour Volumes - Classification Counts

15 Cherry Ave at Whittram Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	125	5	10	11	26	17.2%	61	2.3	186	84	0	7	15	22	20.8%	59	2.7	143
NT	666	24	13	26	63	8.6%	140	2.2	806	1,187	30	16	34	80	6.3%	179	2.2	1,366
NR	102	6	3	5	14	12.1%	30	2.1	132	78	6	2	7	15	16.1%	34	2.3	112
SL	26	2	0	2	4	13.3%	9	2.3	35	30	4	1	0	5	14.3%	8	1.6	38
ST	853	21	21	47	89	9.4%	215	2.4	1,068	589	17	14	15	46	7.2%	99	2.2	688
SR	76	0	5	1	6	7.3%	13	2.2	89	31	2	5	4	11	26.2%	25	2.3	56
EL	13	3	0	4	7	35.0%	17	2.4	30	63	1	5	4	10	13.7%	24	2.4	87
ET	30	0	0	0	0	0.0%	0	0.0	30	128	1	1	3	5	3.8%	13	2.6	141
ER	122	6	12	15	33	21.3%	78	2.4	200	216	5	11	16	32	12.9%	78	2.4	294
WL	96	5	11	8	24	20.0%	54	2.3	150	84	5	9	4	18	17.6%	38	2.1	122
WT	132	1	1	0	2	1.5%	4	2.0	136	51	1	4	2	7	12.1%	16	2.3	67
WR	60	1	0	2	3	4.8%	8	2.7	68	59	1	0	4	5	7.8%	14	2.8	73
									2,930									3,187
North Leg Volumes																		
Approach	955	23	26	50	99		237		1,192	650	23	20	19	62		132		782
Depart	739	28	13	32	73		165		904	1,309	32	21	42	95		217		1,526
Total	1,694	51	39	82	172	9.2%	402	2.3	2,096	1,959	55	41	61	157	7.4%	349	2.2	2,308
South Leg Volumes																		
Approach	893	35	26	42	103		231		1,124	1,349	36	25	56	117		272		1,621
Depart	1,071	32	44	70	146		347		1,418	889	27	34	35	96		215		1,104
Total	1,964	67	70	112	249	11.3%	578	2.3	2,542	2,238	63	59	91	213	8.7%	487	2.3	2,725
East Leg Volumes																		
Approach	288	7	12	10	29		66		354	194	7	13	10	30		68		262
Depart	158	8	3	7	18		39		197	236	11	4	10	25		55		291
Total	446	15	15	17	47	9.5%	105	2.2	551	430	18	17	20	55	11.3%	123	2.2	553
West Leg Volumes																		
Approach	165	9	12	19	40		95		260	407	7	17	23	47		115		522
Depart	333	6	16	12	34		78		411	166	3	16	21	40		100		266
Total	498	15	28	31	74	12.9%	173	2.3	671	573	10	33	44	87	13.2%	215	2.5	788
All Legs																		
Approach	2,301	74	76	121	271		629		2,930	2,600	73	75	108	256		587		3,187
Depart	2,301	74	76	121	271		629		2,930	2,600	73	75	108	256		587		3,187
Total	4,602	148	152	242	542	10.5%	1,258	2.3	5,860	5,200	146	150	216	512	9.0%	1,174	2.3	6,374

Existing Peak Hour Volumes - Classification Counts

16 Beech Ave at Wittram Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	132	1	0	0	1	0.8%	2	2.0	134	68	8	1	2	11	13.9%	20	1.8	88
NT	282	4	1	0	5	1.7%	8	1.6	290	383	3	3	2	8	2.0%	17	2.1	400
NR	1	0	0	2	2	66.7%	6	3.0	7	0	0	1	0	1	100.0%	2	2.0	2
SL	0	0	0	0	0	0.0%	0	0.0	0	1	0	0	0	0	0.0%	0	0.0	1
ST	240	6	0	4	10	4.0%	21	2.1	261	287	5	2	5	12	4.0%	27	2.3	314
SR	84	6	6	2	14	14.3%	27	1.9	111	31	1	3	0	4	11.4%	8	2.0	39
EL	39	6	3	1	10	20.4%	18	1.8	57	77	0	0	1	1	1.3%	3	3.0	80
ET	2	0	0	1	1	33.3%	3	3.0	5	0	0	0	1	1	100.0%	3	3.0	3
ER	60	4	0	0	4	6.3%	6	1.5	66	149	8	2	0	10	6.3%	16	1.6	165
WL	0	0	0	0	0	0.0%	0	0.0	0	3	0	0	1	1	25.0%	3	3.0	6
WT	0	0	0	1	1	100.0%	3	3.0	3	1	1	0	1	2	66.7%	5	2.5	6
WR	1	0	0	0	0	0.0%	0	0.0	1	3	0	0	0	0	0.0%	0	0.0	3
									935									1,107
North Leg Volumes																		
Approach	324	12	6	6	24		48		372	319	6	5	5	16		35		354
Depart	322	10	4	1	15		26		348	463	3	3	3	9		20		483
Total	646	22	10	7	39	5.7%	74	1.9	720	782	9	8	8	25	3.1%	55	2.2	837
South Leg Volumes																		
Approach	415	5	1	2	8		16		431	451	11	5	4	20		39		490
Depart	300	10	0	4	14		27		327	439	13	4	6	23		46		485
Total	715	15	1	6	22	3.0%	43	2.0	758	890	24	9	10	43	4.6%	85	2.0	975
East Leg Volumes																		
Approach	1	0	0	1	1		3		4	7	1	0	2	3		8		15
Depart	3	0	0	3	3		9		12	1	0	1	1	2		5		6
Total	4	0	0	4	4	50.0%	12	3.0	16	8	1	1	3	5	38.5%	13	2.6	21
West Leg Volumes																		
Approach	101	10	3	2	15		27		128	226	8	2	2	12		22		248
Depart	216	7	6	3	16		32		248	100	10	4	3	17		33		133
Total	317	17	9	5	31	8.9%	59	1.9	376	326	18	6	5	29	8.2%	55	1.9	381
All Legs																		
Approach	841	27	10	11	48		94		935	1,003	26	12	13	51		104		1,107
Depart	841	27	10	11	48		94		935	1,003	26	12	13	51		104		1,107
Total	1,682	54	20	22	96	5.4%	188	2.0	1,870	2,006	52	24	26	102	4.8%	208	2.0	2,214

Existing Peak Hour Volumes - Classification Counts

1 Etiwanda Ave at Napa St

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
NT	365	17	20	40	77	17.4%	186	2.4	551	690	4	29	51	84	10.9%	217	2.6	907
NR	30	7	29	34	70	70.0%	171	2.4	201	6	0	18	6	24	80.0%	54	2.3	60
SL	14	2	7	6	15	51.7%	35	2.3	49	10	1	37	3	41	80.4%	85	2.1	95
ST	517	18	22	55	95	15.5%	236	2.5	753	443	8	13	30	51	10.3%	128	2.5	571
SR	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	3	1	0	0	1	25.0%	2	2.0	5
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	2	0	0	0	0	0.0%	0	0.0	2	30	0	0	0	0	0.0%	0	0.0	30
WL	10	3	36	29	68	87.2%	164	2.4	174	29	1	65	10	76	72.4%	162	2.1	191
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	12	4	5	4	13	52.0%	28	2.2	40	26	3	3	4	10	27.8%	23	2.3	49
									1,772									1,908
North Leg Volumes																		
Approach	532	20	29	61	110		271		803	453	9	50	33	92		213		666
Depart	377	21	25	44	90		214		591	719	8	32	55	95		242		961
Total	909	41	54	105	200	18.0%	485	2.4	1,394	1,172	17	82	88	187	13.8%	455	2.4	1,627
South Leg Volumes																		
Approach	396	24	49	74	147		357		753	696	4	47	57	108		271		967
Depart	529	21	58	84	163		400		929	502	9	78	40	127		290		792
Total	925	45	107	158	310	25.1%	757	2.4	1,682	1,198	13	125	97	235	16.4%	561	2.4	1,759
East Leg Volumes																		
Approach	22	7	41	33	81		192		214	55	4	68	14	86		185		240
Depart	44	9	36	40	85		206		250	16	1	55	9	65		139		155
Total	66	16	77	73	166	71.6%	398	2.4	464	71	5	123	23	151	68.0%	324	2.1	395
West Leg Volumes																		
Approach	2	0	0	0	0		0		2	33	1	0	0	1		2		35
Depart	2	0	0	0	0		0		2	0	0	0	0	0		0		0
Total	4	0	0	0	0	0.0%	0	0.0	4	33	1	0	0	1	2.9%	2	2.0	35
All Legs																		
Approach	952	51	119	168	338		820		1,772	1,237	18	165	104	287		671		1,908
Depart	952	51	119	168	338		820		1,772	1,237	18	165	104	287		671		1,908
Total	1,904	102	238	336	676	26.2%	1,640	2.4	3,544	2,474	36	330	208	574	18.8%	1,342	2.3	3,816

Existing Peak Hour Volumes - Classification Counts

2 Cherry Ave at Merrill Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	1	1	100.0%	3	3.0	3	1	0	0	0	0	0.0%	0	0.0	1
NT	617	25	31	32	88	12.5%	196	2.2	813	1,199	27	31	52	110	8.4%	259	2.4	1,458
NR	90	0	3	7	10	10.0%	27	2.7	117	168	2	4	7	13	7.2%	32	2.5	200
SL	118	5	2	0	7	5.6%	12	1.7	130	181	0	0	6	6	3.2%	18	3.0	199
ST	972	31	40	46	117	10.7%	265	2.3	1,237	645	17	37	32	86	11.8%	196	2.3	841
SR	0	0	0	0	0	0.0%	0	0.0	0	1	0	0	0	0	0.0%	0	0.0	1
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	1	0	0	0	0	0.0%	0	0.0	1
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	124	3	2	4	9	6.8%	21	2.3	145	77	1	2	8	11	12.5%	30	2.7	107
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	238	6	0	2	8	3.3%	15	1.9	253	201	3	0	0	3	1.5%	5	1.7	206
									2,698									3,014
North Leg Volumes																		
Approach	1,090	36	42	46	124		277		1,367	827	17	37	38	92		214		1,041
Depart	855	31	31	34	96		211		1,066	1,400	30	31	52	113		264		1,664
Total	1,945	67	73	80	220	10.2%	488	2.2	2,433	2,227	47	68	90	205	8.4%	478	2.3	2,705
South Leg Volumes																		
Approach	707	25	34	40	99		226		933	1,368	29	35	59	123		291		1,659
Depart	1,096	34	42	50	126		286		1,382	722	18	39	40	97		226		948
Total	1,803	59	76	90	225	11.1%	512	2.3	2,315	2,090	47	74	99	220	9.5%	517	2.4	2,607
East Leg Volumes																		
Approach	362	9	2	6	17		36		398	278	4	2	8	14		35		313
Depart	208	5	5	7	17		39		247	350	2	4	13	19		50		400
Total	570	14	7	13	34	5.6%	75	2.2	645	628	6	6	21	33	5.0%	85	2.6	713
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	1	0	0	0	0		0		1
Depart	0	0	0	1	1		3		3	2	0	0	0	0		0		2
Total	0	0	0	1	1	100.0%	3	3.0	3	3	0	0	0	0	0.0%	0	0.0	3
All Legs																		
Approach	2,159	70	78	92	240		539		2,698	2,474	50	74	105	229		540		3,014
Depart	2,159	70	78	92	240		539		2,698	2,474	50	74	105	229		540		3,014
Total	4,318	140	156	184	480	10.0%	1,078	2.2	5,396	4,948	100	148	210	458	8.5%	1,080	2.4	6,028

Existing Peak Hour Volumes - Classification Counts

3 Beech Ave at Merrill Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	51	0	0	0	0	0.0%	0	0.0	51	26	1	1	0	2	7.1%	4	2.0	30
NT	145	3	0	4	7	4.6%	17	2.4	162	207	2	1	1	4	1.9%	8	2.0	215
NR	56	1	0	0	1	1.8%	2	2.0	58	48	0	0	0	0	0.0%	0	0.0	48
SL	49	3	1	0	4	7.5%	7	1.8	56	113	3	0	0	3	2.6%	5	1.7	118
ST	126	5	1	3	9	6.7%	19	2.1	145	154	5	2	2	9	5.5%	18	2.0	172
SR	66	3	1	1	5	7.0%	10	2.0	76	36	1	1	0	2	5.3%	4	2.0	40
EL	94	2	0	2	4	4.1%	9	2.3	103	129	0	0	0	0	0.0%	0	0.0	129
ET	121	5	0	0	5	4.0%	8	1.6	129	218	2	0	1	3	1.4%	6	2.0	224
ER	54	1	0	0	1	1.8%	2	2.0	56	33	0	0	0	0	0.0%	0	0.0	33
WL	67	0	0	0	0	0.0%	0	0.0	67	32	0	0	0	0	0.0%	0	0.0	32
WT	222	4	1	0	5	2.2%	8	1.6	230	140	1	3	0	4	2.8%	8	2.0	148
WR	144	3	2	0	5	3.4%	9	1.8	153	119	3	1	1	5	4.0%	10	2.0	129
									1,286									1,318
North Leg Volumes																		
Approach	241	11	3	4	18		36		277	303	9	3	2	14		27		330
Depart	383	8	2	6	16		35		418	455	5	2	2	9		18		473
Total	624	19	5	10	34	5.2%	71	2.1	695	758	14	5	4	23	2.9%	45	2.0	803
South Leg Volumes																		
Approach	252	4	0	4	8		19		271	281	3	2	1	6		12		293
Depart	247	6	1	3	10		21		268	219	5	2	2	9		18		237
Total	499	10	1	7	18	3.5%	40	2.2	539	500	8	4	3	15	2.9%	30	2.0	530
East Leg Volumes																		
Approach	433	7	3	0	10		17		450	291	4	4	1	9		18		309
Depart	226	9	1	0	10		17		243	379	5	0	1	6		11		390
Total	659	16	4	0	20	2.9%	34	1.7	693	670	9	4	2	15	2.2%	29	1.9	699
West Leg Volumes																		
Approach	269	8	0	2	10		19		288	380	2	0	1	3		6		386
Depart	339	7	2	1	10		18		357	202	3	5	0	8		16		218
Total	608	15	2	3	20	3.2%	37	1.9	645	582	5	5	1	11	1.9%	22	2.0	604
All Legs																		
Approach	1,195	30	6	10	46		91		1,286	1,255	18	9	5	32		63		1,318
Depart	1,195	30	6	10	46		91		1,286	1,255	18	9	5	32		63		1,318
Total	2,390	60	12	20	92	3.7%	182	2.0	2,572	2,510	36	18	10	64	2.5%	126	2.0	2,636

Existing Peak Hour Volumes - Classification Counts

4 Citrus Ave at Merrill Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	45	4	0	0	4	8.2%	6	1.5	51	37	1	0	2	3	7.5%	8	2.7	45
NT	610	16	6	10	32	5.0%	66	2.1	676	887	5	3	7	15	1.7%	35	2.3	922
NR	25	1	0	0	1	3.8%	2	2.0	27	34	0	0	0	0	0.0%	0	0.0	34
SL	58	2	0	0	2	3.3%	3	1.5	61	78	0	0	0	0	0.0%	0	0.0	78
ST	793	18	5	24	47	5.6%	109	2.3	902	680	9	7	9	25	3.5%	55	2.2	735
SR	90	0	1	0	1	1.1%	2	2.0	92	96	1	1	0	2	2.0%	4	2.0	100
EL	141	4	0	0	4	2.8%	6	1.5	147	137	1	0	0	1	0.7%	2	2.0	139
ET	150	4	0	0	4	2.6%	6	1.5	156	250	0	0	0	0	0.0%	0	0.0	250
ER	42	1	2	0	3	6.7%	6	2.0	48	53	0	0	0	0	0.0%	0	0.0	53
WL	41	1	0	0	1	2.4%	2	2.0	43	26	2	0	0	2	7.1%	3	1.5	29
WT	200	4	0	0	4	2.0%	6	1.5	206	192	2	0	0	2	1.0%	3	1.5	195
WR	94	1	2	1	4	4.1%	9	2.3	103	131	1	0	1	2	1.5%	5	2.5	136
									2,512									2,716
North Leg Volumes																		
Approach	941	20	6	24	50		114		1,055	854	10	8	9	27		59		913
Depart	845	21	8	11	40		81		926	1,155	7	3	8	18		42		1,197
Total	1,786	41	14	35	90	4.8%	195	2.2	1,981	2,009	17	11	17	45	2.2%	101	2.2	2,110
South Leg Volumes																		
Approach	680	21	6	10	37		74		754	958	6	3	9	18		43		1,001
Depart	876	20	7	24	51		117		993	759	11	7	9	27		58		817
Total	1,556	41	13	34	88	5.4%	191	2.2	1,747	1,717	17	10	18	45	2.6%	101	2.2	1,818
East Leg Volumes																		
Approach	335	6	2	1	9		17		352	349	5	0	1	6		11		360
Depart	233	7	0	0	7		11		244	362	0	0	0	0		0		362
Total	568	13	2	1	16	2.7%	28	1.8	596	711	5	0	1	6	0.8%	11	1.8	722
West Leg Volumes																		
Approach	333	9	2	0	11		18		351	440	1	0	0	1		2		442
Depart	335	8	1	0	9		14		349	325	4	1	2	7		15		340
Total	668	17	3	0	20	2.9%	32	1.6	700	765	5	1	2	8	1.0%	17	2.1	782
All Legs																		
Approach	2,289	56	16	35	107		223		2,512	2,601	22	11	19	52		115		2,716
Depart	2,289	56	16	35	107		223		2,512	2,601	22	11	19	52		115		2,716
Total	4,578	112	32	70	214	4.5%	446	2.1	5,024	5,202	44	22	38	104	2.0%	230	2.2	5,432

Existing Peak Hour Volumes - Classification Counts

5 Sierra Ave at Merrill Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	52	2	1	0	3	5.5%	5	1.7	57	108	3	0	0	3	2.7%	5	1.7	113
NT	545	13	0	1	14	2.5%	23	1.6	568	819	7	0	1	8	1.0%	14	1.8	833
NR	89	1	0	0	1	1.1%	2	2.0	91	159	3	0	0	3	1.9%	5	1.7	164
SL	31	1	0	0	1	3.1%	2	2.0	33	62	1	0	0	1	1.6%	2	2.0	64
ST	848	15	0	2	17	2.0%	29	1.7	877	667	11	0	4	15	2.2%	29	1.9	696
SR	39	2	0	0	2	4.9%	3	1.5	42	56	0	0	0	0	0.0%	0	0.0	56
EL	45	3	0	0	3	6.3%	5	1.7	50	75	0	0	0	0	0.0%	0	0.0	75
ET	332	5	0	0	5	1.5%	8	1.6	340	442	2	1	2	5	1.1%	11	2.2	453
ER	89	1	1	0	2	2.2%	4	2.0	93	96	1	0	1	2	2.0%	5	2.5	101
WL	132	1	0	0	1	0.8%	2	2.0	134	106	3	0	0	3	2.8%	5	1.7	111
WT	359	3	3	0	6	1.6%	11	1.8	370	259	5	0	1	6	2.3%	11	1.8	270
WR	38	3	0	0	3	7.3%	5	1.7	43	40	4	0	0	4	9.1%	6	1.5	46
									2,698									2,982
North Leg Volumes																		
Approach	918	18	0	2	20		34		952	785	12	0	4	16		31		816
Depart	628	19	0	1	20		33		661	934	11	0	1	12		20		954
Total	1,546	37	0	3	40	2.5%	67	1.7	1,613	1,719	23	0	5	28	1.6%	51	1.8	1,770
South Leg Volumes																		
Approach	686	16	1	1	18		30		716	1,086	13	0	1	14		24		1,110
Depart	1,069	17	1	2	20		35		1,104	869	15	0	5	20		39		908
Total	1,755	33	2	3	38	2.1%	65	1.7	1,820	1,955	28	0	6	34	1.7%	63	1.9	2,018
East Leg Volumes																		
Approach	529	7	3	0	10		18		547	405	12	0	1	13		22		427
Depart	452	7	0	0	7		12		464	663	6	1	2	9		18		681
Total	981	14	3	0	17	1.7%	30	1.8	1,011	1,068	18	1	3	22	2.0%	40	1.8	1,108
West Leg Volumes																		
Approach	466	9	1	0	10		17		483	613	3	1	3	7		16		629
Depart	450	7	4	0	11		19		469	423	8	0	1	9		16		439
Total	916	16	5	0	21	2.2%	36	1.7	952	1,036	11	1	4	16	1.5%	32	2.0	1,068
All Legs																		
Approach	2,599	50	5	3	58		99		2,698	2,889	40	1	9	50		93		2,982
Depart	2,599	50	5	3	58		99		2,698	2,889	40	1	9	50		93		2,982
Total	5,198	100	10	6	116	2.2%	198	1.7	5,396	5,778	80	2	18	100	1.7%	186	1.9	5,964

Existing Peak Hour Volumes - Classification Counts

6 Citrus Ave at Fontana Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	20	0	0	0	0	0.0%	0	0.0	20	18	0	0	0	0	0.0%	0	0.0	18
NT	592	11	3	10	24	3.9%	53	2.2	645	830	6	1	9	16	1.9%	38	2.4	868
NR	70	3	0	0	3	4.1%	5	1.7	75	69	0	0	0	0	0.0%	0	0.0	69
SL	20	2	0	0	2	9.1%	3	1.5	23	32	1	0	0	1	3.0%	2	2.0	34
ST	776	14	7	20	41	5.0%	95	2.3	871	632	7	7	8	22	3.4%	49	2.2	681
SR	107	4	0	3	7	6.1%	15	2.1	122	100	2	0	1	3	2.9%	6	2.0	106
EL	96	3	1	0	4	4.0%	7	1.8	103	129	2	2	0	4	3.0%	7	1.8	136
ET	88	1	0	0	1	1.1%	2	2.0	90	171	3	1	0	4	2.3%	7	1.8	178
ER	11	0	0	0	0	0.0%	0	0.0	11	7	1	0	0	1	12.5%	2	2.0	9
WL	69	3	0	0	3	4.2%	5	1.7	74	42	0	0	0	0	0.0%	0	0.0	42
WT	76	0	1	0	1	1.3%	2	2.0	78	80	2	0	0	2	2.4%	3	1.5	83
WR	21	5	1	0	6	22.2%	10	1.7	31	20	0	0	0	0	0.0%	0	0.0	20
									2,143									2,244
North Leg Volumes																		
Approach	903	20	7	23	50		113		1,016	764	10	7	9	26		57		821
Depart	709	19	5	10	34		70		779	979	8	3	9	20		45		1,024
Total	1,612	39	12	33	84	5.0%	183	2.2	1,795	1,743	18	10	18	46	2.6%	102	2.2	1,845
South Leg Volumes																		
Approach	682	14	3	10	27		58		740	917	6	1	9	16		38		955
Depart	856	17	7	20	44		100		956	681	8	7	8	23		51		732
Total	1,538	31	10	30	71	4.4%	158	2.2	1,696	1,598	14	8	17	39	2.4%	89	2.3	1,687
East Leg Volumes																		
Approach	166	8	2	0	10		17		183	142	2	0	0	2		3		145
Depart	178	6	0	0	6		10		188	272	4	1	0	5		9		281
Total	344	14	2	0	16	4.4%	27	1.7	371	414	6	1	0	7	1.7%	12	1.7	426
West Leg Volumes																		
Approach	195	4	1	0	5		9		204	307	6	3	0	9		16		323
Depart	203	4	1	3	8		17		220	198	4	0	1	5		9		207
Total	398	8	2	3	13	3.2%	26	2.0	424	505	10	3	1	14	2.7%	25	1.8	530
All Legs																		
Approach	1,946	46	13	33	92		197		2,143	2,130	24	11	18	53		114		2,244
Depart	1,946	46	13	33	92		197		2,143	2,130	24	11	18	53		114		2,244
Total	3,892	92	26	66	184	4.5%	394	2.1	4,286	4,260	48	22	36	106	2.4%	228	2.2	4,488

Existing Peak Hour Volumes - Classification Counts

7 Cherry Ave at Randall Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	8	0	1	0	1	11.1%	2	2.0	10	13	0	0	1	1	7.1%	3	3.0	16
NT	626	32	31	34	97	13.4%	212	2.2	838	1,209	24	27	54	105	8.0%	252	2.4	1,461
NR	87	1	6	1	8	8.4%	17	2.1	104	140	3	6	2	11	7.3%	23	2.1	163
SL	151	3	0	0	3	1.9%	5	1.7	156	141	5	1	3	9	6.0%	19	2.1	160
ST	888	30	29	72	131	12.9%	319	2.4	1,207	666	28	21	44	93	12.3%	216	2.3	882
SR	9	0	0	0	0	0.0%	0	0.0	9	0	1	0	0	1	100.0%	2	2.0	2
EL	0	0	0	0	0	0.0%	0	0.0	0	5	0	0	0	0	0.0%	0	0.0	5
ET	1	0	0	0	0	0.0%	0	0.0	1	0	1	0	0	1	100.0%	2	2.0	2
ER	0	0	0	0	0	0.0%	0	0.0	0	5	0	0	0	0	0.0%	0	0.0	5
WL	180	6	2	7	15	7.7%	34	2.3	214	131	1	10	4	15	10.3%	34	2.3	165
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	103	0	0	2	2	1.9%	6	3.0	109	115	4	0	1	5	4.2%	9	1.8	124
									2,648									2,985
North Leg Volumes																		
Approach	1,048	33	29	72	134		324		1,372	807	34	22	47	103		237		1,044
Depart	729	32	31	36	99		218		947	1,329	28	27	55	110		261		1,590
Total	1,777	65	60	108	233	11.6%	542	2.3	2,319	2,136	62	49	102	213	9.1%	498	2.3	2,634
South Leg Volumes																		
Approach	721	33	38	35	106		231		952	1,362	27	33	57	117		278		1,640
Depart	1,068	36	31	79	146		353		1,421	802	29	31	48	108		250		1,052
Total	1,789	69	69	114	252	12.3%	584	2.3	2,373	2,164	56	64	105	225	9.4%	528	2.3	2,692
East Leg Volumes																		
Approach	283	6	2	9	17		40		323	246	5	10	5	20		43		289
Depart	239	4	6	1	11		22		261	281	9	7	5	21		44		325
Total	522	10	8	10	28	5.1%	62	2.2	584	527	14	17	10	41	7.2%	87	2.1	614
West Leg Volumes																		
Approach	1	0	0	0	0		0		1	10	1	0	0	1		2		12
Depart	17	0	1	0	1		2		19	13	1	0	1	2		5		18
Total	18	0	1	0	1	5.3%	2	2.0	20	23	2	0	1	3	11.5%	7	2.3	30
All Legs																		
Approach	2,053	72	69	116	257		595		2,648	2,425	67	65	109	241		560		2,985
Depart	2,053	72	69	116	257		595		2,648	2,425	67	65	109	241		560		2,985
Total	4,106	144	138	232	514	11.1%	1,190	2.3	5,296	4,850	134	130	218	482	9.0%	1,120	2.3	5,970

Existing Peak Hour Volumes - Classification Counts

8 Beech Ave at Randall Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	17	0	0	0	0	0.0%	0	0.0	17	15	0	0	0	0	0.0%	0	0.0	15
NT	179	1	0	4	5	2.7%	14	2.8	193	207	0	0	2	2	1.0%	6	3.0	213
NR	40	1	0	0	1	2.4%	2	2.0	42	12	0	0	0	0	0.0%	0	0.0	12
SL	4	0	1	0	1	20.0%	2	2.0	6	34	0	0	0	0	0.0%	0	0.0	34
ST	180	3	0	3	6	3.2%	14	2.3	194	150	3	2	1	6	3.8%	12	2.0	162
SR	82	0	0	0	0	0.0%	0	0.0	82	29	0	1	0	1	3.3%	2	2.0	31
EL	50	1	0	1	2	3.8%	5	2.5	55	62	0	0	0	0	0.0%	0	0.0	62
ET	109	4	0	0	4	3.5%	6	1.5	115	169	0	1	0	1	0.6%	2	2.0	171
ER	18	0	0	0	0	0.0%	0	0.0	18	20	1	0	0	1	4.8%	2	2.0	22
WL	31	0	0	0	0	0.0%	0	0.0	31	10	0	0	0	0	0.0%	0	0.0	10
WT	166	3	1	0	4	2.4%	7	1.8	173	109	1	1	0	2	1.8%	4	2.0	113
WR	39	0	0	0	0	0.0%	0	0.0	39	38	1	1	0	2	5.0%	4	2.0	42
									965									887
North Leg Volumes																		
Approach	266	3	1	3	7		16		282	213	3	3	1	7		14		227
Depart	268	2	0	5	7		19		287	307	1	1	2	4		10		317
Total	534	5	1	8	14	2.6%	35	2.5	569	520	4	4	3	11	2.1%	24	2.2	544
South Leg Volumes																		
Approach	236	2	0	4	6		16		252	234	0	0	2	2		6		240
Depart	229	3	0	3	6		14		243	180	4	2	1	7		14		194
Total	465	5	0	7	12	2.5%	30	2.5	495	414	4	2	3	9	2.1%	20	2.2	434
East Leg Volumes																		
Approach	236	3	1	0	4		7		243	157	2	2	0	4		8		165
Depart	153	5	1	0	6		10		163	215	0	1	0	1		2		217
Total	389	8	2	0	10	2.5%	17	1.7	406	372	2	3	0	5	1.3%	10	2.0	382
West Leg Volumes																		
Approach	177	5	0	1	6		11		188	251	1	1	0	2		4		255
Depart	265	3	1	0	4		7		272	153	1	2	0	3		6		159
Total	442	8	1	1	10	2.2%	18	1.8	460	404	2	3	0	5	1.2%	10	2.0	414
All Legs																		
Approach	915	13	2	8	23		50		965	855	6	6	3	15		32		887
Depart	915	13	2	8	23		50		965	855	6	6	3	15		32		887
Total	1,830	26	4	16	46	2.5%	100	2.2	1,930	1,710	12	12	6	30	1.7%	64	2.1	1,774

Existing Peak Hour Volumes - Classification Counts

9 Fontana Ave/Catawba Ave at Randall Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									0									0
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0

Existing Peak Hour Volumes - Classification Counts

10 Citrus Ave at Randall Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	111	0	1	0	1	0.9%	2	2.0	113	48	0	1	0	1	2.0%	2	2.0	50
NT	537	12	3	10	25	4.4%	54	2.2	591	822	10	5	9	24	2.8%	52	2.2	874
NR	194	1	0	0	1	0.5%	2	2.0	196	82	0	0	0	0	0.0%	0	0.0	82
SL	100	2	0	0	2	2.0%	3	1.5	103	64	1	0	0	1	1.5%	2	2.0	66
ST	747	16	9	20	45	5.7%	102	2.3	849	592	5	8	6	19	3.1%	42	2.2	634
SR	48	1	0	0	1	2.0%	2	2.0	50	13	0	0	0	0	0.0%	0	0.0	13
EL	78	1	0	0	1	1.3%	2	2.0	80	20	0	0	0	0	0.0%	0	0.0	20
ET	107	2	0	0	2	1.8%	3	1.5	110	160	3	0	0	3	1.8%	5	1.7	165
ER	133	1	0	0	1	0.7%	2	2.0	135	33	1	2	0	3	8.3%	6	2.0	39
WL	121	1	0	0	1	0.8%	2	2.0	123	57	0	0	0	0	0.0%	0	0.0	57
WT	103	2	1	0	3	2.8%	5	1.7	108	141	2	2	0	4	2.8%	7	1.8	148
WR	65	1	0	0	1	1.5%	2	2.0	67	63	0	0	0	0	0.0%	0	0.0	63
									2,525									2,211
North Leg Volumes																		
Approach	895	19	9	20	48		107		1,002	669	6	8	6	20		44		713
Depart	680	14	3	10	27		58		738	905	10	5	9	24		52		957
Total	1,575	33	12	30	75	4.5%	165	2.2	1,740	1,574	16	13	15	44	2.7%	96	2.2	1,670
South Leg Volumes																		
Approach	842	13	4	10	27		58		900	952	10	6	9	25		54		1,006
Depart	1,001	18	9	20	47		106		1,107	682	6	10	6	22		48		730
Total	1,843	31	13	30	74	3.9%	164	2.2	2,007	1,634	16	16	15	47	2.8%	102	2.2	1,736
East Leg Volumes																		
Approach	289	4	1	0	5		9		298	261	2	2	0	4		7		268
Depart	401	5	0	0	5		8		409	306	4	0	0	4		7		313
Total	690	9	1	0	10	1.4%	17	1.7	707	567	6	2	0	8	1.4%	14	1.8	581
West Leg Volumes																		
Approach	318	4	0	0	4		7		325	213	4	2	0	6		11		224
Depart	262	3	2	0	5		9		271	202	2	3	0	5		9		211
Total	580	7	2	0	9	1.5%	16	1.8	596	415	6	5	0	11	2.6%	20	1.8	435
All Legs																		
Approach	2,344	40	14	30	84		181		2,525	2,095	22	18	15	55		116		2,211
Depart	2,344	40	14	30	84		181		2,525	2,095	22	18	15	55		116		2,211
Total	4,688	80	28	60	168	3.5%	362	2.2	5,050	4,190	44	36	30	110	2.6%	232	2.1	4,422

Existing Peak Hour Volumes - Classification Counts

11 Sierra Ave at Randall Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	31	0	0	0	0	0.0%	0	0.0	31	68	0	0	0	0	0.0%	0	0.0	68
NT	689	19	2	1	22	3.1%	36	1.6	725	1,005	11	0	1	12	1.2%	20	1.7	1,025
NR	47	1	0	0	1	2.1%	2	2.0	49	112	0	0	0	0	0.0%	0	0.0	112
SL	22	0	0	0	0	0.0%	0	0.0	22	64	0	0	0	0	0.0%	0	0.0	64
ST	993	20	4	4	28	2.7%	50	1.8	1,043	748	11	1	6	18	2.3%	37	2.1	785
SR	36	0	0	0	0	0.0%	0	0.0	36	57	3	0	0	3	5.0%	5	1.7	62
EL	55	1	0	0	1	1.8%	2	2.0	57	74	1	0	0	1	1.3%	2	2.0	76
ET	192	5	0	0	5	2.5%	8	1.6	200	229	0	1	0	1	0.4%	2	2.0	231
ER	93	0	0	0	0	0.0%	0	0.0	93	64	1	0	0	1	1.5%	2	2.0	66
WL	126	5	0	0	5	3.8%	8	1.6	134	117	0	0	0	0	0.0%	0	0.0	117
WT	198	3	0	0	3	1.5%	5	1.7	203	148	3	4	1	8	5.1%	16	2.0	164
WR	44	2	0	1	3	6.4%	6	2.0	50	55	2	0	0	2	3.5%	3	1.5	58
									2,643									2,828
North Leg Volumes																		
Approach	1,051	20	4	4	28		50		1,101	869	14	1	6	21		42		911
Depart	788	22	2	2	26		44		832	1,134	14	0	1	15		25		1,159
Total	1,839	42	6	6	54	2.9%	94	1.7	1,933	2,003	28	1	7	36	1.8%	67	1.9	2,070
South Leg Volumes																		
Approach	767	20	2	1	23		38		805	1,185	11	0	1	12		20		1,205
Depart	1,212	25	4	4	33		58		1,270	929	12	1	6	19		39		968
Total	1,979	45	6	5	56	2.8%	96	1.7	2,075	2,114	23	1	7	31	1.4%	59	1.9	2,173
East Leg Volumes																		
Approach	368	10	0	1	11		19		387	320	5	4	1	10		19		339
Depart	261	6	0	0	6		10		271	405	0	1	0	1		2		407
Total	629	16	0	1	17	2.6%	29	1.7	658	725	5	5	1	11	1.5%	21	1.9	746
West Leg Volumes																		
Approach	340	6	0	0	6		10		350	367	2	1	0	3		6		373
Depart	265	3	0	0	3		5		270	273	6	4	1	11		21		294
Total	605	9	0	0	9	1.5%	15	1.7	620	640	8	5	1	14	2.1%	27	1.9	667
All Legs																		
Approach	2,526	56	6	6	68		117		2,643	2,741	32	6	8	46		87		2,828
Depart	2,526	56	6	6	68		117		2,643	2,741	32	6	8	46		87		2,828
Total	5,052	112	12	12	136	2.6%	234	1.7	5,286	5,482	64	12	16	92	1.7%	174	1.9	5,656

Existing Peak Hour Volumes - Classification Counts

12 I-15 SB Ramps/Ontario Mills Dr at Fourth St

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	83	2	0	0	2	2.4%	3	1.5	86	119	0	0	0	0	0.0%	0	0.0	119
NT	36	6	0	1	7	16.3%	12	1.7	48	202	2	0	1	3	1.5%	6	2.0	208
NR	63	5	3	0	8	11.3%	14	1.8	77	358	1	0	0	1	0.3%	2	2.0	360
SL	82	4	0	16	20	19.6%	54	2.7	136	53	1	2	16	19	26.4%	54	2.8	107
ST	243	2	0	0	2	0.8%	3	1.5	246	266	5	1	2	8	2.9%	16	2.0	282
SR	841	9	0	10	19	2.2%	44	2.3	885	485	5	1	13	19	3.8%	49	2.6	534
EL	197	12	5	14	31	13.6%	70	2.3	267	759	8	2	14	24	3.1%	58	2.4	817
ET	326	15	9	11	35	9.7%	74	2.1	400	903	16	18	19	53	5.5%	117	2.2	1,020
ER	56	2	0	0	2	3.4%	3	1.5	59	89	1	0	1	2	2.2%	5	2.5	94
WL	119	5	2	1	8	6.3%	15	1.9	134	147	2	1	0	3	2.0%	5	1.7	152
WT	1,003	34	17	34	85	7.8%	187	2.2	1,190	509	13	8	20	41	7.5%	96	2.3	605
WR	83	10	7	36	53	39.0%	137	2.6	220	267	4	3	9	16	5.7%	39	2.4	306
									3,748									4,604
North Leg Volumes																		
Approach	1,166	15	0	26	41		101		1,267	804	11	4	31	46		119		923
Depart	316	28	12	51	91		219		535	1,228	14	5	24	43		103		1,331
Total	1,482	43	12	77	132	8.2%	320	2.4	1,802	2,032	25	9	55	89	4.2%	222	2.5	2,254
South Leg Volumes																		
Approach	182	13	3	1	17		29		211	679	3	0	1	4		8		687
Depart	418	9	2	1	12		21		439	502	8	2	3	13		26		528
Total	600	22	5	2	29	4.6%	50	1.7	650	1,181	11	2	4	17	1.4%	34	2.0	1,215
East Leg Volumes																		
Approach	1,205	49	26	71	146		339		1,544	923	19	12	29	60		140		1,063
Depart	471	24	12	27	63		142		613	1,314	18	20	35	73		173		1,487
Total	1,676	73	38	98	209	11.1%	481	2.3	2,157	2,237	37	32	64	133	5.6%	313	2.4	2,550
West Leg Volumes																		
Approach	579	29	14	25	68		147		726	1,751	25	20	34	79		180		1,931
Depart	1,927	45	17	44	106		234		2,161	1,113	18	9	33	60		145		1,258
Total	2,506	74	31	69	174	6.5%	381	2.2	2,887	2,864	43	29	67	139	4.6%	325	2.3	3,189
All Legs																		
Approach	3,132	106	43	123	272		616		3,748	4,157	58	36	95	189		447		4,604
Depart	3,132	106	43	123	272		616		3,748	4,157	58	36	95	189		447		4,604
Total	6,264	212	86	246	544	8.0%	1,232	2.3	7,496	8,314	116	72	190	378	4.3%	894	2.4	9,208

Existing Peak Hour Volumes - Classification Counts

13 I-15 NB Ramps at Fourth St

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	31	1	1	3	5	13.9%	13	2.6	44	74	0	0	0	0	0.0%	0	0.0	74
NT	20	1	0	1	2	9.1%	5	2.5	25	40	3	0	1	4	9.1%	8	2.0	48
NR	31	2	0	0	2	6.1%	3	1.5	34	41	0	1	0	1	2.4%	2	2.0	43
SL	223	9	4	31	44	16.5%	115	2.6	338	62	4	2	14	20	24.4%	52	2.6	114
ST	40	2	0	2	4	9.1%	9	2.3	49	39	0	0	1	1	2.5%	3	3.0	42
SR	828	21	10	25	56	6.3%	127	2.3	955	307	7	4	11	22	6.7%	52	2.4	359
EL	226	6	1	6	13	5.4%	29	2.2	255	660	3	0	3	6	0.9%	14	2.3	674
ET	220	17	11	21	49	18.2%	111	2.3	331	593	13	20	33	66	10.0%	159	2.4	752
ER	23	1	0	0	1	4.2%	2	2.0	25	61	1	0	0	1	1.6%	2	2.0	63
WL	26	1	1	0	2	7.1%	4	2.0	30	37	0	0	0	0	0.0%	0	0.0	37
WT	352	27	15	43	85	19.5%	200	2.4	552	540	11	7	20	38	6.6%	91	2.4	631
WR	35	0	6	16	22	38.6%	60	2.7	95	104	2	3	9	14	11.9%	36	2.6	140
									2,733									2,977
North Leg Volumes																		
Approach	1,091	32	14	58	104		251		1,342	408	11	6	26	43		107		515
Depart	281	7	7	23	37		94		375	804	8	3	13	24		58		862
Total	1,372	39	21	81	141	9.3%	345	2.4	1,717	1,212	19	9	39	67	5.2%	165	2.5	1,377
South Leg Volumes																		
Approach	82	4	1	4	9		21		103	155	3	1	1	5		10		165
Depart	89	4	1	2	7		15		104	137	1	0	1	2		5		142
Total	171	8	2	6	16	8.6%	36	2.3	207	292	4	1	2	7	2.3%	15	2.1	307
East Leg Volumes																		
Approach	413	28	22	59	109		264		677	681	13	10	29	52		127		808
Depart	474	28	15	52	95		229		703	696	17	23	47	87		213		909
Total	887	56	37	111	204	18.7%	493	2.4	1,380	1,377	30	33	76	139	9.2%	340	2.4	1,717
West Leg Volumes																		
Approach	469	24	12	27	63		142		611	1,314	17	20	36	73		175		1,489
Depart	1,211	49	26	71	146		340		1,551	921	18	11	31	60		143		1,064
Total	1,680	73	38	98	209	11.1%	482	2.3	2,162	2,235	35	31	67	133	5.6%	318	2.4	2,553
All Legs																		
Approach	2,055	88	49	148	285		678		2,733	2,558	44	37	92	173		419		2,977
Depart	2,055	88	49	148	285		678		2,733	2,558	44	37	92	173		419		2,977
Total	4,110	176	98	296	570	12.2%	1,356	2.4	5,466	5,116	88	74	184	346	6.3%	838	2.4	5,954

Existing Peak Hour Volumes - Classification Counts

14 Etiwanda Ave at Fourth St/San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	145	8	7	19	34	19.0%	83	2.4	228	123	5	3	7	15	10.9%	35	2.3	158
NT	376	14	36	58	108	22.3%	267	2.5	643	502	5	38	56	99	16.5%	252	2.5	754
NR	42	0	2	13	15	26.3%	43	2.9	85	35	1	4	15	20	36.4%	55	2.8	90
SL	37	0	5	4	9	19.6%	22	2.4	59	53	1	45	1	47	47.0%	95	2.0	148
ST	392	18	46	85	149	27.5%	374	2.5	766	432	8	25	38	71	14.1%	176	2.5	608
SR	89	6	4	11	21	19.1%	50	2.4	139	147	3	5	3	11	7.0%	24	2.2	171
EL	89	5	11	10	26	22.6%	60	2.3	149	153	0	7	5	12	7.3%	29	2.4	182
ET	103	5	7	10	22	17.6%	52	2.4	155	498	7	9	16	32	6.0%	77	2.4	575
ER	38	1	5	14	20	34.5%	54	2.7	92	119	8	7	28	43	26.5%	110	2.6	229
WL	55	1	7	24	32	36.8%	88	2.8	143	69	3	5	8	16	18.8%	39	2.4	108
WT	222	10	3	22	35	13.6%	87	2.5	309	216	5	4	12	21	8.9%	52	2.5	268
WR	32	0	2	2	4	11.1%	10	2.5	42	37	2	8	3	13	26.0%	28	2.2	65
									2,810									3,356
North Leg Volumes																		
Approach	518	24	55	100	179		446		964	632	12	75	42	129		295		927
Depart	497	19	49	70	138		337		834	692	7	53	64	124		309		1,001
Total	1,015	43	104	170	317	23.8%	783	2.5	1,798	1,324	19	128	106	253	16.0%	604	2.4	1,928
South Leg Volumes																		
Approach	563	22	45	90	157		393		956	660	11	45	78	134		342		1,002
Depart	485	20	58	123	201		516		1,001	620	19	37	74	130		325		945
Total	1,048	42	103	213	358	25.5%	909	2.5	1,957	1,280	30	82	152	264	17.1%	667	2.5	1,947
East Leg Volumes																		
Approach	309	11	12	48	71		185		494	322	10	17	23	50		119		441
Depart	182	5	14	27	46		117		299	586	9	58	32	99		227		813
Total	491	16	26	75	117	19.2%	302	2.6	793	908	19	75	55	149	14.1%	346	2.3	1,254
West Leg Volumes																		
Approach	230	11	23	34	68		166		396	770	15	23	49	87		216		986
Depart	456	24	14	52	90		220		676	486	13	12	22	47		111		597
Total	686	35	37	86	158	18.7%	386	2.4	1,072	1,256	28	35	71	134	9.6%	327	2.4	1,583
All Legs																		
Approach	1,620	68	135	272	475		1,190		2,810	2,384	48	160	192	400		972		3,356
Depart	1,620	68	135	272	475		1,190		2,810	2,384	48	160	192	400		972		3,356
Total	3,240	136	270	544	950	22.7%	2,380	2.5	5,620	4,768	96	320	384	800	14.4%	1,944	2.4	6,712

Existing Peak Hour Volumes - Classification Counts

15 Commerce Dr at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	29	1	0	5	6	17.1%	17	2.8	46	22	0	0	8	8	26.7%	24	3.0	46
NT	3	0	0	0	0	0.0%	0	0.0	3	0	0	0	1	1	100.0%	3	3.0	3
NR	134	3	6	23	32	19.3%	86	2.7	220	342	8	15	36	59	14.7%	150	2.5	492
SL	1	0	0	1	1	50.0%	3	3.0	4	3	0	0	0	0	0.0%	0	0.0	3
ST	2	0	0	2	2	50.0%	6	3.0	8	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	1	0	0	0	0	0.0%	0	0.0	1
EL	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
ET	118	5	10	12	27	18.6%	64	2.4	182	612	8	49	23	80	11.6%	179	2.2	791
ER	7	0	1	8	9	56.3%	26	2.9	33	19	1	0	8	9	32.1%	26	2.9	45
WL	174	2	4	26	32	15.5%	89	2.8	263	123	2	1	4	7	5.4%	17	2.4	140
WT	341	13	8	32	53	13.5%	132	2.5	473	205	9	15	4	28	12.0%	56	2.0	261
WR	2	0	0	0	0	0.0%	0	0.0	2	2	0	0	0	0	0.0%	0	0.0	2
									1,235									1,784
North Leg Volumes																		
Approach	3	0	0	3	3		9		12	4	0	0	0	0		0		4
Depart	6	0	0	0	0		0		6	2	0	0	1	1		3		5
Total	9	0	0	3	3	25.0%	9	3.0	18	6	0	0	1	1	14.3%	3	3.0	9
South Leg Volumes																		
Approach	166	4	6	28	38		103		269	364	8	15	45	68		177		541
Depart	183	2	5	36	43		121		304	142	3	1	12	16		43		185
Total	349	6	11	64	81	18.8%	224	2.8	573	506	11	16	57	84	14.2%	220	2.6	726
East Leg Volumes																		
Approach	517	15	12	58	85		221		738	330	11	16	8	35		73		403
Depart	253	8	16	36	60		153		406	957	16	64	59	139		329		1,286
Total	770	23	28	94	145	15.8%	374	2.6	1,144	1,287	27	80	67	174	11.9%	402	2.3	1,689
West Leg Volumes																		
Approach	126	5	11	20	36		90		216	631	9	49	31	89		205		836
Depart	370	14	8	37	59		149		519	228	9	15	12	36		80		308
Total	496	19	19	57	95	16.1%	239	2.5	735	859	18	64	43	125	12.7%	285	2.3	1,144
All Legs																		
Approach	812	24	29	109	162		423		1,235	1,329	28	80	84	192		455		1,784
Depart	812	24	29	109	162		423		1,235	1,329	28	80	84	192		455		1,784
Total	1,624	48	58	218	324	16.6%	846	2.6	2,470	2,658	56	160	168	384	12.6%	910	2.4	3,568

Existing Peak Hour Volumes - Classification Counts

16 Vip Rd at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	1	1	100.0%	3	3.0	3	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	245	10	13	37	60	19.7%	152	2.5	397	942	27	81	50	158	14.4%	353	2.2	1,295
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
WT	527	16	12	57	85	13.9%	219	2.6	746	291	8	11	25	44	13.1%	109	2.5	400
WR	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
									1,148									1,695
North Leg Volumes																		
Approach	0	0	0	1	1		3		3	0	0	0	0	0		0		0
Depart	1	0	0	0	0		0		1	0	0	0	0	0		0		0
Total	1	0	0	1	1	50.0%	3	3.0	4	0	0	0	0	0	0.0%	0	0.0	0
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	1	0	0	0	0		0		1	0	0	0	0	0		0		0
Total	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
East Leg Volumes																		
Approach	529	16	12	57	85		219		748	291	8	11	25	44		109		400
Depart	245	10	13	37	60		152		397	942	27	81	50	158		353		1,295
Total	774	26	25	94	145	15.8%	371	2.6	1,145	1,233	35	92	75	202	14.1%	462	2.3	1,695
West Leg Volumes																		
Approach	245	10	13	37	60		152		397	942	27	81	50	158		353		1,295
Depart	527	16	12	58	86		222		749	291	8	11	25	44		109		400
Total	772	26	25	95	146	15.9%	374	2.6	1,146	1,233	35	92	75	202	14.1%	462	2.3	1,695
All Legs																		
Approach	774	26	25	95	146		374		1,148	1,233	35	92	75	202		462		1,695
Depart	774	26	25	95	146		374		1,148	1,233	35	92	75	202		462		1,695
Total	1,548	52	50	190	292	15.9%	748	2.6	2,296	2,466	70	184	150	404	14.1%	924	2.3	3,390

Existing Peak Hour Volumes - Classification Counts

1 Cherry Ave at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	49	3	15	9	27	35.5%	62	2.3	111	32	0	6	7	13	28.9%	33	2.5	65
NT	631	36	23	41	100	13.7%	223	2.2	854	836	23	30	30	83	9.0%	185	2.2	1,021
NR	40	1	7	13	21	34.4%	55	2.6	95	94	0	2	14	16	14.5%	46	2.9	140
SL	68	5	0	4	9	11.7%	20	2.2	88	66	1	1	2	4	5.7%	10	2.5	76
ST	717	24	32	29	85	10.6%	187	2.2	904	609	8	23	36	67	9.9%	166	2.5	775
SR	291	8	10	20	38	11.6%	92	2.4	383	182	3	10	6	19	9.5%	43	2.3	225
EL	128	3	9	10	22	14.7%	53	2.4	181	377	7	10	20	37	8.9%	91	2.5	468
ET	62	4	3	2	9	12.7%	18	2.0	80	616	7	5	10	22	3.4%	51	2.3	667
ER	34	5	5	22	32	48.5%	84	2.6	118	138	13	42	20	75	35.2%	164	2.2	302
WL	106	1	4	9	14	11.7%	37	2.6	143	50	2	2	6	10	16.7%	25	2.5	75
WT	284	6	3	11	20	6.6%	48	2.4	332	157	5	5	3	13	7.6%	27	2.1	184
WR	65	4	1	2	7	9.7%	14	2.0	79	52	1	2	0	3	5.5%	6	2.0	58
									3,368									4,056
North Leg Volumes																		
Approach	1,076	37	42	53	132		299		1,375	857	12	34	44	90		219		1,076
Depart	824	43	33	53	129		290		1,114	1,265	31	42	50	123		282		1,547
Total	1,900	80	75	106	261	12.1%	589	2.3	2,489	2,122	43	76	94	213	9.1%	501	2.4	2,623
South Leg Volumes																		
Approach	720	40	45	63	148		340		1,060	962	23	38	51	112		264		1,226
Depart	857	30	41	60	131		308		1,165	797	23	67	62	152		355		1,152
Total	1,577	70	86	123	279	15.0%	648	2.3	2,225	1,759	46	105	113	264	13.0%	619	2.3	2,378
East Leg Volumes																		
Approach	455	11	8	22	41		99		554	259	8	9	9	26		58		317
Depart	170	10	10	19	39		93		263	776	8	8	26	42		107		883
Total	625	21	18	41	80	11.3%	192	2.4	817	1,035	16	17	35	68	6.2%	165	2.4	1,200
West Leg Volumes																		
Approach	224	12	17	34	63		155		379	1,131	27	57	50	134		306		1,437
Depart	624	17	28	40	85		202		826	371	8	21	16	45		103		474
Total	848	29	45	74	148	14.9%	357	2.4	1,205	1,502	35	78	66	179	10.6%	409	2.3	1,911
All Legs																		
Approach	2,475	100	112	172	384		893		3,368	3,209	70	138	154	362		847		4,056
Depart	2,475	100	112	172	384		893		3,368	3,209	70	138	154	362		847		4,056
Total	4,950	200	224	344	768	13.4%	1,786	2.3	6,736	6,418	140	276	308	724	10.1%	1,694	2.3	8,112

Existing Peak Hour Volumes - Classification Counts

2 Beech Ave at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	23	0	0	2	2	8.0%	6	3.0	29	10	2	2	0	4	28.6%	7	1.8	17
NT	108	2	0	5	7	6.1%	18	2.6	126	150	0	1	2	3	2.0%	8	2.7	158
NR	4	1	0	0	1	20.0%	2	2.0	6	23	1	0	0	1	4.2%	2	2.0	25
SL	43	0	0	0	0	0.0%	0	0.0	43	39	0	0	0	0	0.0%	0	0.0	39
ST	120	2	0	2	4	3.2%	9	2.3	129	83	4	1	3	8	8.8%	17	2.1	100
SR	69	2	0	1	3	4.2%	6	2.0	75	30	0	1	1	2	6.3%	5	2.5	35
EL	30	0	0	0	0	0.0%	0	0.0	30	68	0	0	0	0	0.0%	0	0.0	68
ET	201	5	2	1	8	3.8%	15	1.9	216	525	8	3	1	12	2.2%	21	1.8	546
ER	16	0	0	0	0	0.0%	0	0.0	16	12	0	0	0	0	0.0%	0	0.0	12
WL	7	0	0	0	0	0.0%	0	0.0	7	11	1	0	0	1	8.3%	2	2.0	13
WT	309	14	1	3	18	5.5%	32	1.8	341	203	9	2	2	13	6.0%	24	1.8	227
WR	66	0	0	0	0	0.0%	0	0.0	66	35	0	0	0	0	0.0%	0	0.0	35
									1,084									1,275
North Leg Volumes																		
Approach	232	4	0	3	7		15		247	152	4	2	4	10		22		174
Depart	204	2	0	5	7		18		222	253	0	1	2	3		8		261
Total	436	6	0	8	14	3.1%	33	2.4	469	405	4	3	6	13	3.1%	30	2.3	435
South Leg Volumes																		
Approach	135	3	0	7	10		26		161	183	3	3	2	8		17		200
Depart	143	2	0	2	4		9		152	106	5	1	3	9		19		125
Total	278	5	0	9	14	4.8%	35	2.5	313	289	8	4	5	17	5.6%	36	2.1	325
East Leg Volumes																		
Approach	382	14	1	3	18		32		414	249	10	2	2	14		26		275
Depart	248	6	2	1	9		17		265	587	9	3	1	13		23		610
Total	630	20	3	4	27	4.1%	49	1.8	679	836	19	5	3	27	3.1%	49	1.8	885
West Leg Volumes																		
Approach	247	5	2	1	8		15		262	605	8	3	1	12		21		626
Depart	401	16	1	6	23		44		445	243	11	5	3	19		36		279
Total	648	21	3	7	31	4.6%	59	1.9	707	848	19	8	4	31	3.5%	57	1.8	905
All Legs																		
Approach	996	26	3	14	43		88		1,084	1,189	25	10	9	44		86		1,275
Depart	996	26	3	14	43		88		1,084	1,189	25	10	9	44		86		1,275
Total	1,992	52	6	28	86	4.1%	176	2.0	2,168	2,378	50	20	18	88	3.6%	172	2.0	2,550

Existing Peak Hour Volumes - Classification Counts

3 Fontana Ave/Elm Ave at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									0									0
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0

Existing Peak Hour Volumes - Classification Counts

4 Citrus Ave at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	113	2	0	0	2	1.7%	3	1.5	116	163	2	2	1	5	3.0%	10	2.0	173
NT	538	10	6	8	24	4.3%	51	2.1	589	924	3	6	5	14	1.5%	32	2.3	956
NR	157	1	0	0	1	0.6%	2	2.0	159	47	0	0	0	0	0.0%	0	0.0	47
SL	100	0	0	0	0	0.0%	0	0.0	100	48	0	0	0	0	0.0%	0	0.0	48
ST	691	14	8	19	41	5.6%	94	2.3	785	542	5	5	5	15	2.7%	33	2.2	575
SR	63	0	0	0	0	0.0%	0	0.0	63	25	0	0	0	0	0.0%	0	0.0	25
EL	133	1	0	0	1	0.7%	2	2.0	135	53	0	0	0	0	0.0%	0	0.0	53
ET	110	5	0	0	5	4.3%	8	1.6	118	296	6	0	0	6	2.0%	9	1.5	305
ER	61	2	0	1	3	4.7%	6	2.0	67	62	1	0	0	1	1.6%	2	2.0	64
WL	107	0	0	0	0	0.0%	0	0.0	107	44	0	0	0	0	0.0%	0	0.0	44
WT	122	4	1	0	5	3.9%	8	1.6	130	206	2	0	1	3	1.4%	6	2.0	212
WR	257	1	1	0	2	0.8%	4	2.0	261	69	0	1	0	1	1.4%	2	2.0	71
									2,630									2,573
North Leg Volumes																		
Approach	854	14	8	19	41		94		948	615	5	5	5	15		33		648
Depart	928	12	7	8	27		57		985	1,046	3	7	5	15		34		1,080
Total	1,782	26	15	27	68	3.7%	151	2.2	1,933	1,661	8	12	10	30	1.8%	67	2.2	1,728
South Leg Volumes																		
Approach	808	13	6	8	27		56		864	1,134	5	8	6	19		42		1,176
Depart	859	16	8	20	44		100		959	648	6	5	5	16		35		683
Total	1,667	29	14	28	71	4.1%	156	2.2	1,823	1,782	11	13	11	35	1.9%	77	2.2	1,859
East Leg Volumes																		
Approach	486	5	2	0	7		12		498	319	2	1	1	4		8		327
Depart	367	6	0	0	6		10		377	391	6	0	0	6		9		400
Total	853	11	2	0	13	1.5%	22	1.7	875	710	8	1	1	10	1.4%	17	1.7	727
West Leg Volumes																		
Approach	304	8	0	1	9		16		320	411	7	0	0	7		11		422
Depart	298	6	1	0	7		11		309	394	4	2	2	8		16		410
Total	602	14	1	1	16	2.6%	27	1.7	629	805	11	2	2	15	1.8%	27	1.8	832
All Legs																		
Approach	2,452	40	16	28	84		178		2,630	2,479	19	14	12	45		94		2,573
Depart	2,452	40	16	28	84		178		2,630	2,479	19	14	12	45		94		2,573
Total	4,904	80	32	56	168	3.3%	356	2.1	5,260	4,958	38	28	24	90	1.8%	188	2.1	5,146

Existing Peak Hour Volumes - Classification Counts

5 Sierra Ave at San Bernardino Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	49	0	0	0	0	0.0%	0	0.0	49	179	2	0	0	2	1.1%	3	1.5	182
NT	695	19	2	1	22	3.1%	36	1.6	731	935	13	0	1	14	1.5%	23	1.6	958
NR	157	1	0	1	2	1.3%	5	2.5	162	366	1	0	0	1	0.3%	2	2.0	368
SL	10	0	0	0	0	0.0%	0	0.0	10	67	0	0	0	0	0.0%	0	0.0	67
ST	1,109	22	2	4	28	2.5%	49	1.8	1,158	837	14	2	6	22	2.6%	43	2.0	880
SR	65	0	1	0	1	1.5%	2	2.0	67	54	0	0	0	0	0.0%	0	0.0	54
EL	27	0	0	0	0	0.0%	0	0.0	27	92	0	0	0	0	0.0%	0	0.0	92
ET	174	2	0	0	2	1.1%	3	1.5	177	330	5	1	0	6	1.8%	10	1.7	340
ER	81	1	0	0	1	1.2%	2	2.0	83	135	0	0	0	0	0.0%	0	0.0	135
WL	249	4	0	1	5	2.0%	9	1.8	258	227	3	0	0	3	1.3%	5	1.7	232
WT	297	6	0	0	6	2.0%	9	1.5	306	261	8	1	2	11	4.0%	20	1.8	281
WR	38	0	0	0	0	0.0%	0	0.0	38	73	1	0	0	1	1.4%	2	2.0	75
									3,066									3,664
North Leg Volumes																		
Approach	1,184	22	3	4	29		51		1,235	958	14	2	6	22		43		1,001
Depart	760	19	2	1	22		36		796	1,100	14	0	1	15		25		1,125
Total	1,944	41	5	5	51	2.6%	87	1.7	2,031	2,058	28	2	7	37	1.8%	68	1.8	2,126
South Leg Volumes																		
Approach	901	20	2	2	24		41		942	1,480	16	0	1	17		28		1,508
Depart	1,439	27	2	5	34		60		1,499	1,199	17	2	6	25		48		1,247
Total	2,340	47	4	7	58	2.4%	101	1.7	2,441	2,679	33	2	7	42	1.5%	76	1.8	2,755
East Leg Volumes																		
Approach	584	10	0	1	11		18		602	561	12	1	2	15		27		588
Depart	341	3	0	1	4		8		349	763	6	1	0	7		12		775
Total	925	13	0	2	15	1.6%	26	1.7	951	1,324	18	2	2	22	1.6%	39	1.8	1,363
West Leg Volumes																		
Approach	282	3	0	0	3		5		287	557	5	1	0	6		10		567
Depart	411	6	1	0	7		11		422	494	10	1	2	13		23		517
Total	693	9	1	0	10	1.4%	16	1.6	709	1,051	15	2	2	19	1.8%	33	1.7	1,084
All Legs																		
Approach	2,951	55	5	7	67		115		3,066	3,556	47	4	9	60		108		3,664
Depart	2,951	55	5	7	67		115		3,066	3,556	47	4	9	60		108		3,664
Total	5,902	110	10	14	134	2.2%	230	1.7	6,132	7,112	94	8	18	120	1.7%	216	1.8	7,328

Existing Peak Hour Volumes - Classification Counts

6 Beech Ave at Fontana Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	6	0	0	0	0	0.0%	0	0.0	6	0	0	0	0	0	0.0%	0	0.0	0
NT	89	1	1	3	5	5.3%	13	2.6	102	148	4	2	2	8	5.1%	16	2.0	164
NR	8	0	0	0	0	0.0%	0	0.0	8	58	1	2	0	3	4.9%	6	2.0	64
SL	8	0	0	0	0	0.0%	0	0.0	8	4	0	0	0	0	0.0%	0	0.0	4
ST	112	2	1	2	5	4.3%	11	2.2	123	85	4	2	2	8	8.6%	16	2.0	101
SR	37	1	0	2	3	7.5%	8	2.7	45	19	1	1	0	2	9.5%	4	2.0	23
EL	15	0	0	2	2	11.8%	6	3.0	21	34	2	1	1	4	10.5%	8	2.0	42
ET	41	1	0	0	1	2.4%	2	2.0	43	122	2	1	1	4	3.2%	8	2.0	130
ER	2	0	0	0	0	0.0%	0	0.0	2	1	0	0	0	0	0.0%	0	0.0	1
WL	19	1	0	0	1	5.0%	2	2.0	21	5	1	0	0	1	16.7%	2	2.0	7
WT	136	2	1	2	5	3.5%	11	2.2	147	69	2	1	1	4	5.5%	8	2.0	77
WR	7	0	0	0	0	0.0%	0	0.0	7	12	0	0	0	0	0.0%	0	0.0	12
									533									625
North Leg Volumes																		
Approach	157	3	1	4	8		19		176	108	5	3	2	10		20		128
Depart	111	1	1	5	7		19		130	194	6	3	3	12		24		218
Total	268	4	2	9	15	5.3%	38	2.5	306	302	11	6	5	22	6.8%	44	2.0	346
South Leg Volumes																		
Approach	103	1	1	3	5		13		116	206	5	4	2	11		22		228
Depart	133	3	1	2	6		13		146	91	5	2	2	9		18		109
Total	236	4	2	5	11	4.5%	26	2.4	262	297	10	6	4	20	6.3%	40	2.0	337
East Leg Volumes																		
Approach	162	3	1	2	6		13		175	86	3	1	1	5		10		96
Depart	57	1	0	0	1		2		59	184	3	3	1	7		14		198
Total	219	4	1	2	7	3.1%	15	2.1	234	270	6	4	2	12	4.3%	24	2.0	294
West Leg Volumes																		
Approach	58	1	0	2	3		8		66	157	4	2	2	8		16		173
Depart	179	3	1	4	8		19		198	88	3	2	1	6		12		100
Total	237	4	1	6	11	4.4%	27	2.5	264	245	7	4	3	14	5.4%	28	2.0	273
All Legs																		
Approach	480	8	3	11	22		53		533	557	17	10	7	34		68		625
Depart	480	8	3	11	22		53		533	557	17	10	7	34		68		625
Total	960	16	6	22	44	4.4%	106	2.4	1,066	1,114	34	20	14	68	5.8%	136	2.0	1,250

Existing Peak Hour Volumes - Classification Counts

7 Etiwanda Ave at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	228	5	1	18	24	9.5%	64	2.7	292	188	5	2	19	26	12.1%	69	2.7	257
NT	541	31	43	89	163	23.2%	400	2.5	941	616	13	44	71	128	17.2%	321	2.5	937
NR	30	0	3	14	17	36.2%	48	2.8	78	41	2	4	23	29	41.4%	80	2.8	121
SL	14	2	0	8	10	41.7%	27	2.7	41	30	2	5	7	14	31.8%	34	2.4	64
ST	437	22	54	93	169	27.9%	420	2.5	857	645	16	32	69	117	15.4%	295	2.5	940
SR	29	0	4	2	6	17.1%	14	2.3	43	22	1	0	2	3	12.0%	8	2.7	30
EL	8	2	1	4	7	46.7%	17	2.4	25	50	1	1	7	9	15.3%	25	2.8	75
ET	23	2	2	5	9	28.1%	22	2.4	45	206	1	3	14	18	8.0%	50	2.8	256
ER	43	5	4	23	32	42.7%	85	2.7	128	278	5	3	16	24	7.9%	62	2.6	340
WL	76	5	3	25	33	30.3%	89	2.7	165	68	5	9	14	28	29.2%	68	2.4	136
WT	133	2	2	7	11	7.6%	28	2.5	161	83	0	1	2	3	3.5%	8	2.7	91
WR	46	4	2	4	10	17.9%	22	2.2	68	54	1	4	8	13	19.4%	34	2.6	88
									2,844									3,335
North Leg Volumes																		
Approach	480	24	58	103	185		461		941	697	19	37	78	134		337		1,034
Depart	595	37	46	97	180		439		1,034	720	15	49	86	150		380		1,100
Total	1,075	61	104	200	365	25.3%	900	2.5	1,975	1,417	34	86	164	284	16.7%	717	2.5	2,134
South Leg Volumes																		
Approach	799	36	47	121	204		512		1,311	845	20	50	113	183		470		1,315
Depart	556	32	61	141	234		594		1,150	991	26	44	99	169		425		1,416
Total	1,355	68	108	262	438	24.4%	1,106	2.5	2,461	1,836	46	94	212	352	16.1%	895	2.5	2,731
East Leg Volumes																		
Approach	255	11	7	36	54		139		394	205	6	14	24	44		110		315
Depart	67	4	5	27	36		97		164	277	5	12	44	61		164		441
Total	322	15	12	63	90	21.8%	236	2.6	558	482	11	26	68	105	17.9%	274	2.6	756
West Leg Volumes																		
Approach	74	9	7	32	48		124		198	534	7	7	37	51		137		671
Depart	390	7	7	27	41		106		496	293	6	3	23	32		85		378
Total	464	16	14	59	89	16.1%	230	2.6	694	827	13	10	60	83	9.1%	222	2.7	1,049
All Legs																		
Approach	1,608	80	119	292	491		1,236		2,844	2,281	52	108	252	412		1,054		3,335
Depart	1,608	80	119	292	491		1,236		2,844	2,281	52	108	252	412		1,054		3,335
Total	3,216	160	238	584	982	23.4%	2,472	2.5	5,688	4,562	104	216	504	824	15.3%	2,108	2.6	6,670

Existing Peak Hour Volumes - Classification Counts

8 Commerce Dr/I-10 Ramps at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	37	1	1	5	7	15.9%	19	2.7	56	17	0	0	5	5	22.7%	15	3.0	32
NT	134	2	6	22	30	18.3%	81	2.7	215	280	11	1	24	36	11.4%	91	2.5	371
NR	199	10	14	52	76	27.6%	199	2.6	398	402	21	25	63	109	21.3%	271	2.5	673
SL	5	0	0	1	1	16.7%	3	3.0	8	6	1	0	1	2	25.0%	5	2.5	11
ST	150	2	5	48	55	26.8%	157	2.9	307	208	4	2	12	18	8.0%	46	2.6	254
SR	35	1	1	1	3	7.9%	7	2.3	42	16	0	0	3	3	15.8%	9	3.0	25
EL	6	0	3	2	5	45.5%	12	2.4	18	34	0	0	2	2	5.6%	6	3.0	40
ET	58	3	4	12	19	24.7%	49	2.6	107	325	8	8	30	46	12.4%	118	2.6	443
ER	4	1	0	5	6	60.0%	17	2.8	21	16	1	1	1	3	15.8%	7	2.3	23
WL	103	15	14	80	109	51.4%	291	2.7	394	519	8	17	51	76	12.8%	199	2.6	718
WT	211	8	8	27	43	16.9%	109	2.5	320	342	7	18	18	43	11.2%	101	2.3	443
WR	9	1	5	3	9	50.0%	21	2.3	30	43	2	8	3	13	23.2%	28	2.2	71
									1,916									3,104
North Leg Volumes																		
Approach	190	3	6	50	59		167		357	230	5	2	16	23		60		290
Depart	149	3	14	27	44		114		263	357	13	9	29	51		125		482
Total	339	6	20	77	103	23.3%	281	2.7	620	587	18	11	45	74	11.2%	185	2.5	772
South Leg Volumes																		
Approach	370	13	21	79	113		299		669	699	32	26	92	150		377		1,076
Depart	257	18	19	133	170		465		722	743	13	20	64	97		252		995
Total	627	31	40	212	283	31.1%	764	2.7	1,391	1,442	45	46	156	247	14.6%	629	2.5	2,071
East Leg Volumes																		
Approach	323	24	27	110	161		421		744	904	17	43	72	132		328		1,232
Depart	262	13	18	65	96		251		513	733	30	33	94	157		394		1,127
Total	585	37	45	175	257	30.5%	672	2.6	1,257	1,637	47	76	166	289	15.0%	722	2.5	2,359
West Leg Volumes																		
Approach	68	4	7	19	30		78		146	375	9	9	33	51		131		506
Depart	283	10	10	33	53		135		418	375	7	18	26	51		125		500
Total	351	14	17	52	83	19.1%	213	2.6	564	750	16	27	59	102	12.0%	256	2.5	1,006
All Legs																		
Approach	951	44	61	258	363		965		1,916	2,208	63	80	213	356		896		3,104
Depart	951	44	61	258	363		965		1,916	2,208	63	80	213	356		896		3,104
Total	1,902	88	122	516	726	27.6%	1,930	2.7	3,832	4,416	126	160	426	712	13.9%	1,792	2.5	6,208

Existing Peak Hour Volumes - Classification Counts

9 Cherry Ave at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	327	13	22	25	60	15.5%	139	2.3	466	147	8	11	22	41	21.8%	100	2.4	247
NT	717	37	31	59	127	15.0%	295	2.3	1,012	723	21	26	48	95	11.6%	228	2.4	951
NR	273	7	16	18	41	13.1%	97	2.4	370	584	12	11	24	47	7.4%	112	2.4	696
SL	79	5	2	0	7	8.1%	12	1.7	91	76	3	4	3	10	11.6%	22	2.2	98
ST	771	34	38	80	152	16.5%	367	2.4	1,138	699	18	39	48	105	13.1%	249	2.4	948
SR	33	6	3	7	16	32.7%	36	2.3	69	34	8	6	3	17	33.3%	33	1.9	67
EL	38	7	5	9	21	35.6%	48	2.3	86	142	6	3	7	16	10.1%	36	2.3	178
ET	68	8	6	8	22	24.4%	48	2.2	116	401	6	12	6	24	5.6%	51	2.1	452
ER	79	16	22	40	78	49.7%	188	2.4	267	209	8	20	31	59	22.0%	145	2.5	354
WL	380	12	6	32	50	11.6%	126	2.5	506	269	10	9	31	50	15.7%	126	2.5	395
WT	235	11	13	9	33	12.3%	70	2.1	305	166	7	12	13	32	16.2%	74	2.3	240
WR	45	4	4	4	12	21.1%	26	2.2	71	52	5	2	6	13	20.0%	30	2.3	82
									4,497									4,708
North Leg Volumes																		
Approach	883	45	43	87	175		415		1,298	809	29	49	54	132		304		1,113
Depart	800	48	40	72	160		369		1,169	917	32	31	61	124		294		1,211
Total	1,683	93	83	159	335	16.6%	784	2.3	2,467	1,726	61	80	115	256	12.9%	598	2.3	2,324
South Leg Volumes																		
Approach	1,317	57	69	102	228		531		1,848	1,454	41	48	94	183		440		1,894
Depart	1,230	62	66	152	280		681		1,911	1,177	36	68	110	214		520		1,697
Total	2,547	119	135	254	508	16.6%	1,212	2.4	3,759	2,631	77	116	204	397	13.1%	960	2.4	3,591
East Leg Volumes																		
Approach	660	27	23	45	95		222		882	487	22	23	50	95		230		717
Depart	420	20	24	26	70		157		577	1,061	21	27	33	81		185		1,246
Total	1,080	47	47	71	165	13.3%	379	2.3	1,459	1,548	43	50	83	176	10.2%	415	2.4	1,963
West Leg Volumes																		
Approach	185	31	33	57	121		284		469	752	20	35	44	99		232		984
Depart	595	30	38	41	109		245		840	347	23	29	38	90		207		554
Total	780	61	71	98	230	22.8%	529	2.3	1,309	1,099	43	64	82	189	14.7%	439	2.3	1,538
All Legs																		
Approach	3,045	160	168	291	619		1,452		4,497	3,502	112	155	242	509		1,206		4,708
Depart	3,045	160	168	291	619		1,452		4,497	3,502	112	155	242	509		1,206		4,708
Total	6,090	320	336	582	1,238	16.9%	2,904	2.3	8,994	7,004	224	310	484	1,018	12.7%	2,412	2.4	9,416

Existing Peak Hour Volumes - Classification Counts

10 Fontana Ave/Hemlock Ave at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									0									0
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0

Existing Peak Hour Volumes - Classification Counts

11 Beech Ave at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	1	1	0	1	2	66.7%	5	2.5	6	1	0	0	1	1	50.0%	3	3.0	4
NT	1	0	0	0	0	0.0%	0	0.0	1	2	0	0	0	0	0.0%	0	0.0	2
NR	16	0	1	1	2	11.1%	5	2.5	21	16	0	1	0	1	5.9%	2	2.0	18
SL	78	4	1	2	7	8.2%	14	2.0	92	60	5	0	2	7	10.4%	14	2.0	74
ST	3	0	0	0	0	0.0%	0	0.0	3	0	0	0	0	0	0.0%	0	0.0	0
SR	29	0	0	0	0	0.0%	0	0.0	29	15	0	1	1	2	11.8%	5	2.5	20
EL	14	0	0	0	0	0.0%	0	0.0	14	107	3	1	1	5	4.5%	10	2.0	117
ET	314	14	8	16	38	10.8%	85	2.2	399	862	13	20	27	60	6.5%	141	2.4	1,003
ER	3	2	1	0	3	50.0%	5	1.7	8	0	0	2	1	3	100.0%	7	2.3	7
WL	14	0	0	0	0	0.0%	0	0.0	14	5	1	0	0	1	16.7%	2	2.0	7
WT	478	15	22	20	57	10.7%	127	2.2	605	377	14	15	27	56	12.9%	132	2.4	509
WR	62	1	1	2	4	6.1%	10	2.5	72	113	3	2	1	6	5.0%	12	2.0	125
									1,264									1,886
North Leg Volumes																		
Approach	110	4	1	2	7		14		124	75	5	1	3	9		19		94
Depart	77	1	1	2	4		10		87	222	6	3	2	11		22		244
Total	187	5	2	4	11	5.6%	24	2.2	211	297	11	4	5	20	6.3%	41	2.1	338
South Leg Volumes																		
Approach	18	1	1	2	4		10		28	19	0	1	1	2		5		24
Depart	20	2	1	0	3		5		25	5	1	2	1	4		9		14
Total	38	3	2	2	7	15.6%	15	2.1	53	24	1	3	2	6	20.0%	14	2.3	38
East Leg Volumes																		
Approach	554	16	23	22	61		137		691	495	18	17	28	63		146		641
Depart	408	18	10	19	47		104		512	938	18	21	29	68		157		1,095
Total	962	34	33	41	108	10.1%	241	2.2	1,203	1,433	36	38	57	131	8.4%	303	2.3	1,736
West Leg Volumes																		
Approach	331	16	9	16	41		90		421	969	16	23	29	68		158		1,127
Depart	508	16	22	21	59		132		640	393	14	16	29	59		140		533
Total	839	32	31	37	100	10.6%	222	2.2	1,061	1,362	30	39	58	127	8.5%	298	2.3	1,660
All Legs																		
Approach	1,013	37	34	42	113		251		1,264	1,558	39	42	61	142		328		1,886
Depart	1,013	37	34	42	113		251		1,264	1,558	39	42	61	142		328		1,886
Total	2,026	74	68	84	226	10.0%	502	2.2	2,528	3,116	78	84	122	284	8.4%	656	2.3	3,772

Existing Peak Hour Volumes - Classification Counts

12 Citrus Ave at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	352	10	9	18	37	9.5%	87	2.4	439	455	7	6	25	38	7.7%	98	2.6	553
NT	512	10	6	14	30	5.5%	69	2.3	581	935	6	4	6	16	1.7%	35	2.2	970
NR	125	1	0	3	4	3.1%	11	2.8	136	266	0	2	5	7	2.6%	19	2.7	285
SL	71	0	2	3	5	6.6%	13	2.6	84	91	3	0	0	3	3.2%	5	1.7	96
ST	684	13	5	15	33	4.6%	75	2.3	759	510	4	6	4	14	2.7%	30	2.1	540
SR	21	1	1	2	4	16.0%	10	2.5	31	38	2	0	0	2	5.0%	3	1.5	41
EL	27	2	1	1	4	12.9%	8	2.0	35	70	0	0	0	0	0.0%	0	0.0	70
ET	253	9	4	2	15	5.6%	28	1.9	281	638	4	5	3	12	1.8%	25	2.1	663
ER	387	7	9	16	32	7.6%	77	2.4	464	329	8	14	12	34	9.4%	76	2.2	405
WL	233	6	4	5	15	6.0%	32	2.1	265	152	1	2	0	3	1.9%	6	2.0	158
WT	339	7	7	4	18	5.0%	37	2.1	376	695	7	7	11	25	3.5%	58	2.3	753
WR	77	1	0	1	2	2.5%	5	2.5	82	177	1	2	0	3	1.7%	6	2.0	183
									3,533									4,717
North Leg Volumes																		
Approach	776	14	8	20	42		98		874	639	9	6	4	19		38		677
Depart	616	13	7	16	36		82		698	1,182	7	6	6	19		41		1,223
Total	1,392	27	15	36	78	5.3%	180	2.3	1,572	1,821	16	12	10	38	2.0%	79	2.1	1,900
South Leg Volumes																		
Approach	989	21	15	35	71		167		1,156	1,656	13	12	36	61		152		1,808
Depart	1,304	26	18	36	80		184		1,488	991	13	22	16	51		112		1,103
Total	2,293	47	33	71	151	6.2%	351	2.3	2,644	2,647	26	34	52	112	4.1%	264	2.4	2,911
East Leg Volumes																		
Approach	649	14	11	10	35		74		723	1,024	9	11	11	31		70		1,094
Depart	449	10	6	8	24		52		501	995	7	7	8	22		49		1,044
Total	1,098	24	17	18	59	5.1%	126	2.1	1,224	2,019	16	18	19	53	2.6%	119	2.2	2,138
West Leg Volumes																		
Approach	667	18	14	19	51		113		780	1,037	12	19	15	46		101		1,138
Depart	712	18	17	24	59		134		846	1,188	16	13	36	65		159		1,347
Total	1,379	36	31	43	110	7.4%	247	2.2	1,626	2,225	28	32	51	111	4.8%	260	2.3	2,485
All Legs																		
Approach	3,081	67	48	84	199		452		3,533	4,356	43	48	66	157		361		4,717
Depart	3,081	67	48	84	199		452		3,533	4,356	43	48	66	157		361		4,717
Total	6,162	134	96	168	398	6.1%	904	2.3	7,066	8,712	86	96	132	314	3.5%	722	2.3	9,434

Existing Peak Hour Volumes - Classification Counts

13 Sierra Ave at Valley Blvd

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	153	2	3	6	11	6.7%	27	2.5	180	225	2	1	2	5	2.2%	11	2.2	236
NT	1,195	9	1	2	12	1.0%	22	1.8	1,217	1,158	8	0	2	10	0.9%	18	1.8	1,176
NR	652	8	1	3	12	1.8%	23	1.9	675	654	9	10	13	32	4.7%	73	2.3	727
SL	105	1	1	0	2	1.9%	4	2.0	109	149	2	1	0	3	2.0%	5	1.7	154
ST	1,346	19	1	3	23	1.7%	40	1.7	1,386	1,149	20	2	6	28	2.4%	52	1.9	1,201
SR	91	3	1	0	4	4.2%	7	1.8	98	85	1	0	0	1	1.2%	2	2.0	87
EL	170	0	0	0	0	0.0%	0	0.0	170	263	1	1	0	2	0.8%	4	2.0	267
ET	237	7	1	3	11	4.4%	22	2.0	259	814	8	8	7	23	2.7%	49	2.1	863
ER	140	3	0	2	5	3.4%	11	2.2	151	206	2	2	2	6	2.8%	13	2.2	219
WL	462	12	9	16	37	7.4%	84	2.3	546	555	6	9	17	32	5.5%	78	2.4	633
WT	383	14	3	3	20	5.0%	36	1.8	419	532	15	7	23	45	7.8%	106	2.4	638
WR	78	5	1	2	8	9.3%	16	2.0	94	103	2	0	0	2	1.9%	3	1.5	106
									5,304									6,307
North Leg Volumes																		
Approach	1,542	23	3	3	29		51		1,593	1,383	23	3	6	32		59		1,442
Depart	1,443	14	2	4	20		38		1,481	1,524	11	1	2	14		25		1,549
Total	2,985	37	5	7	49	1.6%	89	1.8	3,074	2,907	34	4	8	46	1.6%	84	1.8	2,991
South Leg Volumes																		
Approach	2,000	19	5	11	35		72		2,072	2,037	19	11	17	47		102		2,139
Depart	1,948	34	10	21	65		135		2,083	1,910	28	13	25	66		143		2,053
Total	3,948	53	15	32	100	2.5%	207	2.1	4,155	3,947	47	24	42	113	2.8%	245	2.2	4,192
East Leg Volumes																		
Approach	923	31	13	21	65		136		1,059	1,190	23	16	40	79		187		1,377
Depart	994	16	3	6	25		49		1,043	1,617	19	19	20	58		127		1,744
Total	1,917	47	16	27	90	4.5%	185	2.1	2,102	2,807	42	35	60	137	4.7%	314	2.3	3,121
West Leg Volumes																		
Approach	547	10	1	5	16		33		580	1,283	11	11	9	31		66		1,349
Depart	627	19	7	9	35		70		697	842	18	8	25	51		119		961
Total	1,174	29	8	14	51	4.2%	103	2.0	1,277	2,125	29	19	34	82	3.7%	185	2.3	2,310
All Legs																		
Approach	5,012	83	22	40	145		292		5,304	5,893	76	41	72	189		414		6,307
Depart	5,012	83	22	40	145		292		5,304	5,893	76	41	72	189		414		6,307
Total	10,024	166	44	80	290	2.8%	584	2.0	10,608	11,786	152	82	144	378	3.1%	828	2.2	12,614

Existing Peak Hour Volumes - Classification Counts

14 Etiwanda Ave at I-10 WB Off-Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	375	17	50	87	154	29.1%	387	2.5	762	607	19	52	82	153	20.1%	379	2.5	986
NR	128	25	24	77	126	49.6%	317	2.5	445	428	16	10	50	76	15.1%	194	2.6	622
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	432	30	33	77	140	24.5%	342	2.4	774	736	32	27	65	124	14.4%	297	2.4	1,033
SR	117	11	35	68	114	49.4%	291	2.6	408	226	14	23	43	80	26.1%	196	2.5	422
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	345	10	8	38	56	14.0%	145	2.6	490	190	19	13	34	66	25.8%	157	2.4	347
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	415	11	6	29	46	10.0%	116	2.5	531	323	9	7	27	43	11.7%	109	2.5	432
									3,410									3,842
North Leg Volumes																		
Approach	549	41	68	145	254		633		1,182	962	46	50	108	204		493		1,455
Depart	790	28	56	116	200		503		1,293	930	28	59	109	196		488		1,418
Total	1,339	69	124	261	454	25.3%	1,136	2.5	2,475	1,892	74	109	217	400	17.5%	981	2.5	2,873
South Leg Volumes																		
Approach	503	42	74	164	280		704		1,207	1,035	35	62	132	229		573		1,608
Depart	777	40	41	115	196		487		1,264	926	51	40	99	190		454		1,380
Total	1,280	82	115	279	476	27.1%	1,191	2.5	2,471	1,961	86	102	231	419	17.6%	1,027	2.5	2,988
East Leg Volumes																		
Approach	760	21	14	67	102		261		1,021	513	28	20	61	109		266		779
Depart	128	25	24	77	126		317		445	428	16	10	50	76		194		622
Total	888	46	38	144	228	20.4%	578	2.5	1,466	941	44	30	111	185	16.4%	460	2.5	1,401
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	117	11	35	68	114		291		408	226	14	23	43	80		196		422
Total	117	11	35	68	114	49.4%	291	2.6	408	226	14	23	43	80	26.1%	196	2.5	422
All Legs																		
Approach	1,812	104	156	376	636		1,598		3,410	2,510	109	132	301	542		1,332		3,842
Depart	1,812	104	156	376	636		1,598		3,410	2,510	109	132	301	542		1,332		3,842
Total	3,624	208	312	752	1,272	26.0%	3,196	2.5	6,820	5,020	218	264	602	1,084	17.8%	2,664	2.5	7,684

Existing Peak Hour Volumes - Classification Counts

15 Cherry Ave at I-10 WB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	717	36	45	44	125	14.8%	276	2.2	993	1,027	26	42	63	131	11.3%	312	2.4	1,339
NR	266	9	16	77	102	27.7%	277	2.7	543	220	6	11	46	63	22.3%	169	2.7	389
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	1,058	72	66	150	288	21.4%	690	2.4	1,748	1,283	53	74	98	225	14.9%	522	2.3	1,805
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	526	13	24	48	85	13.9%	212	2.5	738	322	12	14	50	76	19.1%	196	2.6	518
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	448	22	24	36	82	15.5%	189	2.3	637	322	11	18	39	68	17.4%	170	2.5	492
									4,659									4,543
North Leg Volumes																		
Approach	1,058	72	66	150	288		690		1,748	1,283	53	74	98	225		522		1,805
Depart	1,165	58	69	80	207		465		1,630	1,349	37	60	102	199		482		1,831
Total	2,223	130	135	230	495	18.2%	1,155	2.3	3,378	2,632	90	134	200	424	13.9%	1,004	2.4	3,636
South Leg Volumes																		
Approach	983	45	61	121	227		553		1,536	1,247	32	53	109	194		481		1,728
Depart	1,584	85	90	198	373		902		2,486	1,605	65	88	148	301		718		2,323
Total	2,567	130	151	319	600	18.9%	1,455	2.4	4,022	2,852	97	141	257	495	14.8%	1,199	2.4	4,051
East Leg Volumes																		
Approach	974	35	48	84	167		401		1,375	644	23	32	89	144		366		1,010
Depart	266	9	16	77	102		277		543	220	6	11	46	63		169		389
Total	1,240	44	64	161	269	17.8%	678	2.5	1,918	864	29	43	135	207	19.3%	535	2.6	1,399
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	3,015	152	175	355	682		1,644		4,659	3,174	108	159	296	563		1,369		4,543
Depart	3,015	152	175	355	682		1,644		4,659	3,174	108	159	296	563		1,369		4,543
Total	6,030	304	350	710	1,364	18.4%	3,288	2.4	9,318	6,348	216	318	592	1,126	15.1%	2,738	2.4	9,086

Existing Peak Hour Volumes - Classification Counts

16 Citrus Ave at I-10 WB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	582	18	3	13	34	5.5%	72	2.1	654	987	30	8	9	47	4.5%	88	1.9	1,075
NR	168	6	10	25	41	19.6%	104	2.5	272	195	4	5	15	24	11.0%	61	2.5	256
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	868	20	14	19	53	5.8%	115	2.2	983	784	18	9	21	48	5.8%	108	2.3	892
SR	409	8	3	13	24	5.5%	57	2.4	466	426	4	3	12	19	4.3%	48	2.5	474
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	297	5	5	16	26	8.0%	66	2.5	363	180	7	2	15	24	11.8%	60	2.5	240
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	404	10	10	3	23	5.4%	44	1.9	448	417	9	8	17	34	7.5%	81	2.4	498
									3,186									3,435
North Leg Volumes																		
Approach	1,277	28	17	32	77		172		1,449	1,210	22	12	33	67		156		1,366
Depart	986	28	13	16	57		116		1,102	1,404	39	16	26	81		169		1,573
Total	2,263	56	30	48	134	5.6%	288	2.1	2,551	2,614	61	28	59	148	5.4%	325	2.2	2,939
South Leg Volumes																		
Approach	750	24	13	38	75		176		926	1,182	34	13	24	71		149		1,331
Depart	1,165	25	19	35	79		181		1,346	964	25	11	36	72		168		1,132
Total	1,915	49	32	73	154	7.4%	357	2.3	2,272	2,146	59	24	60	143	6.2%	317	2.2	2,463
East Leg Volumes																		
Approach	701	15	15	19	49		110		811	597	16	10	32	58		141		738
Depart	168	6	10	25	41		104		272	195	4	5	15	24		61		256
Total	869	21	25	44	90	9.4%	214	2.4	1,083	792	20	15	47	82	9.4%	202	2.5	994
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	409	8	3	13	24		57		466	426	4	3	12	19		48		474
Total	409	8	3	13	24	5.5%	57	2.4	466	426	4	3	12	19	4.3%	48	2.5	474
All Legs																		
Approach	2,728	67	45	89	201		458		3,186	2,989	72	35	89	196		446		3,435
Depart	2,728	67	45	89	201		458		3,186	2,989	72	35	89	196		446		3,435
Total	5,456	134	90	178	402	6.9%	916	2.3	6,372	5,978	144	70	178	392	6.2%	892	2.3	6,870

Existing Peak Hour Volumes - Classification Counts

1 Etiwanda Ave at I-10 EB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	397	36	46	177	259	39.5%	677	2.6	1,074	872	27	40	98	165	15.9%	415	2.5	1,287
NR	130	23	12	64	99	43.2%	251	2.5	381	370	14	15	47	76	17.0%	192	2.5	562
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	635	34	32	72	138	17.9%	331	2.4	966	635	40	29	72	141	18.2%	334	2.4	969
SR	126	6	8	29	43	25.4%	112	2.6	238	323	10	4	16	30	8.5%	71	2.4	394
EL	124	5	28	40	73	37.1%	184	2.5	308	129	8	32	31	71	35.5%	169	2.4	298
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	388	23	22	68	113	22.6%	283	2.5	671	151	17	10	65	92	37.9%	241	2.6	392
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									3,638									3,902
North Leg Volumes																		
Approach	761	40	40	101	181		443		1,204	958	50	33	88	171		405		1,363
Depart	521	41	74	217	332		861		1,382	1,001	35	72	129	236		584		1,585
Total	1,282	81	114	318	513	28.6%	1,304	2.5	2,586	1,959	85	105	217	407	17.2%	989	2.4	2,948
South Leg Volumes																		
Approach	527	59	58	241	358		928		1,455	1,242	41	55	145	241		607		1,849
Depart	1,023	57	54	140	251		614		1,637	786	57	39	137	233		575		1,361
Total	1,550	116	112	381	609	28.2%	1,542	2.5	3,092	2,028	98	94	282	474	18.9%	1,182	2.5	3,210
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	130	23	12	64	99		251		381	370	14	15	47	76		192		562
Total	130	23	12	64	99	43.2%	251	2.5	381	370	14	15	47	76	17.0%	192	2.5	562
West Leg Volumes																		
Approach	512	28	50	108	186		467		979	280	25	42	96	163		410		690
Depart	126	6	8	29	43		112		238	323	10	4	16	30		71		394
Total	638	34	58	137	229	26.4%	579	2.5	1,217	603	35	46	112	193	24.2%	481	2.5	1,084
All Legs																		
Approach	1,800	127	148	450	725		1,838		3,638	2,480	116	130	329	575		1,422		3,902
Depart	1,800	127	148	450	725		1,838		3,638	2,480	116	130	329	575		1,422		3,902
Total	3,600	254	296	900	1,450	28.7%	3,676	2.5	7,276	4,960	232	260	658	1,150	18.8%	2,844	2.5	7,804

Existing Peak Hour Volumes - Classification Counts

2 Cherry Ave at I-10 EB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	712	40	42	126	208	22.6%	522	2.5	1,234	889	26	40	76	142	13.8%	347	2.4	1,236
NR	281	15	19	47	81	22.4%	202	2.5	483	283	6	8	37	51	15.3%	136	2.7	419
SL	241	22	18	50	90	27.2%	219	2.4	460	372	16	18	27	61	14.1%	141	2.3	513
ST	1,073	37	46	89	172	13.8%	415	2.4	1,488	794	24	53	82	159	16.7%	388	2.4	1,182
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	251	23	20	25	68	21.3%	150	2.2	401	358	9	13	37	59	14.1%	151	2.6	509
ET	4	1	0	0	1	20.0%	2	2.0	6	41	1	0	0	1	2.4%	2	2.0	43
ER	347	12	18	72	102	22.7%	270	2.6	617	340	14	8	57	79	18.9%	208	2.6	548
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									4,689									4,450
North Leg Volumes																		
Approach	1,314	59	64	139	262		634		1,948	1,166	40	71	109	220		529		1,695
Depart	963	63	62	151	276		672		1,635	1,247	35	53	113	201		498		1,745
Total	2,277	122	126	290	538	19.1%	1,306	2.4	3,583	2,413	75	124	222	421	14.9%	1,027	2.4	3,440
South Leg Volumes																		
Approach	993	55	61	173	289		724		1,717	1,172	32	48	113	193		483		1,655
Depart	1,420	49	64	161	274		685		2,105	1,134	38	61	139	238		596		1,730
Total	2,413	104	125	334	563	18.9%	1,409	2.5	3,822	2,306	70	109	252	431	15.7%	1,079	2.5	3,385
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	526	38	37	97	172		423		949	696	23	26	64	113		279		975
Total	526	38	37	97	172	24.6%	423	2.5	949	696	23	26	64	113	14.0%	279	2.5	975
West Leg Volumes																		
Approach	602	36	38	97	171		422		1,024	739	24	21	94	139		361		1,100
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	602	36	38	97	171	22.1%	422	2.5	1,024	739	24	21	94	139	15.8%	361	2.6	1,100
All Legs																		
Approach	2,909	150	163	409	722		1,780		4,689	3,077	96	140	316	552		1,373		4,450
Depart	2,909	150	163	409	722		1,780		4,689	3,077	96	140	316	552		1,373		4,450
Total	5,818	300	326	818	1,444	19.9%	3,560	2.5	9,378	6,154	192	280	632	1,104	15.2%	2,746	2.5	8,900

Existing Peak Hour Volumes - Classification Counts

3 Citrus Ave at I-10 EB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	486	21	8	39	68	12.3%	165	2.4	651	780	25	9	19	53	6.4%	113	2.1	893
NR	223	9	4	29	42	15.8%	109	2.6	332	406	15	4	24	43	9.6%	103	2.4	509
SL	442	21	9	14	44	9.1%	92	2.1	534	432	11	8	12	31	6.7%	69	2.2	501
ST	742	24	11	17	52	6.5%	109	2.1	851	541	22	5	21	48	8.1%	106	2.2	647
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	265	8	9	3	20	7.0%	39	2.0	304	408	13	4	5	22	5.1%	43	2.0	451
ET	6	1	0	0	1	14.3%	2	2.0	8	7	0	0	0	0	0.0%	0	0.0	7
ER	302	12	4	33	49	14.0%	125	2.6	427	153	8	4	13	25	14.0%	59	2.4	212
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									3,107									3,220
North Leg Volumes																		
Approach	1,184	45	20	31	96		201		1,385	973	33	13	33	79		175		1,148
Depart	751	29	17	42	88		204		955	1,188	38	13	24	75		156		1,344
Total	1,935	74	37	73	184	8.7%	405	2.2	2,340	2,161	71	26	57	154	6.7%	331	2.1	2,492
South Leg Volumes																		
Approach	709	30	12	68	110		274		983	1,186	40	13	43	96		216		1,402
Depart	1,044	36	15	50	101		234		1,278	694	30	9	34	73		165		859
Total	1,753	66	27	118	211	10.7%	508	2.4	2,261	1,880	70	22	77	169	8.2%	381	2.3	2,261
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	671	31	13	43	87		203		874	845	26	12	36	74		172		1,017
Total	671	31	13	43	87	11.5%	203	2.3	874	845	26	12	36	74	8.1%	172	2.3	1,017
West Leg Volumes																		
Approach	573	21	13	36	70		166		739	568	21	8	18	47		102		670
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	573	21	13	36	70	10.9%	166	2.4	739	568	21	8	18	47	7.6%	102	2.2	670
All Legs																		
Approach	2,466	96	45	135	276		641		3,107	2,727	94	34	94	222		493		3,220
Depart	2,466	96	45	135	276		641		3,107	2,727	94	34	94	222		493		3,220
Total	4,932	192	90	270	552	10.1%	1,282	2.3	6,214	5,454	188	68	188	444	7.5%	986	2.2	6,440

Existing Peak Hour Volumes - Classification Counts

4 Sierra Ave at I-10 EB/WB Ramps

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	331	10	4	22	36	9.8%	89	2.5	420	419	8	6	23	37	8.1%	93	2.5	512
NT	699	9	1	1	11	1.5%	19	1.7	718	1,206	5	3	1	9	0.7%	17	1.9	1,223
NR	309	7	2	11	20	6.1%	48	2.4	357	414	8	4	11	23	5.3%	53	2.3	467
SL	479	7	2	2	11	2.2%	21	1.9	500	454	3	3	5	11	2.4%	26	2.4	480
ST	714	14	0	2	16	2.2%	27	1.7	741	832	8	7	1	16	1.9%	29	1.8	861
SR	740	20	3	15	38	4.9%	81	2.1	821	745	18	6	4	28	3.6%	51	1.8	796
EL	820	12	1	5	18	2.1%	35	1.9	855	848	27	5	5	37	4.2%	66	1.8	914
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	403	13	9	20	42	9.4%	98	2.3	501	363	17	4	20	41	10.1%	94	2.3	457
WL	371	7	2	14	23	5.8%	57	2.5	428	414	9	4	9	22	5.0%	49	2.2	463
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	539	5	1	1	7	1.3%	13	1.9	552	537	6	4	1	11	2.0%	20	1.8	557
									5,893									6,730
North Leg Volumes																		
Approach	1,933	41	5	19	65		129		2,062	2,031	29	16	10	55		106		2,137
Depart	2,058	26	3	7	36		67		2,125	2,591	38	12	7	57		103		2,694
Total	3,991	67	8	26	101	2.5%	196	1.9	4,187	4,622	67	28	17	112	2.4%	209	1.9	4,831
South Leg Volumes																		
Approach	1,339	26	7	34	67		156		1,495	2,039	21	13	35	69		163		2,202
Depart	1,488	34	11	36	81		182		1,670	1,609	34	15	30	79		172		1,781
Total	2,827	60	18	70	148	5.0%	338	2.3	3,165	3,648	55	28	65	148	3.9%	335	2.3	3,983
East Leg Volumes																		
Approach	910	12	3	15	30		70		980	951	15	8	10	33		69		1,020
Depart	788	14	4	13	31		69		857	868	11	7	16	34		79		947
Total	1,698	26	7	28	61	3.5%	139	2.3	1,837	1,819	26	15	26	67	3.6%	148	2.2	1,967
West Leg Volumes																		
Approach	1,223	25	10	25	60		133		1,356	1,211	44	9	25	78		160		1,371
Depart	1,071	30	7	37	74		170		1,241	1,164	26	12	27	65		144		1,308
Total	2,294	55	17	62	134	5.5%	303	2.3	2,597	2,375	70	21	52	143	5.7%	304	2.1	2,679
All Legs																		
Approach	5,405	104	25	93	222		488		5,893	6,232	109	46	80	235		498		6,730
Depart	5,405	104	25	93	222		488		5,893	6,232	109	46	80	235		498		6,730
Total	10,810	208	50	186	444	3.9%	976	2.2	11,786	12,464	218	92	160	470	3.6%	996	2.1	13,460

Existing Peak Hour Volumes - Classification Counts

5 Milliken Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	140	3	2	9	14	9.1%	36	2.6	176	159	2	0	4	6	3.6%	15	2.5	174
NT	276	17	2	9	28	9.2%	57	2.0	333	1,439	6	1	6	13	0.9%	29	2.2	1,468
NR	52	4	2	6	12	18.8%	28	2.3	80	293	3	2	9	14	4.6%	36	2.6	329
SL	97	1	0	3	4	4.0%	11	2.8	108	55	1	1	1	3	5.2%	7	2.3	62
ST	651	12	0	12	24	3.6%	54	2.3	705	487	11	2	4	17	3.4%	33	1.9	520
SR	183	7	3	6	16	8.0%	35	2.2	218	107	2	1	2	5	4.5%	11	2.2	118
EL	70	3	1	0	4	5.4%	7	1.8	77	217	3	0	5	8	3.6%	20	2.5	237
ET	354	13	7	7	27	7.1%	55	2.0	409	888	20	11	13	44	4.7%	91	2.1	979
ER	84	1	1	10	12	12.5%	34	2.8	118	163	1	0	7	8	4.7%	23	2.9	186
WL	136	4	1	4	9	6.2%	20	2.2	156	79	3	1	7	11	12.2%	28	2.5	107
WT	1,027	23	8	8	39	3.7%	75	1.9	1,102	492	6	2	12	20	3.9%	49	2.5	541
WR	88	3	2	2	7	7.4%	15	2.1	103	97	1	0	1	2	2.0%	5	2.5	102
									3,585									4,823
North Leg Volumes																		
Approach	931	20	3	21	44		100		1,031	649	14	4	7	25		51		700
Depart	434	23	5	11	39		79		513	1,753	10	1	12	23		54		1,807
Total	1,365	43	8	32	83	5.7%	179	2.2	1,544	2,402	24	5	19	48	2.0%	105	2.2	2,507
South Leg Volumes																		
Approach	468	24	6	24	54		121		589	1,891	11	3	19	33		80		1,971
Depart	871	17	2	26	45		108		979	729	15	3	18	36		84		813
Total	1,339	41	8	50	99	6.9%	229	2.3	1,568	2,620	26	6	37	69	2.6%	164	2.4	2,784
East Leg Volumes																		
Approach	1,251	30	11	14	55		110		1,361	668	10	3	20	33		82		750
Depart	503	18	9	16	43		94		597	1,236	24	14	23	61		134		1,370
Total	1,754	48	20	30	98	5.3%	204	2.1	1,958	1,904	34	17	43	94	4.7%	216	2.3	2,120
West Leg Volumes																		
Approach	508	17	9	17	43		96		604	1,268	24	11	25	60		134		1,402
Depart	1,350	33	13	23	69		146		1,496	758	10	3	18	31		75		833
Total	1,858	50	22	40	112	5.7%	242	2.2	2,100	2,026	34	14	43	91	4.3%	209	2.3	2,235
All Legs																		
Approach	3,158	91	29	76	196		427		3,585	4,476	59	21	71	151		347		4,823
Depart	3,158	91	29	76	196		427		3,585	4,476	59	21	71	151		347		4,823
Total	6,316	182	58	152	392	5.8%	854	2.2	7,170	8,952	118	42	142	302	3.3%	694	2.3	9,646

Existing Peak Hour Volumes - Classification Counts

6 Rochester Ave at Arrow Rte

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	29	5	0	4	9	23.7%	20	2.2	49	35	2	1	5	8	18.6%	20	2.5	55
NT	143	6	0	6	12	7.7%	27	2.3	170	766	9	1	3	13	1.7%	25	1.9	791
NR	52	3	3	1	7	11.9%	14	2.0	66	234	5	3	3	11	4.5%	23	2.1	257
SL	102	2	0	0	2	1.9%	3	1.5	105	82	0	1	1	2	2.4%	5	2.5	87
ST	357	12	0	5	17	4.5%	33	1.9	390	207	4	0	2	6	2.8%	12	2.0	219
SR	259	5	0	1	6	2.3%	11	1.8	270	165	3	0	3	6	3.5%	14	2.3	179
EL	104	3	0	3	6	5.5%	14	2.3	118	342	1	0	1	2	0.6%	5	2.5	347
ET	284	9	10	5	24	7.8%	49	2.0	333	780	14	9	20	43	5.2%	99	2.3	879
ER	47	5	1	4	10	17.5%	22	2.2	69	18	0	0	1	1	5.3%	3	3.0	21
WL	148	4	3	2	9	5.7%	18	2.0	166	57	0	1	3	4	6.6%	11	2.8	68
WT	937	21	10	8	39	4.0%	76	1.9	1,013	448	3	2	11	16	3.4%	42	2.6	490
WR	118	7	1	1	9	7.1%	16	1.8	134	165	3	0	1	4	2.4%	8	2.0	173
									2,883									3,566
North Leg Volumes																		
Approach	718	19	0	6	25		47		765	454	7	1	6	14		31		485
Depart	365	16	1	10	27		57		422	1,273	13	1	5	19		38		1,311
Total	1,083	35	1	16	52	4.6%	104	2.0	1,187	1,727	20	2	11	33	1.9%	69	2.1	1,796
South Leg Volumes																		
Approach	224	14	3	11	28		61		285	1,035	16	5	11	32		68		1,103
Depart	552	21	4	11	36		73		625	282	4	1	6	11		26		308
Total	776	35	7	22	64	7.6%	134	2.1	910	1,317	20	6	17	43	3.2%	94	2.2	1,411
East Leg Volumes																		
Approach	1,203	32	14	11	57		110		1,313	670	6	3	15	24		61		731
Depart	438	14	13	6	33		66		504	1,096	19	13	24	56		127		1,223
Total	1,641	46	27	17	90	5.2%	176	2.0	1,817	1,766	25	16	39	80	4.3%	188	2.4	1,954
West Leg Volumes																		
Approach	435	17	11	12	40		85		520	1,140	15	9	22	46		107		1,247
Depart	1,225	31	10	13	54		107		1,332	648	8	3	19	30		76		724
Total	1,660	48	21	25	94	5.4%	192	2.0	1,852	1,788	23	12	41	76	4.1%	183	2.4	1,971
All Legs																		
Approach	2,580	82	28	40	150		303		2,883	3,299	44	18	54	116		267		3,566
Depart	2,580	82	28	40	150		303		2,883	3,299	44	18	54	116		267		3,566
Total	5,160	164	56	80	300	5.5%	606	2.0	5,766	6,598	88	36	108	232	3.4%	534	2.3	7,132

Existing Peak Hour Volumes - Classification Counts

7 Cherry Ave at Slover Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	26	0	1	0	1	3.7%	2	2.0	28	28	1	1	1	3	9.7%	7	2.3	35
NT	780	18	17	32	67	7.9%	157	2.3	937	722	13	14	29	56	7.2%	135	2.4	857
NR	40	3	5	0	8	16.7%	15	1.9	55	53	2	2	2	6	10.2%	13	2.2	66
SL	238	10	27	34	71	23.0%	171	2.4	409	200	16	21	37	74	27.0%	177	2.4	377
ST	888	25	14	52	91	9.3%	222	2.4	1,110	828	19	12	34	65	7.3%	155	2.4	983
SR	247	9	27	69	105	29.8%	275	2.6	522	130	8	25	71	104	44.4%	275	2.6	405
EL	81	20	31	78	129	61.4%	326	2.5	407	218	18	21	51	90	29.2%	222	2.5	440
ET	86	14	13	29	56	39.4%	134	2.4	220	469	15	12	52	79	14.4%	203	2.6	672
ER	14	6	2	5	13	48.1%	28	2.2	42	16	0	25	6	31	66.0%	68	2.2	84
WL	43	3	1	1	5	10.4%	10	2.0	53	47	2	2	2	6	11.3%	13	2.2	60
WT	141	9	11	27	47	25.0%	117	2.5	258	92	5	10	19	34	27.0%	85	2.5	177
WR	130	15	15	56	86	39.8%	221	2.6	351	252	6	17	23	46	15.4%	112	2.4	364
									4,392									4,520
North Leg Volumes																		
Approach	1,373	44	68	155	267		668		2,041	1,158	43	58	142	243		607		1,765
Depart	991	53	63	166	282		704		1,695	1,192	37	52	103	192		469		1,661
Total	2,364	97	131	321	549	18.8%	1,372	2.5	3,736	2,350	80	110	245	435	15.6%	1,076	2.5	3,426
South Leg Volumes																		
Approach	846	21	23	32	76		174		1,020	803	16	17	32	65		155		958
Depart	945	34	17	58	109		260		1,205	891	21	39	42	102		236		1,127
Total	1,791	55	40	90	185	9.4%	434	2.3	2,225	1,694	37	56	74	167	9.0%	391	2.3	2,085
East Leg Volumes																		
Approach	314	27	27	84	138		348		662	391	13	29	44	86		210		601
Depart	364	27	45	63	135		320		684	722	33	35	91	159		393		1,115
Total	678	54	72	147	273	28.7%	668	2.4	1,346	1,113	46	64	135	245	18.0%	603	2.5	1,716
West Leg Volumes																		
Approach	181	40	46	112	198		488		669	703	33	58	109	200		493		1,196
Depart	414	18	39	96	153		394		808	250	14	36	91	141		367		617
Total	595	58	85	208	351	37.1%	882	2.5	1,477	953	47	94	200	341	26.4%	860	2.5	1,813
All Legs																		
Approach	2,714	132	164	383	679		1,678		4,392	3,055	105	162	327	594		1,465		4,520
Depart	2,714	132	164	383	679		1,678		4,392	3,055	105	162	327	594		1,465		4,520
Total	5,428	264	328	766	1,358	20.0%	3,356	2.5	8,784	6,110	210	324	654	1,188	16.3%	2,930	2.5	9,040

Existing Peak Hour Volumes - Classification Counts

8 Cherry Ave at Santa Ana Ave

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	21	2	0	4	6	22.2%	15	2.5	36	2	1	2	0	3	60.0%	6	2.0	8
NT	630	13	11	30	54	7.9%	132	2.4	762	529	8	9	14	31	5.5%	72	2.3	601
NR	11	0	0	0	0	0.0%	0	0.0	11	9	3	0	5	8	47.1%	20	2.5	29
SL	33	6	0	24	30	47.6%	81	2.7	114	33	1	1	10	12	26.7%	34	2.8	67
ST	612	17	8	22	47	7.1%	108	2.3	720	815	13	11	11	35	4.1%	75	2.1	890
SR	277	9	5	10	24	8.0%	54	2.3	331	73	8	3	13	24	24.7%	57	2.4	130
EL	213	8	1	6	15	6.6%	32	2.1	245	201	6	3	9	18	8.2%	42	2.3	243
ET	25	2	4	1	7	21.9%	14	2.0	39	40	1	2	1	4	9.1%	9	2.3	49
ER	67	2	5	0	7	9.5%	13	1.9	80	25	0	1	1	2	7.4%	5	2.5	30
WL	4	2	1	0	3	42.9%	5	1.7	9	9	0	2	0	2	18.2%	4	2.0	13
WT	15	0	0	2	2	11.8%	6	3.0	21	11	2	2	1	5	31.3%	10	2.0	21
WR	18	4	6	10	20	52.6%	48	2.4	66	41	0	21	0	21	33.9%	42	2.0	83
									2,434									2,164
North Leg Volumes																		
Approach	922	32	13	56	101		243		1,165	921	22	15	34	71		166		1,087
Depart	861	25	18	46	89		212		1,073	771	14	33	23	70		156		927
Total	1,783	57	31	102	190	9.6%	455	2.4	2,238	1,692	36	48	57	141	7.7%	322	2.3	2,014
South Leg Volumes																		
Approach	662	15	11	34	60		147		809	540	12	11	19	42		98		638
Depart	683	21	14	22	57		126		809	849	13	14	12	39		84		933
Total	1,345	36	25	56	117	8.0%	273	2.3	1,618	1,389	25	25	31	81	5.5%	182	2.2	1,571
East Leg Volumes																		
Approach	37	6	7	12	25		59		96	61	2	25	1	28		56		117
Depart	69	8	4	25	37		95		164	82	5	3	16	24		63		145
Total	106	14	11	37	62	36.9%	154	2.5	260	143	7	28	17	52	26.7%	119	2.3	262
West Leg Volumes																		
Approach	305	12	10	7	29		59		364	266	7	6	11	24		56		322
Depart	313	11	5	16	32		75		388	86	11	7	14	32		73		159
Total	618	23	15	23	61	9.0%	134	2.2	752	352	18	13	25	56	13.7%	129	2.3	481
All Legs																		
Approach	1,926	65	41	109	215		508		2,434	1,788	43	57	65	165		376		2,164
Depart	1,926	65	41	109	215		508		2,434	1,788	43	57	65	165		376		2,164
Total	3,852	130	82	218	430	10.0%	1,016	2.4	4,868	3,576	86	114	130	330	8.4%	752	2.3	4,328

APPENDIX D

INTERSECTION ANALYSIS
WORKSHEETS

APPENDIX D-1

INTERSECTION ANALYSIS
WORKSHEETS –
EXISTING CONDITIONS

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Report File: K:\...\1 EX AM.pdf

Scenario 1 EX AM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.524	28.6	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.553	25.0	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.451	19.4	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.520	22.7	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.666	27.6	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.466	17.3	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.403	31.3	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.593	35.2	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.564	31.1	C
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.735	47.3	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.443	21.4	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.495	31.7	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.684	37.1	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.456	40.0	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.816	41.4	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.542	33.0	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.580	45.9	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.845	26.7	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.622	25.0	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.695	39.3	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.622	39.8	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	1.285	482.9	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.719	44.3	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.649	40.4	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.649	42.4	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.685	39.4	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.461	30.0	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.696	41.8	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	NB Left	0.554	36.5	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.576	23.5	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.696	33.3	C
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.307	30.5	D
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.372	15.2	B
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.578	23.0	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	0.724	21.8	C
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.509	28.4	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	NB Left	0.546	39.3	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.429	19.4	B
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Thru	0.438	18.9	B
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	SB Thru	0.569	15.8	C
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	0.501	14.7	B
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.482	29.4	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	NB Left	0.503	26.0	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.730	42.1	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.626	43.5	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.471	31.8	C
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.399	31.2	C
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.005	11.1	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.546	30.7	C
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.470	33.2	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SB Left	0.311	31.8	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.596	35.9	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	NB Left	0.624	28.4	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Thru	0.301	9.6	A
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.434	26.3	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.423	30.8	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.672	38.3	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.489	26.9	C
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	0.018	50.7	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.769	45.3	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.684	32.3	C
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.481	23.5	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.751	27.1	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.519	20.6	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.777	29.3	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.740	30.8	C
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.685	31.5	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	EB Left	0.643	23.9	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.656	37.4	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	NB Left	0.649	36.4	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.645	31.6	C
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	30.094	576.3	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	303	0	0	712	200	0	0	0	360	4	252
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	303	0	0	712	200	0	0	0	360	4	252
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	80	0	0	187	53	0	0	0	95	1	66
Total Analysis Volume [veh/h]	175	319	0	0	749	211	0	0	0	379	4	265
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	29	46	0	0	17	0	0	0	0	0	74	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	14	82	64	64		30	30
g / C, Green / Cycle	0.12	0.69	0.53	0.53		0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.10	0.09	0.19	0.20		0.22	0.17
s, saturation flow rate [veh/h]	1714	3427	3427	1612		1715	1530
c, Capacity [veh/h]	205	2348	1825	858		426	380
d1, Uniform Delay [s]	51.81	6.56	16.13	16.37		43.67	41.02
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	9.73	0.12	0.53	1.24		7.09	2.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.14	0.35	0.37		0.90	0.70
d, Delay for Lane Group [s/veh]	61.54	6.68	16.66	17.61		50.76	43.35
Lane Group LOS	E	A	B	B		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	5.71	1.38	5.12	5.36		11.78	7.36
50th-Percentile Queue Length [ft/ln]	142.86	34.38	128.05	133.90		294.53	183.95
95th-Percentile Queue Length [veh/ln]	9.63	2.48	8.83	9.15		17.41	11.81
95th-Percentile Queue Length [ft/ln]	240.87	61.88	220.85	228.79		435.26	295.17

Movement, Approach, & Intersection Results

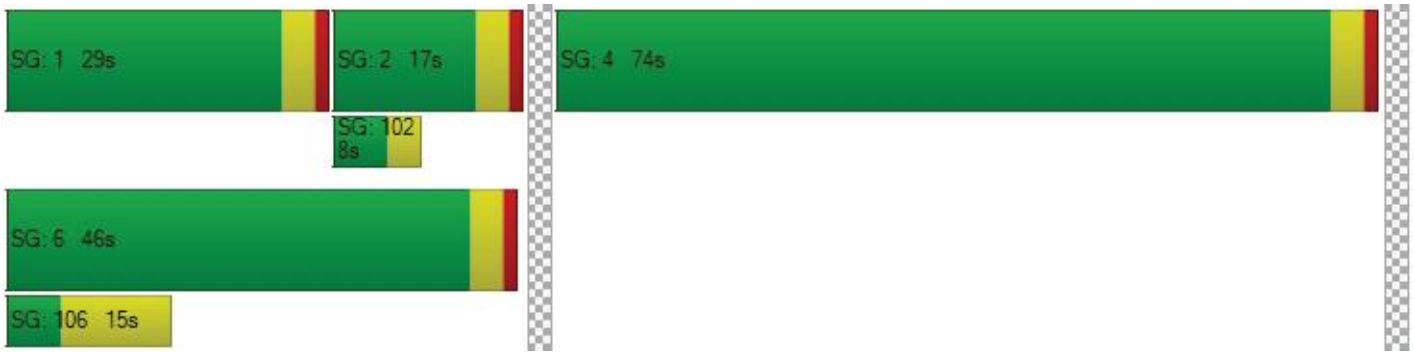
d_M, Delay for Movement [s/veh]	61.54	6.68	0.00	0.00	16.80	17.61	0.00	0.00	0.00	50.76	50.76	43.35
Movement LOS	E	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	26.11			16.98			0.00			47.73		
Approach LOS	C			B			A			D		
d_I, Intersection Delay [s/veh]	28.60											
Intersection LOS	C											
Intersection V/C	0.524											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.819	2.166
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	217	0	1167
d_b, Bicycle Delay [s]	25.35	47.70	60.00	10.42
l_b,int, Bicycle LOS Score for Intersection	1.967	2.088	4.132	2.629
Bicycle LOS	A	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	302	906	0	0	822	355	0	0	0	421	1	309
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	302	906	0	0	822	355	0	0	0	421	1	309
Peak Hour Factor	0.964	0.964	1.000	1.000	0.964	0.964	1.000	1.000	1.000	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	78	235	0	0	213	92	0	0	0	109	0	80
Total Analysis Volume [veh/h]	313	940	0	0	853	368	0	0	0	437	1	321
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	27	51	0	0	24	0	0	0	0	0	69	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	84	66	66		28	28	28
g / C, Green / Cycle	0.11	0.70	0.55	0.55		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.09	0.27	0.25	0.24		0.13	0.13	0.21
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1715	1530
c, Capacity [veh/h]	382	2387	1879	839		406	406	363
d1, Uniform Delay [s]	51.91	7.62	16.29	16.11		40.05	40.05	44.21
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.41	0.49	0.79	1.67		1.11	1.11	7.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.39	0.45	0.44		0.54	0.54	0.89
d, Delay for Lane Group [s/veh]	56.32	8.11	17.09	17.78		41.16	41.16	51.47
Lane Group LOS	E	A	B	B		D	D	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.84	4.84	7.10	6.27		5.79	5.79	9.90
50th-Percentile Queue Length [ft/ln]	120.88	120.97	177.54	156.79		144.7	144.7	247.4
95th-Percentile Queue Length [veh/ln]	8.44	8.45	11.47	10.38		9.74	9.74	15.06
95th-Percentile Queue Length [ft/ln]	211.04	211.16	286.80	259.46		243.4	243.4	376.4

Movement, Approach, & Intersection Results

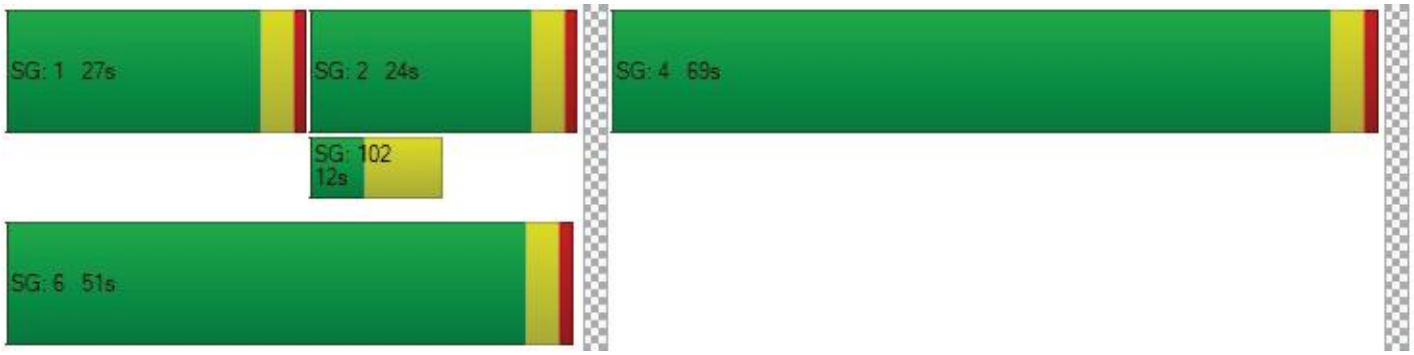
d_M, Delay for Movement [s/veh]	56.32	8.11	0.00	0.00	17.09	17.78	0.00	0.00	0.00	41.16	41.16	51.47
Movement LOS	E	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	20.15			17.29			0.00			45.52		
Approach LOS	C			B			A			D		
d_I, Intersection Delay [s/veh]	25.03											
Intersection LOS	C											
Intersection V/C	0.553											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.063	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	333	0	1083
d_b, Bicycle Delay [s]	22.20	41.67	60.00	12.60
l_b,int, Bicycle LOS Score for Intersection	2.593	2.567	4.132	2.812
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.451

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	792	0	0	1079	0	0	0	0	510	0	291
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	792	0	0	1079	0	0	0	0	510	0	291
Peak Hour Factor	1.000	0.869	1.000	1.000	0.869	1.000	1.000	1.000	1.000	0.869	0.869	0.869
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	228	0	0	310	0	0	0	0	147	0	84
Total Analysis Volume [veh/h]	0	911	0	0	1242	0	0	0	0	587	0	335
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	33	0	0	0	0	0	87	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85		27	27	27
g / C, Green / Cycle	0.71	0.71		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.19	0.25		0.18	0.18	0.20
s, saturation flow rate [veh/h]	4903	4903		1714	1693	1530
c, Capacity [veh/h]	3453	3453		393	388	351
d1, Uniform Delay [s]	6.45	7.03		43.53	43.62	44.44
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	0.29		3.58	3.79	6.34
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.36		0.79	0.80	0.86
d, Delay for Lane Group [s/veh]	6.63	7.32		47.10	47.41	50.78
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.65	3.95		9.04	9.05	9.23
50th-Percentile Queue Length [ft/ln]	66.28	98.65		225.9	226.2	230.7
95th-Percentile Queue Length [veh/ln]	4.77	7.10		13.97	13.99	14.21
95th-Percentile Queue Length [ft/ln]	119.30	177.57		349.1	349.6	355.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.63	0.00	0.00	7.32	0.00	0.00	0.00	0.00	47.25	47.41	50.50
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	6.63			7.32			0.00			48.41		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.44											
Intersection LOS	B											
Intersection V/C	0.451											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	0	1383
d_b, Bicycle Delay [s]	34.50	34.50	60.00	5.70
l_b,int, Bicycle LOS Score for Intersection	2.061	2.243	4.132	3.081
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	427	319	160	805	0	153	5	296	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	427	319	160	805	0	153	5	296	0	0	0
Peak Hour Factor	1.000	0.952	0.952	0.952	0.952	1.000	0.952	0.952	0.952	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	112	84	42	211	0	40	1	78	0	0	0
Total Analysis Volume [veh/h]	0	449	335	168	846	0	161	5	311	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	26	0	26	52	0	0	68	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	67	67	14	85	27	27	
g / C, Green / Cycle	0.56	0.56	0.11	0.71	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.13	0.22	0.10	0.25	0.10	0.20	
s, saturation flow rate [veh/h]	3427	1530	1714	3427	1717	1530	
c, Capacity [veh/h]	1917	856	197	2424	388	346	
d1, Uniform Delay [s]	13.41	14.92	52.12	6.82	39.80	45.12	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.29	1.35	9.99	0.40	0.75	8.50	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.23	0.39	0.85	0.35	0.43	0.90	
d, Delay for Lane Group [s/veh]	13.70	16.27	62.11	7.22	40.55	53.62	
Lane Group LOS	B	B	E	A	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	3.12	5.37	5.51	3.98	4.30	9.77	
50th-Percentile Queue Length [ft/ln]	77.99	134.32	137.66	99.55	107.39	244.21	
95th-Percentile Queue Length [veh/ln]	5.62	9.17	9.35	7.17	7.69	14.89	
95th-Percentile Queue Length [ft/ln]	140.39	229.36	233.87	179.19	192.36	372.36	

Movement, Approach, & Intersection Results

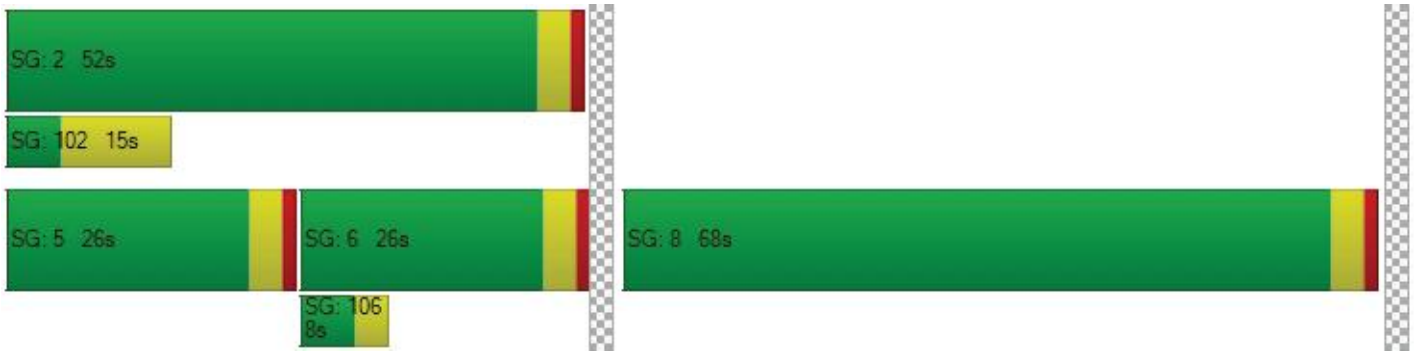
d_M, Delay for Movement [s/veh]	0.00	13.70	16.27	62.11	7.22	0.00	40.55	40.55	53.62	0.00	0.00	0.00
Movement LOS		B	B	E	A		D	D	D			
d_A, Approach Delay [s/veh]	14.80			16.31			49.07			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	22.66											
Intersection LOS	C											
Intersection V/C	0.520											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.110	1.934
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	800	1067	0
d_b, Bicycle Delay [s]	40.02	21.60	13.07	60.00
l_b,int, Bicycle LOS Score for Intersection	1.991	2.396	2.347	4.132
Bicycle LOS	A	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	817	408	302	931	0	411	3	402	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	817	408	302	931	0	411	3	402	0	0	0
Peak Hour Factor	1.000	0.966	0.966	0.966	0.966	1.000	0.966	0.966	0.966	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	211	106	78	241	0	106	1	104	0	0	0
Total Analysis Volume [veh/h]	0	846	422	313	964	0	425	3	416	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	58	0	19	77	0	0	43	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	70	70	13	87	25	25	25	
g / C, Green / Cycle	0.58	0.58	0.11	0.73	0.21	0.21	0.21	
(v / s)_i Volume / Saturation Flow Rate	0.35	0.39	0.09	0.28	0.17	0.17	0.18	
s, saturation flow rate [veh/h]	1800	1611	3329	3427	1714	1617	1530	
c, Capacity [veh/h]	1046	936	369	2485	357	337	318	
d1, Uniform Delay [s]	16.26	17.37	52.36	6.31	45.25	45.54	45.81	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.12	0.13	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.61	3.93	5.45	0.46	4.43	5.80	7.77	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.68	0.85	0.39	0.81	0.84	0.86	
d, Delay for Lane Group [s/veh]	18.87	21.30	57.81	6.76	49.68	51.35	53.58	
Lane Group LOS	B	C	E	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.58	12.58	4.90	4.35	8.63	8.55	8.53	
50th-Percentile Queue Length [ft/ln]	289.46	314.51	122.55	108.81	215.6	213.8	213.2	
95th-Percentile Queue Length [veh/ln]	17.16	18.40	8.53	7.77	13.44	13.35	13.32	
95th-Percentile Queue Length [ft/ln]	428.98	459.94	213.32	194.35	336.0	333.7	332.9	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	19.48	21.30	57.81	6.76	0.00	50.23	51.35	52.84	0.00	0.00	0.00
Movement LOS		B	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	20.09			19.28			51.50			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	27.61											
Intersection LOS	C											
Intersection V/C	0.666											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.352	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	1217	650	0
d_b, Bicycle Delay [s]	18.15	9.20	27.34	60.00
l_b,int, Bicycle LOS Score for Intersection	2.606	2.613	2.952	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	946	463	0	1265	26	160	0	553	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	946	463	0	1265	26	160	0	553	0	0	0
Peak Hour Factor	1.000	0.942	0.942	1.000	0.942	1.000	0.942	0.942	0.942	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	251	123	0	336	7	42	0	147	0	0	0
Total Analysis Volume [veh/h]	0	1004	492	0	1343	26	170	0	587	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	70	0	0	70	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	86	86	26	26	26	
g / C, Green / Cycle	0.71	0.71	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.27	0.10	0.19	0.19	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3495	3495	378	337	337	
d1, Uniform Delay [s]	6.23	6.82	40.46	45.10	45.10	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.21	0.32	0.84	6.88	6.88	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.29	0.38	0.45	0.87	0.87	
d, Delay for Lane Group [s/veh]	6.43	7.14	41.30	51.98	51.98	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	2.87	4.21	4.45	9.04	9.04	
50th-Percentile Queue Length [ft/ln]	71.78	105.30	111.2	226.0	226.0	
95th-Percentile Queue Length [veh/ln]	5.17	7.58	7.91	13.97	13.97	
95th-Percentile Queue Length [ft/ln]	129.21	189.45	197.8	349.3	349.3	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.43	0.00	0.00	7.14	0.00	41.30	51.98	51.98	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	6.43			7.14			49.58			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.26											
Intersection LOS	B											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.331	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1100	1100	767	0
d_b, Bicycle Delay [s]	12.15	12.15	22.82	60.00
l_b,int, Bicycle LOS Score for Intersection	2.112	2.298	2.809	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.403

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	570	67	55	502	93	117	199	75	90	208	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	570	67	55	502	93	117	199	75	90	208	61
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	160	19	15	141	26	33	56	21	25	58	17
Total Analysis Volume [veh/h]	42	640	75	62	563	104	131	223	84	101	233	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	11	39	0	43	26	0	43	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	74	6	76	76	11	15	15	9	13	13
g / C, Green / Cycle	0.03	0.62	0.62	0.05	0.63	0.63	0.09	0.13	0.13	0.07	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.20	0.04	0.19	0.19	0.08	0.09	0.09	0.06	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1704	1714	1800	1636	1714	1800	1664
c, Capacity [veh/h]	54	1113	1072	79	1138	1078	161	230	209	129	196	181
d1, Uniform Delay [s]	57.67	10.96	10.97	56.66	10.01	10.01	53.35	50.09	50.22	54.55	52.13	52.27
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.40	0.78	0.82	15.70	0.68	0.72	9.54	3.69	4.43	10.05	6.93	8.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.33	0.33	0.79	0.30	0.30	0.81	0.69	0.71	0.79	0.79	0.81
d, Delay for Lane Group [s/veh]	78.07	11.75	11.78	72.36	10.68	10.73	62.89	53.78	54.65	64.60	59.06	60.62
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.57	4.72	4.57	2.20	4.16	3.96	4.30	4.79	4.53	3.36	4.91	4.73
50th-Percentile Queue Length [ft/ln]	39.33	117.9	114.1	55.09	103.9	99.12	107.6	119.8	113.2	84.02	122.7	118.3
95th-Percentile Queue Length [veh/ln]	2.83	8.28	8.07	3.97	7.49	7.14	7.71	8.39	8.02	6.05	8.54	8.30
95th-Percentile Queue Length [ft/ln]	70.80	207.0	201.7	99.17	187.1	178.4	192.6	209.6	200.5	151.2	213.5	207.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	78.07	11.76	11.78	72.36	10.70	10.73	62.89	54.03	54.65	64.60	59.59	60.62
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	15.44			15.95			56.80			61.02		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	31.27											
Intersection LOS	C											
Intersection V/C	0.403											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.609	2.621	2.474	2.592
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	583	367	367
d_b, Bicycle Delay [s]	29.40	30.10	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.184	2.161	1.921	1.891
Bicycle LOS	B	B	A	A

Sequence

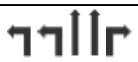
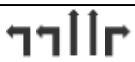
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	725	72	337	942	150	215	192	53	91	197	246
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	725	72	337	942	150	215	192	53	91	197	246
Peak Hour Factor	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	20	197	20	92	257	41	59	52	14	25	54	67
Total Analysis Volume [veh/h]	82	790	78	367	1026	163	234	209	58	99	215	268
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	27	0	34	47	0	14	38	0	21	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	54	16	63	63	10	25	25	9	24	24
g / C, Green / Cycle	0.06	0.45	0.45	0.13	0.53	0.53	0.08	0.21	0.21	0.07	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.05	0.23	0.05	0.11	0.30	0.11	0.07	0.06	0.04	0.06	0.12	0.18
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	103	1553	693	442	1802	804	277	714	319	124	355	302
d1, Uniform Delay [s]	55.65	23.33	18.91	50.71	19.27	15.11	54.23	40.04	39.08	54.79	43.89	46.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.79	1.19	0.33	4.07	1.31	0.57	6.88	0.23	0.27	11.01	1.66	8.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.51	0.11	0.83	0.57	0.20	0.84	0.29	0.18	0.80	0.60	0.89
d, Delay for Lane Group [s/veh]	68.45	24.52	19.24	54.78	20.58	15.68	61.11	40.27	39.35	65.80	45.55	55.50
Lane Group LOS	E	C	B	D	C	B	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.82	8.12	1.32	5.62	9.78	2.48	3.75	2.64	1.44	3.33	5.99	8.48
50th-Percentile Queue Length [ft/ln]	70.41	203.0	33.06	140.5	244.5	62.06	93.69	65.94	36.02	83.17	149.8	212.1
95th-Percentile Queue Length [veh/ln]	5.07	12.80	2.38	9.51	14.91	4.47	6.75	4.75	2.59	5.99	10.01	13.26
95th-Percentile Queue Length [ft/ln]	126.7	319.8	59.51	237.7	372.7	111.7	168.6	118.7	64.84	149.7	250.2	331.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.45	24.52	19.24	54.78	20.58	15.68	61.11	40.27	39.35	65.80	45.55	55.50
Movement LOS	E	C	B	D	C	B	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	27.88			28.13			49.90			53.58		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.23											
Intersection LOS	D											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.815	3.006	2.743	2.669
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	717	567	683
d_b, Bicycle Delay [s]	39.20	24.70	30.82	26.00
l_b,int, Bicycle LOS Score for Intersection	2.343	2.843	1.973	2.520
Bicycle LOS	B	C	A	B

Sequence

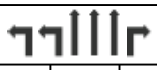
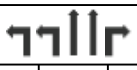
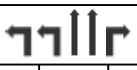
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	919	38	219	1191	403	291	252	173	16	252	199
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	919	38	219	1191	403	291	252	173	16	252	199
Peak Hour Factor	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	43	245	10	58	317	107	78	67	46	4	67	53
Total Analysis Volume [veh/h]	171	980	41	233	1270	430	310	269	184	17	269	212
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	38	0	18	44	0	18	55	0	9	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	61	61	10	64	64	13	30	30	2	19	19
g / C, Green / Cycle	0.07	0.51	0.51	0.09	0.53	0.53	0.11	0.25	0.25	0.02	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.20	0.03	0.07	0.26	0.28	0.09	0.08	0.12	0.01	0.08	0.14
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	222	2491	777	291	2594	809	363	866	387	61	555	248
d1, Uniform Delay [s]	55.10	18.14	14.92	53.72	17.97	18.52	52.51	36.37	38.09	58.11	45.73	48.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.58	0.47	0.13	5.05	0.66	2.49	5.74	0.20	0.91	2.42	0.66	8.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.39	0.05	0.80	0.49	0.53	0.85	0.31	0.48	0.28	0.48	0.86
d, Delay for Lane Group [s/veh]	60.68	18.61	15.04	58.77	18.63	21.01	58.25	36.57	39.00	60.53	46.39	57.17
Lane Group LOS	E	B	B	E	B	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.72	5.61	0.60	3.65	7.47	8.21	4.87	3.24	4.71	0.28	3.71	6.74
50th-Percentile Queue Length [ft/ln]	67.90	140.3	14.90	91.35	186.7	205.3	121.8	81.04	117.7	6.89	92.75	168.4
95th-Percentile Queue Length [veh/ln]	4.89	9.50	1.07	6.58	11.95	12.91	8.49	5.83	8.27	0.50	6.68	10.99
95th-Percentile Queue Length [ft/ln]	122.2	237.4	26.82	164.4	298.8	322.8	212.3	145.8	206.6	12.40	166.9	274.8

Movement, Approach, & Intersection Results

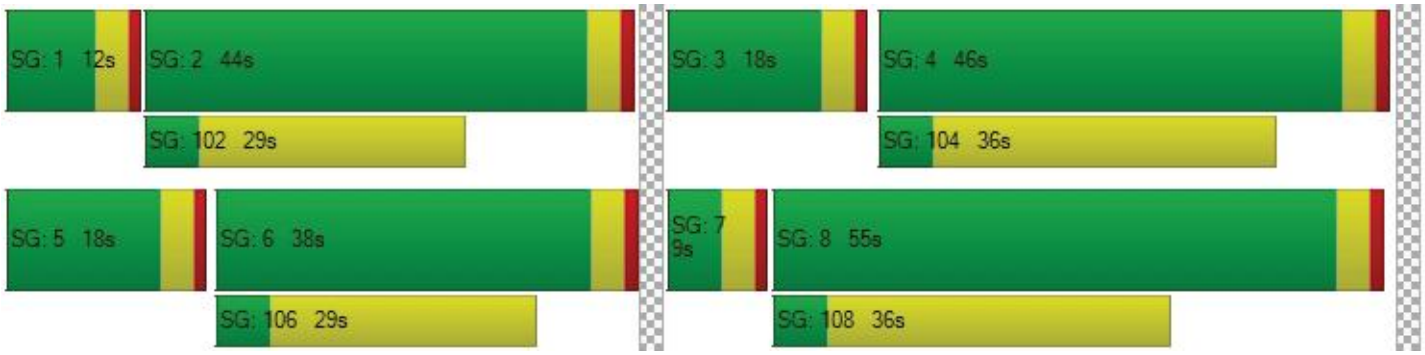
d_M, Delay for Movement [s/veh]	60.68	18.61	15.04	58.77	18.63	21.01	58.25	36.57	39.00	60.53	46.39	57.17
Movement LOS	E	B	B	E	B	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	24.52			24.00			45.96			51.46		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.08											
Intersection LOS	C											
Intersection V/C	0.564											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.153	3.237	2.837	2.754
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	667	850	700
d_b, Bicycle Delay [s]	30.82	26.67	19.84	25.35
l_b,int, Bicycle LOS Score for Intersection	2.215	2.623	2.189	1.970
Bicycle LOS	B	B	B	A

Sequence

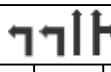
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	47.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	268	102	147	286	257	107	507	78	172	1112	236
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	113	268	102	147	286	257	107	507	78	172	1112	236
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	72	27	39	76	69	29	135	21	46	297	63
Total Analysis Volume [veh/h]	121	286	109	157	306	275	114	542	83	184	1188	252
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	36	36	16	42	0	12	55	0	13	56	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	32	45	12	38	38	8	51	51	9	52	52
g / C, Green / Cycle	0.05	0.27	0.37	0.10	0.32	0.32	0.07	0.43	0.43	0.07	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.07	0.09	0.17	0.18	0.07	0.12	0.12	0.06	0.41	0.42
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1530	1714	3427	1682	3329	1800	1694
c, Capacity [veh/h]	166	485	574	171	575	489	114	1457	715	240	775	729
d1, Uniform Delay [s]	56.19	38.06	25.24	53.50	33.47	33.87	55.99	22.58	22.64	54.68	32.81	33.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.42	0.44
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.93	5.18	0.73	17.03	3.50	4.62	38.52	0.11	0.22	5.08	19.15	25.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.59	0.19	0.92	0.53	0.56	1.00	0.29	0.29	0.77	0.95	0.97
d, Delay for Lane Group [s/veh]	62.13	43.24	25.97	70.53	36.97	38.49	94.51	22.69	22.86	59.77	51.96	58.51
Lane Group LOS	E	D	C	E	D	D	F	C	C	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.94	7.99	2.22	5.50	7.85	7.26	4.67	3.89	3.91	2.90	24.01	24.66
50th-Percentile Queue Length [ft/ln]	48.60	199.8	55.61	137.4	196.3	181.5	116.7	97.14	97.66	72.55	600.2	616.5
95th-Percentile Queue Length [veh/ln]	3.50	12.63	4.00	9.34	12.45	11.68	8.21	6.99	7.03	5.22	32.04	32.81
95th-Percentile Queue Length [ft/ln]	87.49	315.7	100.1	233.5	311.2	292.0	205.3	174.8	175.7	130.5	801.0	820.1

Movement, Approach, & Intersection Results

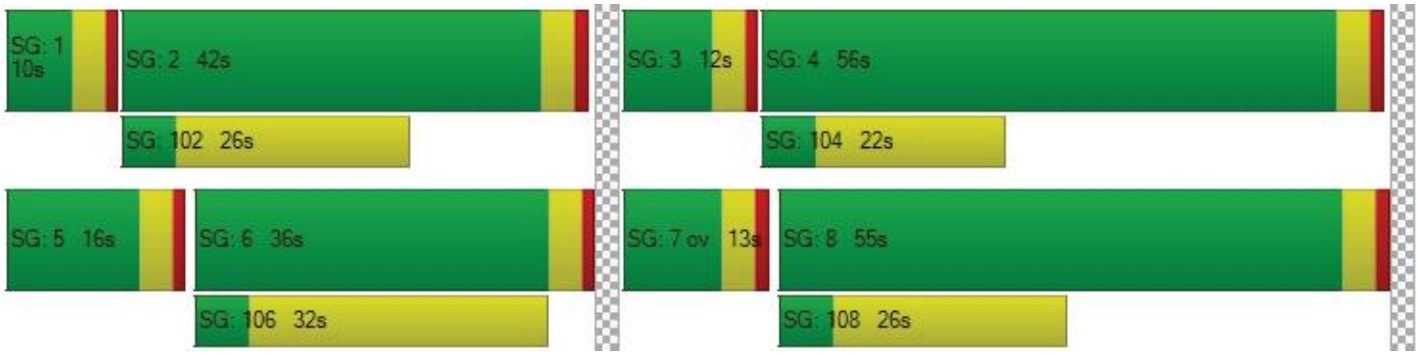
d_M, Delay for Movement [s/veh]	62.13	43.24	25.97	70.53	36.97	38.49	94.51	22.73	22.86	59.77	54.48	58.51
Movement LOS	E	D	C	E	D	D	F	C	C	E	D	E
d_A, Approach Delay [s/veh]	44.02			44.68			33.82			55.70		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	47.31											
Intersection LOS	D											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.645	2.586	2.846	3.037
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	633	850	867
d_b, Bicycle Delay [s]	32.27	28.02	19.84	19.27
l_b,int, Bicycle LOS Score for Intersection	2.411	2.168	1.966	2.899
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	21.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.443

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	367	0	567	0	537	236	0	946	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	367	0	567	0	537	236	0	946	0
Peak Hour Factor	1.000	1.000	1.000	0.908	1.000	0.908	1.000	0.908	0.908	1.000	0.908	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	101	0	156	0	148	65	0	260	0
Total Analysis Volume [veh/h]	0	0	0	404	0	624	0	591	260	0	1042	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	64	0	0	0	56	0	0	56	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	80	80
g / C, Green / Cycle		0.27	0.27	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate		0.12	0.23	0.12	0.21
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		885	720	3273	3273
d1, Uniform Delay [s]		36.81	42.02	7.54	8.42
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.37	3.33	0.12	0.26
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.46	0.87	0.18	0.32
d, Delay for Lane Group [s/veh]		37.17	45.35	7.66	8.68
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]		5.01	9.10	1.87	3.68
50th-Percentile Queue Length [ft/ln]		125.36	227.39	46.68	92.06
95th-Percentile Queue Length [veh/ln]		8.69	14.04	3.36	6.63
95th-Percentile Queue Length [ft/ln]		217.17	351.05	84.03	165.71

Movement, Approach, & Intersection Results

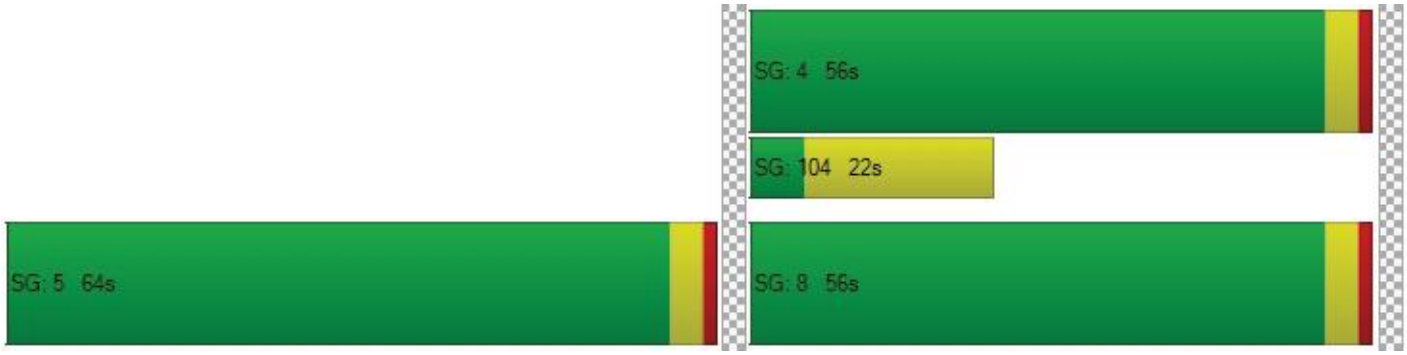
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	37.17	0.00	45.35	0.00	7.66	0.00	0.00	8.68	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			42.14			7.66			8.68		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	21.38											
Intersection LOS	C											
Intersection V/C	0.443											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.516	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1000	867	867
d_b, Bicycle Delay [s]	60.00	15.00	19.27	19.27
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	1.885	2.133
Bicycle LOS	D	A	A	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.495

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	278	2	306	0	0	0	354	565	0	0	1595	179
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	2	306	0	0	0	354	565	0	0	1595	179
Peak Hour Factor	0.952	0.952	0.952	1.000	1.000	1.000	0.952	0.952	1.000	1.000	0.952	0.952
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	73	1	80	0	0	0	93	148	0	0	419	47
Total Analysis Volume [veh/h]	292	2	321	0	0	0	372	593	0	0	1675	188
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	32	0	0	0	0	30	88	0	0	58	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	50	50	50		16	62	42
g / C, Green / Cycle	0.42	0.42	0.42		0.13	0.51	0.35
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.13		0.11	0.12	0.26
s, saturation flow rate [veh/h]	1714	1596	1530		3329	4903	6538
c, Capacity [veh/h]	718	668	641		446	2523	2269
d1, Uniform Delay [s]	23.20	23.22	23.23		50.65	16.09	34.39
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	1.17	1.22		4.13	0.05	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.30	0.30		0.83	0.24	0.74
d, Delay for Lane Group [s/veh]	24.29	24.39	24.45		54.77	16.13	34.87
Lane Group LOS	C	C	C		D	B	C
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.31	4.04	3.90		5.70	3.01	10.71
50th-Percentile Queue Length [ft/ln]	107.6	101.1	97.46		142.53	75.18	267.63
95th-Percentile Queue Length [veh/ln]	7.71	7.28	7.02		9.62	5.41	16.07
95th-Percentile Queue Length [ft/ln]	192.7	182.0	175.4		240.43	135.33	401.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.32	24.39	24.43	0.00	0.00	0.00	54.77	16.13	0.00	0.00	34.87	0.00
Movement LOS	C	C	C				D	B			C	
d_A, Approach Delay [s/veh]	24.37			0.00			31.03			34.87		
Approach LOS	C			A			C			C		
d_I, Intersection Delay [s/veh]	31.75											
Intersection LOS	C											
Intersection V/C	0.495											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.296	1.912	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	0	1400	900
d_b, Bicycle Delay [s]	35.27	60.00	5.40	18.15
l_b,int, Bicycle LOS Score for Intersection	2.574	4.132	2.090	2.251
Bicycle LOS	B	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.684

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	63	529	155	69	828	410	232	502	139	414	1336	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	529	155	69	828	410	232	502	139	414	1336	66
Peak Hour Factor	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	144	42	19	225	111	63	136	38	113	363	18
Total Analysis Volume [veh/h]	68	575	168	75	900	446	252	546	151	450	1452	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	15	40	0	28	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	47	47	5	47	47	11	33	33	19	41	41
g / C, Green / Cycle	0.04	0.39	0.39	0.04	0.40	0.40	0.09	0.28	0.28	0.16	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.11	0.02	0.18	0.29	0.08	0.11	0.10	0.14	0.30	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	125	1932	603	128	1936	604	303	1365	426	519	1682	525
d1, Uniform Delay [s]	56.75	24.96	24.75	56.76	26.91	31.01	53.62	35.15	34.66	49.45	36.78	27.17
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.67	0.39	1.15	4.24	0.80	7.87	5.84	0.19	0.50	4.57	1.42	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.30	0.28	0.59	0.46	0.74	0.83	0.40	0.35	0.87	0.86	0.14
d, Delay for Lane Group [s/veh]	60.41	25.35	25.90	61.00	27.71	38.88	59.46	35.34	35.16	54.01	38.20	27.28
Lane Group LOS	E	C	C	E	C	D	E	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.08	3.83	3.46	1.19	6.49	12.20	3.98	4.36	3.60	6.90	13.30	1.45
50th-Percentile Queue Length [ft/ln]	26.93	95.71	86.46	29.86	162.3	304.9	99.57	108.9	90.11	172.5	332.4	36.35
95th-Percentile Queue Length [veh/ln]	1.94	6.89	6.23	2.15	10.67	17.92	7.17	7.78	6.49	11.21	19.28	2.62
95th-Percentile Queue Length [ft/ln]	48.47	172.2	155.6	53.75	266.7	448.1	179.2	194.5	162.1	280.3	481.9	65.43

Movement, Approach, & Intersection Results

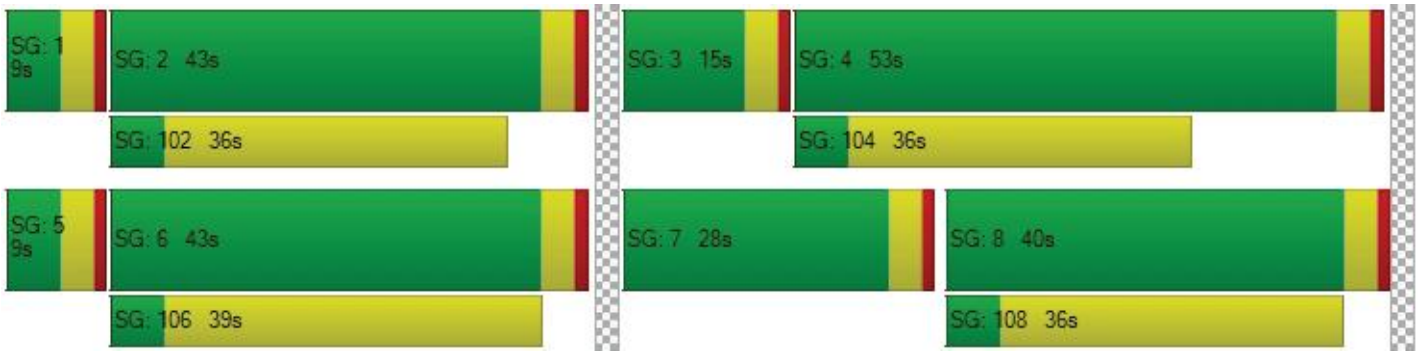
d_M, Delay for Movement [s/veh]	60.41	25.35	25.90	61.00	27.71	38.88	59.46	35.34	35.16	54.01	38.20	27.28
Movement LOS	E	C	C	E	C	D	E	D	D	D	D	C
d_A, Approach Delay [s/veh]	28.40			32.97			41.71			41.41		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.09											
Intersection LOS	D											
Intersection V/C	0.684											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.115	3.116	3.352	3.251
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	600	817
d_b, Bicycle Delay [s]	27.34	27.34	29.40	21.00
l_b,int, Bicycle LOS Score for Intersection	2.006	2.341	2.082	2.645
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	40.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	239	13	94	239	197	132	419	37	45	589	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	239	13	94	239	197	132	419	37	45	589	82
Peak Hour Factor	0.828	0.828	0.828	0.828	1.000	0.828	0.828	0.828	1.000	1.000	0.828	0.828
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	20	72	4	28	60	59	40	127	9	11	178	25
Total Analysis Volume [veh/h]	79	289	16	114	239	238	159	506	37	45	711	99
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	0	17	40	0	25	45	0	22	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	59	59	10	62	62	13	31	31	4	22	22
g / C, Green / Cycle	0.06	0.49	0.49	0.08	0.51	0.51	0.11	0.26	0.26	0.03	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.05	0.08	0.01	0.07	0.13	0.16	0.09	0.10	0.02	0.03	0.16	0.16
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1506	1714	4903	1506	1687	3427	1690
c, Capacity [veh/h]	100	1675	748	139	907	771	188	1282	394	60	642	317
d1, Uniform Delay [s]	55.81	17.12	15.84	54.28	16.53	16.98	52.46	36.50	33.56	57.36	47.04	47.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.18	0.22	0.05	11.23	0.71	1.04	10.07	0.20	0.10	17.22	3.09	6.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.17	0.02	0.82	0.26	0.31	0.85	0.39	0.09	0.75	0.84	0.85
d, Delay for Lane Group [s/veh]	68.99	17.35	15.90	65.51	17.24	18.02	62.53	36.70	33.66	74.58	50.13	53.52
Lane Group LOS	E	B	B	E	B	B	E	D	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.73	2.28	0.24	3.82	3.87	4.00	5.22	4.11	0.84	1.64	8.05	8.32
50th-Percentile Queue Length [ft/ln]	68.15	57.04	5.98	95.57	96.76	100.0	130.5	102.7	20.89	41.01	201.1	208.0
95th-Percentile Queue Length [veh/ln]	4.91	4.11	0.43	6.88	6.97	7.20	8.97	7.40	1.50	2.95	12.70	13.05
95th-Percentile Queue Length [ft/ln]	122.6	102.6	10.77	172.0	174.1	180.0	224.3	184.9	37.60	73.81	317.4	326.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.99	17.35	15.90	65.51	17.24	18.02	62.53	36.70	33.66	74.58	50.94	53.52
Movement LOS	E	B	B	E	B	B	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	27.91			26.86			42.39			52.48		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.98											
Intersection LOS	D											
Intersection V/C	0.456											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.583	2.653	3.052	2.922
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	683	633
d_b, Bicycle Delay [s]	32.27	29.40	26.00	28.02
l_b,int, Bicycle LOS Score for Intersection	1.876	2.047	1.946	2.030
Bicycle LOS	A	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	41.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	571	733	124	771	237	274	346	109	156	659	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	571	733	124	771	237	274	346	109	156	659	102
Peak Hour Factor	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	32	152	195	33	205	63	73	92	29	41	175	27
Total Analysis Volume [veh/h]	127	606	778	132	818	252	291	367	116	166	700	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	32	61	0	14	43	0	15	26	0	19	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	63	63	10	62	62	11	23	23	8	20	34
g / C, Green / Cycle	0.09	0.52	0.52	0.08	0.52	0.52	0.09	0.19	0.19	0.07	0.17	0.29
(v / s)_i Volume / Saturation Flow Rate	0.07	0.34	0.51	0.08	0.24	0.16	0.09	0.07	0.08	0.05	0.14	0.07
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	155	941	800	143	1767	789	305	946	295	225	828	437
d1, Uniform Delay [s]	53.59	20.59	27.79	54.62	18.49	16.86	54.25	42.25	42.29	54.90	48.36	32.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.00	3.39	25.79	20.64	0.87	1.07	15.16	0.26	0.85	4.69	2.49	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.64	0.97	0.92	0.46	0.32	0.95	0.39	0.39	0.74	0.85	0.25
d, Delay for Lane Group [s/veh]	63.58	23.98	53.58	75.26	19.37	17.92	69.41	42.51	43.14	59.59	50.85	33.25
Lane Group LOS	E	C	D	E	B	B	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.20	12.78	26.34	4.78	7.33	4.23	5.01	3.20	3.08	2.61	6.95	2.47
50th-Percentile Queue Length [ft/ln]	104.8	319.4	658.4	119.4	183.3	105.7	125.2	79.96	77.10	65.25	173.7	61.71
95th-Percentile Queue Length [veh/ln]	7.55	18.64	34.75	8.36	11.77	7.60	8.68	5.76	5.55	4.70	11.27	4.44
95th-Percentile Queue Length [ft/ln]	188.7	466.0	868.8	209.0	294.3	190.1	217.0	143.9	138.7	117.4	281.7	111.0

Movement, Approach, & Intersection Results

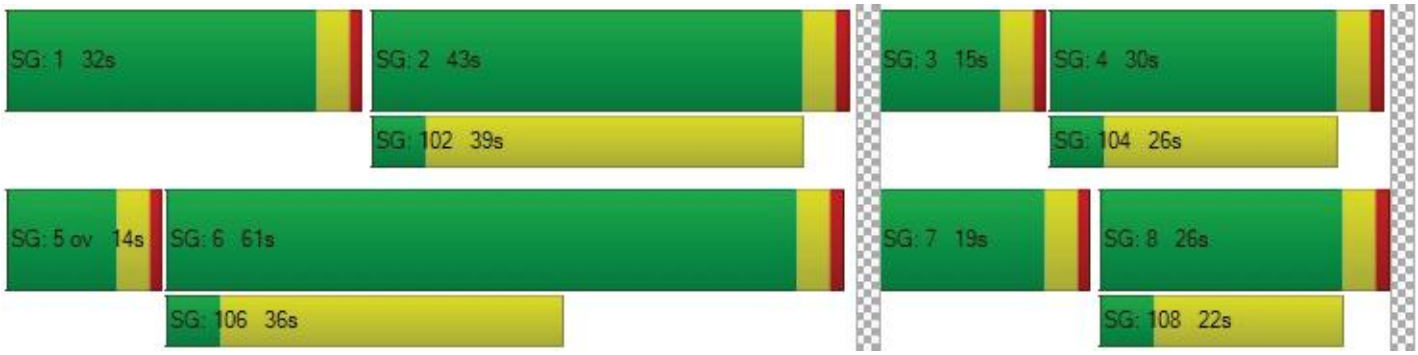
d_M, Delay for Movement [s/veh]	63.58	23.98	53.58	75.26	19.37	17.92	69.41	42.51	43.14	59.59	50.85	33.25
Movement LOS	E	C	D	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	42.55			25.20			52.72			50.39		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	41.35											
Intersection LOS	D											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.824	2.827	3.065	3.201
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	650	367	433
d_b, Bicycle Delay [s]	16.54	27.34	40.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.806	2.551	1.985	2.095
Bicycle LOS	C	B	A	B

Sequence

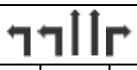
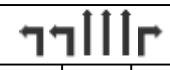
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.542

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	157	629	56	220	1054	104	94	405	109	90	492	139
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	629	56	220	1054	104	94	405	109	90	492	139
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	176	16	62	296	29	26	114	31	25	138	39
Total Analysis Volume [veh/h]	176	706	63	247	1183	117	105	455	122	101	552	156
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	24	51	0	9	47	0	9	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	71	71	11	74	74	5	17	17	5	17	17
g / C, Green / Cycle	0.07	0.59	0.59	0.09	0.61	0.61	0.04	0.14	0.14	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.05	0.14	0.04	0.07	0.35	0.08	0.03	0.09	0.08	0.03	0.11	0.10
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	229	2886	901	311	2102	938	139	700	219	139	700	219
d1, Uniform Delay [s]	54.93	11.86	10.59	53.26	13.70	9.71	56.90	48.59	47.90	56.83	49.67	49.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.37	0.20	0.15	4.58	1.10	0.27	8.13	1.02	2.22	7.10	2.02	4.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.24	0.07	0.79	0.56	0.12	0.76	0.65	0.56	0.73	0.79	0.71
d, Delay for Lane Group [s/veh]	60.30	12.06	10.74	57.84	14.79	9.98	65.03	49.61	50.13	63.92	51.70	53.38
Lane Group LOS	E	B	B	E	B	A	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.79	3.03	0.75	3.84	9.34	1.34	1.73	4.36	3.54	1.65	5.46	4.73
50th-Percentile Queue Length [ft/ln]	69.67	75.64	18.69	96.12	233.6	33.42	43.30	109.0	88.55	41.25	136.4	118.1
95th-Percentile Queue Length [veh/ln]	5.02	5.45	1.35	6.92	14.36	2.41	3.12	7.79	6.38	2.97	9.29	8.29
95th-Percentile Queue Length [ft/ln]	125.4	136.1	33.65	173.0	358.9	60.16	77.94	194.7	159.3	74.26	232.3	207.2

Movement, Approach, & Intersection Results

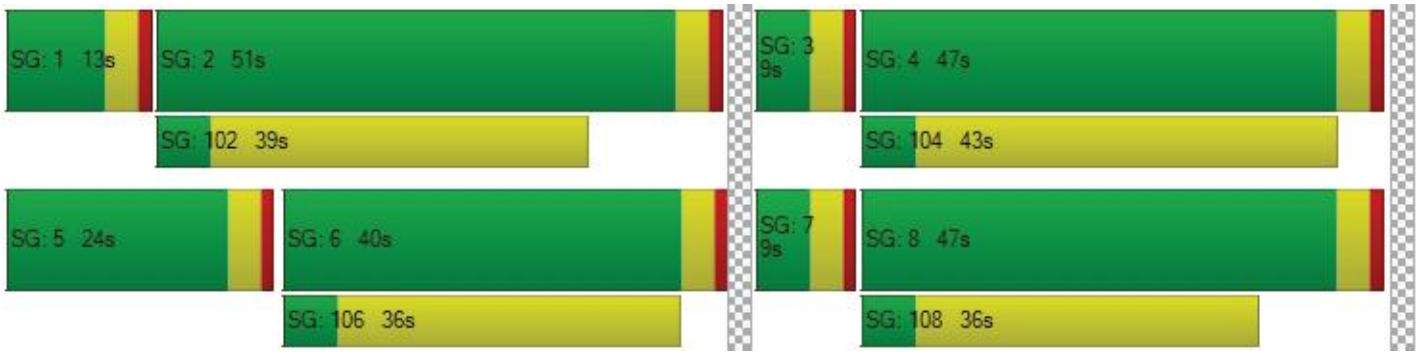
d_M, Delay for Movement [s/veh]	60.30	12.06	10.74	57.84	14.79	9.98	65.03	49.61	50.13	63.92	51.70	53.38
Movement LOS	E	B	B	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	20.96			21.30			52.08			53.55		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.04											
Intersection LOS	C											
Intersection V/C	0.542											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.119	3.316	3.131	3.035
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	783	717	717
d_b, Bicycle Delay [s]	29.40	22.20	24.70	24.70
l_b,int, Bicycle LOS Score for Intersection	2.079	2.836	1.935	2.005
Bicycle LOS	B	C	A	B

Sequence

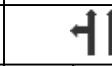
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	45.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	239	145	76	282	121	87	249	108	94	464	69
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	239	145	76	282	121	87	249	108	94	464	69
Peak Hour Factor	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	71	43	23	84	36	26	74	32	28	138	20
Total Analysis Volume [veh/h]	167	284	172	90	335	144	103	295	128	112	550	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	27	0	15	23	23	0	26	0	0	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	44	44	8	39	39	22	22	30	30
g / C, Green / Cycle	0.11	0.37	0.37	0.07	0.32	0.32	0.18	0.18	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.10	0.13	0.14	0.05	0.10	0.09	0.16	0.16	0.22	0.22
s, saturation flow rate [veh/h]	1714	1800	1577	1714	3427	1530	1768	1499	1775	1573
c, Capacity [veh/h]	193	663	581	113	1103	492	326	276	440	390
d1, Uniform Delay [s]	52.34	27.62	27.69	55.25	30.58	30.46	47.50	47.63	43.66	43.68
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.13	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.90	1.54	1.80	11.89	0.71	1.50	6.97	8.84	8.11	9.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.36	0.37	0.80	0.30	0.29	0.87	0.88	0.90	0.90
d, Delay for Lane Group [s/veh]	63.23	29.16	29.50	67.13	31.29	31.96	54.47	56.47	51.77	52.81
Lane Group LOS	E	C	C	E	C	C	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.52	5.34	4.80	3.06	3.77	3.34	8.81	7.73	12.25	10.98
50th-Percentile Queue Length [ft/ln]	138.1	133.4	120.0	76.44	94.16	83.44	220.26	193.31	306.15	274.55
95th-Percentile Queue Length [veh/ln]	9.38	9.12	8.39	5.50	6.78	6.01	13.68	12.29	17.98	16.42
95th-Percentile Queue Length [ft/ln]	234.4	228.1	209.8	137.6	169.4	150.1	341.95	307.32	449.62	410.42

Movement, Approach, & Intersection Results

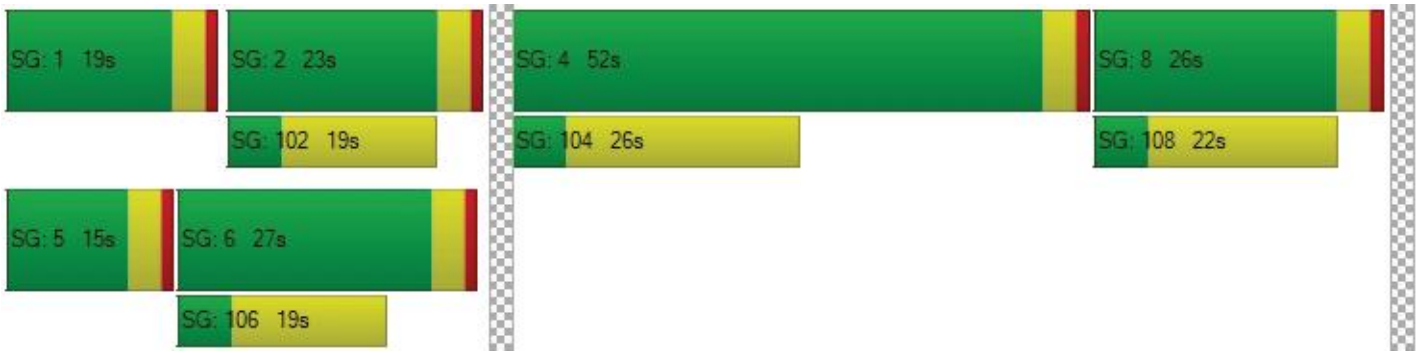
d_M, Delay for Movement [s/veh]	63.23	29.21	29.50	67.13	31.29	31.96	54.47	55.25	56.47	51.77	52.28	52.81
Movement LOS	E	C	C	E	C	C	D	E	E	D	D	D
d_A, Approach Delay [s/veh]	38.41			37.13			55.40			52.26		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	45.93											
Intersection LOS	D											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.549	2.637	2.484	2.463
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	317	367	800
d_b, Bicycle Delay [s]	39.20	42.50	40.02	21.60
l_b,int, Bicycle LOS Score for Intersection	2.074	2.029	1.994	2.173
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.845

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	0	849	0	520	798	0	1435	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	0	849	0	520	798	0	1435	0
Peak Hour Factor	1.000	1.000	1.000	0.945	1.000	0.945	1.000	0.945	0.945	1.000	0.945	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	40	0	225	0	138	211	0	380	0
Total Analysis Volume [veh/h]	0	0	0	159	0	898	0	550	844	0	1519	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	57	0	0	0	63	0	0	63	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		39	39	39	73	73	73
g / C, Green / Cycle		0.32	0.32	0.32	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.09	0.29	0.29	0.11	0.55	0.31
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		556	496	496	2987	932	2987
d1, Uniform Delay [s]		30.21	38.80	38.80	10.32	20.43	13.27
k, delay calibration		0.11	0.22	0.22	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.28	11.86	11.86	0.14	13.93	0.62
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.29	0.91	0.91	0.18	0.91	0.51
d, Delay for Lane Group [s/veh]		30.49	50.66	50.66	10.45	34.36	13.89
Lane Group LOS		C	D	D	B	C	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		3.49	14.13	14.13	2.13	22.65	7.59
50th-Percentile Queue Length [ft/ln]		87.26	353.3	353.3	53.18	566.34	189.87
95th-Percentile Queue Length [veh/ln]		6.28	20.30	20.30	3.83	30.46	12.11
95th-Percentile Queue Length [ft/ln]		157.0	507.4	507.4	95.72	761.48	302.86

Movement, Approach, & Intersection Results

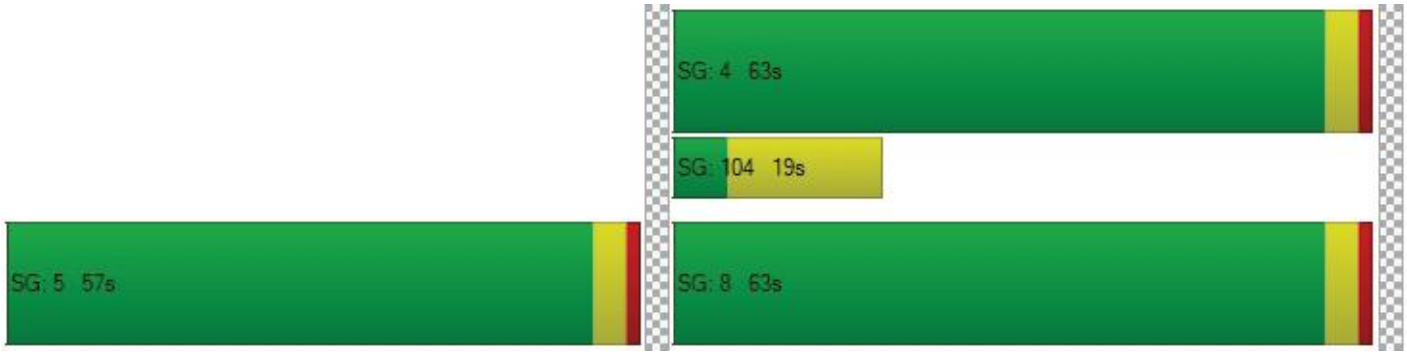
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	30.49	0.00	50.66	0.00	10.45	34.36	0.00	13.89	0.00
Movement LOS				C		D		B	C		B	
d_A, Approach Delay [s/veh]	0.00			47.63			24.93			13.89		
Approach LOS	A			D			C			B		
d_I, Intersection Delay [s/veh]	26.75											
Intersection LOS	C											
Intersection V/C	0.845											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.404	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	883	983	983
d_b, Bicycle Delay [s]	60.00	18.70	15.50	15.50
l_b,int, Bicycle LOS Score for Intersection	4.132	3.304	2.326	2.395
Bicycle LOS	D	C	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	873	0	494	0	0	0	0	441	0	0	1219	197
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	873	0	494	0	0	0	0	441	0	0	1219	197
Peak Hour Factor	0.879	1.000	0.879	1.000	1.000	1.000	1.000	0.879	1.000	1.000	0.879	0.879
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	248	0	141	0	0	0	0	125	0	0	347	56
Total Analysis Volume [veh/h]	993	0	562	0	0	0	0	502	0	0	1387	224
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	86	0	0	0	0	0	0	34	0	0	34	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45		67	67	67
g / C, Green / Cycle	0.38	0.38	0.38		0.56	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.30	0.31	0.34		0.10	0.28	0.15
s, saturation flow rate [veh/h]	1714	1697	1530		4903	4903	1530
c, Capacity [veh/h]	649	642	579		2721	2721	849
d1, Uniform Delay [s]	33.22	33.37	35.05		13.24	16.58	13.93
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.32	2.46	5.17		0.15	0.69	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.81	0.90		0.18	0.51	0.26
d, Delay for Lane Group [s/veh]	35.55	35.83	40.22		13.39	17.26	14.69
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	13.69	13.77	14.83		2.26	7.86	3.31
50th-Percentile Queue Length [ft/ln]	342.2	344.2	370.8		56.52	196.54	82.71
95th-Percentile Queue Length [veh/ln]	19.76	19.85	21.15		4.07	12.46	5.96
95th-Percentile Queue Length [ft/ln]	493.9	496.3	528.7		101.74	311.50	148.88

Movement, Approach, & Intersection Results

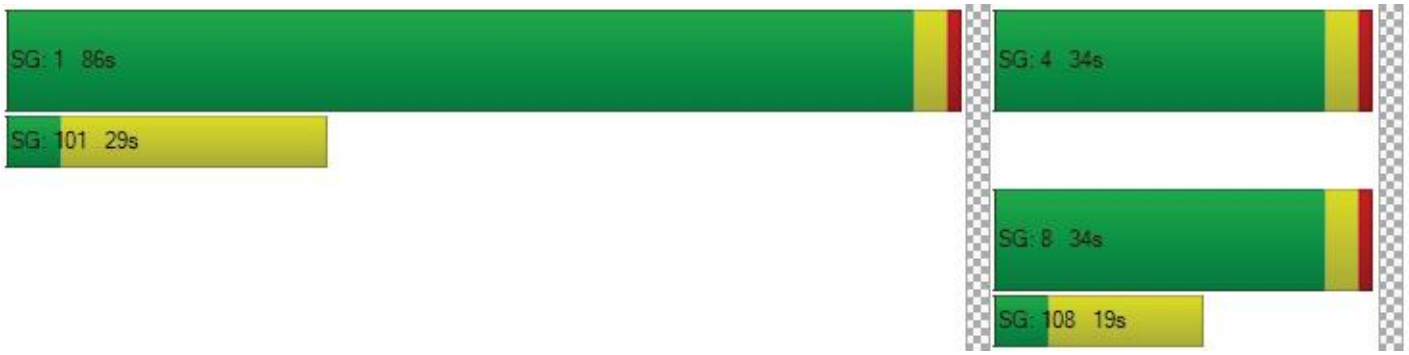
d_M, Delay for Movement [s/veh]	35.68	0.00	39.88	0.00	0.00	0.00	0.00	13.39	0.00	0.00	17.26	14.69
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	37.20			0.00			13.39			16.91		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	25.03											
Intersection LOS	C											
Intersection V/C	0.622											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.525	0.000	0.000	2.982
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1367	0	500	500
d_b, Bicycle Delay [s]	6.02	60.00	33.75	33.75
I_b,int, Bicycle LOS Score for Intersection	4.125	4.132	1.836	2.446
Bicycle LOS	D	D	A	B

Sequence

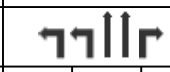
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	39.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	199	67	50	341	230	100	448	210	342	1200	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	153	199	67	50	341	230	100	448	210	342	1200	115
Peak Hour Factor	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	54	18	14	93	62	27	122	57	93	326	31
Total Analysis Volume [veh/h]	166	216	73	54	370	250	109	486	228	371	1303	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	17	44	0	9	36	0	9	46	46	21	58	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	45	45	5	37	37	5	39	56	15	49	49
g / C, Green / Cycle	0.11	0.37	0.37	0.04	0.31	0.31	0.04	0.32	0.47	0.13	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.10	0.12	0.05	0.03	0.18	0.19	0.03	0.14	0.15	0.11	0.38	0.08
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1562	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	186	672	571	69	550	477	139	1110	712	430	1410	629
d1, Uniform Delay [s]	52.82	26.76	24.73	57.07	35.46	35.56	56.97	31.97	20.14	51.20	33.54	22.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.70	1.26	0.46	17.40	4.79	5.67	9.37	0.27	0.37	5.23	3.09	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.32	0.13	0.78	0.60	0.61	0.79	0.44	0.32	0.86	0.92	0.20
d, Delay for Lane Group [s/veh]	66.52	28.03	25.19	74.48	40.25	41.23	66.34	32.24	20.51	56.43	36.63	22.79
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.64	4.65	1.45	1.96	8.91	7.96	1.82	5.61	4.07	5.77	18.22	2.31
50th-Percentile Queue Length [ft/ln]	140.9	116.2	36.28	48.90	222.8	199.1	45.45	140.1	101.8	144.3	455.4	57.69
95th-Percentile Queue Length [veh/ln]	9.53	8.18	2.61	3.52	13.81	12.59	3.27	9.49	7.33	9.72	25.22	4.15
95th-Percentile Queue Length [ft/ln]	238.3	204.6	65.31	88.03	345.2	314.8	81.81	237.2	183.2	242.8	630.4	103.8

Movement, Approach, & Intersection Results

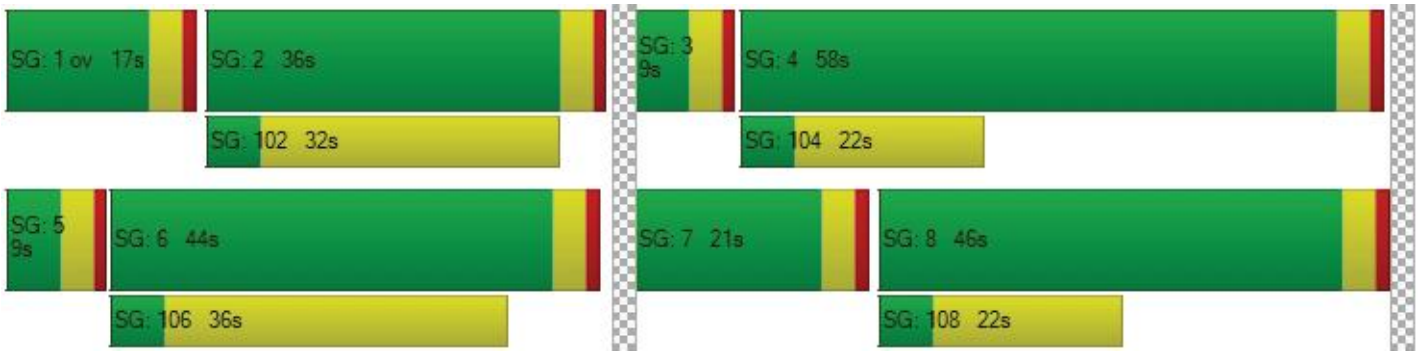
d_M, Delay for Movement [s/veh]	66.52	28.03	25.19	74.48	40.35	41.23	66.34	32.24	20.51	56.43	36.63	22.79
Movement LOS	E	C	C	E	D	D	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	41.62			43.41			33.51			39.75		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	39.27											
Intersection LOS	D											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.593	2.534	3.050	3.126
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	700	900
d_b, Bicycle Delay [s]	26.67	32.27	25.35	18.15
l_b,int, Bicycle LOS Score for Intersection	2.310	2.116	2.239	3.044
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	214	404	115	164	793	203	183	414	153	284	1138	98
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	404	115	164	793	203	183	414	153	284	1138	98
Peak Hour Factor	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	58	110	31	44	215	55	50	112	41	77	309	27
Total Analysis Volume [veh/h]	232	438	125	178	860	220	198	449	166	308	1234	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	26	40	0	26	40	40	12	36	0	18	42	42
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	18	47	47	15	44	56	8	29	29	13	34	53
g / C, Green / Cycle	0.15	0.39	0.39	0.12	0.36	0.46	0.07	0.24	0.24	0.11	0.28	0.44
(v / s)_i Volume / Saturation Flow Rate	0.14	0.09	0.08	0.10	0.18	0.14	0.06	0.09	0.11	0.09	0.25	0.07
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	260	1928	602	210	1787	711	222	1186	370	362	1392	673
d1, Uniform Delay [s]	49.95	24.25	24.05	51.52	29.39	20.10	55.57	37.96	38.68	52.53	41.11	20.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.74	0.27	0.78	8.97	0.93	1.13	11.68	0.20	0.85	5.68	2.09	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.23	0.21	0.85	0.48	0.31	0.89	0.38	0.45	0.85	0.89	0.16
d, Delay for Lane Group [s/veh]	60.69	24.53	24.83	60.49	30.32	21.23	67.25	38.15	39.53	58.22	43.21	20.32
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.59	2.82	2.49	5.76	6.51	4.07	3.33	3.71	4.26	4.84	11.81	1.82
50th-Percentile Queue Length [ft/ln]	189.8	70.62	62.19	144.0	162.7	101.6	83.28	92.76	106.4	120.9	295.2	45.51
95th-Percentile Queue Length [veh/ln]	12.11	5.08	4.48	9.70	10.70	7.32	6.00	6.68	7.64	8.45	17.44	3.28
95th-Percentile Queue Length [ft/ln]	302.7	127.1	111.9	242.5	267.3	182.9	149.9	166.9	190.9	211.1	436.0	81.92

Movement, Approach, & Intersection Results

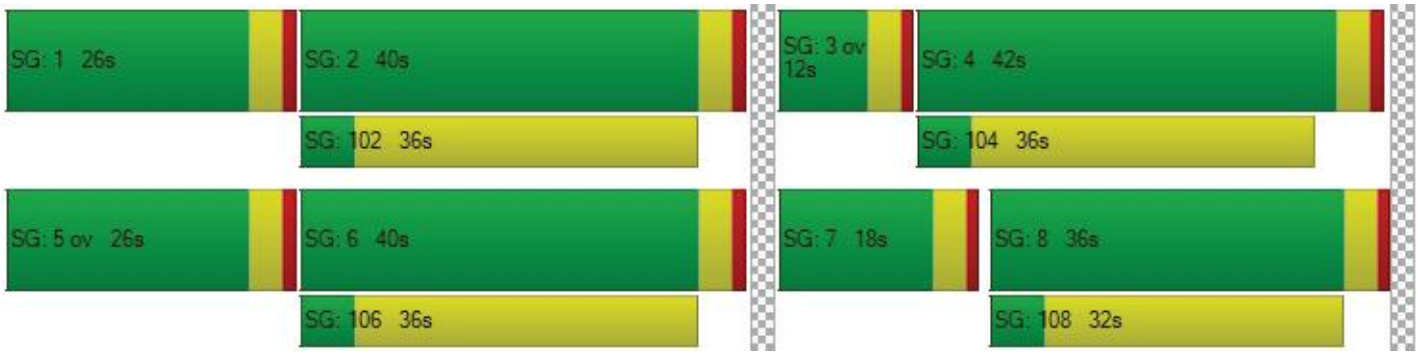
d_M, Delay for Movement [s/veh]	60.69	24.53	24.83	60.49	30.32	21.23	67.25	38.15	39.53	58.22	43.21	20.32
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	35.13			33.00			45.52			44.54		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.84											
Intersection LOS	D											
Intersection V/C	0.622											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.000	3.081	3.135	3.124
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	533	633
d_b, Bicycle Delay [s]	29.40	29.40	32.27	28.02
l_b,int, Bicycle LOS Score for Intersection	1.997	2.252	2.007	2.466
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	482.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.285

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	102	0	0	0	0	621	36	198	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	102	0	0	0	0	621	36	198	1526	0
Peak Hour Factor	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	0	31	0	0	0	0	189	11	60	464	0
Total Analysis Volume [veh/h]	26	0	124	0	0	0	0	755	44	241	1854	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.28	0.00	0.20	0.00	0.00	0.00	0.00	0.01	0.00	0.29	0.02	0.00
d_M, Delay for Movement [s/veh]	482.9	741.3	310.9	575.1	456.1	18.14	15.87	0.00	0.00	11.08	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	11.19	11.19	11.19	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00
95th-Percentile Queue Length [ft/ln]	279.7	279.7	279.7	0.00	0.00	0.00	0.00	0.00	0.00	30.07	0.00	0.00
d_A, Approach Delay [s/veh]	340.78			349.79			0.00			1.27		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	17.67											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	44.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	515	78	132	724	162	149	428	114	235	797	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	515	78	132	724	162	149	428	114	235	797	78
Peak Hour Factor	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	141	21	36	198	44	41	117	31	64	218	21
Total Analysis Volume [veh/h]	156	563	85	144	792	177	163	468	125	257	872	85
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	43	0	17	44	0	17	31	0	29	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	46	46	12	46	46	13	26	26	20	33	33
g / C, Green / Cycle	0.10	0.38	0.38	0.10	0.38	0.38	0.11	0.22	0.22	0.17	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.18	0.18	0.08	0.28	0.28	0.10	0.14	0.08	0.15	0.25	0.06
s, saturation flow rate [veh/h]	1714	1800	1719	1714	1800	1688	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	171	684	653	170	682	640	186	755	337	287	957	427
d1, Uniform Delay [s]	53.47	28.27	28.28	53.16	32.02	32.04	52.72	42.26	39.73	48.93	41.81	33.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.34	2.45	2.57	10.94	6.83	7.29	12.29	0.84	0.68	13.20	3.81	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.48	0.49	0.85	0.73	0.73	0.88	0.62	0.37	0.90	0.91	0.20
d, Delay for Lane Group [s/veh]	69.81	30.72	30.85	64.09	38.85	39.33	65.00	43.09	40.41	62.13	45.62	33.23
Lane Group LOS	E	C	C	E	D	D	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.43	7.68	7.36	4.78	13.61	12.86	5.47	6.35	3.21	8.58	12.88	1.93
50th-Percentile Queue Length [ft/ln]	135.7	191.8	184.0	119.6	340.2	321.5	136.7	158.7	80.20	214.4	321.9	48.27
95th-Percentile Queue Length [veh/ln]	9.25	12.22	11.81	8.37	19.66	18.74	9.30	10.48	5.77	13.38	18.76	3.48
95th-Percentile Queue Length [ft/ln]	231.3	305.4	295.3	209.3	491.4	468.6	232.5	262.0	144.3	334.5	469.1	86.89

Movement, Approach, & Intersection Results

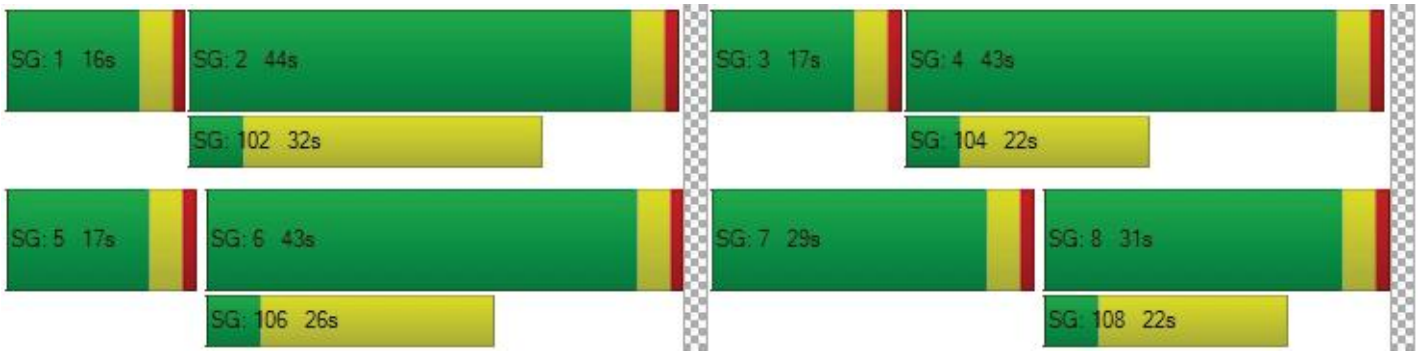
d_M, Delay for Movement [s/veh]	69.81	30.77	30.85	64.09	39.03	39.33	65.00	43.09	40.41	62.13	45.62	33.23
Movement LOS	E	C	C	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	38.35			42.32			47.37			48.25		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.33											
Intersection LOS	D											
Intersection V/C	0.719											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.701	2.690	2.787	2.779
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	667	450	650
d_b, Bicycle Delay [s]	27.34	26.67	36.04	27.34
l_b,int, Bicycle LOS Score for Intersection	2.223	2.478	2.183	2.561
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	436	79	192	814	126	211	375	100	151	611	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	436	79	192	814	126	211	375	100	151	611	125
Peak Hour Factor	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	121	22	53	226	35	58	104	28	42	169	35
Total Analysis Volume [veh/h]	88	483	88	213	902	140	234	416	111	167	677	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	31	0	24	43	0	29	38	0	27	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	42	42	17	51	51	18	31	31	14	27	27
g / C, Green / Cycle	0.06	0.35	0.35	0.14	0.43	0.43	0.15	0.26	0.26	0.11	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.14	0.06	0.12	0.26	0.09	0.14	0.12	0.07	0.10	0.20	0.09
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	109	1196	534	240	1458	651	264	899	401	197	766	342
d1, Uniform Delay [s]	55.43	29.60	26.98	50.64	26.88	21.80	49.76	37.18	35.22	52.04	45.07	39.78
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.77	1.02	0.66	10.43	1.98	0.76	10.49	0.37	0.37	9.49	3.60	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.40	0.16	0.89	0.62	0.22	0.89	0.46	0.28	0.85	0.88	0.41
d, Delay for Lane Group [s/veh]	68.20	30.61	27.64	61.07	28.86	22.55	60.25	37.55	35.59	61.53	48.67	40.56
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.02	5.45	1.85	6.97	10.35	2.64	7.63	5.18	2.64	5.45	10.09	3.59
50th-Percentile Queue Length [ft/ln]	75.38	136.2	46.32	174.1	258.6	66.01	190.8	129.6	65.97	136.2	252.1	89.76
95th-Percentile Queue Length [veh/ln]	5.43	9.28	3.33	11.30	15.62	4.75	12.17	8.92	4.75	9.28	15.29	6.46
95th-Percentile Queue Length [ft/ln]	135.6	231.9	83.37	282.4	390.5	118.8	304.1	222.9	118.7	231.9	382.3	161.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.20	30.61	27.64	61.07	28.86	22.55	60.25	37.55	35.59	61.53	48.67	40.56
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	35.23			33.62			44.24			49.71		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.44											
Intersection LOS	D											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.865	2.998	2.739	2.744
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	650	567	533
d_b, Bicycle Delay [s]	36.04	27.34	30.82	32.27
l_b,int, Bicycle LOS Score for Intersection	2.103	2.595	2.187	2.371
Bicycle LOS	B	B	B	B

Sequence

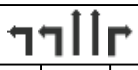
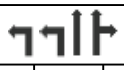
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	325	161	36	120	324	392	93	245	148	141	699	133
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	325	161	36	120	324	392	93	245	148	141	699	133
Peak Hour Factor	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	94	47	10	35	94	113	27	71	43	41	202	38
Total Analysis Volume [veh/h]	376	186	42	139	375	453	108	283	171	163	808	154
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	20	36	36	16	32	32	16	53	53	15	52	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	44	56	11	40	56	12	40	60	8	36	36
g / C, Green / Cycle	0.13	0.37	0.47	0.10	0.34	0.47	0.10	0.33	0.50	0.07	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.11	0.05	0.03	0.08	0.11	0.30	0.03	0.16	0.11	0.05	0.27	0.27
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1701
c, Capacity [veh/h]	430	1265	719	164	1151	718	333	602	760	224	543	513
d1, Uniform Delay [s]	51.31	25.24	17.35	53.38	29.71	24.01	50.23	31.53	17.10	54.90	40.34	40.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.23	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.76	0.24	0.16	11.21	0.75	4.18	0.56	0.57	0.15	4.52	12.05	12.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.15	0.06	0.85	0.33	0.63	0.32	0.47	0.22	0.73	0.91	0.91
d, Delay for Lane Group [s/veh]	57.07	25.49	17.51	64.59	30.46	28.18	50.79	32.10	17.25	59.42	52.39	53.13
Lane Group LOS	E	C	B	E	C	C	D	C	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.89	1.82	0.67	4.63	4.17	10.34	1.54	6.58	2.71	2.56	15.73	14.99
50th-Percentile Queue Length [ft/ln]	147.1	45.61	16.74	115.8	104.1	258.6	38.48	164.4	67.63	63.99	393.2	374.7
95th-Percentile Queue Length [veh/ln]	9.87	3.28	1.21	8.17	7.50	15.62	2.77	10.78	4.87	4.61	22.23	21.34
95th-Percentile Queue Length [ft/ln]	246.6	82.10	30.14	204.1	187.5	390.4	69.27	269.5	121.7	115.1	555.8	533.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.07	25.49	17.51	64.59	30.46	28.18	50.79	32.10	17.25	59.42	52.68	53.13
Movement LOS	E	C	B	E	C	C	D	C	B	E	D	D
d_A, Approach Delay [s/veh]	44.59			34.30			31.17			53.71		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	42.37											
Intersection LOS	D											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.792	2.698	2.915	2.726
Crosswalk LOS	C	B	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	467	817	800
d_b, Bicycle Delay [s]	32.27	35.27	21.00	21.60
l_b,int, Bicycle LOS Score for Intersection	2.058	2.357	2.487	2.488
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.685

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	671	122	53	1008	95	70	390	93	154	601	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	671	122	53	1008	95	70	390	93	154	601	59
Peak Hour Factor	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	177	32	14	266	25	18	103	25	41	158	16
Total Analysis Volume [veh/h]	109	708	129	56	1063	100	74	411	98	162	634	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	35	0	11	33	0	10	53	0	21	64	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	48	48	5	44	44	6	37	37	13	45	45
g / C, Green / Cycle	0.08	0.40	0.40	0.04	0.37	0.37	0.05	0.31	0.31	0.11	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.17	0.03	0.23	0.23	0.04	0.23	0.06	0.09	0.35	0.04
s, saturation flow rate [veh/h]	1714	3427	1662	1714	3427	1722	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	129	1377	668	73	1265	636	86	560	476	191	671	570
d1, Uniform Delay [s]	54.82	25.69	25.74	56.87	30.84	30.85	56.59	36.89	30.41	52.33	36.47	24.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.99	0.90	1.88	15.54	2.21	4.36	21.29	1.92	0.21	10.00	14.61	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.41	0.41	0.77	0.61	0.61	0.86	0.73	0.21	0.85	0.95	0.11
d, Delay for Lane Group [s/veh]	68.81	26.59	27.61	72.42	33.06	35.22	77.88	38.81	30.62	62.33	51.08	24.70
Lane Group LOS	E	C	C	E	C	D	E	D	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.75	5.90	5.96	2.00	9.45	9.89	2.73	10.98	2.13	5.32	20.38	1.18
50th-Percentile Queue Length [ft/ln]	93.82	147.3	149.1	49.90	236.2	247.2	68.32	274.6	53.21	132.9	509.4	29.47
95th-Percentile Queue Length [veh/ln]	6.76	9.88	9.97	3.59	14.49	15.05	4.92	16.42	3.83	9.10	27.78	2.12
95th-Percentile Queue Length [ft/ln]	168.8	246.9	249.2	89.81	362.3	376.2	122.9	410.4	95.78	227.5	694.5	53.05

Movement, Approach, & Intersection Results

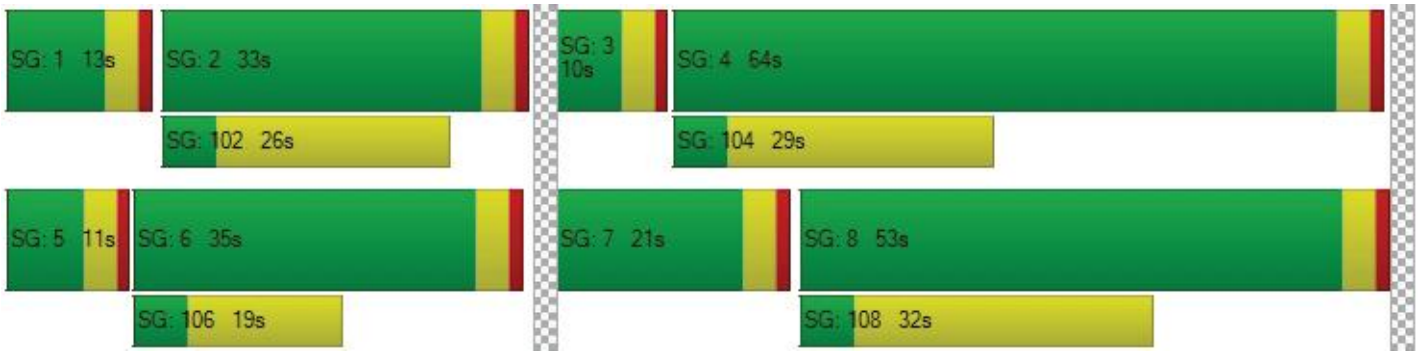
d_M, Delay for Movement [s/veh]	68.81	26.80	27.61	72.42	33.64	35.22	77.88	38.81	30.62	62.33	51.08	24.70
Movement LOS	E	C	C	E	C	D	E	D	C	E	D	C
d_A, Approach Delay [s/veh]	31.75			35.55			42.39			51.30		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	39.41											
Intersection LOS	D											
Intersection V/C	0.685											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.017	2.896	2.700	2.501
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	483	817	1000
d_b, Bicycle Delay [s]	33.00	34.50	21.00	15.00
l_b,int, Bicycle LOS Score for Intersection	2.080	2.230	2.522	2.975
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.461

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	127	114	14	154	84	41	337	58	140	598	22
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	127	114	14	154	84	41	337	58	140	598	22
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	35	31	4	42	23	11	93	16	39	165	6
Total Analysis Volume [veh/h]	92	140	126	15	170	93	45	372	64	154	659	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	94	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65	65	65	65	47	47	47	47	47	47
g / C, Green / Cycle	0.54	0.54	0.54	0.54	0.54	0.54	0.39	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.08	0.01	0.09	0.06	0.06	0.21	0.04	0.16	0.37	0.02
s, saturation flow rate [veh/h]	1134	1800	1530	1131	1800	1530	770	1800	1530	968	1800	1530
c, Capacity [veh/h]	559	976	830	570	976	830	129	704	598	308	704	598
d1, Uniform Delay [s]	20.46	13.62	13.69	18.35	13.87	13.37	52.80	28.06	23.24	39.44	35.12	22.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.63	0.31	0.39	0.09	0.39	0.27	1.60	0.62	0.08	1.25	6.64	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.14	0.15	0.03	0.17	0.11	0.35	0.53	0.11	0.50	0.94	0.04
d, Delay for Lane Group [s/veh]	21.09	13.93	14.07	18.43	14.26	13.65	54.40	28.68	23.31	40.69	41.76	22.65
Lane Group LOS	C	B	B	B	B	B	D	C	C	D	D	C
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.68	1.96	1.78	0.25	2.42	1.29	1.37	8.30	1.18	4.12	19.43	0.43
50th-Percentile Queue Length [ft/ln]	41.88	48.94	44.61	6.19	60.56	32.13	34.27	207.5	29.45	103.0	485.7	10.75
95th-Percentile Queue Length [veh/ln]	3.02	3.52	3.21	0.45	4.36	2.31	2.47	13.03	2.12	7.42	26.66	0.77
95th-Percentile Queue Length [ft/ln]	75.38	88.08	80.29	11.15	109.0	57.84	61.69	325.6	53.01	185.4	666.5	19.34

Movement, Approach, & Intersection Results

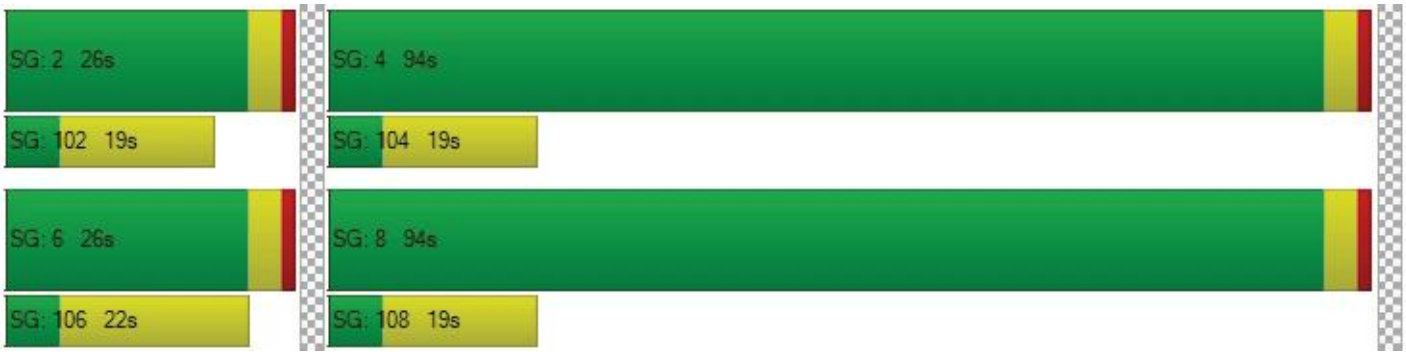
d_M, Delay for Movement [s/veh]	21.09	13.93	14.07	18.43	14.26	13.65	54.40	28.68	23.31	40.69	41.76	22.65
Movement LOS	C	B	B	B	B	B	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	15.82			14.28			30.37			41.01		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	29.98											
Intersection LOS	C											
Intersection V/C	0.461											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.547	2.329	2.600	2.600
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1500	1500
d_b, Bicycle Delay [s]	40.02	40.02	3.75	3.75
l_b,int, Bicycle LOS Score for Intersection	2.150	2.018	2.353	2.941
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	41.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	208	617	205	96	791	141	73	255	105	226	437	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	617	205	96	791	141	73	255	105	226	437	131
Peak Hour Factor	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	160	53	25	205	36	19	66	27	58	113	34
Total Analysis Volume [veh/h]	215	639	212	99	819	146	76	264	109	234	452	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	51	0	12	42	0	10	30	0	27	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	57	57	8	49	49	6	20	20	18	33	33
g / C, Green / Cycle	0.14	0.48	0.48	0.07	0.41	0.41	0.05	0.17	0.17	0.15	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.13	0.25	0.25	0.06	0.28	0.28	0.04	0.08	0.07	0.14	0.25	0.09
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1706	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	240	860	787	114	728	690	86	578	258	264	490	417
d1, Uniform Delay [s]	50.74	21.73	21.74	55.47	29.38	29.38	56.66	44.94	44.66	49.75	42.42	34.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.12	0.24	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.22	2.21	2.42	17.15	5.09	5.37	24.10	0.57	1.10	10.47	14.73	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.52	0.52	0.87	0.68	0.68	0.89	0.46	0.42	0.89	0.92	0.33
d, Delay for Lane Group [s/veh]	61.95	23.95	24.16	72.62	34.47	34.75	80.77	45.50	45.76	60.22	57.15	35.32
Lane Group LOS	E	C	C	E	C	C	F	D	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.09	9.08	8.37	3.51	12.61	12.01	2.86	3.60	2.99	7.64	14.92	3.25
50th-Percentile Queue Length [ft/ln]	177.1	226.9	209.1	87.76	315.2	300.3	71.57	89.92	74.82	190.8	372.9	81.15
95th-Percentile Queue Length [veh/ln]	11.45	14.02	13.11	6.32	18.43	17.70	5.15	6.47	5.39	12.17	21.25	5.84
95th-Percentile Queue Length [ft/ln]	286.3	350.4	327.7	157.9	460.8	442.4	128.8	161.8	134.6	304.1	531.3	146.0

Movement, Approach, & Intersection Results

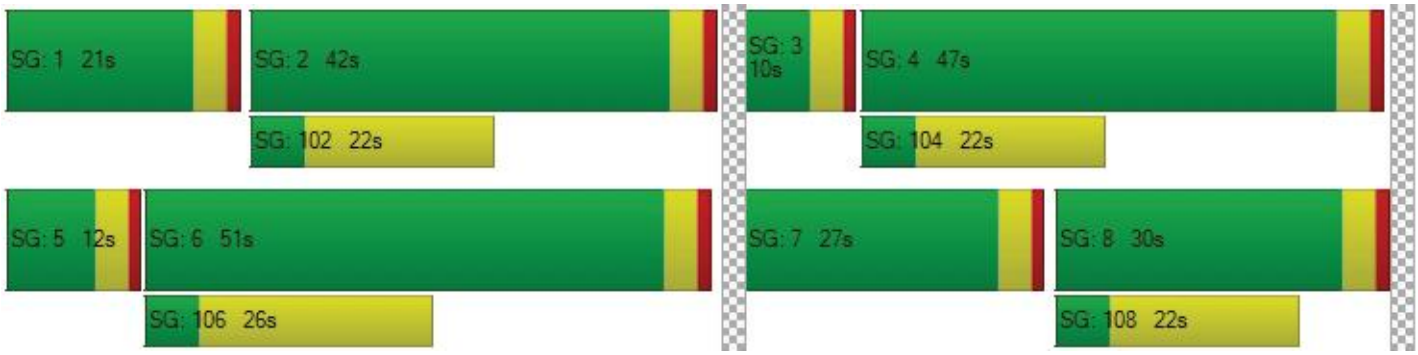
d_M, Delay for Movement [s/veh]	61.95	24.01	24.16	72.62	34.58	34.75	80.77	45.50	45.76	60.22	57.15	35.32
Movement LOS	E	C	C	E	C	C	F	D	D	E	E	D
d_A, Approach Delay [s/veh]	31.69			38.14			51.53			54.41		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	41.82											
Intersection LOS	D											
Intersection V/C	0.696											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.750	2.689	2.561	2.695
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	633	433	717
d_b, Bicycle Delay [s]	22.20	28.02	36.82	24.70
l_b,int, Bicycle LOS Score for Intersection	2.439	2.437	1.930	2.916
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	36.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.554

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	87	511	35	58	717	69	67	402	82	69	527	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	511	35	58	717	69	67	402	82	69	527	55
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	149	10	17	209	20	20	117	24	20	154	16
Total Analysis Volume [veh/h]	101	596	41	68	836	80	78	469	96	80	614	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	34	0	16	38	0	12	59	0	11	58	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	65	65	6	63	63	7	26	26	7	26	26
g / C, Green / Cycle	0.07	0.54	0.54	0.05	0.53	0.53	0.06	0.21	0.21	0.06	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.18	0.18	0.04	0.26	0.26	0.05	0.16	0.16	0.05	0.19	0.19
s, saturation flow rate [veh/h]	1714	1800	1760	1714	1800	1745	1714	1800	1696	1714	1800	1741
c, Capacity [veh/h]	114	975	953	87	947	918	98	388	365	100	390	377
d1, Uniform Delay [s]	55.54	15.34	15.34	56.27	18.16	18.16	55.87	44.02	44.08	55.81	45.54	45.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.98	0.91	0.93	13.68	1.82	1.88	13.45	2.90	3.15	13.52	6.70	6.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.33	0.33	0.78	0.49	0.49	0.80	0.75	0.75	0.80	0.88	0.88
d, Delay for Lane Group [s/veh]	74.52	16.24	16.27	69.95	19.98	20.04	69.33	46.92	47.23	69.33	52.23	52.53
Lane Group LOS	E	B	B	E	B	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.63	5.09	4.99	2.37	8.56	8.32	2.70	8.36	7.96	2.77	10.62	10.32
50th-Percentile Queue Length [ft/ln]	90.80	127.2	124.7	59.22	214.0	207.9	67.48	209.0	199.0	69.19	265.5	258.1
95th-Percentile Queue Length [veh/ln]	6.54	8.79	8.65	4.26	13.36	13.05	4.86	13.10	12.59	4.98	15.97	15.59
95th-Percentile Queue Length [ft/ln]	163.4	219.7	216.3	106.6	334.0	326.1	121.4	327.5	314.7	124.5	399.2	389.8

Movement, Approach, & Intersection Results

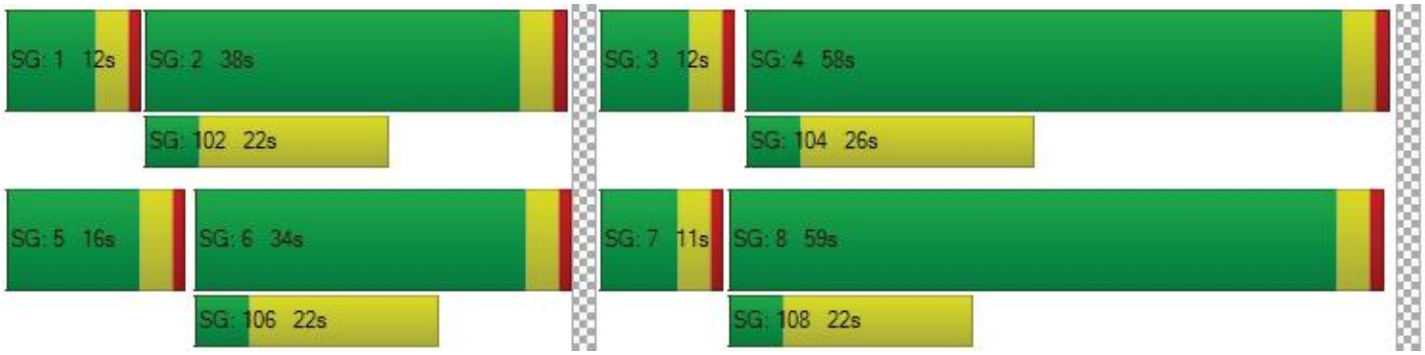
d_M, Delay for Movement [s/veh]	74.52	16.25	16.27	69.95	20.00	20.04	69.33	47.04	47.23	69.33	52.36	52.53
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.23			23.46			49.77			54.17		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.51											
Intersection LOS	D											
Intersection V/C	0.554											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.656	2.748	2.596	2.576
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	567	917	900
d_b, Bicycle Delay [s]	33.75	30.82	17.60	18.15
l_b,int, Bicycle LOS Score for Intersection	2.168	2.371	2.090	2.185
Bicycle LOS	B	B	B	B

Sequence

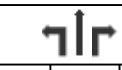
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	418	151	65	572	0	0	0	0	234	0	137
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	418	151	65	572	0	0	0	0	234	0	137
Peak Hour Factor	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	122	44	19	167	0	0	0	0	68	0	40
Total Analysis Volume [veh/h]	0	488	176	76	667	0	0	0	0	273	0	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	49	0	38	78	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	74	74	7	81	81	27	27	27	27
g / C, Green / Cycle	0.00	0.62	0.62	0.06	0.68	0.68	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.27	0.12	0.04	0.37	0.00	0.00	0.00	0.21	0.10
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1687	1530	1326	1530
c, Capacity [veh/h]	1	1117	949	99	1220	1037	404	339	354	339
d1, Uniform Delay [s]	0.00	11.87	9.77	55.71	9.88	0.00	0.00	0.00	46.89	40.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.32	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.25	0.43	11.46	1.76	0.00	0.00	0.00	10.03	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.44	0.19	0.76	0.55	0.00	0.00	0.00	0.77	0.47
d, Delay for Lane Group [s/veh]	0.00	13.11	10.20	67.18	11.65	0.00	0.00	0.00	56.92	41.61
Lane Group LOS	A	B	B	E	B	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	6.93	2.06	2.59	8.94	0.00	0.00	0.00	8.94	4.21
50th-Percentile Queue Length [ft/ln]	0.00	173.2	51.44	64.65	223.4	0.00	0.00	0.00	223.55	105.30
95th-Percentile Queue Length [veh/ln]	0.00	11.25	3.70	4.66	13.84	0.00	0.00	0.00	13.85	7.58
95th-Percentile Queue Length [ft/ln]	0.00	281.2	92.60	116.3	346.0	0.00	0.00	0.00	346.15	189.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	13.11	10.20	67.18	11.65	0.00	0.00	0.00	0.00	56.92	56.92	41.61
Movement LOS	A	B	B	E	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	12.34			17.33			0.00			51.26		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	23.51											
Intersection LOS	C											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.016	0.000	1.955	2.178
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	1233	483	483
d_b, Bicycle Delay [s]	23.44	8.82	34.50	34.50
l_b,int, Bicycle LOS Score for Intersection	2.655	2.786	1.560	2.274
Bicycle LOS	B	C	A	B

Sequence

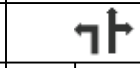
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	33.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	186	806	132	35	1068	89	30	30	200	150	136	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	806	132	35	1068	89	30	30	200	150	136	68
Peak Hour Factor	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	220	36	10	291	24	8	8	55	41	37	19
Total Analysis Volume [veh/h]	203	879	144	38	1165	97	33	33	218	164	148	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	61	0	9	47	0	13	33	0	17	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	68	68	4	56	56	3	19	19	13	29
g / C, Green / Cycle	0.13	0.57	0.57	0.03	0.46	0.46	0.03	0.16	0.16	0.11	0.24
(v / s)_i Volume / Saturation Flow Rate	0.12	0.29	0.29	0.02	0.34	0.06	0.02	0.02	0.14	0.10	0.13
s, saturation flow rate [veh/h]	1714	1800	1713	1714	3427	1530	1714	1800	1530	1714	1700
c, Capacity [veh/h]	230	1020	971	52	1586	708	50	290	247	186	408
d1, Uniform Delay [s]	51.00	15.87	15.89	57.70	26.23	18.48	57.65	43.01	49.24	52.75	39.84
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.13	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.50	1.84	1.95	17.80	3.06	0.40	13.67	0.17	12.19	12.73	1.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.51	0.51	0.73	0.73	0.14	0.66	0.11	0.88	0.88	0.54
d, Delay for Lane Group [s/veh]	61.51	17.71	17.84	75.50	29.28	18.89	71.32	43.18	61.43	65.48	40.97
Lane Group LOS	E	B	B	E	C	B	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	6.65	9.03	8.66	1.40	13.90	1.63	1.18	0.86	7.22	5.52	5.86
50th-Percentile Queue Length [ft/ln]	166.3	225.6	216.4	35.03	347.6	40.80	29.58	21.44	180.3	138.10	146.44
95th-Percentile Queue Length [veh/ln]	10.88	13.95	13.48	2.52	20.02	2.94	2.13	1.54	11.62	9.38	9.83
95th-Percentile Queue Length [ft/ln]	272.1	348.8	337.0	63.05	500.5	73.44	53.24	38.59	290.5	234.46	245.67

Movement, Approach, & Intersection Results

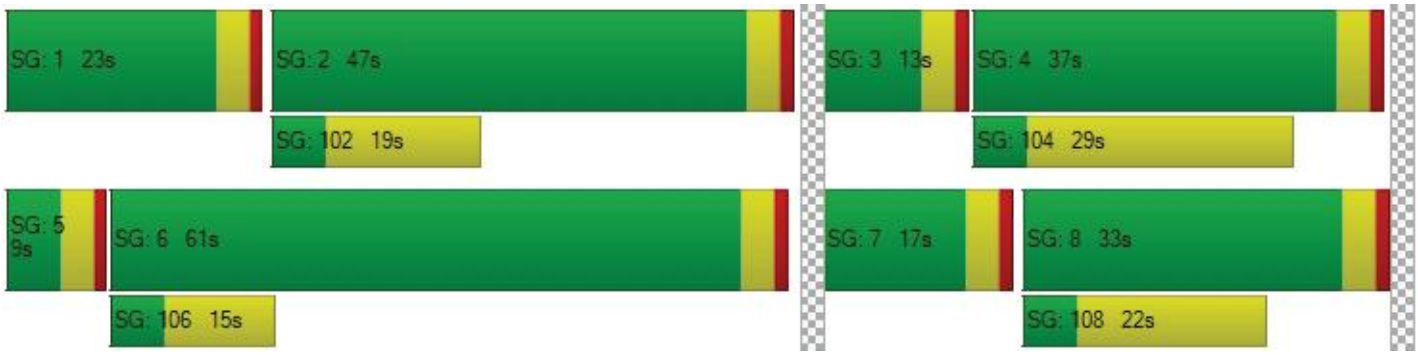
d_M, Delay for Movement [s/veh]	61.51	17.76	17.84	75.50	29.28	18.89	71.32	43.18	61.43	65.48	40.97	40.97
Movement LOS	E	B	B	E	C	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	25.01			29.86			60.46			51.38		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	33.32											
Intersection LOS	C											
Intersection V/C	0.696											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.919	2.928	2.325	2.151
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	717	483	550
d_b, Bicycle Delay [s]	16.54	24.70	34.50	31.54
l_b,int, Bicycle LOS Score for Intersection	2.571	2.632	2.028	2.197
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.307

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	134	290	0	0	261	111	57	0	66	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	134	290	0	0	261	111	57	0	66	0	0	0
Peak Hour Factor	0.913	0.913	1.000	1.000	0.913	0.913	0.913	1.000	0.913	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	79	0	0	71	30	16	0	18	0	0	0
Total Analysis Volume [veh/h]	147	318	0	0	286	122	62	0	72	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	0.00	0.00	0.00	0.00	0.00	30.54	0.00	10.73	0.00	0.00	0.00
Movement LOS	A	A			A	A	D		B			
95th-Percentile Queue Length [veh/ln]	0.43	0.43	0.00	0.00	0.00	0.00	1.24	0.00	0.34	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.83	10.83	0.00	0.00	0.00	0.00	31.03	0.00	8.55	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.70			0.00			19.89			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	3.89											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	15.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.372

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	551	201	49	753	1	0	0	2	174	0	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	551	201	49	753	1	0	0	2	174	0	40
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	146	53	13	199	0	0	0	1	46	0	11
Total Analysis Volume [veh/h]	1	582	212	52	796	1	0	0	2	184	0	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	59	0	11	55	0	0	9	0	0	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	84	84	5	88	88	0	0	15	15
g / C, Green / Cycle	0.00	0.70	0.70	0.04	0.73	0.73	0.00	0.00	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.00	0.23	0.23	0.03	0.22	0.22	0.00	0.00	0.11	0.03
s, saturation flow rate [veh/h]	1714	1800	1638	1714	1800	1799	1800	1392	1687	1530
c, Capacity [veh/h]	4	1254	1142	66	1320	1320	5	4	216	196
d1, Uniform Delay [s]	59.79	7.16	7.17	57.18	5.47	5.47	59.64	59.73	51.20	46.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.37	0.71	0.78	18.02	0.59	0.59	0.00	67.03	9.07	0.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.33	0.33	0.78	0.30	0.30	0.00	0.48	0.85	0.21
d, Delay for Lane Group [s/veh]	98.16	7.87	7.95	75.20	6.06	6.06	59.64	126.76	60.27	47.44
Lane Group LOS	F	A	A	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	4.13	3.80	1.90	3.27	3.27	0.00	0.14	5.95	1.16
50th-Percentile Queue Length [ft/ln]	1.71	103.2	94.93	47.39	81.83	81.79	0.00	3.46	148.84	29.01
95th-Percentile Queue Length [veh/ln]	0.12	7.44	6.84	3.41	5.89	5.89	0.00	0.25	9.95	2.09
95th-Percentile Queue Length [ft/ln]	3.07	185.9	170.8	85.30	147.2	147.2	0.00	6.23	248.87	52.22

Movement, Approach, & Intersection Results

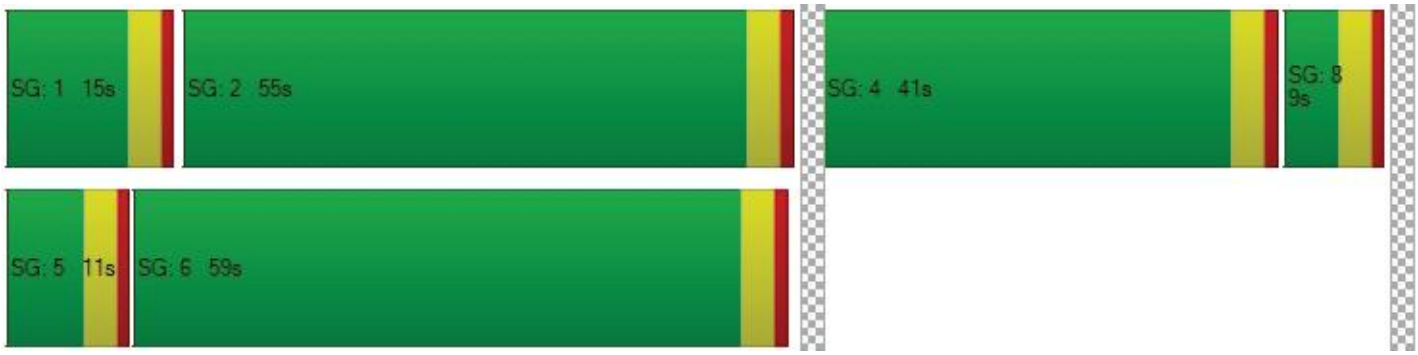
d_M, Delay for Movement [s/veh]	98.16	7.89	7.95	75.20	6.06	6.06	59.64	59.64	126.7	60.27	60.27	47.44
Movement LOS	F	A	A	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	8.02			10.30			126.76			57.88		
Approach LOS	A			B			F			E		
d_I, Intersection Delay [s/veh]	15.20											
Intersection LOS	B											
Intersection V/C	0.372											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	850	83	617
d_b, Bicycle Delay [s]	17.60	19.84	55.10	28.70
l_b,int, Bicycle LOS Score for Intersection	2.215	2.260	1.561	1.933
Bicycle LOS	B	B	A	A

Sequence

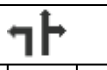
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	130	1237	0	0	0	0	145	0	253
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	813	117	130	1237	0	0	0	0	145	0	253
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	223	32	36	339	0	0	0	0	40	0	69
Total Analysis Volume [veh/h]	3	890	128	142	1355	0	0	0	0	159	0	277
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	48	0	23	62	0	9	30	0	19	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	68	68	12	80	80	0	11	13	24
g / C, Green / Cycle	0.00	0.57	0.57	0.10	0.66	0.66	0.00	0.09	0.11	0.20
(v / s)_i Volume / Saturation Flow Rate	0.00	0.26	0.08	0.08	0.40	0.00	0.00	0.00	0.09	0.18
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	8	1944	868	170	2268	1012	1	166	185	306
d1, Uniform Delay [s]	59.56	15.18	12.26	53.10	11.36	0.00	0.00	0.00	52.62	46.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.21	0.78	0.36	10.28	1.17	0.00	0.00	0.00	10.90	10.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.46	0.15	0.84	0.60	0.00	0.00	0.00	0.86	0.91
d, Delay for Lane Group [s/veh]	87.77	15.96	12.62	63.38	12.53	0.00	0.00	0.00	63.52	57.31
Lane Group LOS	F	B	B	E	B	A	A	A	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.15	7.13	1.69	4.69	9.74	0.00	0.00	0.00	5.27	8.93
50th-Percentile Queue Length [ft/ln]	3.81	178.2	42.37	117.2	243.5	0.00	0.00	0.00	131.66	223.28
95th-Percentile Queue Length [veh/ln]	0.27	11.51	3.05	8.24	14.86	0.00	0.00	0.00	9.03	13.83
95th-Percentile Queue Length [ft/ln]	6.85	287.7	76.26	206.0	371.5	0.00	0.00	0.00	225.75	345.81

Movement, Approach, & Intersection Results

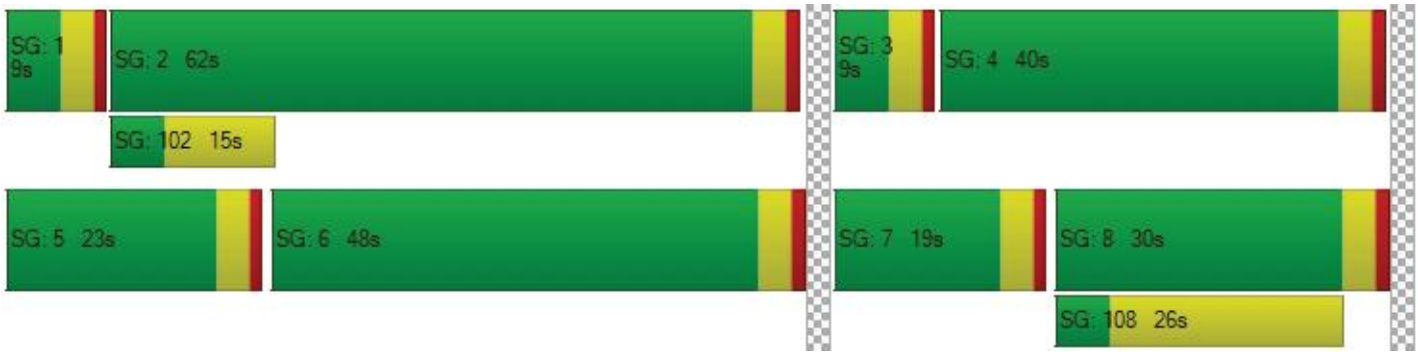
d_M, Delay for Movement [s/veh]	87.77	15.96	12.62	63.38	12.53	0.00	0.00	0.00	0.00	63.52	57.31	57.31
Movement LOS	F	B	B	E	B	A	A	A	A	E	E	E
d_A, Approach Delay [s/veh]	15.75			17.35			0.00			59.57		
Approach LOS	B			B			A			E		
d_I, Intersection Delay [s/veh]	23.03											
Intersection LOS	C											
Intersection V/C	0.578											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.962	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	967	433	600
d_b, Bicycle Delay [s]	24.07	16.02	36.82	29.40
l_b,int, Bicycle LOS Score for Intersection	2.402	2.795	1.560	2.279
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.724

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	162	58	56	145	76	103	129	56	67	230	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	162	58	56	145	76	103	129	56	67	230	153
Peak Hour Factor	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	46	16	16	41	21	29	36	16	19	65	43
Total Analysis Volume [veh/h]	58	183	65	63	164	86	116	146	63	76	260	173
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	441	492	466	441	498	464	520
Degree of Utilization, x	0.55	0.13	0.67	0.59	0.13	0.72	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.20	0.45	4.88	3.77	0.43	5.78	1.45
95th-Percentile Queue Length [ft]	79.95	11.32	122.04	94.18	10.77	144.62	36.20
Approach Delay [s/veh]	18.29		25.09	20.00		23.10	
Approach LOS	C		D	C		C	
Intersection Delay [s/veh]	21.82						
Intersection LOS	C						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	676	27	61	902	92	147	156	48	43	206	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	676	27	61	902	92	147	156	48	43	206	103
Peak Hour Factor	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	176	7	16	235	24	38	41	13	11	54	27
Total Analysis Volume [veh/h]	53	704	28	64	940	96	153	163	50	45	215	107
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	54	0	11	55	0	29	33	0	22	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	72	72	6	72	72	13	23	23	4	14	14
g / C, Green / Cycle	0.04	0.60	0.60	0.05	0.60	0.60	0.11	0.19	0.19	0.03	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.03	0.20	0.20	0.04	0.29	0.29	0.09	0.05	0.03	0.03	0.09	0.10
s, saturation flow rate [veh/h]	1714	1800	1776	1714	1800	1742	1714	3427	1530	1714	1800	1605
c, Capacity [veh/h]	68	1071	1057	81	1086	1051	183	648	289	60	212	189
d1, Uniform Delay [s]	57.13	12.37	12.37	56.55	13.35	13.36	52.59	41.43	40.79	57.37	51.49	51.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.76	0.88	0.89	15.25	1.55	1.60	9.70	0.20	0.28	16.73	6.40	8.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.34	0.34	0.79	0.48	0.49	0.84	0.25	0.17	0.75	0.79	0.82
d, Delay for Lane Group [s/veh]	74.90	13.25	13.26	71.80	14.90	14.96	62.29	41.63	41.07	74.10	57.89	60.34
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.93	5.16	5.10	2.26	8.14	7.90	5.01	2.08	1.27	1.63	5.25	5.01
50th-Percentile Queue Length [ft/ln]	48.17	129.1	127.5	56.59	203.5	197.5	125.3	52.11	31.76	40.85	131.3	125.3
95th-Percentile Queue Length [veh/ln]	3.47	8.89	8.81	4.07	12.82	12.51	8.69	3.75	2.29	2.94	9.01	8.68
95th-Percentile Queue Length [ft/ln]	86.71	222.2	220.1	101.8	320.5	312.7	217.1	93.79	57.18	73.53	225.3	217.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.90	13.25	13.26	71.80	14.93	14.96	62.29	41.63	41.07	74.10	58.44	60.34
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	17.42			18.24			50.19			60.91		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	28.44											
Intersection LOS	C											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.670	2.804	2.587	2.569
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	850	483	367
d_b, Bicycle Delay [s]	20.42	19.84	34.50	40.02
l_b,int, Bicycle LOS Score for Intersection	2.207	2.467	1.862	1.862
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	39.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	568	91	33	877	42	50	340	93	134	370	43
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	568	91	33	877	42	50	340	93	134	370	43
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	157	25	9	242	12	14	94	26	37	102	12
Total Analysis Volume [veh/h]	63	626	100	36	967	46	55	375	103	148	408	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	65	0	9	65	0	13	30	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	39	39	4	37	37	5	50	50	12	57	57
g / C, Green / Cycle	0.04	0.32	0.32	0.03	0.31	0.31	0.04	0.41	0.41	0.10	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.04	0.21	0.21	0.02	0.28	0.28	0.03	0.14	0.14	0.09	0.13	0.13
s, saturation flow rate [veh/h]	1714	1800	1715	1714	1800	1771	1714	1800	1669	1714	1800	1736
c, Capacity [veh/h]	71	582	555	51	561	552	72	744	690	171	849	819
d1, Uniform Delay [s]	57.21	34.59	34.61	57.72	39.71	39.72	56.92	23.90	23.96	53.19	19.20	19.22
k, delay calibration	0.11	0.11	0.11	0.11	0.14	0.14	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	26.98	1.17	1.23	16.80	7.68	7.80	15.66	1.19	1.31	11.99	0.79	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.64	0.64	0.71	0.91	0.91	0.77	0.33	0.34	0.86	0.27	0.27
d, Delay for Lane Group [s/veh]	84.19	35.76	35.84	74.52	47.40	47.51	72.57	25.09	25.27	65.18	19.99	20.04
Lane Group LOS	F	D	D	E	D	D	E	C	C	E	B	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.44	9.40	8.98	1.32	15.51	15.28	1.96	5.00	4.73	4.96	4.08	3.97
50th-Percentile Queue Length [ft/ln]	60.90	234.9	224.4	33.00	387.6	382.0	49.08	124.9	118.3	124.0	102.0	99.15
95th-Percentile Queue Length [veh/ln]	4.38	14.42	13.89	2.38	21.97	21.69	3.53	8.66	8.30	8.62	7.35	7.14
95th-Percentile Queue Length [ft/ln]	109.6	360.5	347.3	59.39	549.1	542.2	88.35	216.5	207.5	215.4	183.6	178.4

Movement, Approach, & Intersection Results

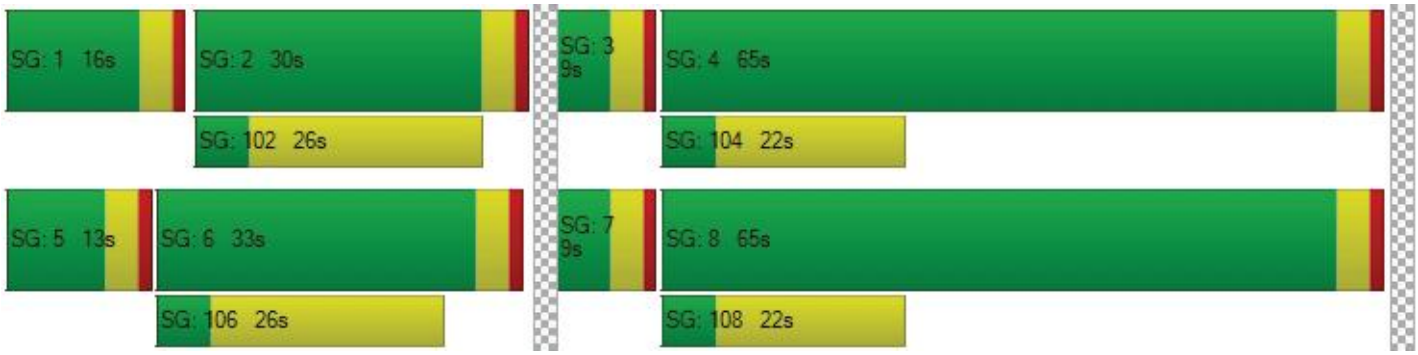
d_M, Delay for Movement [s/veh]	84.19	35.79	35.84	74.52	47.45	47.51	72.57	25.15	25.27	65.18	20.01	20.04
Movement LOS	F	D	D	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	39.66			48.38			30.07			31.10		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	39.28											
Intersection LOS	D											
Intersection V/C	0.546											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.794	2.757	2.520	2.532
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1017	433	483
d_b, Bicycle Delay [s]	14.50	14.50	36.82	34.50
l_b,int, Bicycle LOS Score for Intersection	2.211	2.425	1.999	2.057
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.429

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	645	75	23	871	122	103	90	11	74	78	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	645	75	23	871	122	103	90	11	74	78	31
Peak Hour Factor	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	174	20	6	235	33	28	24	3	20	21	8
Total Analysis Volume [veh/h]	22	697	81	25	942	132	111	97	12	80	84	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	53	0	9	53	0	32	26	0	32	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	84	84	3	84	84	10	10	10	7	8	8
g / C, Green / Cycle	0.02	0.70	0.70	0.02	0.70	0.70	0.08	0.08	0.08	0.06	0.06	0.06
(v / s)_i Volume / Saturation Flow Rate	0.01	0.22	0.22	0.01	0.30	0.30	0.06	0.05	0.01	0.05	0.05	0.02
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1724	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	37	1257	1212	41	1260	1207	138	152	129	103	115	98
d1, Uniform Delay [s]	58.16	7.00	7.00	58.04	7.75	7.76	54.22	53.18	50.71	55.57	55.14	53.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.84	0.66	0.68	14.15	1.10	1.15	10.26	4.42	0.31	11.53	8.52	2.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.31	0.32	0.62	0.44	0.44	0.80	0.64	0.09	0.77	0.73	0.35
d, Delay for Lane Group [s/veh]	71.99	7.66	7.68	72.19	8.85	8.90	64.48	57.60	51.02	67.10	63.66	55.87
Lane Group LOS	E	A	A	E	A	A	E	E	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.81	3.86	3.73	0.91	5.97	5.74	3.69	3.02	0.35	2.72	2.77	1.04
50th-Percentile Queue Length [ft/ln]	20.15	96.39	93.26	22.81	149.2	143.4	92.26	75.52	8.64	67.98	69.21	26.05
95th-Percentile Queue Length [veh/ln]	1.45	6.94	6.71	1.64	9.98	9.67	6.64	5.44	0.62	4.89	4.98	1.88
95th-Percentile Queue Length [ft/ln]	36.28	173.5	167.8	41.05	249.3	241.6	166.0	135.9	15.55	122.3	124.5	46.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.99	7.67	7.68	72.19	8.87	8.90	64.48	57.60	51.02	67.10	63.66	55.87
Movement LOS	E	A	A	E	A	A	E	E	D	E	E	E
d_A, Approach Delay [s/veh]	9.44			10.32			60.71			63.71		
Approach LOS	A			B			E			E		
d_I, Intersection Delay [s/veh]	19.36											
Intersection LOS	B											
Intersection V/C	0.429											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.673	2.694	2.258	2.244
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	817	367	367
d_b, Bicycle Delay [s]	21.00	21.00	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.220	2.466	1.923	1.886
Bicycle LOS	B	B	A	A

Sequence

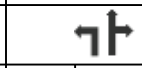
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	18.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.438

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	838	104	156	1207	9	0	1	0	214	0	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	838	104	156	1207	9	0	1	0	214	0	109
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	229	28	43	330	2	0	0	0	58	0	30
Total Analysis Volume [veh/h]	11	916	114	170	1319	10	0	1	0	234	0	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	19	0	30	39	0	9	33	0	38	62	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	71	71	14	84	84	0	0	19	19
g / C, Green / Cycle	0.01	0.59	0.59	0.12	0.70	0.70	0.00	0.00	0.15	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.20	0.20	0.10	0.27	0.01	0.00	0.00	0.14	0.08
s, saturation flow rate [veh/h]	1714	3427	1700	1714	4903	1530	1714	1800	1714	1530
c, Capacity [veh/h]	22	2036	1010	199	3418	1067	0	4	265	239
d1, Uniform Delay [s]	58.84	12.37	12.38	52.04	7.53	5.54	0.00	59.76	49.70	46.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.12	0.45	0.91	9.97	0.33	0.02	0.00	27.55	9.53	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.34	0.34	0.85	0.39	0.01	0.00	0.24	0.88	0.50
d, Delay for Lane Group [s/veh]	74.95	12.82	13.30	62.02	7.86	5.56	0.00	87.31	59.22	47.89
Lane Group LOS	E	B	B	E	A	A	A	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.43	4.70	4.82	5.57	4.43	0.08	0.00	0.06	7.56	3.36
50th-Percentile Queue Length [ft/ln]	10.79	117.4	120.3	139.1	110.7	1.93	0.00	1.55	188.96	84.11
95th-Percentile Queue Length [veh/ln]	0.78	8.25	8.41	9.44	7.88	0.14	0.00	0.11	12.07	6.06
95th-Percentile Queue Length [ft/ln]	19.42	206.2	210.3	235.9	197.0	3.47	0.00	2.80	301.68	151.39

Movement, Approach, & Intersection Results

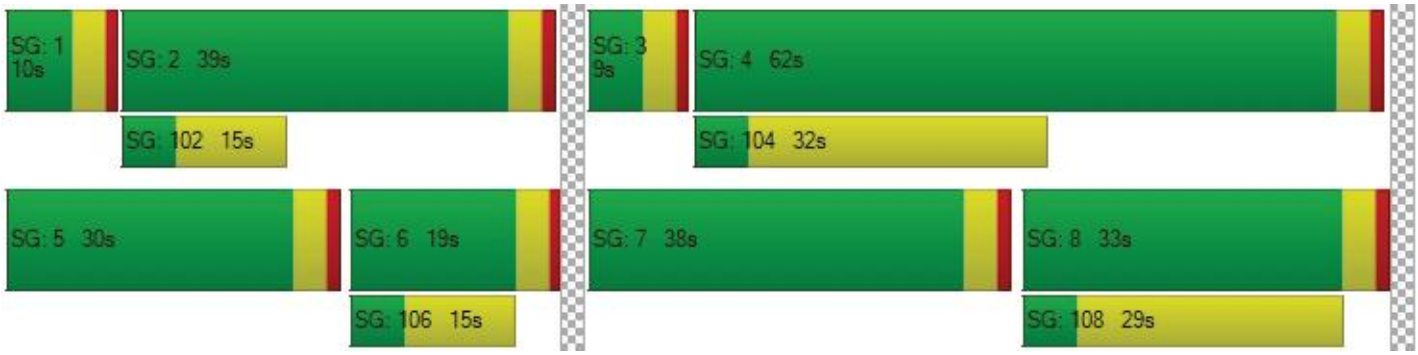
d_M, Delay for Movement [s/veh]	74.95	12.94	13.30	62.02	7.86	5.56	0.00	87.31	87.31	59.22	47.89	47.89
Movement LOS	E	B	B	E	A	A	A	F	F	E	D	D
d_A, Approach Delay [s/veh]	13.63			13.99			87.31			55.40		
Approach LOS	B			B			F			E		
d_I, Intersection Delay [s/veh]	18.94											
Intersection LOS	B											
Intersection V/C	0.438											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.970	3.229	1.963	2.163
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	583	483	967
d_b, Bicycle Delay [s]	45.94	30.10	34.50	16.02
l_b,int, Bicycle LOS Score for Intersection	2.132	2.384	1.561	2.142
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	193	42	6	194	82	55	115	18	31	173	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	193	42	6	194	82	55	115	18	31	173	39
Peak Hour Factor	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	57	13	2	58	24	16	34	5	9	51	12
Total Analysis Volume [veh/h]	20	230	50	7	231	98	65	137	21	37	206	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	576	590	545	565
Degree of Utilization, x	0.52	0.57	0.41	0.51

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.00	3.57	1.98	2.90
95th-Percentile Queue Length [ft]	75.09	89.13	49.58	72.54
Approach Delay [s/veh]	15.86	16.85	14.12	15.87
Approach LOS	C	C	B	C
Intersection Delay [s/veh]	15.82			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	43	60	69	61	1	41	86	14	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	43	60	69	61	1	41	86	14	9
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	11	16	18	16	0	11	23	4	2
Total Analysis Volume [veh/h]	4	45	63	72	64	1	43	90	15	9
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	538	504
Degree of Utilization, x	0.46	0.31

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.41	1.33
95th-Percentile Queue Length [ft]	60.16	33.24
Approach Delay [s/veh]	15.29	13.38
Approach LOS	C	B
Intersection Delay [s/veh]	14.73	
Intersection LOS	B	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	46	6	95	57	0	27	55	146	14	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	6	95	57	0	27	55	146	14	4
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	25	15	0	7	14	38	4	1
Total Analysis Volume [veh/h]	48	6	100	60	0	28	58	153	15	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	517	514
Degree of Utilization, x	0.41	0.50

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.02	2.77
95th-Percentile Queue Length [ft]	50.39	69.35
Approach Delay [s/veh]	14.82	16.81
Approach LOS	B	C
Intersection Delay [s/veh]	14.73	
Intersection LOS	B	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	13	66	23	1	13	45	123	26	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	13	66	23	1	13	45	123	26	6
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	17	6	0	3	12	32	7	2
Total Analysis Volume [veh/h]	2	14	69	24	1	14	47	129	27	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	502	492	558
Degree of Utilization, x	0.22	0.39	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.83	1.80	0.19
95th-Percentile Queue Length [ft]	20.73	45.03	4.70
Approach Delay [s/veh]	12.19	13.81	
Approach LOS	B	B	
Intersection Delay [s/veh]	14.73		
Intersection LOS	B		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	29.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	591	196	103	849	50	80	110	135	123	108	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	113	591	196	103	849	50	80	110	135	123	108	67
Peak Hour Factor	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	149	49	26	214	13	20	28	34	31	27	17
Total Analysis Volume [veh/h]	114	596	198	104	856	50	81	111	136	124	109	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	56	0	16	55	0	22	26	0	22	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	72	72	9	71	71	7	13	13	11	16	16
g / C, Green / Cycle	0.08	0.60	0.60	0.07	0.59	0.59	0.06	0.11	0.11	0.09	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.23	0.06	0.25	0.25	0.05	0.03	0.09	0.07	0.06	0.04
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1765	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	139	1072	981	128	1060	1040	104	372	166	151	244	208
d1, Uniform Delay [s]	54.28	12.76	12.76	54.69	13.58	13.58	55.55	49.29	52.34	53.79	47.70	46.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.23	1.05	1.15	11.56	1.28	1.31	11.67	0.44	9.52	10.47	1.28	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.39	0.39	0.81	0.43	0.43	0.78	0.30	0.82	0.82	0.45	0.33
d, Delay for Lane Group [s/veh]	65.51	13.81	13.91	66.25	14.86	14.89	67.22	49.73	61.87	64.26	48.98	47.81
Lane Group LOS	E	B	B	E	B	B	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.82	6.01	5.53	3.51	6.99	6.86	2.76	1.56	4.45	4.12	3.09	1.90
50th-Percentile Queue Length [ft/ln]	95.57	150.1	138.2	87.68	174.8	171.6	68.89	39.07	111.1	102.9	77.37	47.44
95th-Percentile Queue Length [veh/ln]	6.88	10.03	9.39	6.31	11.33	11.16	4.96	2.81	7.90	7.41	5.57	3.42
95th-Percentile Queue Length [ft/ln]	172.0	250.6	234.6	157.8	283.2	279.0	124.0	70.32	197.6	185.3	139.2	85.39

Movement, Approach, & Intersection Results

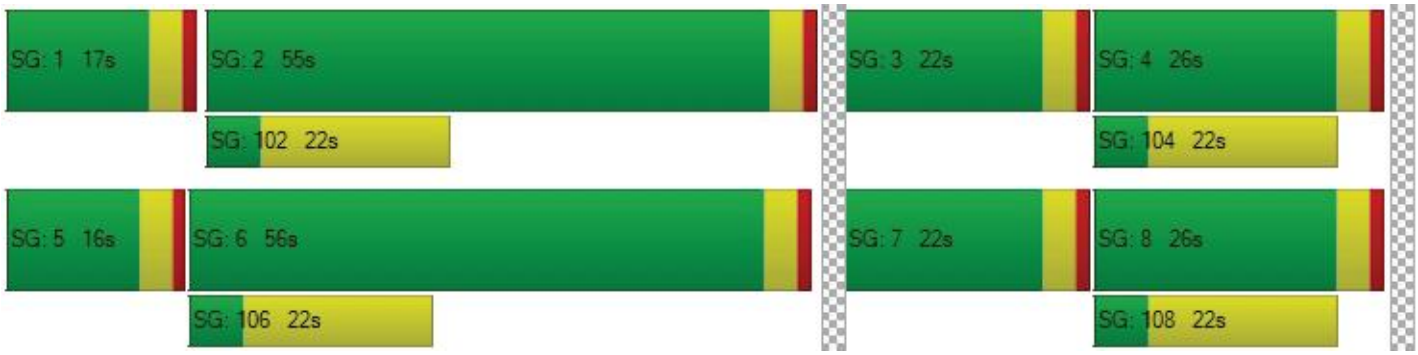
d_M, Delay for Movement [s/veh]	65.51	13.84	13.91	66.25	14.88	14.89	67.22	49.73	61.87	64.26	48.98	47.81
Movement LOS	E	B	B	E	B	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	20.34			20.17			59.08			55.01		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	29.36											
Intersection LOS	C											
Intersection V/C	0.482											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.710	2.657	2.432	2.584
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	850	367	367
d_b, Bicycle Delay [s]	19.27	19.84	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.309	2.393	1.830	2.056
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	725	49	22	1043	36	57	200	93	134	203	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	725	49	22	1043	36	57	200	93	134	203	50
Peak Hour Factor	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	188	13	6	270	9	15	52	24	35	53	13
Total Analysis Volume [veh/h]	32	752	51	23	1082	37	59	207	96	139	211	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	36	0	9	36	0	40	33	0	42	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	76	76	3	76	76	5	13	13	12	20	20
g / C, Green / Cycle	0.03	0.63	0.63	0.02	0.63	0.63	0.05	0.11	0.11	0.10	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.23	0.23	0.01	0.31	0.31	0.03	0.09	0.09	0.08	0.07	0.08
s, saturation flow rate [veh/h]	1714	1800	1760	1714	1800	1779	1714	1800	1613	1714	1800	1680
c, Capacity [veh/h]	47	1141	1116	39	1132	1119	79	201	180	169	296	276
d1, Uniform Delay [s]	57.83	10.38	10.39	58.11	12.02	12.02	56.56	51.86	52.07	53.05	45.28	45.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.85	0.87	0.89	13.91	1.56	1.58	13.16	6.41	8.49	9.51	1.09	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.36	0.36	0.60	0.50	0.50	0.75	0.78	0.81	0.82	0.45	0.47
d, Delay for Lane Group [s/veh]	73.68	11.25	11.27	72.03	13.58	13.60	69.71	58.26	60.55	62.56	46.38	46.59
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.17	5.15	5.04	0.84	8.23	8.15	2.06	4.94	4.73	4.56	3.72	3.57
50th-Percentile Queue Length [ft/ln]	29.26	128.6	126.0	21.03	205.8	203.6	51.42	123.6	118.2	113.9	92.99	89.19
95th-Percentile Queue Length [veh/ln]	2.11	8.86	8.72	1.51	12.94	12.83	3.70	8.59	8.29	8.06	6.69	6.42
95th-Percentile Queue Length [ft/ln]	52.66	221.6	218.0	37.86	323.4	320.7	92.55	214.7	207.3	201.4	167.3	160.5

Movement, Approach, & Intersection Results

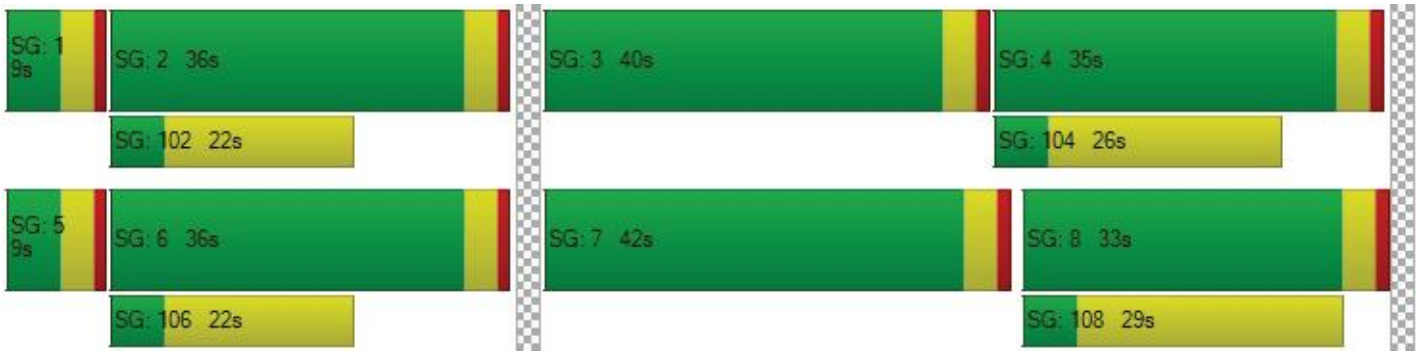
d_M, Delay for Movement [s/veh]	73.68	11.26	11.27	72.03	13.59	13.60	69.71	58.82	60.55	62.56	46.45	46.59
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	13.66			14.77			61.06			52.04		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	26.01											
Intersection LOS	C											
Intersection V/C	0.503											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.909	2.794	2.440	2.448
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	483	517
d_b, Bicycle Delay [s]	32.27	32.27	34.50	33.00
l_b,int, Bicycle LOS Score for Intersection	2.248	2.502	1.858	1.891
Bicycle LOS	B	B	A	A

Sequence

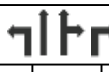
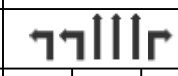
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.730

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	86	48	77	136	246	885	267	400	59	134	1190	220
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	48	77	136	246	885	267	400	59	134	1190	220
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	13	21	37	68	244	74	110	16	37	328	61
Total Analysis Volume [veh/h]	95	53	85	150	271	976	294	441	65	148	1312	243
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	43	0	16	47	0	16	47	0	14	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	43	43	12	47	47	47	12	41	41	7	37	37
g / C, Green / Cycle	0.07	0.36	0.36	0.10	0.39	0.39	0.39	0.10	0.34	0.34	0.06	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.09	0.15	0.32	0.32	0.09	0.09	0.04	0.04	0.27	0.16
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	114	1237	552	171	710	603	603	333	1686	526	206	1499	468
d1, Uniform Delay [s]	55.33	24.88	25.94	53.2	25.9	32.3	32.3	53.31	28.39	26.98	55.26	39.50	34.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.13	0.07	0.59	12.9	1.56	11.1	11.1	7.70	0.08	0.10	4.66	1.77	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.04	0.15	0.88	0.38	0.81	0.81	0.88	0.26	0.12	0.72	0.88	0.52
d, Delay for Lane Group [s/veh]	69.47	24.95	26.53	66.1	27.4	43.4	43.4	61.01	28.47	27.09	59.92	41.27	35.29
Lane Group LOS	E	C	C	E	C	D	D	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.29	0.51	1.75	5.07	5.82	14.2	14.2	4.73	3.08	1.30	2.33	12.35	5.97
50th-Percentile Queue Length [ft/ln]	82.19	12.66	43.67	126.	145.	356.	356.	118.2	76.98	32.60	58.33	308.8	149.3
95th-Percentile Queue Length [veh/ln]	5.92	0.91	3.14	8.77	9.78	20.4	20.4	8.29	5.54	2.35	4.20	18.12	9.98
95th-Percentile Queue Length [ft/ln]	147.9	22.79	78.61	219.	244.	511.	511.	207.3	138.5	58.68	104.9	452.9	249.5

Movement, Approach, & Intersection Results

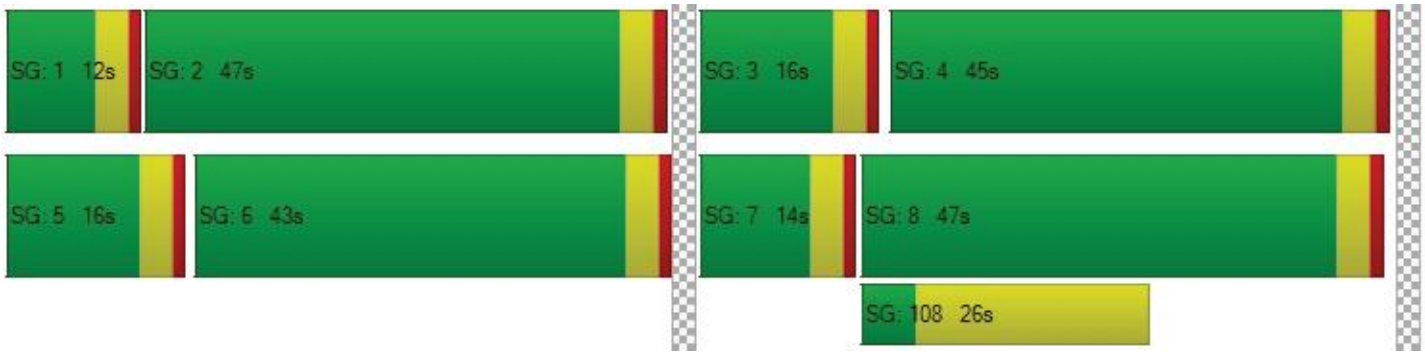
d_M, Delay for Movement [s/veh]	69.47	24.95	26.53	66.18	27.46	43.48	61.01	28.47	27.09	59.92	41.27	35.29
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	43.68			42.81			40.32			42.03		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.06											
Intersection LOS	D											
Intersection V/C	0.730											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.585	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	717	717	683
d_b, Bicycle Delay [s]	27.34	24.70	24.70	26.00
l_b,int, Bicycle LOS Score for Intersection	1.752	2.712	2.000	2.496
Bicycle LOS	A	B	A	B

Sequence

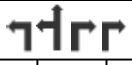
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	25	34	338	49	955	255	331	25	30	552	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	25	34	338	49	955	255	331	25	30	552	95
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	7	9	91	13	256	68	89	7	8	148	25
Total Analysis Volume [veh/h]	47	27	36	363	53	1025	274	355	27	32	592	102
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	5	5	44	44	44	12	51	51	3	42	42
g / C, Green / Cycle	0.04	0.04	0.04	0.37	0.37	0.37	0.10	0.43	0.43	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.02	0.12	0.12	0.38	0.08	0.07	0.02	0.02	0.14	0.14
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1735	2708	3329	4903	1530	1714	3427	1669
c, Capacity [veh/h]	76	80	68	629	636	993	340	2099	655	47	1211	590
d1, Uniform Delay [s]	56.32	55.61	56.09	27.39	27.34	38.00	52.71	21.16	19.98	57.83	29.01	29.10
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.81	2.44	6.21	0.31	0.30	22.57	4.52	0.17	0.12	15.79	0.92	1.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.34	0.53	0.33	0.33	1.03	0.81	0.17	0.04	0.68	0.38	0.39
d, Delay for Lane Group [s/veh]	64.13	58.05	62.31	27.70	27.64	60.57	57.24	21.34	20.10	73.61	29.93	31.04
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.57	0.85	1.19	4.37	4.36	17.40	4.25	2.10	0.47	1.17	5.16	5.30
50th-Percentile Queue Length [ft/ln]	39.14	21.21	29.64	109.2	109.0	435.0	106.2	52.43	11.65	29.24	129.1	132.6
95th-Percentile Queue Length [veh/ln]	2.82	1.53	2.13	7.80	7.78	24.77	7.63	3.78	0.84	2.11	8.89	9.08
95th-Percentile Queue Length [ft/ln]	70.45	38.18	53.35	194.8	194.6	619.2	190.7	94.38	20.97	52.63	222.2	227.0

Movement, Approach, & Intersection Results

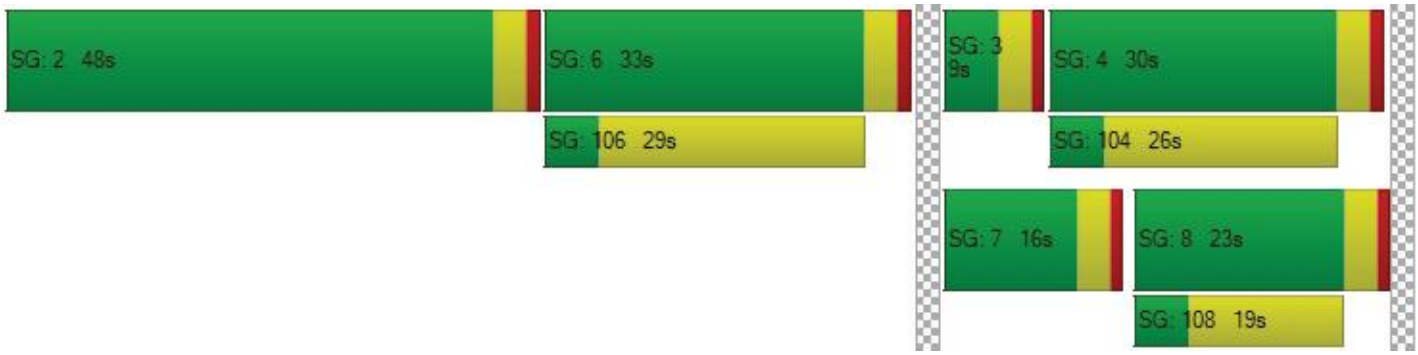
d_M, Delay for Movement [s/veh]	64.13	58.05	62.31	27.67	27.64	60.57	57.24	21.34	20.10	73.61	30.17	31.04
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	62.04			51.07			36.28			32.21		
Approach LOS	E			D			D			C		
d_I, Intersection Delay [s/veh]	43.51											
Intersection LOS	D											
Intersection V/C	0.626											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.200	2.768	0.000	2.815
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.650	3.937	1.920	1.959
Bicycle LOS	A	D	A	A

Sequence

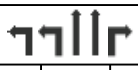
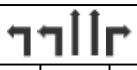
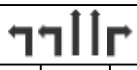
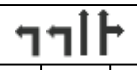
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	31.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.471

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	228	643	85	59	766	139	149	155	92	143	309	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	228	643	85	59	766	139	149	155	92	143	309	42
Peak Hour Factor	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	61	173	23	16	207	37	40	42	25	39	83	11
Total Analysis Volume [veh/h]	246	694	92	64	826	150	161	167	99	154	333	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	61	0	10	52	0	14	36	0	13	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	76	4	70	70	8	16	16	7	15	15
g / C, Green / Cycle	0.09	0.64	0.04	0.58	0.58	0.06	0.13	0.13	0.06	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.02	0.24	0.10	0.05	0.05	0.06	0.05	0.11	0.11
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1726
c, Capacity [veh/h]	305	2178	123	1990	889	216	452	202	208	233	223
d1, Uniform Delay [s]	53.45	9.99	56.74	13.89	11.69	55.14	47.55	48.36	55.30	50.92	50.97
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.99	0.39	3.38	0.64	0.41	5.07	0.50	1.85	5.14	7.23	7.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.32	0.52	0.41	0.17	0.75	0.37	0.49	0.74	0.83	0.83
d, Delay for Lane Group [s/veh]	58.44	10.38	60.12	14.53	12.10	60.20	48.05	50.20	60.44	58.15	58.81
Lane Group LOS	E	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.85	4.14	1.01	6.20	1.94	2.55	2.32	2.86	2.44	6.09	5.93
50th-Percentile Queue Length [ft/ln]	96.27	103.42	25.28	154.9	48.53	63.63	58.01	71.59	60.97	152.3	148.3
95th-Percentile Queue Length [veh/ln]	6.93	7.45	1.82	10.28	3.49	4.58	4.18	5.15	4.39	10.14	9.93
95th-Percentile Queue Length [ft/ln]	173.28	186.15	45.50	256.9	87.35	114.5	104.4	128.8	109.7	253.5	248.2

Movement, Approach, & Intersection Results

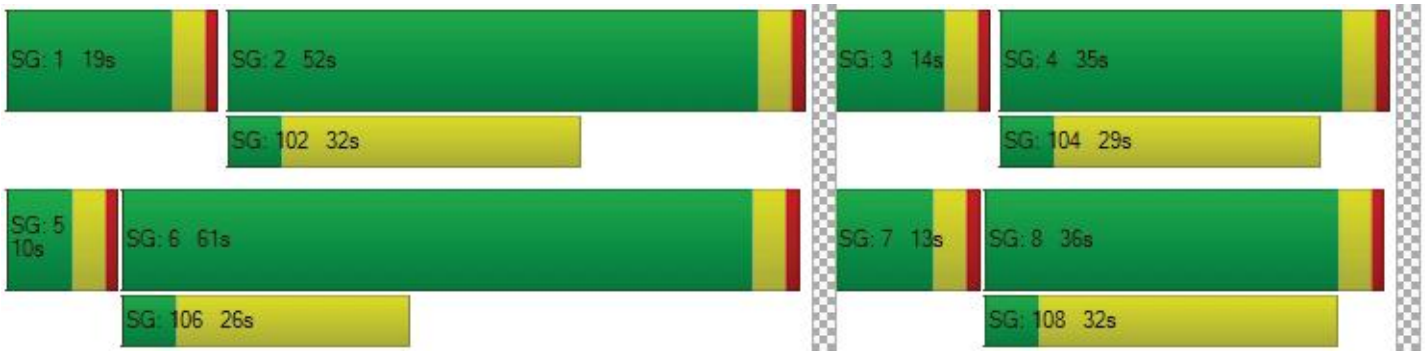
d_M, Delay for Movement [s/veh]	58.44	10.38	0.00	60.12	14.53	12.10	60.20	48.05	50.20	60.44	58.43	58.81
Movement LOS	E	B		E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	22.96			16.99			53.13			59.04		
Approach LOS	C			B			D			E		
d_I, Intersection Delay [s/veh]	31.76											
Intersection LOS	C											
Intersection V/C	0.471											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.987	2.879	2.882	2.592
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	800	533	517
d_b, Bicycle Delay [s]	16.54	21.60	32.27	33.00
l_b,int, Bicycle LOS Score for Intersection	2.335	2.418	1.912	1.999
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	31.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.399

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	220	4	8	0	1	182	33	263	473	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	3	220	4	8	0	1	182	33	263	473	2
Peak Hour Factor	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	1	61	1	2	0	0	51	9	73	132	1
Total Analysis Volume [veh/h]	51	3	246	4	9	0	1	203	37	294	528	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	9	33	0	63	26	0	52	15	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	28	22	28	0	58	58	23	80	80
g / C, Green / Cycle	0.23	0.23	0.18	0.23	0.00	0.48	0.48	0.19	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.16	0.01	0.00	0.06	0.02	0.17	0.15	0.15
s, saturation flow rate [veh/h]	1428	1519	1530	1547	1714	3427	1530	1714	1800	1798
c, Capacity [veh/h]	351	464	274	424	4	1642	733	326	1201	1199
d1, Uniform Delay [s]	36.16	36.19	48.15	35.78	59.76	17.30	16.67	47.49	7.80	7.80
k, delay calibration	0.11	0.11	0.16	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.06	14.23	0.03	30.05	0.15	0.13	9.08	0.42	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.07	0.90	0.03	0.25	0.12	0.05	0.90	0.22	0.22
d, Delay for Lane Group [s/veh]	36.24	36.25	62.38	35.81	89.80	17.45	16.80	56.58	8.22	8.22
Lane Group LOS	D	D	E	D	F	B	B	E	A	A
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.54	0.73	8.26	0.30	0.06	1.60	0.57	9.38	2.69	2.68
50th-Percentile Queue Length [ft/ln]	13.39	18.30	206.4	7.54	1.59	39.89	14.37	234.4	67.17	67.09
95th-Percentile Queue Length [veh/ln]	0.96	1.32	12.97	0.54	0.11	2.87	1.03	14.40	4.84	4.83
95th-Percentile Queue Length [ft/ln]	24.11	32.94	324.2	13.57	2.86	71.80	25.87	360.0	120.9	120.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.24	36.25	62.38	35.81	35.81	35.81	89.80	17.45	16.80	56.58	8.22	8.22
Movement LOS	D	D	E	D	D	D	F	B	B	E	A	A
d_A, Approach Delay [s/veh]	57.68			35.81			17.65			25.47		
Approach LOS	E			D			B			C		
d_I, Intersection Delay [s/veh]	31.21											
Intersection LOS	C											
Intersection V/C	0.399											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.440	0.000	2.800	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	367	183
d_b, Bicycle Delay [s]	28.02	28.02	40.02	49.50
l_b,int, Bicycle LOS Score for Intersection	2.055	1.581	1.758	2.239
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	3	0	397	746	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	0	397	746	1
Peak Hour Factor	0.9060	0.9060	1.0000	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	0	110	206	0
Total Analysis Volume [veh/h]	0	3	0	438	823	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	20.79	11.08	9.49	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.38	0.38	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.08		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	30.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	854	95	88	904	383	181	80	118	143	332	79
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	854	95	88	904	383	181	80	118	143	332	79
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	233	26	24	247	105	49	22	32	39	91	22
Total Analysis Volume [veh/h]	121	933	104	96	988	419	198	87	129	156	363	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	36	0	13	34	34	21	40	0	31	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	60	60	8	59	80	17	22	13	18	18
g / C, Green / Cycle	0.08	0.50	0.50	0.07	0.49	0.66	0.14	0.19	0.11	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.20	0.06	0.20	0.27	0.12	0.03	0.09	0.13	0.13
s, saturation flow rate [veh/h]	1714	3427	1709	1714	4903	1530	1714	3427	1714	1800	1683
c, Capacity [veh/h]	145	1724	860	118	2389	1013	243	637	186	275	257
d1, Uniform Delay [s]	54.07	18.56	18.57	55.08	19.75	9.42	49.98	40.80	52.45	49.40	49.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.50	0.70	1.40	12.29	0.53	1.25	6.55	0.10	9.55	6.76	7.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.40	0.40	0.81	0.41	0.41	0.82	0.14	0.84	0.84	0.85
d, Delay for Lane Group [s/veh]	65.57	19.26	19.97	67.37	20.28	10.67	56.53	40.89	62.00	56.15	57.02
Lane Group LOS	E	B	B	E	C	B	E	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.06	6.08	6.25	3.27	5.97	5.17	6.20	1.09	5.10	7.24	6.90
50th-Percentile Queue Length [ft/ln]	101.5	152.0	156.2	81.67	149.1	129.1	155.03	27.28	127.5	181.0	172.4
95th-Percentile Queue Length [veh/ln]	7.31	10.12	10.35	5.88	9.97	8.89	10.29	1.96	8.81	11.66	11.20
95th-Percentile Queue Length [ft/ln]	182.7	253.1	258.6	147.0	249.2	222.3	257.13	49.11	220.1	291.4	280.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.57	19.44	19.97	67.37	20.28	10.67	56.53	40.89	0.00	62.00	56.47	57.02
Movement LOS	E	B	B	E	C	B	E	D		E	E	E
d_A, Approach Delay [s/veh]	24.31			20.61			51.76			57.98		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.68											
Intersection LOS	C											
Intersection V/C	0.546											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.114	3.072	2.661	2.489
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	500	600	767
d_b, Bicycle Delay [s]	32.27	33.75	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	2.197	2.386	1.795	2.059
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	33.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	29	126	6	43	129	75	30	216	16	7	341	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	126	6	43	129	75	30	216	16	7	341	66
Peak Hour Factor	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	41	2	14	42	24	10	70	5	2	111	21
Total Analysis Volume [veh/h]	38	164	8	56	168	98	39	281	21	9	444	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	9	88	0	9	88	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	72	72	4	34	1	32	32
g / C, Green / Cycle	0.60	0.60	0.03	0.29	0.01	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.13	0.20	0.02	0.17	0.01	0.25	0.06
s, saturation flow rate [veh/h]	1637	1608	1714	1778	1714	1800	1530
c, Capacity [veh/h]	1020	1003	52	511	19	482	410
d1, Uniform Delay [s]	10.79	11.73	57.71	36.73	58.96	42.68	34.07
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	0.85	18.79	1.10	16.39	7.69	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.32	0.75	0.59	0.47	0.92	0.21
d, Delay for Lane Group [s/veh]	11.25	12.58	76.50	37.82	75.35	50.37	34.32
Lane Group LOS	B	B	E	D	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.60	4.35	1.45	7.75	0.36	13.72	1.99
50th-Percentile Queue Length [ft/ln]	64.98	108.87	36.19	193.84	9.00	343.0	49.77
95th-Percentile Queue Length [veh/ln]	4.68	7.78	2.61	12.32	0.65	19.80	3.58
95th-Percentile Queue Length [ft/ln]	116.97	194.42	65.14	308.00	16.21	494.8	89.58

Movement, Approach, & Intersection Results

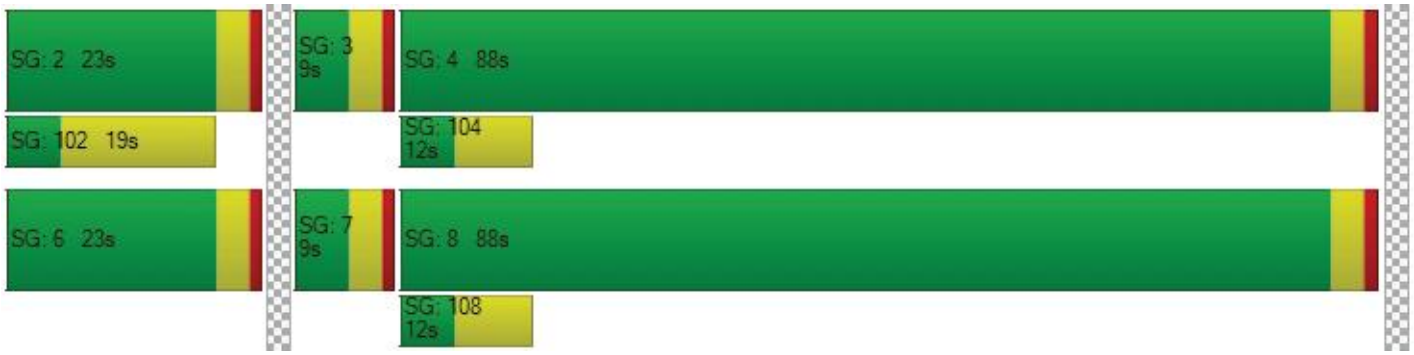
d_M, Delay for Movement [s/veh]	11.25	11.25	11.25	12.58	12.58	12.58	76.50	37.82	37.82	75.35	50.37	34.32
Movement LOS	B	B	B	B	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	11.25			12.58			42.25			48.23		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	33.16											
Intersection LOS	C											
Intersection V/C	0.470											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.929	2.028	2.425	0.000
Crosswalk LOS	A	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	1400
d_b, Bicycle Delay [s]	42.50	42.50	5.40	5.40
l_b,int, Bicycle LOS Score for Intersection	1.906	2.091	2.122	2.449
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	31.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.311

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	21	14	9	8	0	42	34	21	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	21	14	9	8	0	42	34	21	15
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	4	3	3	0	13	11	7	5
Total Analysis Volume [veh/h]	1	27	18	11	10	0	54	43	27	19
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	34	0	0	0	0	34	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	13	13
g / C, Green / Cycle	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09
s, saturation flow rate [veh/h]	1388	1590
c, Capacity [veh/h]	189	209
d1, Uniform Delay [s]	50.08	52.64
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	1.13	3.92
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.68
d, Delay for Lane Group [s/veh]	51.20	56.56
Lane Group LOS	D	E
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	1.95	4.46
50th-Percentile Queue Length [ft/ln]	48.63	111.38
95th-Percentile Queue Length [veh/ln]	3.50	7.92
95th-Percentile Queue Length [ft/ln]	87.53	197.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.20	51.20	51.20	51.20	51.20	56.56	56.56	56.56	56.56	56.56
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	51.20					56.56				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	31.84									
Intersection LOS	C									
Intersection V/C	0.311									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.843	1.905
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500
d_b, Bicycle Delay [s]	33.75	33.75
l_b,int, Bicycle LOS Score for Intersection	1.609	1.675
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	42	159	11	5	1	9	169	11	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	42	159	11	5	1	9	169	11	6
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	13	51	4	2	0	3	54	4	2
Total Analysis Volume [veh/h]	11	54	203	14	6	1	11	215	14	8
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	47	0	0	9	0	47	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	82	76	82	74	74
g / C, Green / Cycle	0.68	0.64	0.68	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.01	0.12	0.01
s, saturation flow rate [veh/h]	1205	1772	1200	1800	1530
c, Capacity [veh/h]	853	1128	849	1104	938
d1, Uniform Delay [s]	6.41	9.08	6.21	10.19	9.11
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	0.39	0.01	0.39	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.20	0.01	0.19	0.02
d, Delay for Lane Group [s/veh]	6.59	9.47	6.22	10.59	9.15
Lane Group LOS	A	A	A	B	A
Critical Lane Group	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.56	2.48	0.09	2.57	0.24
50th-Percentile Queue Length [ft/ln]	14.00	62.05	2.36	64.17	5.89
95th-Percentile Queue Length [veh/ln]	1.01	4.47	0.17	4.62	0.42
95th-Percentile Queue Length [ft/ln]	25.19	111.68	4.24	115.51	10.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.59	6.59	9.47	9.47	9.47	6.22	6.22	10.59	9.15	9.15
Movement LOS	A	A	A	A	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	8.82					10.25				
Approach LOS	A					B				
d_I, Intersection Delay [s/veh]	31.84									
Intersection LOS	C									
Intersection V/C	0.311									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.224	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	717
d_b, Bicycle Delay [s]	24.70	24.70
l_b,int, Bicycle LOS Score for Intersection	1.936	1.939
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	10	36	12	1	3	14	94	78	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	36	12	1	3	14	94	78	2
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	11	4	0	1	4	30	25	1
Total Analysis Volume [veh/h]	0	13	46	15	1	4	18	120	99	3
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	30	0	0	0	0	30	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	13
g / C, Green / Cycle	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.08	0.09	0.07
s, saturation flow rate [veh/h]	922	1623	1530
c, Capacity [veh/h]	138	215	170
d1, Uniform Delay [s]	49.71	51.66	50.79
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.33	3.44	3.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.66	0.60
d, Delay for Lane Group [s/veh]	53.04	55.10	54.16
Lane Group LOS	D	E	D
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.22	4.36	3.08
50th-Percentile Queue Length [ft/ln]	55.58	108.89	77.03
95th-Percentile Queue Length [veh/ln]	4.00	7.78	5.55
95th-Percentile Queue Length [ft/ln]	100.05	194.45	138.65

Movement, Approach, & Intersection Results

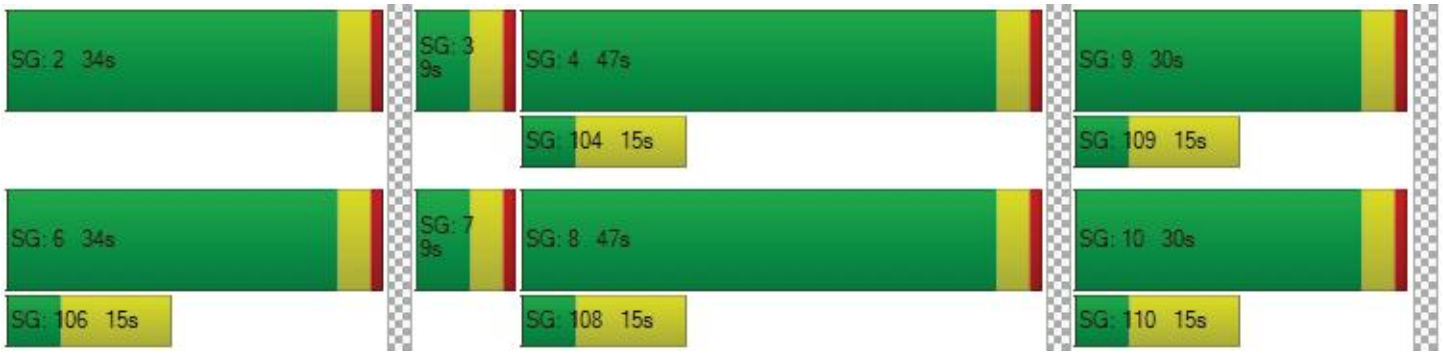
d_M, Delay for Movement [s/veh]	53.04	53.04	53.04	53.04	53.04	55.10	55.10	55.10	54.16	54.16
Movement LOS	D	D	D	D	D	E	E	E	D	D
d_A, Approach Delay [s/veh]	53.04					54.71				
Approach LOS	D					D				
d_I, Intersection Delay [s/veh]	31.84									
Intersection LOS	C									
Intersection V/C	0.311									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.898	2.208
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433
d_b, Bicycle Delay [s]	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	1.637	1.951
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	589	159	100	785	63	135	118	67	107	130	261
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	589	159	100	785	63	135	118	67	107	130	261
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	31	158	43	27	211	17	36	32	18	29	35	70
Total Analysis Volume [veh/h]	124	632	171	107	842	68	145	127	72	115	139	280
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	36	0	20	38	0	16	39	0	25	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	58	58	9	57	57	12	26	26	10	24	24
g / C, Green / Cycle	0.09	0.49	0.49	0.08	0.48	0.48	0.10	0.22	0.22	0.08	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.23	0.06	0.26	0.26	0.08	0.06	0.06	0.07	0.08	0.18
s, saturation flow rate [veh/h]	1714	1800	1670	1714	1800	1753	1714	1800	1589	1714	1800	1530
c, Capacity [veh/h]	150	875	811	132	857	834	170	397	350	142	368	313
d1, Uniform Delay [s]	53.88	20.63	20.63	54.48	22.15	22.15	53.19	38.69	38.81	54.07	41.17	46.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.99	1.86	2.00	10.94	2.42	2.48	11.36	0.34	0.42	10.26	0.64	8.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.48	0.48	0.81	0.54	0.54	0.85	0.26	0.27	0.81	0.38	0.90
d, Delay for Lane Group [s/veh]	64.87	22.48	22.63	65.42	24.57	24.63	64.55	39.03	39.23	64.33	41.81	55.48
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.14	8.16	7.60	3.58	9.60	9.37	4.84	2.57	2.40	3.82	3.63	8.89
50th-Percentile Queue Length [ft/ln]	103.4	204.0	190.1	89.62	240.0	234.2	120.9	64.17	59.89	95.50	90.70	222.1
95th-Percentile Queue Length [veh/ln]	7.45	12.85	12.13	6.45	14.68	14.39	8.44	4.62	4.31	6.88	6.53	13.77
95th-Percentile Queue Length [ft/ln]	186.2	321.1	303.1	161.3	367.1	359.7	211.0	115.5	107.8	171.8	163.2	344.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.87	22.53	22.63	65.42	24.60	24.63	64.55	39.07	39.23	64.33	41.81	55.48
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	28.21			28.90			49.85			53.83		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.94											
Intersection LOS	D											
Intersection V/C	0.596											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.697	2.720	2.447	2.621
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	567	583	733
d_b, Bicycle Delay [s]	32.27	30.82	30.10	24.07
l_b,int, Bicycle LOS Score for Intersection	2.324	2.399	1.843	2.000
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.624

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	731	162	10	1158	67	27	177	83	258	306	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	731	162	10	1158	67	27	177	83	258	306	38
Peak Hour Factor	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	192	42	3	304	18	7	46	22	68	80	10
Total Analysis Volume [veh/h]	51	767	170	10	1215	70	28	186	87	271	321	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	26	0	9	26	0	32	36	0	49	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	69	69	1	66	66	3	12	12	21	30	30
g / C, Green / Cycle	0.04	0.58	0.58	0.01	0.55	0.55	0.03	0.10	0.10	0.18	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.11	0.01	0.35	0.05	0.02	0.08	0.08	0.16	0.10	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1613	1714	1800	1731
c, Capacity [veh/h]	65	1970	880	21	1882	840	46	185	166	303	455	438
d1, Uniform Delay [s]	57.26	13.97	12.20	58.91	18.89	12.78	57.76	52.37	52.61	48.30	37.31	37.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.66	0.58	0.49	16.51	1.72	0.19	12.18	6.24	8.47	9.11	0.58	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.39	0.19	0.48	0.65	0.08	0.61	0.76	0.80	0.89	0.40	0.41
d, Delay for Lane Group [s/veh]	75.92	14.55	12.69	75.42	20.61	12.97	69.94	58.61	61.08	57.41	37.88	37.93
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.87	5.72	2.27	0.40	11.86	0.93	1.00	4.44	4.29	8.67	4.57	4.43
50th-Percentile Queue Length [ft/ln]	46.75	143.0	56.83	9.92	296.4	23.37	24.95	111.0	107.3	216.8	114.3	110.6
95th-Percentile Queue Length [veh/ln]	3.37	9.65	4.09	0.71	17.51	1.68	1.80	7.90	7.69	13.50	8.08	7.87
95th-Percentile Queue Length [ft/ln]	84.15	241.1	102.3	17.86	437.6	42.06	44.91	197.4	192.2	337.5	202.0	196.8

Movement, Approach, & Intersection Results

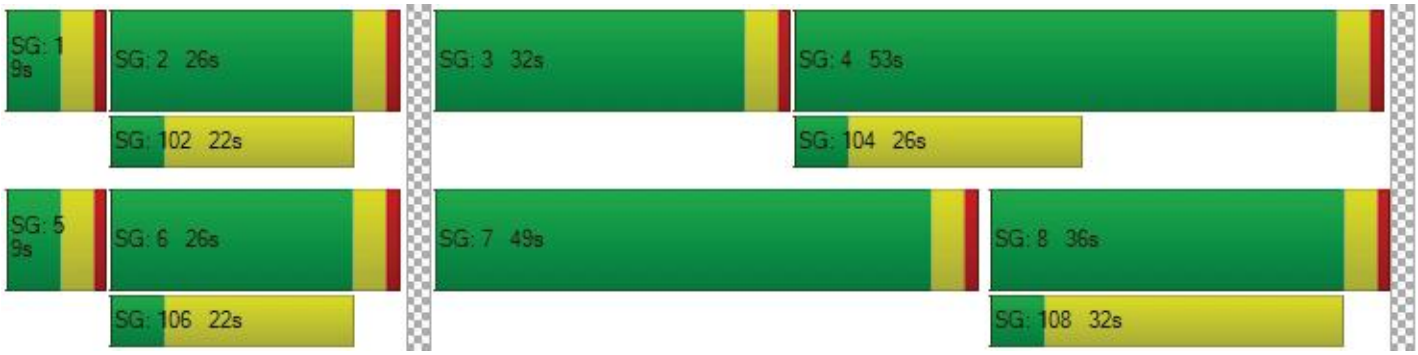
d_M, Delay for Movement [s/veh]	75.92	14.55	12.69	75.42	20.61	12.97	69.94	59.21	61.08	57.41	37.90	37.93
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	17.39			20.62			60.75			46.27		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	28.43											
Intersection LOS	C											
Intersection V/C	0.624											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.053	2.814	2.460	2.510
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	533	817
d_b, Bicycle Delay [s]	40.02	40.02	32.27	21.00
l_b,int, Bicycle LOS Score for Intersection	2.375	2.628	1.808	2.081
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.301

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	102	8	8	123	45	21	43	2	21	147	7
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	102	8	8	123	45	21	43	2	21	147	7
Peak Hour Factor	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	30	2	2	36	13	6	13	1	6	43	2
Total Analysis Volume [veh/h]	7	119	9	9	144	53	25	50	2	25	172	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	734	765	691	655	761
Degree of Utilization, x	0.18	0.27	0.11	0.30	0.01

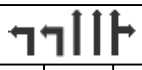
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.67	1.09	0.37	1.26	0.03
95th-Percentile Queue Length [ft]	16.77	27.20	9.37	31.59	0.80
Approach Delay [s/veh]	9.01	9.43	8.87	10.43	
Approach LOS	A	A	A	B	
Intersection Delay [s/veh]	9.60				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	292	941	78	41	857	43	25	45	128	165	161	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	292	941	78	41	857	43	25	45	128	165	161	68
Peak Hour Factor	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	80	258	21	11	235	12	7	12	35	45	44	19
Total Analysis Volume [veh/h]	321	1033	86	45	941	47	27	49	141	181	177	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	40	46	0	24	30	0	17	37	0	13	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	78	78	4	68	68	3	13	13	8	19	19
g / C, Green / Cycle	0.12	0.65	0.65	0.03	0.57	0.57	0.03	0.11	0.11	0.07	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.10	0.22	0.22	0.03	0.19	0.19	0.02	0.01	0.09	0.05	0.05	0.05
s, saturation flow rate [veh/h]	3329	3427	1730	1714	3427	1757	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	396	2232	1127	59	1942	996	44	380	170	234	534	238
d1, Uniform Delay [s]	51.56	9.32	9.32	57.45	13.91	13.92	57.91	48.12	52.25	54.85	45.10	44.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.04	0.40	0.80	18.14	0.47	0.92	13.55	0.15	9.97	5.42	0.36	0.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.33	0.33	0.76	0.34	0.34	0.62	0.13	0.83	0.77	0.33	0.31
d, Delay for Lane Group [s/veh]	55.61	9.73	10.12	75.59	14.38	14.83	71.45	48.27	62.22	60.27	45.46	45.72
Lane Group LOS	E	A	B	E	B	B	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.93	4.26	4.43	1.65	4.78	5.03	0.98	0.67	4.63	2.87	2.38	2.04
50th-Percentile Queue Length [ft/ln]	123.2	106.5	110.7	41.30	119.4	125.7	24.40	16.83	115.6	71.65	59.60	51.04
95th-Percentile Queue Length [veh/ln]	8.57	7.65	7.88	2.97	8.36	8.71	1.76	1.21	8.15	5.16	4.29	3.67
95th-Percentile Queue Length [ft/ln]	214.2	191.2	196.9	74.34	209.0	217.7	43.92	30.30	203.8	128.9	107.2	91.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.61	9.84	10.12	75.59	14.52	14.83	71.45	48.27	62.22	60.27	45.46	45.72
Movement LOS	E	A	B	E	B	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	20.06			17.19			60.22			51.70		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	26.29											
Intersection LOS	C											
Intersection V/C	0.434											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.911	2.592	2.695
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	433	550	483
d_b, Bicycle Delay [s]	25.35	36.82	31.54	34.50
l_b,int, Bicycle LOS Score for Intersection	2.352	2.128	1.739	1.917
Bicycle LOS	B	B	A	A

Sequence

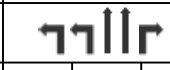
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.423

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	215	398	8	307	42	18	107	21	394	320	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	215	398	8	307	42	18	107	21	394	320	30
Peak Hour Factor	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	55	101	2	78	11	5	27	5	100	82	8
Total Analysis Volume [veh/h]	57	219	406	8	313	43	18	109	21	402	326	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	9	33	0	9	9	0	66	66	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	80	80	1	76	76	2	6	6	17	21	21
g / C, Green / Cycle	0.04	0.66	0.66	0.01	0.64	0.64	0.02	0.05	0.05	0.14	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.27	0.00	0.10	0.10	0.01	0.03	0.01	0.12	0.10	0.02
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1725	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	119	1192	1013	17	1146	1098	33	169	75	483	602	269
d1, Uniform Delay [s]	56.77	7.80	9.32	59.08	8.81	8.83	58.36	56.02	54.99	49.86	45.07	41.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.98	0.34	1.18	18.42	0.29	0.31	13.85	4.09	1.98	3.78	0.76	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.18	0.40	0.47	0.16	0.16	0.55	0.65	0.28	0.83	0.54	0.12
d, Delay for Lane Group [s/veh]	59.75	8.14	10.50	77.50	9.10	9.14	72.21	60.11	56.97	53.64	45.84	41.82
Lane Group LOS	E	A	B	E	A	A	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.90	2.20	4.95	0.33	1.94	1.90	0.67	1.72	0.65	6.11	4.50	0.79
50th-Percentile Queue Length [ft/ln]	22.44	54.89	123.7	8.25	48.47	47.42	16.69	42.93	16.37	152.8	112.4	19.82
95th-Percentile Queue Length [veh/ln]	1.62	3.95	8.60	0.59	3.49	3.41	1.20	3.09	1.18	10.17	7.98	1.43
95th-Percentile Queue Length [ft/ln]	40.40	98.80	214.9	14.84	87.25	85.36	30.04	77.28	29.47	254.1	199.3	35.68

Movement, Approach, & Intersection Results

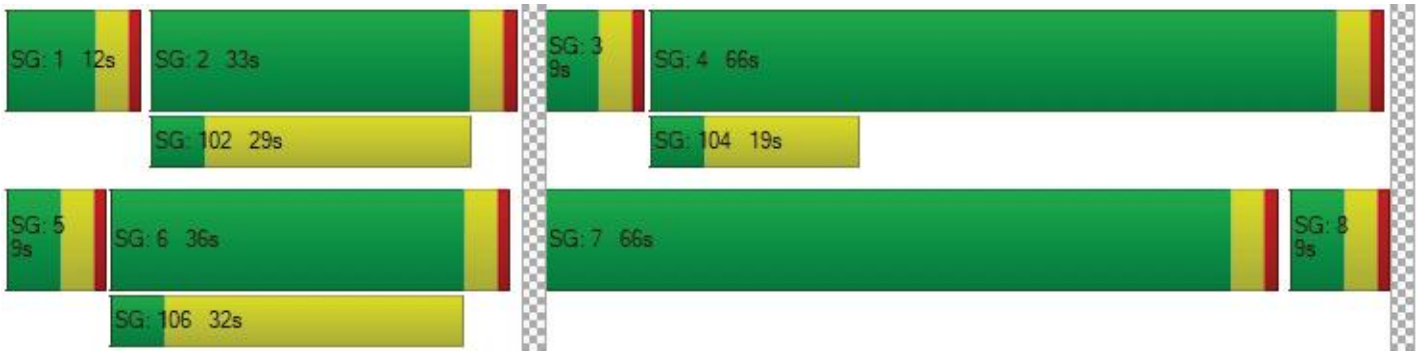
d_M, Delay for Movement [s/veh]	59.75	8.14	10.50	77.50	9.12	9.14	72.21	60.11	56.97	53.64	45.84	41.82
Movement LOS	E	A	B	E	A	A	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	13.86			10.62			61.13			49.81		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	30.81											
Intersection LOS	C											
Intersection V/C	0.423											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.300	2.689	2.897
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	483	83	1033
d_b, Bicycle Delay [s]	32.27	34.50	55.10	14.02
l_b,int, Bicycle LOS Score for Intersection	2.685	1.860	1.682	2.186
Bicycle LOS	B	A	A	B

Sequence

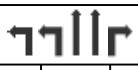
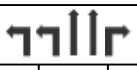
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	38.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.672

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	466	1012	370	91	1138	69	86	116	267	506	305	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	466	1012	370	91	1138	69	86	116	267	506	305	71
Peak Hour Factor	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	123	266	97	24	299	18	23	30	70	133	80	19
Total Analysis Volume [veh/h]	490	1064	389	96	1197	73	90	122	281	532	321	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	45	0	12	36	0	13	40	40	23	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	67	67	8	58	58	5	10	31	19	24	24
g / C, Green / Cycle	0.14	0.55	0.55	0.07	0.48	0.48	0.04	0.09	0.26	0.16	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.15	0.31	0.25	0.06	0.24	0.05	0.03	0.04	0.18	0.16	0.11	0.11
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1684
c, Capacity [veh/h]	472	1900	848	114	2351	734	141	299	401	527	365	342
d1, Uniform Delay [s]	51.50	17.27	15.97	55.37	21.51	17.07	56.54	51.84	40.01	50.50	43.00	43.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.26	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.27	1.20	1.78	14.82	0.79	0.27	4.67	0.89	5.17	20.51	1.34	1.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.56	0.46	0.84	0.51	0.10	0.64	0.41	0.70	1.01	0.56	0.56
d, Delay for Lane Group [s/veh]	81.77	18.47	17.75	70.18	22.30	17.34	61.21	52.73	45.18	71.01	44.34	44.43
Lane Group LOS	F	B	B	E	C	B	E	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.05	9.55	6.66	3.34	7.81	1.16	1.44	1.78	8.05	9.38	5.60	5.25
50th-Percentile Queue Length [ft/ln]	226.2	238.7	166.5	83.52	195.2	29.11	35.88	44.48	201.2	234.5	139.9	131.1
95th-Percentile Queue Length [veh/ln]	14.22	14.62	10.90	6.01	12.39	2.10	2.58	3.20	12.70	14.47	9.48	9.00
95th-Percentile Queue Length [ft/ln]	355.6	365.4	272.4	150.3	309.8	52.39	64.59	80.06	317.5	361.7	237.0	225.0

Movement, Approach, & Intersection Results

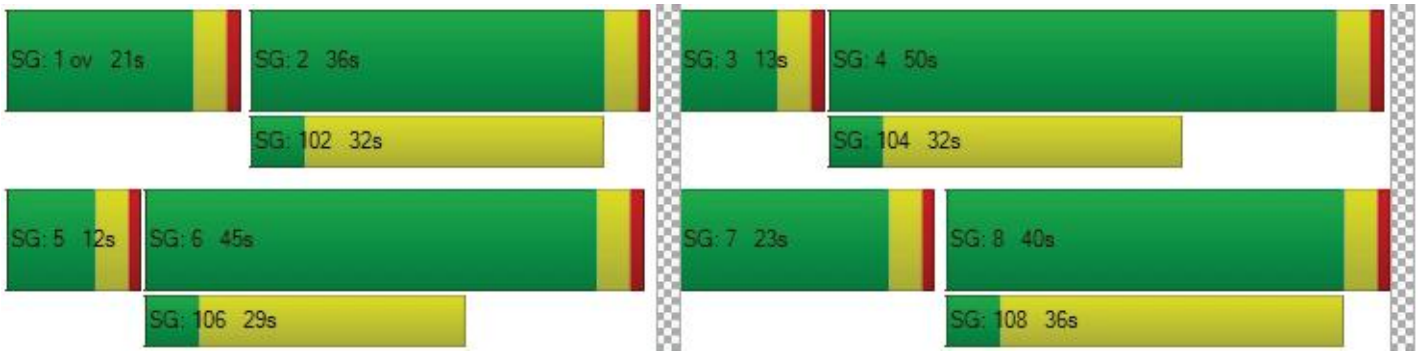
d_M, Delay for Movement [s/veh]	81.77	18.47	17.75	70.18	22.30	17.34	61.21	52.73	45.18	71.01	44.37	44.43
Movement LOS	F	B	B	E	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	34.29			25.40			49.98			59.65		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	38.33											
Intersection LOS	D											
Intersection V/C	0.672											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.293	3.057	2.909	2.823
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	533	600	767
d_b, Bicycle Delay [s]	26.00	32.27	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	3.163	2.311	1.966	2.325
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	8	9	4	23	1	73	5	50	26	56	314	11
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	9	4	23	1	73	5	50	26	56	314	11
Peak Hour Factor	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	3	1	7	0	21	1	14	7	16	90	3
Total Analysis Volume [veh/h]	9	10	5	26	1	83	6	57	30	64	358	13
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	73	67	67
g / C, Green / Cycle	0.11	0.11	0.61	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.03	0.10	0.11	0.10	0.10
s, saturation flow rate [veh/h]	1652	1495	848	1800	1778
c, Capacity [veh/h]	221	215	506	1006	994
d1, Uniform Delay [s]	48.80	52.32	10.79	13.02	13.02
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	3.82	0.81	0.41	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.68	0.19	0.19	0.19
d, Delay for Lane Group [s/veh]	49.32	56.14	11.60	13.42	13.43
Lane Group LOS	D	E	B	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.41	4.58	1.11	2.57	2.55
50th-Percentile Queue Length [ft/ln]	35.23	114.45	27.86	64.17	63.66
95th-Percentile Queue Length [veh/ln]	2.54	8.09	2.01	4.62	4.58
95th-Percentile Queue Length [ft/ln]	63.42	202.18	50.16	115.51	114.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.32	49.32	49.32	49.32	56.14	56.14	56.14	56.14	11.60	11.60	13.43	13.43
Movement LOS	D	D	D	D	E	E	E	E	B	B	B	B
d_A, Approach Delay [s/veh]	49.32				56.14				13.06			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	26.86											
Intersection LOS	C											
Intersection V/C	0.489											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.777	0.000	2.704
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	250
d_b, Bicycle Delay [s]	45.94	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.599	1.665	1.890
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	16	545	49	18	10	9	194	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	545	49	18	10	9	194	1
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	155	14	5	3	3	55	0
Total Analysis Volume [veh/h]	18	621	56	21	11	10	221	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	19	0	0	0	73	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	65	65	65	21
g / C, Green / Cycle	0.02	0.54	0.54	0.54	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.21	0.05	0.16
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1547
c, Capacity [veh/h]	33	968	968	823	273
d1, Uniform Delay [s]	58.36	14.82	16.20	13.49	48.27
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.85	0.63	1.18	0.23	9.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.25	0.39	0.09	0.89
d, Delay for Lane Group [s/veh]	72.21	15.44	17.38	13.71	57.89
Lane Group LOS	E	B	B	B	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.67	3.70	6.28	1.07	7.82
50th-Percentile Queue Length [ft/ln]	16.69	92.51	156.95	26.64	195.39
95th-Percentile Queue Length [veh/ln]	1.20	6.66	10.39	1.92	12.40
95th-Percentile Queue Length [ft/ln]	30.04	166.52	259.68	47.95	310.01

Movement, Approach, & Intersection Results

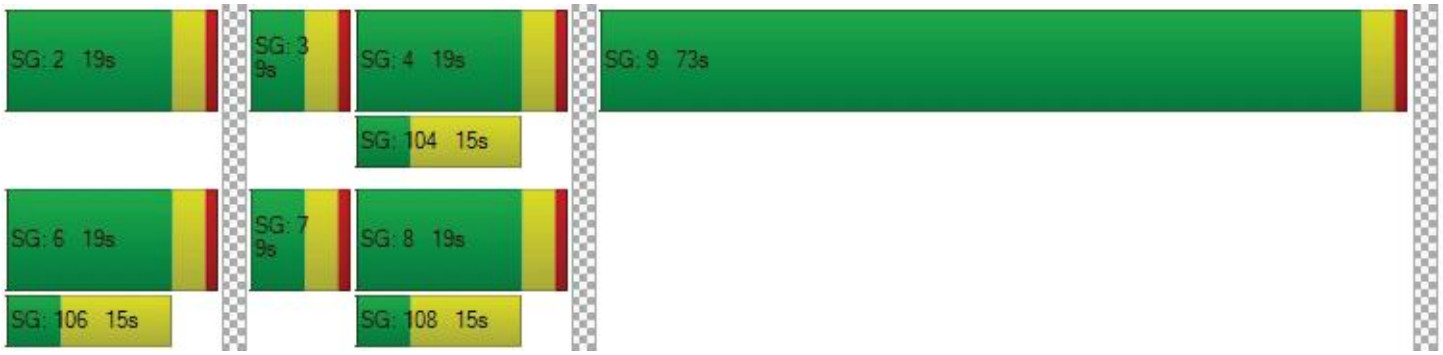
d_M, Delay for Movement [s/veh]	72.21	16.62	17.38	13.71	57.89	57.89	57.89	57.89
Movement LOS	E	B	B	B	E	E	E	E
d_A, Approach Delay [s/veh]	17.70				57.89			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	26.86							
Intersection LOS	C							
Intersection V/C	0.489							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.087
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	1150
d_b, Bicycle Delay [s]	45.94	10.84
l_b,int, Bicycle LOS Score for Intersection	2.133	1.959
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	50.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	1	21	92	3	29	14	399	8	14	605	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1	21	92	3	29	14	399	8	14	605	72
Peak Hour Factor	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	0	6	26	1	8	4	113	2	4	171	20
Total Analysis Volume [veh/h]	7	1	24	104	3	33	16	451	9	16	684	81
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

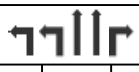
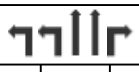
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.03	0.57	0.02	0.05	0.02	0.00	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	21.25	27.94	10.17	48.93	50.66	11.12	9.28	0.00	0.00	8.29	0.00	0.00
Movement LOS	C	D	B	E	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.22	0.22	0.22	3.16	3.16	0.17	0.06	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.41	5.41	5.41	78.96	78.96	4.20	1.43	0.00	0.00	1.09	0.00	0.00
d_A, Approach Delay [s/veh]	13.15			40.06			0.31			0.17		
Approach LOS	B			E			A			A		
d_I, Intersection Delay [s/veh]	4.42											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	45.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	439	581	136	84	759	31	35	281	464	265	376	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	439	581	136	84	759	31	35	281	464	265	376	82
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	115	152	36	22	198	8	9	73	121	69	98	21
Total Analysis Volume [veh/h]	459	607	142	88	793	32	37	294	485	277	393	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	44	0	11	33	0	9	50	0	15	56	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	46	46	7	35	35	4	40	40	11	48	48
g / C, Green / Cycle	0.15	0.38	0.38	0.06	0.29	0.29	0.03	0.34	0.34	0.09	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.14	0.18	0.09	0.05	0.23	0.23	0.01	0.09	0.32	0.08	0.14	0.14
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1776	3329	3427	1530	3329	1800	1690
c, Capacity [veh/h]	499	1299	580	100	517	510	103	1157	517	305	717	673
d1, Uniform Delay [s]	50.28	28.12	25.51	56.08	39.61	39.61	56.97	28.79	38.54	54.00	25.17	25.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.34	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.36	1.21	1.00	20.63	12.44	12.59	2.08	0.11	20.62	10.08	0.28	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.47	0.24	0.88	0.80	0.80	0.36	0.25	0.94	0.91	0.34	0.35
d, Delay for Lane Group [s/veh]	57.65	29.33	26.51	76.72	52.05	52.21	59.05	28.91	59.15	64.08	25.46	25.49
Lane Group LOS	E	C	C	E	D	D	E	C	E	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.29	6.78	2.95	3.22	13.04	12.89	0.58	3.11	16.61	4.57	4.97	4.68
50th-Percentile Queue Length [ft/ln]	182.1	169.4	73.65	80.43	326.0	322.1	14.52	77.73	415.1	114.1	124.1	117.0
95th-Percentile Queue Length [veh/ln]	11.71	11.05	5.30	5.79	18.96	18.77	1.05	5.60	23.29	8.07	8.62	8.23
95th-Percentile Queue Length [ft/ln]	292.8	276.2	132.5	144.7	474.0	469.3	26.13	139.9	582.2	201.7	215.5	205.7

Movement, Approach, & Intersection Results

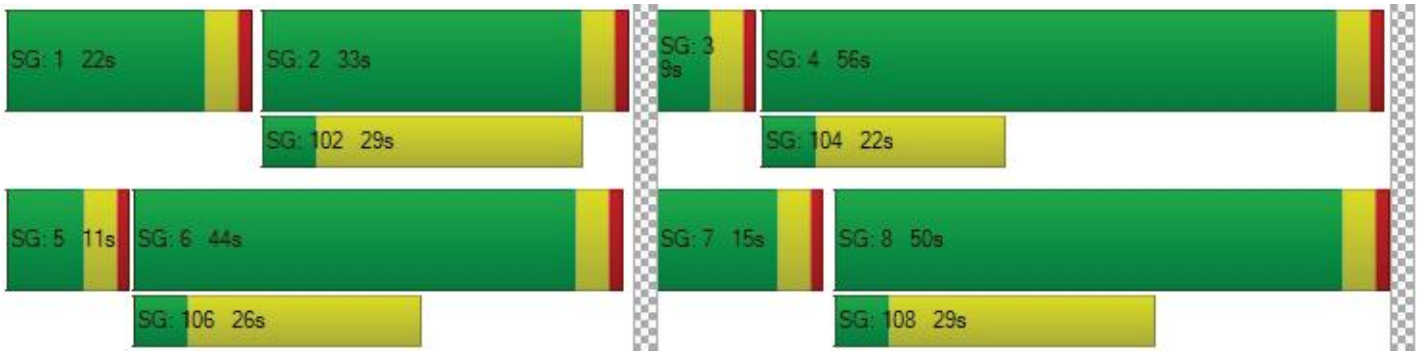
d_M, Delay for Movement [s/veh]	57.65	29.33	26.51	76.72	52.13	52.21	59.05	28.91	59.15	64.08	25.47	25.49
Movement LOS	E	C	C	E	D	D	E	C	E	E	C	C
d_A, Approach Delay [s/veh]	39.76			54.50			48.25			39.62		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.25											
Intersection LOS	D											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.994	2.635	2.846	2.897
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	483	767	867
d_b, Bicycle Delay [s]	26.67	34.50	22.82	19.27
l_b,int, Bicycle LOS Score for Intersection	2.556	2.313	2.233	2.183
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	32.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.684

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	180	1217	675	109	1386	98	170	259	151	546	419	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	180	1217	675	109	1386	98	170	259	151	546	419	94
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	325	180	29	370	26	45	69	40	146	112	25
Total Analysis Volume [veh/h]	192	1300	721	116	1481	105	182	277	161	583	448	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	12	40	40	9	37	0	35	43	0	28	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	8	60	88	5	57	57	9	15	15	24	30	39
g / C, Green / Cycle	0.07	0.50	0.73	0.04	0.47	0.47	0.07	0.13	0.13	0.20	0.25	0.33
(v / s)_i Volume / Saturation Flow Rate	0.06	0.27	0.47	0.03	0.31	0.31	0.05	0.08	0.11	0.18	0.13	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1740	3329	3427	1530	3329	3427	2708
c, Capacity [veh/h]	222	2436	1117	139	1617	821	249	439	196	666	868	889
d1, Uniform Delay [s]	55.47	20.67	8.26	57.09	24.14	24.15	54.32	49.62	50.98	46.55	38.49	28.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.69	0.84	2.88	12.27	2.04	3.99	4.09	1.50	8.28	3.85	0.48	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.53	0.65	0.84	0.65	0.65	0.73	0.63	0.82	0.88	0.52	0.11
d, Delay for Lane Group [s/veh]	65.16	21.51	11.14	69.37	26.18	28.14	58.41	51.12	59.25	50.40	38.97	28.17
Lane Group LOS	E	C	B	E	C	C	E	D	E	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.17	8.37	9.21	1.98	11.62	12.25	2.83	4.04	5.16	8.76	5.73	1.02
50th-Percentile Queue Length [ft/ln]	79.36	209.2	230.1	49.57	290.4	306.2	70.85	100.9	129.0	219.0	143.1	25.48
95th-Percentile Queue Length [veh/ln]	5.71	13.12	14.18	3.57	17.21	17.99	5.10	7.27	8.89	13.61	9.65	1.83
95th-Percentile Queue Length [ft/ln]	142.8	327.9	354.5	89.23	430.1	449.7	127.5	181.7	222.2	340.3	241.3	45.87

Movement, Approach, & Intersection Results

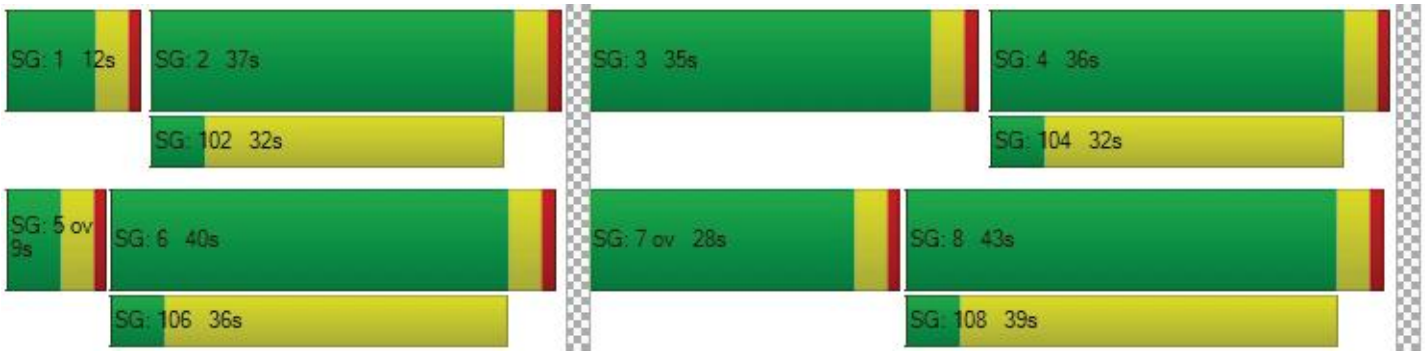
d_M, Delay for Movement [s/veh]	65.16	21.51	11.14	69.37	26.75	28.14	58.41	51.12	59.25	50.40	38.97	28.17
Movement LOS	E	C	B	E	C	C	E	D	E	D	D	C
d_A, Approach Delay [s/veh]	21.92			29.74			55.37			43.91		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	32.32											
Intersection LOS	C											
Intersection V/C	0.684											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.414	3.141	2.907	3.108
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	550	650	533
d_b, Bicycle Delay [s]	29.40	31.54	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.777	2.496	1.901	2.493
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	762	445	0	774	408	0	0	0	490	0	531
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	762	445	0	774	408	0	0	0	490	0	531
Peak Hour Factor	1.000	0.924	1.000	1.000	0.924	0.924	1.000	1.000	1.000	0.924	1.000	0.924
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	206	111	0	209	110	0	0	0	133	0	144
Total Analysis Volume [veh/h]	0	825	445	0	838	442	0	0	0	530	0	575
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	51	0	0	51	0	0	0	0	69	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	79	79		33	33	33
g / C, Green / Cycle	0.66	0.66		0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.24	0.17		0.21	0.23	0.24
s, saturation flow rate [veh/h]	3427	4903		1714	1606	1530
c, Capacity [veh/h]	2257	3228		471	441	421
d1, Uniform Delay [s]	9.22	8.44		40.18	40.94	41.55
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	0.20		2.87	4.20	5.89
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.26		0.78	0.83	0.88
d, Delay for Lane Group [s/veh]	9.68	8.64		43.05	45.14	47.44
Lane Group LOS	A	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.75	2.91		10.37	10.70	11.03
50th-Percentile Queue Length [ft/ln]	118.69	72.84		259.3	267.5	275.7
95th-Percentile Queue Length [veh/ln]	8.32	5.24		15.66	16.07	16.47
95th-Percentile Queue Length [ft/ln]	208.03	131.11		391.4	401.6	411.8

Movement, Approach, & Intersection Results

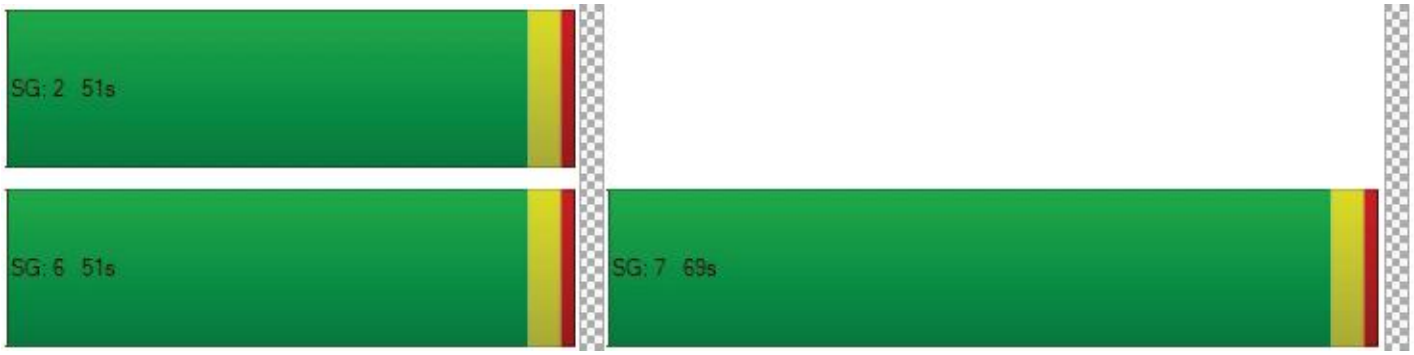
d_M, Delay for Movement [s/veh]	0.00	9.68	0.00	0.00	8.64	0.00	0.00	0.00	0.00	43.68	0.00	46.61
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	9.68			8.64			0.00			45.21		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	23.55											
Intersection LOS	C											
Intersection V/C	0.481											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	783	0	1083
d_b, Bicycle Delay [s]	22.20	22.20	60.00	12.60
l_b,int, Bicycle LOS Score for Intersection	2.240	2.021	4.132	3.383
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	993	543	0	1748	0	0	0	0	738	0	637
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	993	543	0	1748	0	0	0	0	738	0	637
Peak Hour Factor	1.000	0.910	0.910	1.000	0.910	0.910	0.910	0.910	0.910	0.910	1.000	0.910
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	273	149	0	480	0	0	0	0	203	0	175
Total Analysis Volume [veh/h]	0	1091	597	0	1921	0	0	0	0	811	0	700
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	19	0	0	19	0	0	0	0	101	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	53	53		59	59
g / C, Green / Cycle	0.44	0.44		0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.22	0.29		0.24	0.46
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	2160	2880		1641	754
d1, Uniform Delay [s]	24.16	26.60		20.40	28.45
k, delay calibration	0.50	0.50		0.11	0.15
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.85	1.24		0.23	7.56
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.67		0.49	0.93
d, Delay for Lane Group [s/veh]	25.01	27.84		20.63	36.00
Lane Group LOS	C	C		C	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	7.54	10.97		7.57	19.68
50th-Percentile Queue Length [ft/ln]	188.54	274.18		189.30	492.03
95th-Percentile Queue Length [veh/ln]	12.05	16.40		12.08	26.96
95th-Percentile Queue Length [ft/ln]	301.14	409.96		302.12	673.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	25.01	0.00	0.00	27.84	0.00	0.00	0.00	0.00	20.63	0.00	36.00
Movement LOS		C			C					C		D
d_A, Approach Delay [s/veh]	25.01			27.84			0.00			27.75		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	27.13											
Intersection LOS	C											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	0	1617
d_b, Bicycle Delay [s]	45.94	45.94	60.00	2.20
l_b,int, Bicycle LOS Score for Intersection	2.160	2.352	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	20.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	654	272	0	983	466	0	0	0	363	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	654	272	0	983	466	0	0	0	363	0	448
Peak Hour Factor	1.000	0.960	0.868	1.000	0.960	1.000	1.000	1.000	1.000	0.960	1.000	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	170	78	0	256	117	0	0	0	95	0	117
Total Analysis Volume [veh/h]	0	681	313	0	1024	466	0	0	0	378	0	467
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	61	0	0	61	0	0	0	0	59	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	82	82		30	30
g / C, Green / Cycle	0.68	0.68		0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.14	0.30		0.22	0.17
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3351	2342		428	677
d1, Uniform Delay [s]	6.98	8.57		43.31	40.79
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.14	0.60		6.11	1.27
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.44		0.88	0.69
d, Delay for Lane Group [s/veh]	7.12	9.17		49.41	42.06
Lane Group LOS	A	A		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.06	5.77		11.47	6.37
50th-Percentile Queue Length [ft/ln]	51.42	144.33		286.64	159.20
95th-Percentile Queue Length [veh/ln]	3.70	9.71		17.02	10.51
95th-Percentile Queue Length [ft/ln]	92.56	242.84		425.47	262.66

Movement, Approach, & Intersection Results

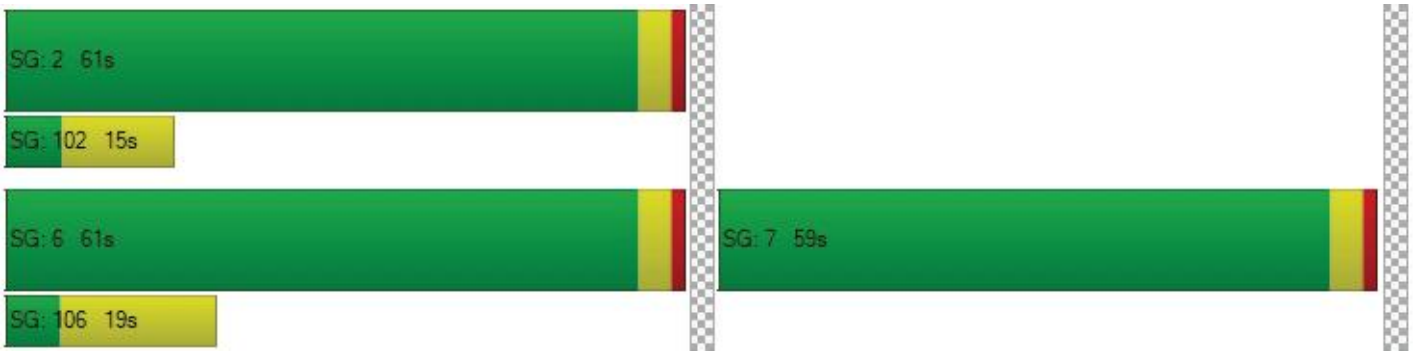
d_M, Delay for Movement [s/veh]	0.00	7.12	0.00	0.00	9.17	0.00	0.00	0.00	0.00	49.41	0.00	42.06
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	7.12			9.17			0.00			45.35		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	20.61											
Intersection LOS	C											
Intersection V/C	0.519											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.352
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	950	0	917
d_b, Bicycle Delay [s]	16.54	16.54	60.00	17.60
l_b,int, Bicycle LOS Score for Intersection	1.934	2.404	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1074	381	0	966	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1074	381	0	966	238	308	0	671	0	0	0
Peak Hour Factor	1.000	0.927	1.000	1.000	0.927	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	290	95	0	261	60	83	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1159	381	0	1042	238	332	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	60	60	
g / C, Green / Cycle	0.43	0.43	0.50	0.50	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.30	0.10	0.47	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	2129	1488	1662	764	
d1, Uniform Delay [s]	25.16	27.60	16.72	28.57	
k, delay calibration	0.50	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.01	2.77	0.06	9.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.54	0.70	0.20	0.95	
d, Delay for Lane Group [s/veh]	26.16	30.37	16.78	38.55	
Lane Group LOS	C	C	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.27	12.51	2.56	21.13	
50th-Percentile Queue Length [ft/ln]	206.70	312.83	64.12	528.33	
95th-Percentile Queue Length [veh/ln]	12.98	18.31	4.62	28.67	
95th-Percentile Queue Length [ft/ln]	324.60	457.87	115.41	716.81	

Movement, Approach, & Intersection Results

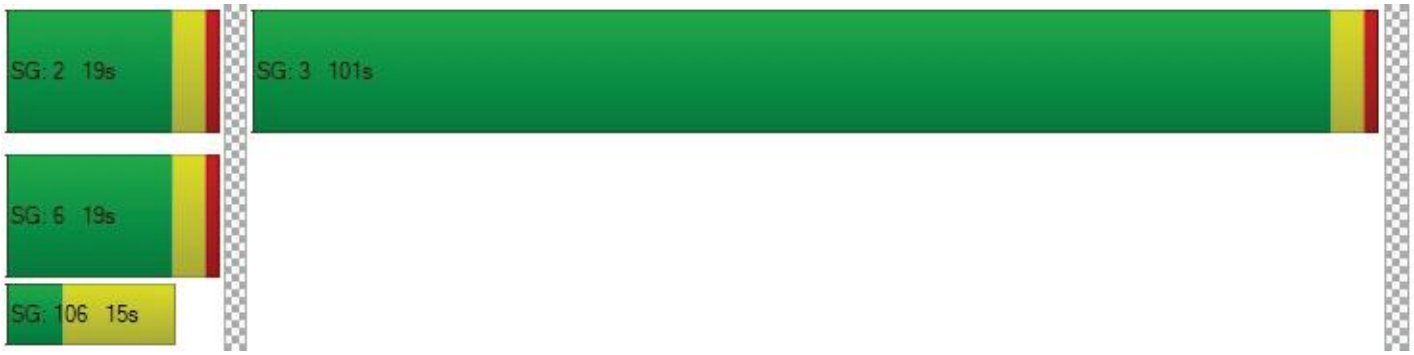
d_M, Delay for Movement [s/veh]	0.00	26.16	0.00	0.00	30.37	0.00	16.78	0.00	38.55	0.00	0.00	0.00
Movement LOS		C			C		B		D			
d_A, Approach Delay [s/veh]	26.16			30.37			31.70			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	29.31											
Intersection LOS	C											
Intersection V/C	0.777											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.197	2.419	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.740

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1234	483	460	1488	0	401	6	617	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1234	483	460	1488	0	401	6	617	0	0	0
Peak Hour Factor	1.000	0.914	0.914	0.914	0.914	1.000	0.914	0.914	0.914	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	338	132	126	407	0	110	2	169	0	0	0
Total Analysis Volume [veh/h]	0	1350	528	503	1628	0	439	7	675	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	53	0	26	79	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	55	55	20	80	32	32	32	
g / C, Green / Cycle	0.46	0.46	0.17	0.66	0.27	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.28	0.35	0.15	0.33	0.22	0.24	0.24	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1564	1530	
c, Capacity [veh/h]	2259	705	561	3249	464	423	414	
d1, Uniform Delay [s]	24.08	26.64	48.85	10.22	40.82	41.94	42.23	
k, delay calibration	0.50	0.50	0.11	0.50	0.24	0.29	0.31	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.18	7.17	5.35	0.55	7.18	14.67	17.53	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.60	0.75	0.90	0.50	0.81	0.88	0.90	
d, Delay for Lane Group [s/veh]	25.25	33.81	54.20	10.77	47.99	56.61	59.77	
Lane Group LOS	C	C	D	B	D	E	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.60	13.55	7.78	6.95	11.17	12.25	12.62	
50th-Percentile Queue Length [ft/ln]	240.06	338.78	194.39	173.65	279.2	306.3	315.4	
95th-Percentile Queue Length [veh/ln]	14.68	19.59	12.35	11.27	16.65	17.99	18.44	
95th-Percentile Queue Length [ft/ln]	367.11	489.71	308.72	281.71	416.3	449.8	461.1	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	25.25	33.81	54.20	10.77	0.00	49.28	56.61	58.36	0.00	0.00	0.00
Movement LOS		C	C	D	B		D	E	E			
d_A, Approach Delay [s/veh]	27.66			21.02			54.79			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	30.83											
Intersection LOS	C											
Intersection V/C	0.740											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.420	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	1250	617	0
d_b, Bicycle Delay [s]	21.00	8.44	28.70	60.00
l_b,int, Bicycle LOS Score for Intersection	2.593	2.732	3.409	4.132
Bicycle LOS	B	B	C	D

Sequence

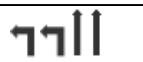
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.685

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	651	332	534	851	0	304	8	427	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	651	332	534	851	0	304	8	427	0	0	0
Peak Hour Factor	1.000	0.964	0.964	0.964	0.964	1.000	0.964	0.964	0.964	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	169	86	138	221	0	79	2	111	0	0	0
Total Analysis Volume [veh/h]	0	675	344	554	883	0	315	8	443	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	10	0	34	44	0	0	76	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	23	74	38	38	
g / C, Green / Cycle	0.39	0.39	0.19	0.61	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.22	0.17	0.26	0.09	0.29	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1534	
c, Capacity [veh/h]	1338	597	630	2101	1066	491	
d1, Uniform Delay [s]	27.76	28.76	47.30	12.10	30.62	39.27	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.36	4.01	4.16	0.62	0.15	7.39	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.50	0.58	0.88	0.42	0.30	0.92	
d, Delay for Lane Group [s/veh]	29.12	32.77	51.46	12.72	30.77	46.65	
Lane Group LOS	C	C	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	7.57	8.39	8.39	6.13	3.47	13.65	
50th-Percentile Queue Length [ft/ln]	189.22	209.75	209.74	153.18	86.63	341.22	
95th-Percentile Queue Length [veh/ln]	12.08	13.14	13.14	10.19	6.24	19.71	
95th-Percentile Queue Length [ft/ln]	302.02	328.51	328.50	254.67	155.93	492.69	

Movement, Approach, & Intersection Results

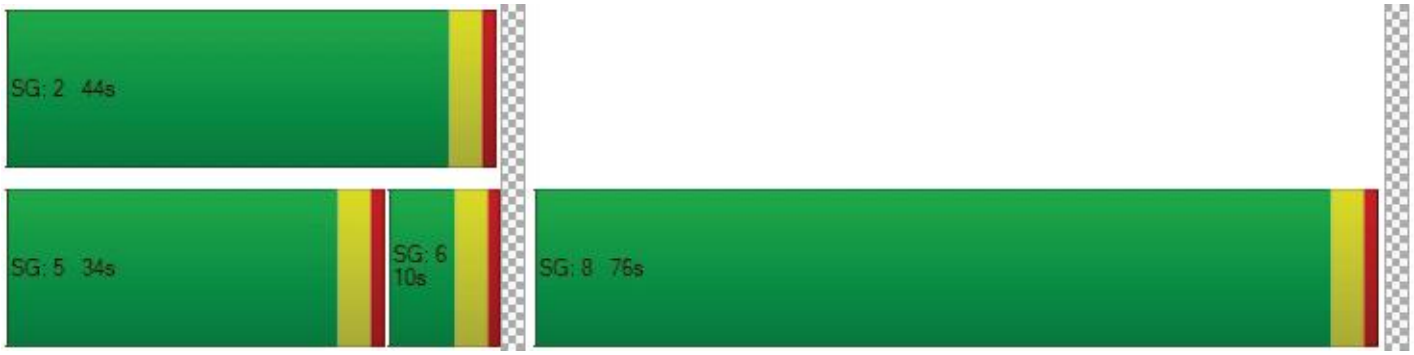
d_M, Delay for Movement [s/veh]	0.00	29.12	32.77	51.46	12.72	0.00	30.77	46.65	46.65	0.00	0.00	0.00
Movement LOS		C	C	D	B		C	D	D			
d_A, Approach Delay [s/veh]	30.36			27.66			40.12			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.47											
Intersection LOS	C											
Intersection V/C	0.685											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	100	667	1200	0
d_b, Bicycle Delay [s]	54.15	26.67	9.60	60.00
l_b,int, Bicycle LOS Score for Intersection	2.120	2.745	2.824	4.132
Bicycle LOS	B	B	C	D

Sequence

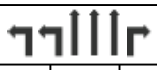
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	420	718	357	500	741	821	855	0	501	428	0	550
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	420	718	357	500	741	821	855	0	501	428	0	550
Peak Hour Factor	0.955	0.955	0.955	0.955	0.955	0.955	0.955	1.000	0.955	0.955	1.000	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	110	188	93	131	194	215	224	0	131	112	0	144
Total Analysis Volume [veh/h]	440	752	374	524	776	860	895	0	525	448	0	576
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	67	0	0	67	0	53	0	0	53	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	76	76	76	76	36	36
g / C, Green / Cycle	0.64	0.64	0.64	0.64	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.32	0.15	0.37	0.16	0.27	0.13
s, saturation flow rate [veh/h]	1371	4903	1402	4903	3329	3329
c, Capacity [veh/h]	793	3112	813	3112	994	994
d1, Uniform Delay [s]	19.14	9.46	20.52	9.52	40.36	34.10
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.79	0.18	3.91	0.19	3.28	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.24	0.64	0.25	0.90	0.45
d, Delay for Lane Group [s/veh]	21.93	9.65	24.44	9.71	43.64	34.42
Lane Group LOS	C	A	C	A	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.39	2.80	5.68	2.90	13.01	5.36
50th-Percentile Queue Length [ft/ln]	109.77	69.93	141.94	72.58	325.29	133.88
95th-Percentile Queue Length [veh/ln]	7.83	5.03	9.59	5.23	18.93	9.15
95th-Percentile Queue Length [ft/ln]	195.68	125.87	239.64	130.65	473.19	228.76

Movement, Approach, & Intersection Results

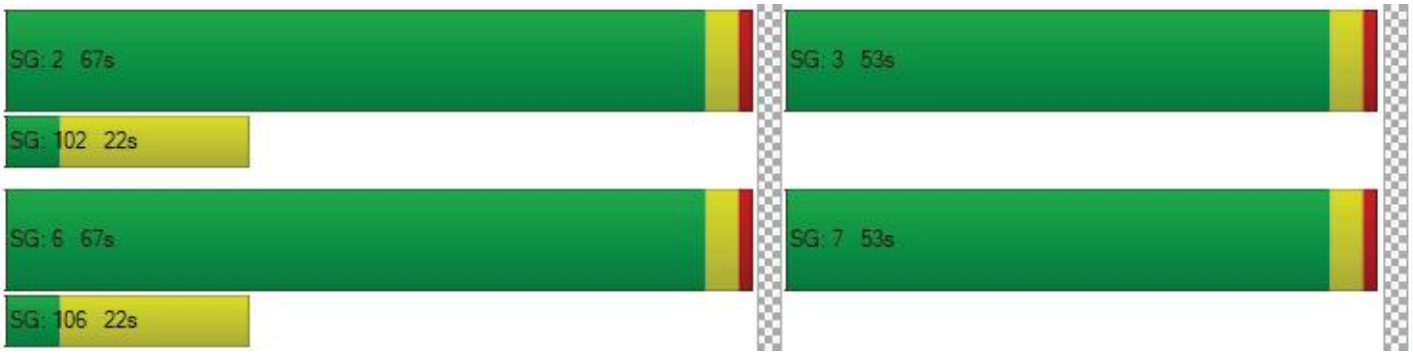
d_M, Delay for Movement [s/veh]	21.93	9.65	0.00	24.44	9.71	0.00	43.64	0.00	0.00	34.42	0.00	0.00
Movement LOS	C	A		C	A		D			C		
d_A, Approach Delay [s/veh]	14.18			15.64			43.64			34.42		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	23.92											
Intersection LOS	C											
Intersection V/C	0.643											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.201	3.250
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1050	817	817
d_b, Bicycle Delay [s]	13.54	13.54	21.00	21.00
l_b,int, Bicycle LOS Score for Intersection	2.215	2.275	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

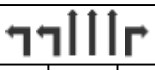
Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.656

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	333	80	108	705	218	77	409	118	156	1102	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	333	80	108	705	218	77	409	118	156	1102	103
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	97	23	31	205	64	22	119	34	45	321	30
Total Analysis Volume [veh/h]	205	388	93	126	822	254	90	477	138	182	1284	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	27	0	12	26	0	12	58	0	23	69	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	40	40	6	37	37	8	43	43	15	50	50
g / C, Green / Cycle	0.08	0.33	0.33	0.05	0.31	0.31	0.07	0.36	0.36	0.12	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.06	0.04	0.17	0.17	0.05	0.14	0.09	0.11	0.37	0.08
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	250	1631	509	180	1529	477	112	1222	545	211	1421	635
d1, Uniform Delay [s]	54.71	29.02	28.45	55.79	34.14	34.08	55.34	28.86	27.31	51.59	32.86	22.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.60	0.34	0.79	4.84	1.36	4.21	12.63	0.20	0.24	9.82	2.42	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.24	0.18	0.70	0.54	0.53	0.81	0.39	0.25	0.86	0.90	0.19
d, Delay for Lane Group [s/veh]	61.31	29.36	29.24	60.63	35.50	38.29	67.98	29.06	27.55	61.41	35.29	22.44
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.28	2.77	2.03	2.00	6.79	6.66	3.08	5.17	2.85	5.95	17.55	2.19
50th-Percentile Queue Length [ft/ln]	82.04	69.20	50.66	49.94	169.8	166.6	76.95	129.3	71.25	148.6	438.8	54.77
95th-Percentile Queue Length [veh/ln]	5.91	4.98	3.65	3.60	11.07	10.90	5.54	8.90	5.13	9.94	24.42	3.94
95th-Percentile Queue Length [ft/ln]	147.6	124.5	91.19	89.89	276.6	272.4	138.5	222.5	128.2	248.6	610.6	98.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.31	29.36	29.24	60.63	35.50	38.29	67.98	29.06	27.55	61.41	35.29	22.44
Movement LOS	E	C	C	E	D	D	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	38.89			38.73			33.73			37.31		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.37											
Intersection LOS	D											
Intersection V/C	0.656											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.062	3.059	2.866	2.839
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	367	900	1083
d_b, Bicycle Delay [s]	39.20	40.02	18.15	12.60
l_b,int, Bicycle LOS Score for Intersection	1.937	2.221	2.141	2.868
Bicycle LOS	A	B	B	C

Sequence

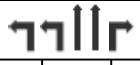
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	170	66	105	390	270	118	333	69	166	1013	134
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	170	66	105	390	270	118	333	69	166	1013	134
Peak Hour Factor	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	50	19	31	115	80	35	98	20	49	299	40
Total Analysis Volume [veh/h]	58	200	78	124	460	318	139	393	81	196	1195	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	11	33	0	14	36	36	15	57	0	16	58	58
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	37	37	10	42	57	11	48	48	9	46	60
g / C, Green / Cycle	0.04	0.31	0.31	0.08	0.35	0.47	0.09	0.40	0.40	0.08	0.38	0.50
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.05	0.07	0.13	0.21	0.08	0.14	0.14	0.06	0.35	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1695	3329	3427	1530
c, Capacity [veh/h]	75	1061	473	143	1196	725	157	715	673	256	1310	763
d1, Uniform Delay [s]	56.78	30.38	30.15	54.35	29.37	20.96	53.87	25.22	25.25	54.34	35.16	16.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.27	0.39	0.75	14.41	0.94	1.92	14.76	0.28	0.30	4.78	2.88	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.19	0.16	0.87	0.38	0.44	0.88	0.34	0.34	0.77	0.91	0.21
d, Delay for Lane Group [s/veh]	72.05	30.78	30.90	68.75	30.31	22.88	68.64	25.50	25.55	59.11	38.04	16.94
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.06	2.20	1.75	4.27	5.15	6.26	4.79	4.89	4.65	3.08	16.78	2.46
50th-Percentile Queue Length [ft/ln]	51.49	54.88	43.81	106.7	128.7	156.4	119.7	122.2	116.3	76.90	419.4	61.62
95th-Percentile Queue Length [veh/ln]	3.71	3.95	3.15	7.66	8.87	10.36	8.38	8.52	8.19	5.54	23.49	4.44
95th-Percentile Queue Length [ft/ln]	92.69	98.79	78.86	191.4	221.7	259.0	209.4	212.9	204.7	138.4	587.3	110.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.05	30.78	30.90	68.75	30.31	22.88	68.64	25.52	25.55	59.11	38.04	16.94
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	B
d_A, Approach Delay [s/veh]	37.93			32.98			35.30			38.55		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	36.42											
Intersection LOS	D											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.642	2.695	2.741	2.908
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	533	883	900
d_b, Bicycle Delay [s]	34.50	32.27	18.70	18.15
l_b,int, Bicycle LOS Score for Intersection	1.837	2.304	2.065	2.838
Bicycle LOS	A	B	B	C

Sequence

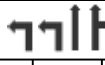
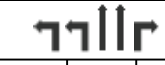
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	31.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	937	55	409	1110	522	407	220	42	53	258	351
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	937	55	409	1110	522	407	220	42	53	258	351
Peak Hour Factor	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	261	15	114	309	145	113	61	12	15	72	98
Total Analysis Volume [veh/h]	31	1043	61	455	1236	581	453	245	47	59	287	391
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	12	33	0	22	43	43	22	56	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	53	53	18	68	90	18	29	29	4	15	37
g / C, Green / Cycle	0.03	0.44	0.44	0.15	0.56	0.75	0.15	0.24	0.24	0.04	0.13	0.31
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.14	0.25	0.38	0.14	0.08	0.08	0.02	0.08	0.26
s, saturation flow rate [veh/h]	1714	3427	1750	3329	4903	1530	3329	1800	1701	3329	3427	1530
c, Capacity [veh/h]	47	1511	771	499	2762	1143	499	432	408	120	431	473
d1, Uniform Delay [s]	57.79	23.84	23.85	50.21	15.29	6.20	50.18	37.82	37.83	56.77	50.04	38.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.55	1.11	2.17	6.82	0.53	1.62	6.57	0.48	0.51	3.12	1.78	9.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.48	0.48	0.91	0.45	0.51	0.91	0.35	0.35	0.49	0.67	0.83
d, Delay for Lane Group [s/veh]	72.34	24.95	26.02	57.03	15.82	7.82	56.75	38.30	38.34	59.89	51.82	48.23
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.12	7.55	7.95	7.18	6.56	5.71	7.13	3.73	3.54	0.93	4.22	11.86
50th-Percentile Queue Length [ft/ln]	28.07	188.6	198.6	179.4	163.9	142.7	178.2	93.22	88.46	23.26	105.4	296.5
95th-Percentile Queue Length [veh/ln]	2.02	12.05	12.57	11.57	10.76	9.63	11.51	6.71	6.37	1.67	7.59	17.51
95th-Percentile Queue Length [ft/ln]	50.53	301.3	314.2	289.3	268.9	240.7	287.6	167.8	159.2	41.87	189.6	437.7

Movement, Approach, & Intersection Results

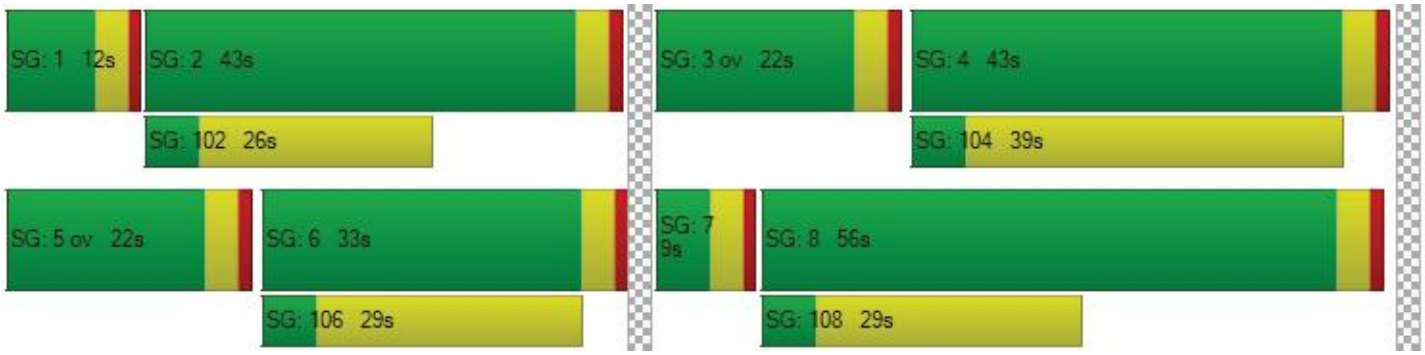
d_M, Delay for Movement [s/veh]	72.34	25.27	26.02	57.03	15.82	7.82	56.75	38.31	38.34	59.89	51.82	48.23
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.60			22.03			49.53			50.56		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.58											
Intersection LOS	C											
Intersection V/C	0.645											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.043	3.387	2.735	2.818
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	650	867	650
d_b, Bicycle Delay [s]	34.50	27.34	19.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.184	2.809	2.174	2.168
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	576.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	30.094

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	762	11	114	720	331	245	39	80	9	21	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	762	11	114	720	331	245	39	80	9	21	66
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	209	3	31	197	91	67	11	22	2	6	18
Total Analysis Volume [veh/h]	39	835	12	125	789	363	268	43	88	10	23	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	12	12	5	13	13	91	91	91	91
g / C, Green / Cycle	0.03	0.10	0.10	0.04	0.11	0.11	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.16	0.07	0.23	0.24	29.83	0.06	0.35	0.05
s, saturation flow rate [veh/h]	1714	3427	1787	1714	3427	1530	10	1530	93	1530
c, Capacity [veh/h]	52	348	182	71	387	173	64	1158	110	1158
d1, Uniform Delay [s]	57.73	53.90	53.90	57.50	53.22	53.22	53.15	3.77	34.58	3.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.23	281.9	293.8	349.7	475.6	513.8	1780.46	0.03	1.52	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	1.60	1.60	1.75	2.04	2.10	4.88	0.08	0.30	0.06
d, Delay for Lane Group [s/veh]	76.96	335.8	347.7	407.2	528.8	567.0	1833.61	3.80	36.09	3.75
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.45	18.90	20.31	9.11	31.42	29.89	33.46	0.49	0.84	0.40
50th-Percentile Queue Length [ft/ln]	36.31	472.4	507.6	227.6	785.4	747.1	836.62	12.36	20.93	10.00
95th-Percentile Queue Length [veh/ln]	2.61	30.20	32.19	15.73	49.63	47.58	60.24	0.89	1.51	0.72
95th-Percentile Queue Length [ft/ln]	65.36	755.0	804.7	393.2	1240.	1189.	1505.92	22.24	37.68	18.00

Movement, Approach, & Intersection Results

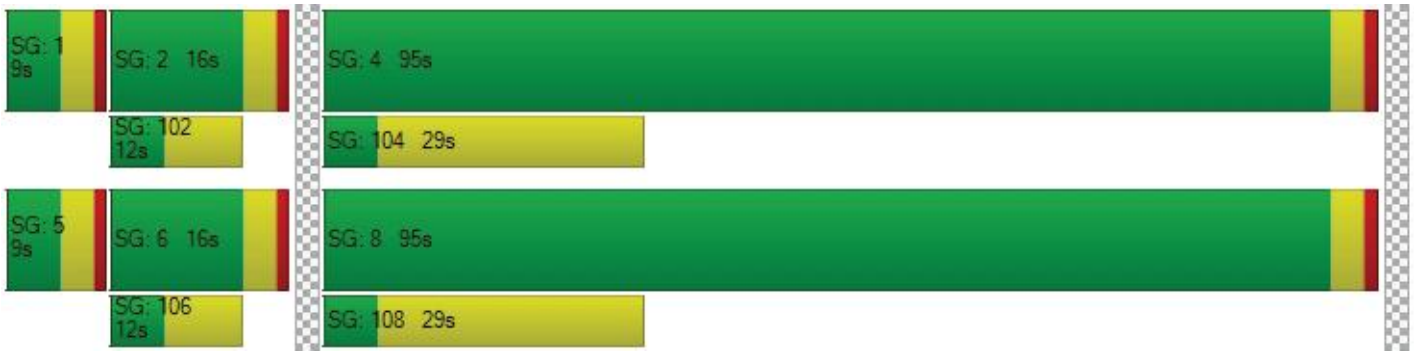
d_M, Delay for Movement [s/veh]	76.96	339.8	347.7	407.2	528.8	567.0	1833.	1833.	3.80	36.09	36.09	3.75
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	328.38			527.83			1430.04			13.92		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	576.31											
Intersection LOS	F											
Intersection V/C	30.094											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.870	3.332	2.223	2.048
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.047	2.262	2.218	1.733
Bicycle LOS	B	B	B	A

Sequence

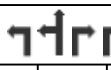
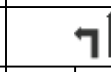
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1772	2665	1687	1772
c, Capacity [veh/h]	1	2920	1533	1	2919	1405	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

Vistro File: K:\...\Speedway CC PM.vistro
Report File: K:\...\1 EX PM.pdf

Scenario 1 EX PM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Left	0.480	27.8	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.600	25.2	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.407	16.4	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.507	22.2	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.692	28.7	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.441	14.0	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.389	34.7	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.655	38.5	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	WB Right	0.764	41.0	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.430	40.8	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.315	15.0	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.446	34.6	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.584	37.4	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.445	43.6	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.477	39.4	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.471	35.0	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.485	43.4	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.856	19.3	B
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.519	21.5	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.572	41.1	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.557	40.1	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	2.327	961.7	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.725	46.6	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.649	40.5	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.626	39.2	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.728	43.2	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.517	24.5	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.637	39.0	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.524	35.7	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.663	24.5	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.719	36.1	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.427	35.2	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.519	21.5	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.715	25.0	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	EB Thru	0.877	31.1	D
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.527	29.2	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	SB Left	0.554	41.4	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.448	22.1	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.525	18.8	B
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	0.434	12.2	B
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	NEB Thru	0.601	15.4	C
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.413	22.8	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.546	28.1	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	SB Left	0.803	45.3	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.560	33.9	C
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.496	35.4	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	WB Left	0.746	39.0	D
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	EB Thru	0.014	0.0	A
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.669	37.2	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.476	35.4	D
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	NB Thru	0.438	27.0	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.460	30.1	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	SB Left	0.647	36.2	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	EB Thru	0.321	9.6	A
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.547	33.0	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	EB Left	0.829	46.2	D
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.847	39.1	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.464	14.8	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Left	0.992	188.9	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.689	43.1	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.841	42.9	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.472	18.8	B
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.629	21.2	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.477	18.2	B
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.569	18.7	B
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.688	30.2	C
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.660	28.8	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	0.842	29.1	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.701	37.5	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.642	37.3	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.601	34.4	C
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	30.565	460.0	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.480

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	302	571	0	0	461	146	0	0	0	287	0	135
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	302	571	0	0	461	146	0	0	0	287	0	135
Peak Hour Factor	0.981	0.981	1.000	1.000	0.981	0.981	1.000	1.000	1.000	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	146	0	0	117	37	0	0	0	73	0	34
Total Analysis Volume [veh/h]	308	582	0	0	470	149	0	0	0	293	0	138
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	61	82	0	0	21	0	0	0	0	0	38	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	24	89	61	61		23	23
g / C, Green / Cycle	0.20	0.74	0.51	0.51		0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.18	0.17	0.12	0.13		0.17	0.09
s, saturation flow rate [veh/h]	1714	3427	3427	1597		1714	1530
c, Capacity [veh/h]	342	2543	1746	813		328	293
d1, Uniform Delay [s]	46.89	4.81	16.42	16.59		47.33	43.13
k, delay calibration	0.11	0.50	0.50	0.50		0.16	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	8.69	0.21	0.32	0.75		11.99	1.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.23	0.24	0.25		0.89	0.47
d, Delay for Lane Group [s/veh]	55.58	5.02	16.74	17.34		59.32	44.31
Lane Group LOS	E	A	B	B		E	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	9.77	2.07	3.23	3.35		9.60	3.75
50th-Percentile Queue Length [ft/ln]	244.25	51.86	80.77	83.87		240.04	93.71
95th-Percentile Queue Length [veh/ln]	14.90	3.73	5.82	6.04		14.68	6.75
95th-Percentile Queue Length [ft/ln]	372.40	93.35	145.38	150.97		367.09	168.68

Movement, Approach, & Intersection Results

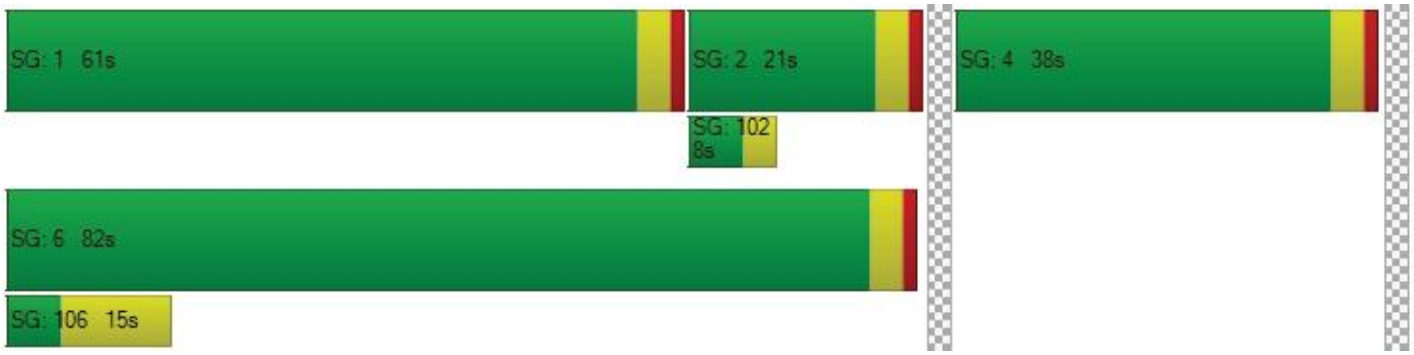
d_M, Delay for Movement [s/veh]	55.58	5.02	0.00	0.00	16.81	17.34	0.00	0.00	0.00	59.32	59.32	44.31
Movement LOS	E	A			B	B				E	E	D
d_A, Approach Delay [s/veh]	22.52			16.94			0.00			54.51		
Approach LOS	C			B			A			D		
d_I, Intersection Delay [s/veh]	27.84											
Intersection LOS	C											
Intersection V/C	0.480											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.884	2.096
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1300	283	0	567
d_b, Bicycle Delay [s]	7.35	44.20	60.00	30.82
l_b,int, Bicycle LOS Score for Intersection	2.294	1.900	4.132	2.271
Bicycle LOS	B	A	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	323	1038	0	0	732	395	0	0	0	341	0	332
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	323	1038	0	0	732	395	0	0	0	341	0	332
Peak Hour Factor	0.955	0.955	1.000	1.000	0.955	0.955	1.000	1.000	1.000	0.955	0.955	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	85	272	0	0	192	103	0	0	0	89	0	87
Total Analysis Volume [veh/h]	338	1087	0	0	766	414	0	0	0	357	0	348
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	18	58	0	0	40	0	0	0	0	0	62	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	82	64	64		30	30	30
g / C, Green / Cycle	0.12	0.68	0.53	0.53		0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.10	0.32	0.22	0.27		0.10	0.10	0.23
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1714	1530
c, Capacity [veh/h]	388	2329	1816	811		435	435	388
d1, Uniform Delay [s]	52.12	9.02	17.08	18.18		37.31	37.31	43.26
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	6.14	0.67	0.72	2.29		0.62	0.62	7.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.47	0.42	0.51		0.41	0.41	0.90
d, Delay for Lane Group [s/veh]	58.26	9.69	17.80	20.48		37.93	37.93	50.75
Lane Group LOS	E	A	B	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.33	6.40	6.48	7.76		4.46	4.46	10.73
50th-Percentile Queue Length [ft/ln]	133.19	159.98	161.90	193.98		111.5	111.5	268.1
95th-Percentile Queue Length [veh/ln]	9.11	10.55	10.65	12.33		7.93	7.93	16.10
95th-Percentile Queue Length [ft/ln]	227.82	263.70	266.24	308.19		198.1	198.1	402.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.26	9.69	0.00	0.00	17.80	20.48	0.00	0.00	0.00	37.93	37.93	50.75
Movement LOS	E	A			B	C				D	D	D
d_A, Approach Delay [s/veh]	21.21			18.74			0.00			44.26		
Approach LOS	C			B			A			D		
d_I, Intersection Delay [s/veh]	25.24											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.097	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	600	0	967
d_b, Bicycle Delay [s]	18.15	29.40	60.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.735	2.533	4.132	2.723
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.407

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1132	0	0	1172	0	0	0	0	297	0	400
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1132	0	0	1172	0	0	0	0	297	0	400
Peak Hour Factor	1.000	0.948	0.948	1.000	0.948	0.948	1.000	1.000	1.000	0.948	0.948	0.948
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	299	0	0	309	0	0	0	0	78	0	105
Total Analysis Volume [veh/h]	0	1194	0	0	1236	0	0	0	0	313	0	422
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	0	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	90	90		22	22	22
g / C, Green / Cycle	0.75	0.75		0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25		0.15	0.15	0.15
s, saturation flow rate [veh/h]	4903	4903		1714	1569	1530
c, Capacity [veh/h]	3674	3674		315	289	281
d1, Uniform Delay [s]	4.98	5.04		47.02	47.20	47.25
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.25		5.18	6.28	6.63
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.34		0.82	0.83	0.84
d, Delay for Lane Group [s/veh]	5.22	5.29		52.20	53.49	53.89
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.94	3.08		7.84	7.43	7.32
50th-Percentile Queue Length [ft/ln]	73.59	77.07		195.9	185.8	183.1
95th-Percentile Queue Length [veh/ln]	5.30	5.55		12.43	11.91	11.76
95th-Percentile Queue Length [ft/ln]	132.47	138.72		310.6	297.6	294.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.22	0.00	0.00	5.29	0.00	0.00	0.00	0.00	52.47	53.49	53.72
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	5.22			5.29			0.00			53.17		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.38											
Intersection LOS	B											
Intersection V/C	0.407											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	0	967
d_b, Bicycle Delay [s]	18.15	18.15	60.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.216	2.239	4.132	2.772
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	687	307	72	673	0	193	2	359	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	687	307	72	673	0	193	2	359	0	0	0
Peak Hour Factor	1.000	0.967	0.967	0.967	0.967	1.000	0.967	0.967	0.967	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	178	79	19	174	0	50	1	93	0	0	0
Total Analysis Volume [veh/h]	0	710	317	74	696	0	200	2	371	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	13	63	0	0	57	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	70	70	7	80	32	32	
g / C, Green / Cycle	0.58	0.58	0.05	0.67	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.22	0.04	0.20	0.12	0.24	
s, saturation flow rate [veh/h]	3427	1547	1714	3427	1715	1530	
c, Capacity [veh/h]	1986	896	94	2288	456	406	
d1, Uniform Delay [s]	13.26	13.63	56.01	8.31	36.68	42.72	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.13	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.48	1.23	13.30	0.34	0.68	9.73	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.34	0.38	0.79	0.30	0.44	0.91	
d, Delay for Lane Group [s/veh]	13.74	14.86	69.30	8.66	37.36	52.45	
Lane Group LOS	B	B	E	A	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	4.88	5.19	2.56	3.68	5.03	11.68	
50th-Percentile Queue Length [ft/ln]	122.08	129.76	64.05	91.97	125.86	292.08	
95th-Percentile Queue Length [veh/ln]	8.51	8.93	4.61	6.62	8.71	17.29	
95th-Percentile Queue Length [ft/ln]	212.68	223.17	115.28	165.54	217.86	432.23	

Movement, Approach, & Intersection Results

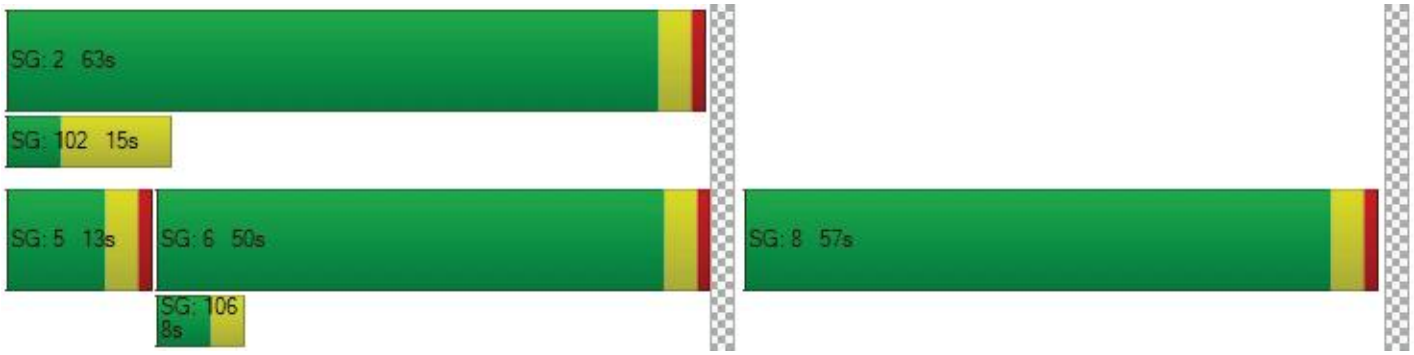
d_M, Delay for Movement [s/veh]	0.00	13.78	14.86	69.30	8.66	0.00	37.36	37.36	52.45	0.00	0.00	0.00
Movement LOS		B	B	E	A		D	D	D			
d_A, Approach Delay [s/veh]	14.11			14.48			47.13			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	22.22											
Intersection LOS	C											
Intersection V/C	0.507											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.142	1.822
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	983	883	0
d_b, Bicycle Delay [s]	22.82	15.50	18.70	60.00
l_b,int, Bicycle LOS Score for Intersection	2.124	2.195	2.505	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.692

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1043	269	204	682	0	496	3	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1043	269	204	682	0	496	3	344	0	0	0
Peak Hour Factor	1.000	0.915	0.915	0.915	0.915	1.000	0.915	0.915	0.915	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	285	73	56	186	0	136	1	94	0	0	0
Total Analysis Volume [veh/h]	0	1140	294	223	745	0	542	3	376	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	62	0	14	76	0	0	44	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	71	71	10	85	27	27	27	
g / C, Green / Cycle	0.59	0.59	0.08	0.71	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.40	0.43	0.07	0.22	0.18	0.18	0.20	
s, saturation flow rate [veh/h]	1800	1679	3329	3427	1714	1667	1530	
c, Capacity [veh/h]	1062	991	275	2420	389	379	348	
d1, Uniform Delay [s]	16.74	17.58	54.13	6.62	43.75	43.97	44.67	
k, delay calibration	0.50	0.50	0.11	0.50	0.12	0.13	0.16	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.44	4.59	5.70	0.33	4.20	5.11	9.50	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.67	0.72	0.81	0.31	0.80	0.81	0.87	
d, Delay for Lane Group [s/veh]	20.18	22.17	59.83	6.95	47.95	49.08	54.17	
Lane Group LOS	C	C	E	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.83	14.72	3.53	3.39	9.12	9.20	9.55	
50th-Percentile Queue Length [ft/ln]	345.77	368.11	88.19	84.79	228.0	229.9	238.7	
95th-Percentile Queue Length [veh/ln]	19.93	21.02	6.35	6.10	14.08	14.17	14.62	
95th-Percentile Queue Length [ft/ln]	498.24	525.44	158.75	152.62	351.9	354.3	365.4	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	20.92	22.17	59.83	6.95	0.00	48.44	49.08	53.22	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	21.17			19.13			50.37			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	28.67											
Intersection LOS	C											
Intersection V/C	0.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.371	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	1200	667	0
d_b, Bicycle Delay [s]	16.02	9.60	26.67	60.00
l_b,int, Bicycle LOS Score for Intersection	2.743	2.358	3.079	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.441

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1417	643	0	1189	41	193	0	409	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1417	643	0	1189	41	193	0	409	0	0	0
Peak Hour Factor	1.000	0.958	0.958	1.000	0.958	0.958	0.958	0.958	0.958	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	370	168	0	310	11	50	0	107	0	0	0
Total Analysis Volume [veh/h]	0	1479	671	0	1241	43	201	0	427	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	65	0	0	65	0	0	55	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	92	92	20	20	20	
g / C, Green / Cycle	0.77	0.77	0.17	0.17	0.17	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.25	0.12	0.14	0.14	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3756	3756	287	256	256	
d1, Uniform Delay [s]	4.71	4.40	47.12	48.34	48.34	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.31	0.24	3.10	6.96	6.96	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.39	0.33	0.70	0.83	0.83	
d, Delay for Lane Group [s/veh]	5.02	4.64	50.22	55.30	55.30	
Lane Group LOS	A	A	D	E	E	
Critical Lane Group	Yes	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.56	2.79	5.92	6.67	6.67	
50th-Percentile Queue Length [ft/ln]	89.02	69.77	147.9	166.8	166.8	
95th-Percentile Queue Length [veh/ln]	6.41	5.02	9.90	10.91	10.91	
95th-Percentile Queue Length [ft/ln]	160.23	125.59	247.6	272.7	272.7	

Movement, Approach, & Intersection Results

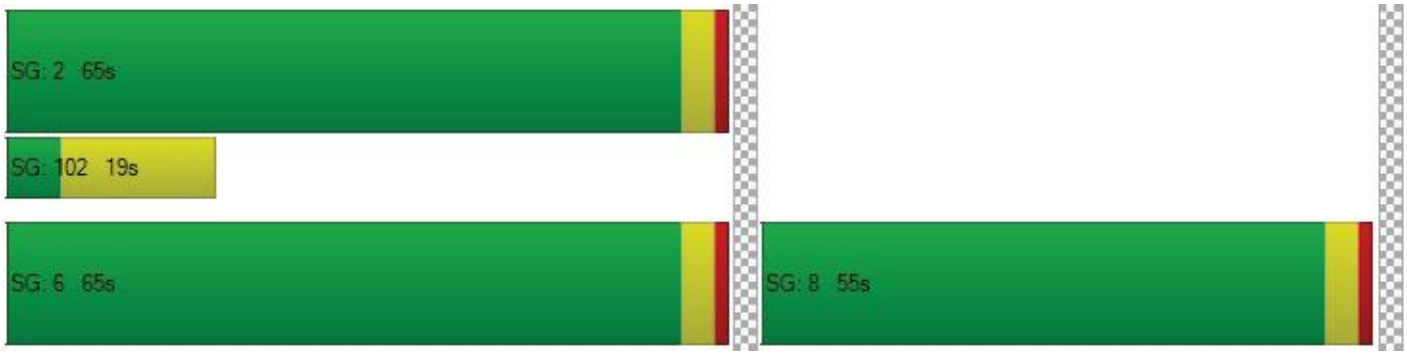
d_M, Delay for Movement [s/veh]	0.00	5.02	0.00	0.00	4.64	0.00	50.22	55.30	55.30	0.00	0.00	0.00
Movement LOS		A			A		D	E	E			
d_A, Approach Delay [s/veh]	5.02			4.64			53.67			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	14.00											
Intersection LOS	B											
Intersection V/C	0.441											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.299	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1017	850	0
d_b, Bicycle Delay [s]	14.50	14.50	19.84	60.00
l_b,int, Bicycle LOS Score for Intersection	2.373	2.242	2.596	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.389

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	384	87	100	386	54	65	324	60	68	185	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	384	87	100	386	54	65	324	60	68	185	82
Peak Hour Factor	0.884	0.884	0.884	0.884	0.884	0.884	0.884	0.884	0.884	0.884	0.884	0.884
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	109	25	28	109	15	18	92	17	19	52	23
Total Analysis Volume [veh/h]	29	434	98	113	437	61	74	367	68	77	209	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	14	29	0	43	65	0	11	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	70	70	10	76	76	7	18	18	7	18	18
g / C, Green / Cycle	0.03	0.58	0.58	0.08	0.64	0.64	0.06	0.15	0.15	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.07	0.14	0.14	0.04	0.12	0.12	0.04	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1687	1714	1800	1724	1714	1800	1704	1714	1800	1618
c, Capacity [veh/h]	45	1049	983	137	1145	1097	98	266	252	97	265	238
d1, Uniform Delay [s]	57.86	12.31	12.34	54.39	9.24	9.25	55.77	49.72	49.80	55.94	47.78	47.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.22	0.60	0.65	11.76	0.45	0.47	11.35	6.80	7.63	13.72	2.08	2.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.26	0.26	0.83	0.22	0.22	0.76	0.84	0.85	0.80	0.59	0.61
d, Delay for Lane Group [s/veh]	72.08	12.91	12.99	66.16	9.69	9.72	67.12	56.52	57.43	69.66	49.86	50.50
Lane Group LOS	E	B	B	E	A	A	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.05	3.72	3.54	3.81	2.86	2.77	2.52	6.97	6.75	2.67	4.52	4.26
50th-Percentile Queue Length [ft/ln]	26.27	92.96	88.59	95.22	71.56	69.16	62.94	174.3	168.6	66.79	112.9	106.5
95th-Percentile Queue Length [veh/ln]	1.89	6.69	6.38	6.86	5.15	4.98	4.53	11.31	11.01	4.81	8.01	7.65
95th-Percentile Queue Length [ft/ln]	47.29	167.3	159.4	171.3	128.8	124.5	113.3	282.6	275.1	120.2	200.1	191.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.08	12.94	12.99	66.16	9.70	9.72	67.12	56.88	57.43	69.66	50.03	50.50
Movement LOS	E	B	B	E	A	A	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	16.01			20.14			58.44			54.13		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	34.73											
Intersection LOS	C											
Intersection V/C	0.389											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.538	2.551	2.473	2.624
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	417	1017	483
d_b, Bicycle Delay [s]	36.82	37.60	14.50	34.50
l_b,int, Bicycle LOS Score for Intersection	2.022	2.064	1.980	1.872
Bicycle LOS	B	B	A	A

Sequence

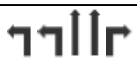
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	38.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.655

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	750	75	294	625	106	192	300	54	124	296	363
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	750	75	294	625	106	192	300	54	124	296	363
Peak Hour Factor	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	204	20	80	170	29	52	82	15	34	81	99
Total Analysis Volume [veh/h]	67	816	82	320	680	115	209	326	59	135	322	395
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	26	0	19	33	0	13	49	0	26	62	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	48	48	14	55	55	9	32	32	11	34	34
g / C, Green / Cycle	0.05	0.40	0.40	0.11	0.46	0.46	0.08	0.26	0.26	0.09	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.05	0.10	0.20	0.08	0.06	0.10	0.04	0.08	0.18	0.26
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	85	1359	607	375	1574	703	250	899	401	163	509	432
d1, Uniform Delay [s]	56.39	28.69	23.09	52.27	21.88	18.96	54.78	36.09	33.97	53.30	37.61	41.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.60	1.97	0.46	5.58	0.87	0.50	7.28	0.25	0.17	10.00	1.31	8.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.60	0.14	0.85	0.43	0.16	0.84	0.36	0.15	0.83	0.63	0.91
d, Delay for Lane Group [s/veh]	70.99	30.66	23.56	57.85	22.74	19.46	62.06	36.34	34.14	63.29	38.92	50.32
Lane Group LOS	E	C	C	E	C	B	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.35	9.60	1.57	5.02	6.61	1.98	3.37	3.94	1.35	4.45	8.43	12.24
50th-Percentile Queue Length [ft/ln]	58.83	239.9	39.27	125.4	165.1	49.47	84.22	98.49	33.76	111.3	210.8	306.1
95th-Percentile Queue Length [veh/ln]	4.24	14.68	2.83	8.69	10.82	3.56	6.06	7.09	2.43	7.91	13.20	17.98
95th-Percentile Queue Length [ft/ln]	105.9	366.9	70.68	217.2	270.5	89.04	151.5	177.2	60.76	197.8	329.9	449.5

Movement, Approach, & Intersection Results

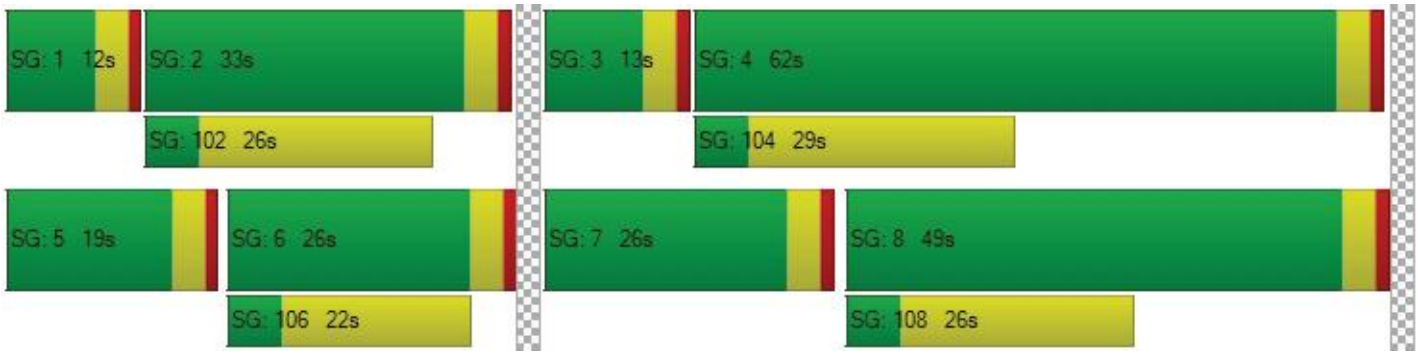
d_M, Delay for Movement [s/veh]	70.99	30.66	23.56	57.85	22.74	19.46	62.06	36.34	34.14	63.29	38.92	50.32
Movement LOS	E	C	C	E	C	B	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	32.85			32.48			45.17			48.06		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.49											
Intersection LOS	D											
Intersection V/C	0.655											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.767	2.962	2.762	2.725
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	483	750	967
d_b, Bicycle Delay [s]	40.02	34.50	23.44	16.02
l_b,int, Bicycle LOS Score for Intersection	2.356	2.479	2.050	2.965
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	41.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.764

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1316	65	357	973	241	426	251	51	69	171	354
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	1316	65	357	973	241	426	251	51	69	171	354
Peak Hour Factor	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	342	17	93	253	63	111	65	13	18	44	92
Total Analysis Volume [veh/h]	61	1368	68	371	1011	251	443	261	53	72	178	368
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	21	40	0	21	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	41	41	15	52	52	17	43	43	5	31	31
g / C, Green / Cycle	0.04	0.34	0.34	0.13	0.43	0.43	0.14	0.36	0.36	0.04	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.28	0.04	0.11	0.21	0.16	0.13	0.08	0.03	0.02	0.05	0.24
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	123	1674	522	416	2106	657	472	1239	553	129	886	396
d1, Uniform Delay [s]	56.68	36.09	27.23	51.70	24.61	23.37	50.99	26.48	25.34	56.67	34.79	43.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.31
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.05	4.55	0.51	6.75	0.79	1.68	9.47	0.08	0.07	3.75	0.11	22.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.82	0.13	0.89	0.48	0.38	0.94	0.21	0.10	0.56	0.20	0.93
d, Delay for Lane Group [s/veh]	59.72	40.64	27.75	58.45	25.39	25.05	60.46	26.56	25.41	60.43	34.90	65.61
Lane Group LOS	E	D	C	E	C	C	E	C	C	E	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.96	12.76	1.43	5.88	7.00	5.15	7.19	2.61	1.02	1.14	2.06	13.02
50th-Percentile Queue Length [ft/ln]	24.01	319.1	35.79	146.9	174.9	128.6	179.8	65.29	25.52	28.51	51.58	325.3
95th-Percentile Queue Length [veh/ln]	1.73	18.62	2.58	9.85	11.34	8.87	11.59	4.70	1.84	2.05	3.71	18.93
95th-Percentile Queue Length [ft/ln]	43.21	465.5	64.42	246.3	283.3	221.7	289.8	117.5	45.94	51.33	92.84	473.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.72	40.64	27.75	58.45	25.39	25.05	60.46	26.56	25.41	60.43	34.90	65.61
Movement LOS	E	D	C	E	C	C	E	C	C	E	C	E
d_A, Approach Delay [s/veh]	40.83			32.85			46.32			56.16		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	40.96											
Intersection LOS	D											
Intersection V/C	0.764											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.150	3.277	2.783	2.793
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	567	600	600
d_b, Bicycle Delay [s]	29.40	30.82	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.383	2.458	2.184	2.069
Bicycle LOS	B	B	B	B

Sequence

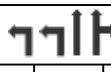
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	40.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.430

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	163	206	49	94	61	74	991	115	128	620	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	163	206	49	94	61	74	991	115	128	620	46
Peak Hour Factor	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	43	55	13	25	16	20	263	31	34	165	12
Total Analysis Volume [veh/h]	108	173	219	52	100	65	79	1053	122	136	659	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	36	36	11	31	0	15	60	0	13	58	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	59	72	5	58	58	7	32	32	9	34	34
g / C, Green / Cycle	0.05	0.49	0.60	0.04	0.48	0.48	0.06	0.26	0.26	0.08	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.03	0.10	0.14	0.03	0.05	0.05	0.05	0.23	0.23	0.04	0.20	0.20
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1575	1714	3427	1706	3329	1800	1757
c, Capacity [veh/h]	162	882	915	67	864	756	100	901	449	250	503	491
d1, Uniform Delay [s]	56.11	17.27	11.30	57.17	17.03	17.10	55.77	42.27	42.28	53.52	38.88	38.89
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.60	0.50	0.62	17.74	0.23	0.28	12.83	2.77	5.37	1.85	1.88	1.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.20	0.24	0.78	0.10	0.11	0.79	0.87	0.87	0.54	0.71	0.71
d, Delay for Lane Group [s/veh]	60.71	17.77	11.92	74.91	17.26	17.38	68.60	45.04	47.66	55.37	40.77	40.82
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.71	2.82	2.84	1.89	1.34	1.28	2.72	11.38	11.67	2.05	9.72	9.49
50th-Percentile Queue Length [ft/ln]	42.83	70.53	70.97	47.29	33.45	31.98	67.94	284.4	291.6	51.14	242.8	237.3
95th-Percentile Queue Length [veh/ln]	3.08	5.08	5.11	3.40	2.41	2.30	4.89	16.91	17.27	3.68	14.83	14.55
95th-Percentile Queue Length [ft/ln]	77.09	126.9	127.7	85.12	60.22	57.56	122.3	422.7	431.6	92.05	370.6	363.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.71	17.77	11.92	74.91	17.27	17.38	68.60	45.71	47.66	55.37	40.79	40.82
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.48			31.12			47.34			43.14		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.77											
Intersection LOS	D											
Intersection V/C	0.430											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.608	2.416	2.807	3.005
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	450	933	900
d_b, Bicycle Delay [s]	32.27	36.04	17.07	18.15
l_b,int, Bicycle LOS Score for Intersection	2.385	1.739	2.249	2.256
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.315

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	258	0	250	0	1047	169	0	558	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	258	0	250	0	1047	169	0	558	0
Peak Hour Factor	1.000	1.000	1.000	0.971	1.000	0.971	1.000	0.971	0.971	1.000	0.971	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	66	0	64	0	270	44	0	144	0
Total Analysis Volume [veh/h]	0	0	0	266	0	257	0	1078	174	0	575	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	40	0	0	0	80	0	0	80	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		15	15	97	97
g / C, Green / Cycle		0.12	0.12	0.81	0.81
(v / s)_i Volume / Saturation Flow Rate		0.08	0.09	0.22	0.12
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		407	331	3978	3978
d1, Uniform Delay [s]		50.26	51.09	2.74	2.42
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.79	3.95	0.17	0.08
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.65	0.78	0.27	0.14
d, Delay for Lane Group [s/veh]		52.05	55.04	2.91	2.50
Lane Group LOS		D	E	A	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.92	3.93	1.62	0.76
50th-Percentile Queue Length [ft/ln]		97.95	98.25	40.49	19.06
95th-Percentile Queue Length [veh/ln]		7.05	7.07	2.92	1.37
95th-Percentile Queue Length [ft/ln]		176.31	176.86	72.88	34.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	52.05	0.00	55.04	0.00	2.91	0.00	0.00	2.50	0.00
Movement LOS				D		E		A			A	
d_A, Approach Delay [s/veh]	0.00			53.52			2.91			2.50		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	14.96											
Intersection LOS	B											
Intersection V/C	0.315											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.417	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	600	1267	1267
d_b, Bicycle Delay [s]	60.00	29.40	8.07	8.07
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.153	1.876
Bicycle LOS	D	A	B	A

Sequence

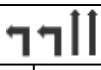
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	34.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.446

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	276	0	514	0	0	0	439	912	0	0	798	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	276	0	514	0	0	0	439	912	0	0	798	162
Peak Hour Factor	0.949	0.949	0.949	1.000	1.000	1.000	0.949	0.949	1.000	1.000	0.949	0.949
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	73	0	135	0	0	0	116	240	0	0	210	43
Total Analysis Volume [veh/h]	291	0	542	0	0	0	463	961	0	0	841	171
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	41	0	0	0	0	49	79	0	0	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	69		20	43	20
g / C, Green / Cycle	0.57	0.57	0.57		0.16	0.36	0.16
(v / s)_i Volume / Saturation Flow Rate	0.17	0.18	0.18		0.14	0.20	0.13
s, saturation flow rate [veh/h]	1714	1531	1530		3329	4903	6538
c, Capacity [veh/h]	982	877	876		547	1768	1065
d1, Uniform Delay [s]	13.18	13.33	13.33		48.66	30.50	48.24
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.76	0.92	0.92		3.71	0.26	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.31	0.31		0.85	0.54	0.79
d, Delay for Lane Group [s/veh]	13.94	14.25	14.25		52.37	30.76	49.59
Lane Group LOS	B	B	B		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.14	3.98	3.98		7.00	7.40	6.14
50th-Percentile Queue Length [ft/ln]	103.5	99.42	99.38		175.06	184.89	153.44
95th-Percentile Queue Length [veh/ln]	7.45	7.16	7.16		11.34	11.86	10.20
95th-Percentile Queue Length [ft/ln]	186.3	178.9	178.8		283.55	296.38	255.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.95	14.25	14.25	0.00	0.00	0.00	52.37	30.76	0.00	0.00	49.59	0.00
Movement LOS	B	B	B				D	C			D	
d_A, Approach Delay [s/veh]	14.14			0.00			37.79			49.59		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	34.64											
Intersection LOS	C											
Intersection V/C	0.446											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.349	1.956	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	0	1250	433
d_b, Bicycle Delay [s]	28.70	60.00	8.44	36.82
l_b,int, Bicycle LOS Score for Intersection	2.934	4.132	2.343	1.907
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	154	926	338	107	435	86	305	1060	81	292	590	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	154	926	338	107	435	86	305	1060	81	292	590	61
Peak Hour Factor	0.954	0.954	0.954	0.954	0.954	0.954	0.954	0.954	0.954	0.954	0.954	0.954
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	40	243	89	28	114	23	80	278	21	77	155	16
Total Analysis Volume [veh/h]	161	971	354	112	456	90	320	1111	85	306	618	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	43	0	9	40	0	27	49	0	19	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	54	54	5	51	51	14	32	32	13	31	31
g / C, Green / Cycle	0.06	0.45	0.45	0.04	0.43	0.43	0.12	0.27	0.27	0.11	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.05	0.20	0.23	0.03	0.09	0.06	0.10	0.23	0.06	0.09	0.13	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	213	2202	687	139	2092	653	391	1309	408	363	1267	395
d1, Uniform Delay [s]	55.23	22.70	23.69	57.02	21.74	20.95	51.70	41.69	34.14	52.46	37.76	34.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.34	0.64	2.75	10.49	0.24	0.44	4.25	1.63	0.25	5.38	0.29	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.44	0.52	0.81	0.22	0.14	0.82	0.85	0.21	0.84	0.49	0.16
d, Delay for Lane Group [s/veh]	60.57	23.34	26.43	67.51	21.98	21.39	55.95	43.32	34.39	57.84	38.05	34.63
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.55	6.37	7.64	1.89	2.76	1.63	4.93	10.52	1.97	4.79	5.18	1.48
50th-Percentile Queue Length [ft/ln]	63.84	159.2	191.1	47.15	69.05	40.74	123.3	263.0	49.23	119.7	129.5	36.98
95th-Percentile Queue Length [veh/ln]	4.60	10.51	12.18	3.39	4.97	2.93	8.57	15.84	3.54	8.38	8.91	2.66
95th-Percentile Queue Length [ft/ln]	114.9	262.7	304.4	84.87	124.3	73.33	214.3	396.1	88.62	209.5	222.8	66.56

Movement, Approach, & Intersection Results

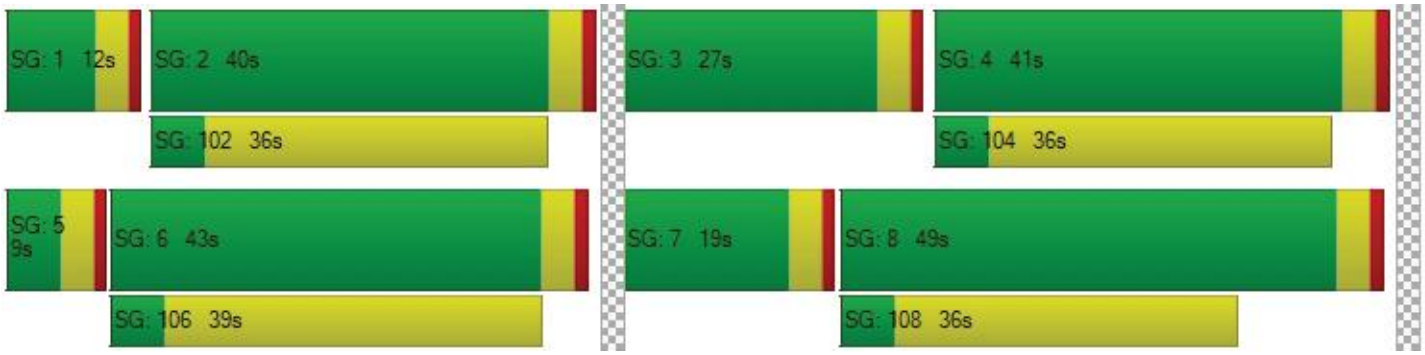
d_M, Delay for Movement [s/veh]	60.57	23.34	26.43	67.51	21.98	21.39	55.95	43.32	34.39	57.84	38.05	34.63
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	C
d_A, Approach Delay [s/veh]	28.11			29.65			45.49			43.96		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.37											
Intersection LOS	D											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.117	3.083	3.305	3.232
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	600	750	617
d_b, Bicycle Delay [s]	27.34	29.40	23.44	28.70
l_b,int, Bicycle LOS Score for Intersection	2.377	1.922	2.393	2.103
Bicycle LOS	B	A	B	B

Sequence

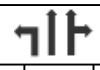
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	43.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.445

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	94	250	24	131	191	90	211	979	73	65	552	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	250	24	131	191	90	211	979	73	65	552	121
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	68	7	36	52	25	58	268	20	18	151	33
Total Analysis Volume [veh/h]	103	274	26	143	209	99	231	1072	80	71	605	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	0	17	40	0	37	56	0	11	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	53	53	12	56	56	18	33	33	6	21	21
g / C, Green / Cycle	0.07	0.44	0.44	0.10	0.47	0.47	0.15	0.27	0.27	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.02	0.08	0.09	0.09	0.13	0.22	0.05	0.04	0.14	0.15
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1584	1714	4903	1506	1687	3427	1641
c, Capacity [veh/h]	126	1513	675	168	826	739	262	1344	413	89	596	285
d1, Uniform Delay [s]	54.80	20.34	19.04	53.23	18.79	18.85	49.74	40.47	33.40	56.19	47.88	48.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.09	0.26	0.11	11.15	0.52	0.61	9.31	1.13	0.23	14.65	3.12	6.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.18	0.04	0.85	0.19	0.20	0.88	0.80	0.19	0.80	0.83	0.85
d, Delay for Lane Group [s/veh]	66.89	20.60	19.15	64.38	19.31	19.46	59.05	41.60	33.62	70.84	51.00	54.91
Lane Group LOS	E	C	B	E	B	B	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.49	2.40	0.44	4.76	2.74	2.55	7.45	9.89	1.83	2.49	7.41	7.54
50th-Percentile Queue Length [ft/ln]	87.28	59.88	10.89	119.0	68.57	63.79	186.2	247.3	45.70	62.24	185.2	188.4
95th-Percentile Queue Length [veh/ln]	6.28	4.31	0.78	8.34	4.94	4.59	11.93	15.05	3.29	4.48	11.88	12.04
95th-Percentile Queue Length [ft/ln]	157.1	107.7	19.60	208.5	123.4	114.8	298.1	376.3	82.26	112.0	296.8	301.0

Movement, Approach, & Intersection Results

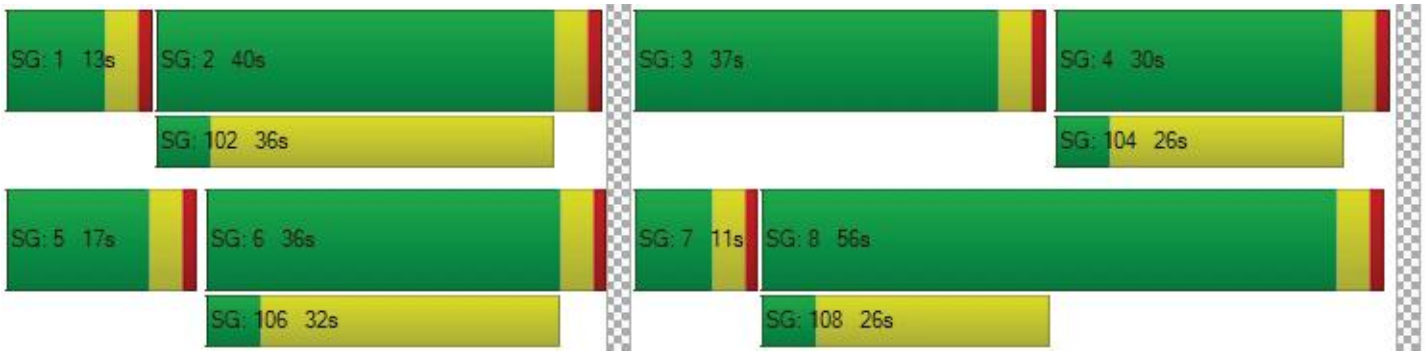
d_M, Delay for Movement [s/veh]	66.89	20.60	19.15	64.38	19.35	19.46	59.05	41.60	33.62	70.84	51.70	54.91
Movement LOS	E	C	B	E	B	B	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	32.34			33.65			44.05			53.91		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	43.58											
Intersection LOS	D											
Intersection V/C	0.445											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.592	2.645	3.102	2.991
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	867	433
d_b, Bicycle Delay [s]	32.27	29.40	19.27	36.82
l_b,int, Bicycle LOS Score for Intersection	1.892	1.932	2.320	2.005
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.477

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	607	69	127	443	106	299	720	115	160	526	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	607	69	127	443	106	299	720	115	160	526	58
Peak Hour Factor	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	157	18	33	114	27	77	186	30	41	136	15
Total Analysis Volume [veh/h]	98	627	71	131	458	110	309	744	119	165	543	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	20	40	0	23	43	0	27	45	0	12	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	63	63	11	65	65	14	22	22	8	17	32
g / C, Green / Cycle	0.07	0.52	0.52	0.09	0.54	0.54	0.11	0.19	0.19	0.07	0.14	0.26
(v / s)_i Volume / Saturation Flow Rate	0.06	0.20	0.20	0.08	0.13	0.07	0.09	0.15	0.08	0.05	0.11	0.04
s, saturation flow rate [veh/h]	1714	1800	1737	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	122	941	908	159	1866	833	376	911	284	217	676	404
d1, Uniform Delay [s]	54.89	17.03	17.03	53.45	14.37	13.42	52.03	46.90	43.14	55.16	50.15	33.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.45	1.15	1.20	10.01	0.31	0.33	4.48	1.86	0.98	5.40	2.29	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.38	0.38	0.82	0.25	0.13	0.82	0.82	0.42	0.76	0.80	0.15
d, Delay for Lane Group [s/veh]	66.34	18.18	18.23	63.45	14.69	13.74	56.51	48.76	44.12	60.57	52.44	33.98
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.31	6.06	5.86	4.32	3.33	1.53	4.78	7.25	3.21	2.62	5.41	1.37
50th-Percentile Queue Length [ft/ln]	82.68	151.4	146.5	108.0	83.21	38.30	119.4	181.3	80.22	65.43	135.1	34.27
95th-Percentile Queue Length [veh/ln]	5.95	10.09	9.83	7.73	5.99	2.76	8.36	11.67	5.78	4.71	9.22	2.47
95th-Percentile Queue Length [ft/ln]	148.8	252.3	245.8	193.3	149.7	68.94	209.1	291.7	144.4	117.7	230.4	61.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.34	18.20	18.23	63.45	14.69	13.74	56.51	48.76	44.12	60.57	52.44	33.98
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	24.13			23.68			50.33			52.74		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.37											
Intersection LOS	D											
Intersection V/C	0.477											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.615	2.744	3.073	3.149
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	683	433
d_b, Bicycle Delay [s]	29.40	27.34	26.00	36.82
l_b,int, Bicycle LOS Score for Intersection	2.216	2.136	2.204	1.982
Bicycle LOS	B	B	B	A

Sequence

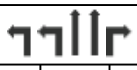
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.471

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	104	974	61	226	510	55	136	597	90	92	640	235
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	974	61	226	510	55	136	597	90	92	640	235
Peak Hour Factor	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	248	16	58	130	14	35	152	23	23	163	60
Total Analysis Volume [veh/h]	106	994	62	231	520	56	139	609	92	94	653	240
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	40	0	15	44	0	11	56	0	9	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	64	64	10	69	69	7	25	25	5	23	23
g / C, Green / Cycle	0.05	0.53	0.53	0.09	0.57	0.57	0.06	0.21	0.21	0.04	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.03	0.20	0.04	0.07	0.15	0.04	0.04	0.12	0.06	0.03	0.13	0.16
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	156	2616	816	284	1960	875	190	1011	315	139	935	292
d1, Uniform Delay [s]	56.29	16.38	13.61	53.94	12.97	11.42	55.65	43.17	40.23	56.71	45.34	46.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.06	0.42	0.18	5.58	0.33	0.14	5.28	0.58	0.51	5.67	0.96	5.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.38	0.08	0.81	0.27	0.06	0.73	0.60	0.29	0.68	0.70	0.82
d, Delay for Lane Group [s/veh]	61.35	16.80	13.79	59.51	13.30	11.56	60.94	43.75	40.73	62.38	46.30	52.39
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.69	5.36	0.86	3.65	3.57	0.69	2.21	5.52	2.35	1.51	6.14	7.33
50th-Percentile Queue Length [ft/ln]	42.28	133.9	21.46	91.15	89.33	17.37	55.25	138.1	58.86	37.87	153.4	183.3
95th-Percentile Queue Length [veh/ln]	3.04	9.15	1.54	6.56	6.43	1.25	3.98	9.38	4.24	2.73	10.20	11.77
95th-Percentile Queue Length [ft/ln]	76.10	228.8	38.62	164.0	160.8	31.26	99.44	234.4	105.9	68.17	255.0	294.3

Movement, Approach, & Intersection Results

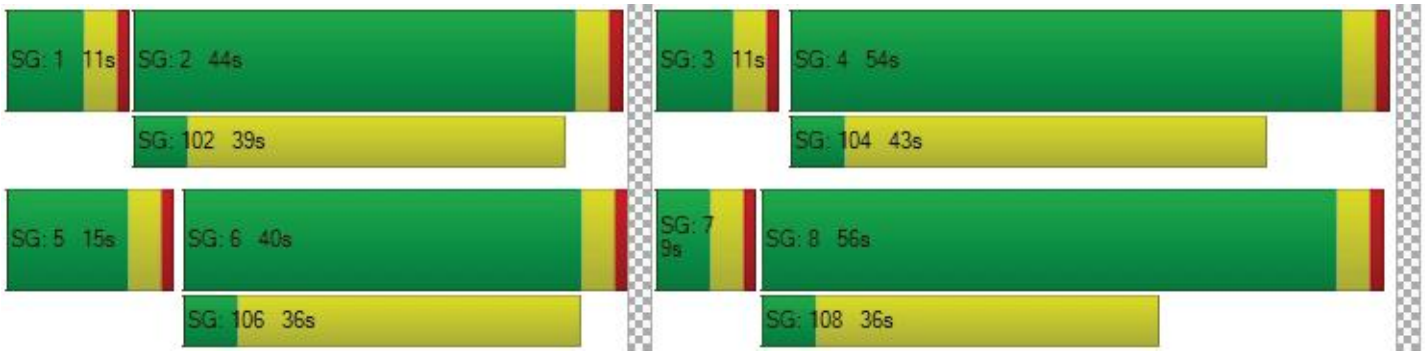
d_M, Delay for Movement [s/veh]	61.35	16.80	13.79	59.51	13.30	11.56	60.94	43.75	40.73	62.38	46.30	52.39
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	20.70			26.40			46.27			49.31		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.01											
Intersection LOS	D											
Intersection V/C	0.471											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.067	3.287	3.143	3.069
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	667	867	833
d_b, Bicycle Delay [s]	29.40	26.67	19.27	20.42
l_b,int, Bicycle LOS Score for Intersection	2.199	2.225	2.022	2.102
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	43.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.485

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	256	98	23	224	93	137	439	167	42	256	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	256	98	23	224	93	137	439	167	42	256	30
Peak Hour Factor	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	66	25	6	58	24	35	114	43	11	66	8
Total Analysis Volume [veh/h]	138	265	102	24	232	96	142	455	173	44	265	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	28	0	10	23	23	0	52	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	55	55	3	47	47	31	31	15	15
g / C, Green / Cycle	0.09	0.46	0.46	0.02	0.39	0.39	0.26	0.26	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.08	0.11	0.11	0.01	0.07	0.06	0.23	0.24	0.10	0.10
s, saturation flow rate [veh/h]	1714	1800	1633	1714	3427	1530	1770	1508	1778	1584
c, Capacity [veh/h]	157	829	753	40	1345	600	461	393	217	193
d1, Uniform Delay [s]	53.84	19.51	19.56	58.04	23.76	23.63	42.85	42.89	51.44	51.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.18	0.65	0.73	13.50	0.28	0.57	6.62	7.78	7.75	8.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.23	0.23	0.60	0.17	0.16	0.90	0.90	0.83	0.83
d, Delay for Lane Group [s/veh]	68.01	20.16	20.29	71.54	24.04	24.20	49.47	50.66	59.19	60.49
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.73	3.36	3.14	0.87	2.21	1.87	12.66	10.95	5.72	5.21
50th-Percentile Queue Length [ft/ln]	118.2	83.92	78.39	21.81	55.27	46.80	316.38	273.69	143.08	130.29
95th-Percentile Queue Length [veh/ln]	8.30	6.04	5.64	1.57	3.98	3.37	18.49	16.37	9.65	8.96
95th-Percentile Queue Length [ft/ln]	207.4	151.0	141.1	39.27	99.48	84.24	462.23	409.35	241.16	223.89

Movement, Approach, & Intersection Results

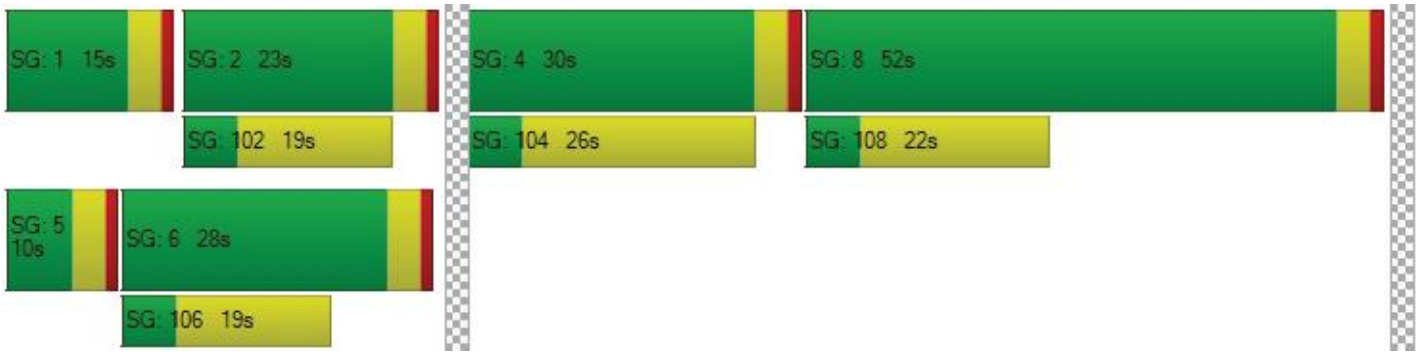
d_M, Delay for Movement [s/veh]	68.01	20.20	20.29	71.54	24.04	24.20	49.47	49.95	50.66	59.19	59.83	60.49
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	33.28			27.32			50.02			59.81		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	43.35											
Intersection LOS	D											
Intersection V/C	0.485											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.501	2.596	2.456	2.371
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	317	800	433
d_b, Bicycle Delay [s]	38.40	42.50	21.60	36.82
l_b,int, Bicycle LOS Score for Intersection	1.976	1.850	2.195	1.840
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.856

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	167	0	536	0	1898	934	0	1348	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	167	0	536	0	1898	934	0	1348	0
Peak Hour Factor	1.000	1.000	1.000	0.918	1.000	0.918	1.000	0.918	0.918	1.000	0.918	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	45	0	146	0	517	254	0	367	0
Total Analysis Volume [veh/h]	0	0	0	182	0	584	0	2068	1017	0	1468	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	30	0	0	0	90	0	0	90	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		25	25	25	87	87	87
g / C, Green / Cycle		0.21	0.21	0.21	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate		0.11	0.19	0.19	0.42	0.66	0.30
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		357	318	318	3556	1110	3556
d1, Uniform Delay [s]		42.09	46.50	46.50	7.83	13.51	6.47
k, delay calibration		0.11	0.28	0.28	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.13	21.85	21.85	0.70	13.19	0.36
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.51	0.92	0.92	0.58	0.92	0.41
d, Delay for Lane Group [s/veh]		43.22	68.35	68.35	8.54	26.70	6.82
Lane Group LOS		D	E	E	A	C	A
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		4.90	10.42	10.42	7.70	23.06	4.49
50th-Percentile Queue Length [ft/ln]		122.5	260.5	260.5	192.41	576.47	112.27
95th-Percentile Queue Length [veh/ln]		8.53	15.72	15.72	12.25	30.93	7.97
95th-Percentile Queue Length [ft/ln]		213.3	392.9	392.9	306.15	773.35	199.16

Movement, Approach, & Intersection Results

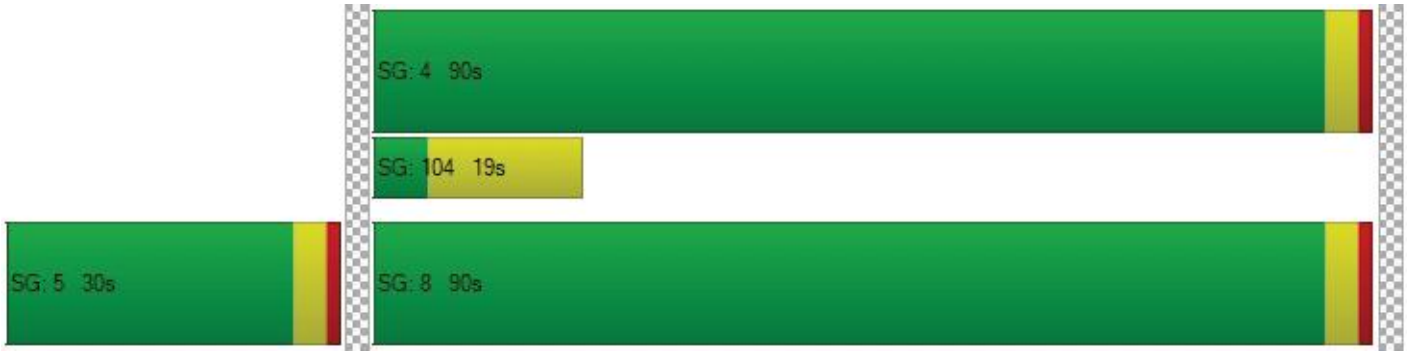
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	43.22	0.00	68.35	0.00	8.54	26.70	0.00	6.82	0.00
Movement LOS				D		E		A	C		A	
d_A, Approach Delay [s/veh]	0.00			62.38			14.52			6.82		
Approach LOS	A			E			B			A		
d_I, Intersection Delay [s/veh]	19.29											
Intersection LOS	B											
Intersection V/C	0.856											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.333	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	433	1433	1433
d_b, Bicycle Delay [s]	60.00	36.82	4.82	4.82
l_b,int, Bicycle LOS Score for Intersection	4.132	2.824	3.256	2.367
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	731	0	465	0	0	0	0	1092	0	0	1114	292
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	731	0	465	0	0	0	0	1092	0	0	1114	292
Peak Hour Factor	0.939	1.000	0.939	1.000	1.000	1.000	1.000	0.939	1.000	1.000	0.939	0.939
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	195	0	124	0	0	0	0	291	0	0	297	78
Total Analysis Volume [veh/h]	778	0	495	0	0	0	0	1163	0	0	1186	311
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	93	0	0	0	0	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	38	38	38		74	74	74
g / C, Green / Cycle	0.31	0.31	0.31		0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.25	0.25	0.28		0.24	0.24	0.20
s, saturation flow rate [veh/h]	1714	1681	1530		4903	4903	1530
c, Capacity [veh/h]	537	527	479		3040	3040	949
d1, Uniform Delay [s]	37.59	37.84	39.14		11.36	11.43	10.88
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.65	2.96	5.63		0.37	0.38	0.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.81	0.89		0.38	0.39	0.33
d, Delay for Lane Group [s/veh]	40.24	40.81	44.78		11.73	11.81	11.80
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	11.69	11.80	12.51		5.06	5.19	4.05
50th-Percentile Queue Length [ft/ln]	292.2	295.1	312.8		126.53	129.85	101.28
95th-Percentile Queue Length [veh/ln]	17.30	17.44	18.31		8.75	8.93	7.29
95th-Percentile Queue Length [ft/ln]	432.4	435.9	457.8		218.77	223.29	182.31

Movement, Approach, & Intersection Results

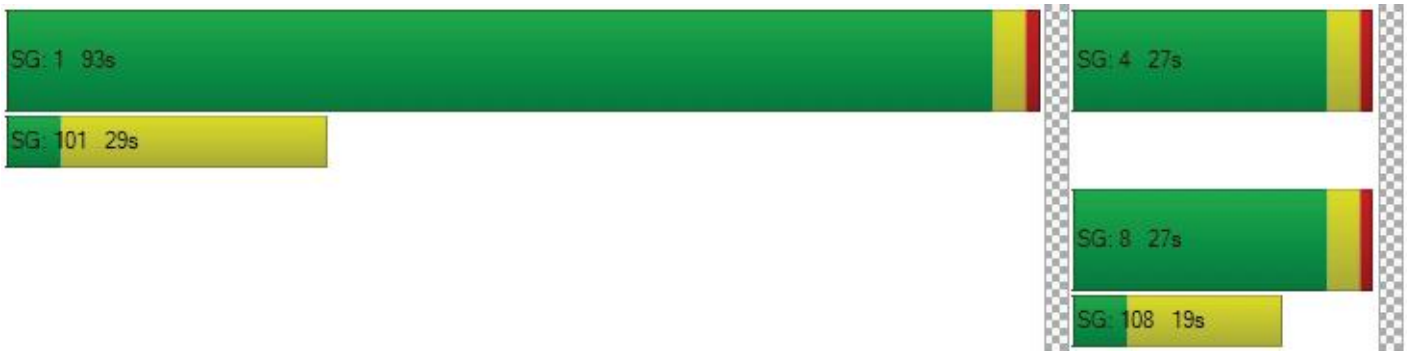
d_M, Delay for Movement [s/veh]	40.50	0.00	44.21	0.00	0.00	0.00	0.00	11.73	0.00	0.00	11.81	11.80
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	41.94			0.00			11.73			11.81		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	21.54											
Intersection LOS	C											
Intersection V/C	0.519											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.457	0.000	0.000	3.049
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1483	0	383	383
d_b, Bicycle Delay [s]	4.00	60.00	39.20	39.20
l_b,int, Bicycle LOS Score for Intersection	3.660	4.132	2.199	2.383
Bicycle LOS	D	D	B	B

Sequence

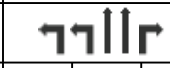
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	41.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.572

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	260	348	189	62	209	155	236	931	176	104	748	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	260	348	189	62	209	155	236	931	176	104	748	47
Peak Hour Factor	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	66	88	48	16	53	39	60	235	44	26	189	12
Total Analysis Volume [veh/h]	263	352	191	63	211	157	239	941	178	105	756	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	26	52	0	10	36	0	15	49	49	9	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	57	57	6	42	42	11	36	61	5	31	31
g / C, Green / Cycle	0.17	0.47	0.47	0.05	0.35	0.35	0.09	0.30	0.51	0.04	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.12	0.04	0.11	0.11	0.07	0.27	0.12	0.03	0.22	0.03
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1553	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	291	853	725	80	631	545	292	1043	777	139	885	395
d1, Uniform Delay [s]	48.84	20.64	18.97	56.60	28.34	28.49	53.80	40.03	16.47	56.90	42.35	34.08
k, delay calibration	0.17	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.46	1.47	0.89	15.40	1.26	1.55	5.61	3.21	0.15	8.13	2.48	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.41	0.26	0.79	0.31	0.32	0.82	0.90	0.23	0.76	0.85	0.12
d, Delay for Lane Group [s/veh]	63.30	22.12	19.86	72.00	29.59	30.04	59.41	43.23	16.62	65.03	44.83	34.21
Lane Group LOS	E	C	B	E	C	C	E	D	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.87	6.75	3.37	2.23	4.28	3.91	3.77	13.65	2.76	1.73	10.90	1.10
50th-Percentile Queue Length [ft/ln]	221.8	168.7	84.28	55.81	107.0	97.87	94.29	341.1	69.08	43.30	272.6	27.45
95th-Percentile Queue Length [veh/ln]	13.76	11.01	6.07	4.02	7.68	7.05	6.79	19.70	4.97	3.12	16.32	1.98
95th-Percentile Queue Length [ft/ln]	343.9	275.3	151.7	100.4	191.8	176.1	169.7	492.5	124.3	77.94	407.9	49.41

Movement, Approach, & Intersection Results

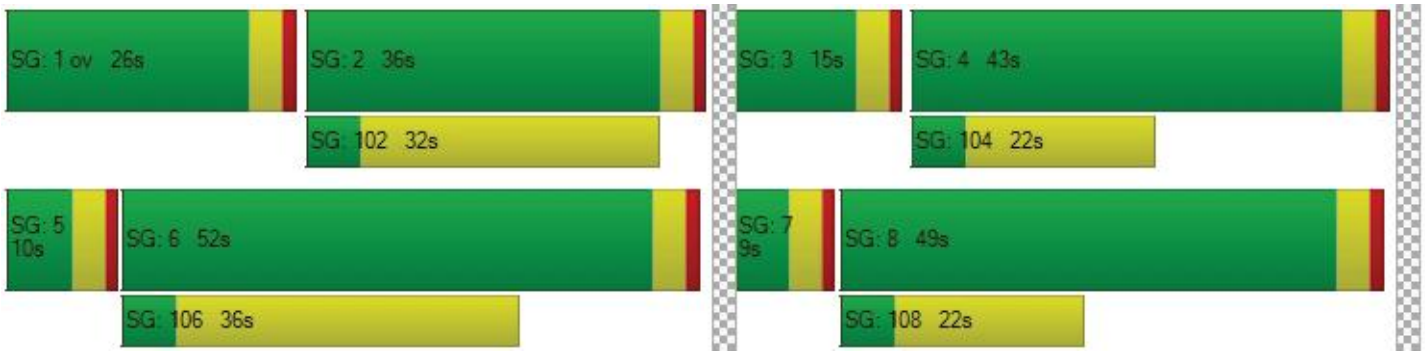
d_M, Delay for Movement [s/veh]	63.30	22.12	19.86	72.00	29.63	30.04	59.41	43.23	16.62	65.03	44.83	34.21
Movement LOS	E	C	B	E	C	C	E	D	B	E	D	C
d_A, Approach Delay [s/veh]	35.02			35.97			42.59			46.60		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.08											
Intersection LOS	D											
Intersection V/C	0.572											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.569	2.524	3.050	3.092
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	533	750	650
d_b, Bicycle Delay [s]	21.60	32.27	23.44	27.34
l_b,int, Bicycle LOS Score for Intersection	2.890	1.915	2.680	2.310
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	276	828	230	281	634	195	247	860	100	135	567	123
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	276	828	230	281	634	195	247	860	100	135	567	123
Peak Hour Factor	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	70	210	58	71	161	49	63	218	25	34	144	31
Total Analysis Volume [veh/h]	280	841	234	285	644	198	251	873	102	137	576	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	26	40	0	26	40	40	14	43	0	11	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	21	50	50	22	50	64	10	25	25	7	22	48
g / C, Green / Cycle	0.18	0.42	0.42	0.18	0.42	0.54	0.08	0.21	0.21	0.06	0.19	0.40
(v / s)_i Volume / Saturation Flow Rate	0.16	0.17	0.15	0.17	0.13	0.13	0.08	0.18	0.07	0.04	0.12	0.08
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	305	2044	638	310	2058	821	277	1043	325	189	912	612
d1, Uniform Delay [s]	48.49	24.63	24.09	48.32	23.26	14.82	54.53	45.25	39.85	55.69	45.05	23.53
k, delay calibration	0.20	0.50	0.50	0.20	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.70	0.61	1.63	18.30	0.40	0.70	10.66	1.87	0.54	5.25	0.73	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.41	0.37	0.92	0.31	0.24	0.90	0.84	0.31	0.73	0.63	0.20
d, Delay for Lane Group [s/veh]	66.19	25.24	25.72	66.62	23.66	15.51	65.19	47.12	40.40	60.94	45.78	23.70
Lane Group LOS	E	C	C	E	C	B	E	D	D	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.71	5.71	4.85	9.92	4.14	3.01	4.17	8.46	2.60	2.18	5.34	2.36
50th-Percentile Queue Length [ft/ln]	242.6	142.7	121.3	248.1	103.4	75.31	104.1	211.4	65.12	54.45	133.5	59.04
95th-Percentile Queue Length [veh/ln]	14.82	9.63	8.47	15.09	7.45	5.42	7.50	13.23	4.69	3.92	9.13	4.25
95th-Percentile Queue Length [ft/ln]	370.3	240.7	211.7	377.2	186.2	135.5	187.5	330.7	117.2	98.01	228.3	106.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.19	25.24	25.72	66.62	23.66	15.51	65.19	47.12	40.40	60.94	45.78	23.70
Movement LOS	E	C	C	E	C	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	33.79			33.09			50.26			44.97		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.12											
Intersection LOS	D											
Intersection V/C	0.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.013	3.118	3.111	3.106
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	650	600
d_b, Bicycle Delay [s]	29.40	29.40	27.34	29.40
l_b,int, Bicycle LOS Score for Intersection	2.305	2.179	2.234	2.021
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	961.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.327

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	60	0	118	0	0	0	0	1326	54	104	760	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	0	118	0	0	0	0	1326	54	104	760	0
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	0	31	0	0	0	0	350	14	27	201	0
Total Analysis Volume [veh/h]	63	0	125	0	0	0	0	1402	57	110	803	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	2.33	0.00	0.34	0.00	0.00	0.00	0.00	0.01	0.00	0.23	0.01	0.00
d_M, Delay for Movement [s/veh]	961.6	978.9	838.4	118.6	161.7	10.96	9.34	0.00	0.00	15.00	0.00	0.00
Movement LOS	F	F	F	F	F	B	A	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	18.49	18.49	18.49	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00
95th-Percentile Queue Length [ft/ln]	462.3	462.3	462.3	0.00	0.00	0.00	0.00	0.00	0.00	22.50	0.00	0.00
d_A, Approach Delay [s/veh]	879.72			97.11			0.00			1.81		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	65.25											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	46.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.725

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	673	87	131	551	71	256	837	177	287	553	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	673	87	131	551	71	256	837	177	287	553	119
Peak Hour Factor	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	173	22	34	142	18	66	216	46	74	143	31
Total Analysis Volume [veh/h]	142	694	90	135	568	73	264	863	182	296	570	123
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	36	0	15	36	0	30	37	0	32	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	37	37	11	37	37	21	33	33	23	35	35
g / C, Green / Cycle	0.09	0.31	0.31	0.09	0.31	0.31	0.17	0.28	0.28	0.19	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.22	0.08	0.18	0.18	0.15	0.25	0.12	0.17	0.17	0.08
s, saturation flow rate [veh/h]	1714	1800	1729	1714	1800	1729	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	157	556	534	157	556	534	294	945	422	326	1008	450
d1, Uniform Delay [s]	53.98	36.82	36.82	53.74	34.99	35.00	48.66	42.06	35.72	47.57	35.85	32.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.17	0.11	0.11	0.22	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.74	7.79	8.10	12.59	4.49	4.69	13.85	3.93	0.70	17.25	0.50	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.72	0.72	0.86	0.59	0.59	0.90	0.91	0.43	0.91	0.57	0.27
d, Delay for Lane Group [s/veh]	70.72	44.61	44.92	66.33	39.48	39.69	62.51	45.98	36.41	64.82	36.35	32.82
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.97	11.56	11.15	4.56	8.73	8.43	8.86	12.76	4.47	10.20	7.12	2.80
50th-Percentile Queue Length [ft/ln]	124.3	288.9	278.6	114.0	218.3	210.8	221.4	319.1	111.7	254.9	177.9	69.97
95th-Percentile Queue Length [veh/ln]	8.63	17.14	16.62	8.07	13.58	13.20	13.74	18.62	7.94	15.43	11.50	5.04
95th-Percentile Queue Length [ft/ln]	215.7	428.3	415.5	201.6	339.4	329.9	343.4	465.5	198.4	385.8	287.3	125.9

Movement, Approach, & Intersection Results

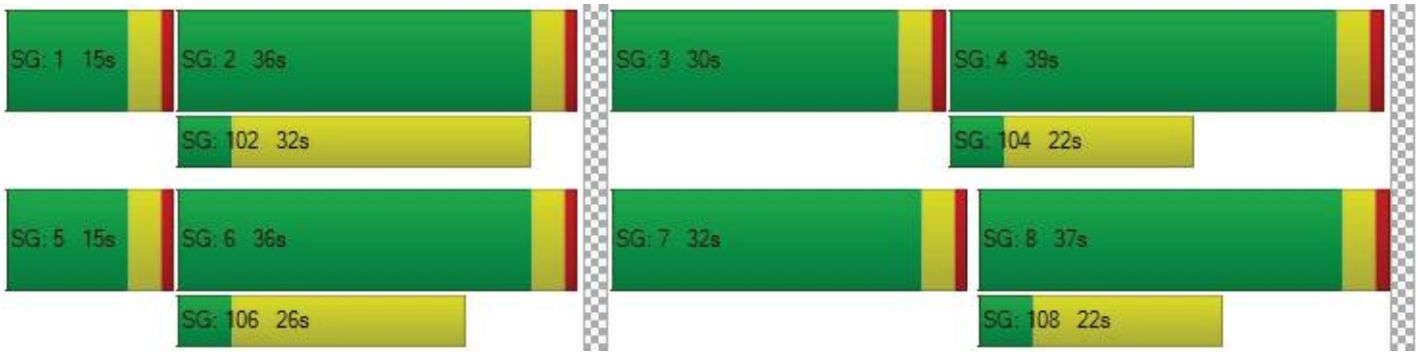
d_M, Delay for Movement [s/veh]	70.72	44.74	44.92	66.33	39.57	39.69	62.51	45.98	36.41	64.82	36.35	32.82
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	48.74			44.24			47.99			44.43		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	46.56											
Intersection LOS	D											
Intersection V/C	0.725											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.700	2.677	2.808	2.806
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	550	583
d_b, Bicycle Delay [s]	32.27	32.27	31.54	30.10
l_b,int, Bicycle LOS Score for Intersection	2.324	2.200	2.640	2.376
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	798	135	153	488	119	200	689	134	200	501	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	798	135	153	488	119	200	689	134	200	501	162
Peak Hour Factor	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	202	34	39	124	30	51	175	34	51	127	41
Total Analysis Volume [veh/h]	104	809	137	155	495	121	203	699	136	203	508	164
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	30	0	19	33	0	31	39	0	32	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	47	47	13	51	51	16	28	28	16	28	28
g / C, Green / Cycle	0.07	0.39	0.39	0.11	0.43	0.43	0.14	0.23	0.23	0.14	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.24	0.09	0.09	0.14	0.08	0.12	0.20	0.09	0.12	0.15	0.11
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	128	1349	602	181	1455	650	233	793	354	233	793	354
d1, Uniform Delay [s]	54.69	28.89	24.24	52.75	23.22	21.57	50.81	44.54	38.92	50.79	41.61	39.70
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.56	1.98	0.88	10.87	0.64	0.63	9.64	3.44	0.68	9.57	0.87	0.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.60	0.23	0.86	0.34	0.19	0.87	0.88	0.38	0.87	0.64	0.46
d, Delay for Lane Group [s/veh]	66.25	30.87	25.12	63.62	23.86	22.21	60.45	47.98	39.60	60.36	42.48	40.64
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.51	9.54	2.75	5.14	4.84	2.25	6.59	10.36	3.46	6.59	6.88	4.27
50th-Percentile Queue Length [ft/ln]	87.68	238.4	68.80	128.4	120.9	56.32	164.8	259.1	86.55	164.7	171.9	106.7
95th-Percentile Queue Length [veh/ln]	6.31	14.60	4.95	8.85	8.44	4.06	10.81	15.64	6.23	10.80	11.18	7.66
95th-Percentile Queue Length [ft/ln]	157.8	365.0	123.8	221.3	211.1	101.3	270.1	391.0	155.7	269.9	279.4	191.4

Movement, Approach, & Intersection Results

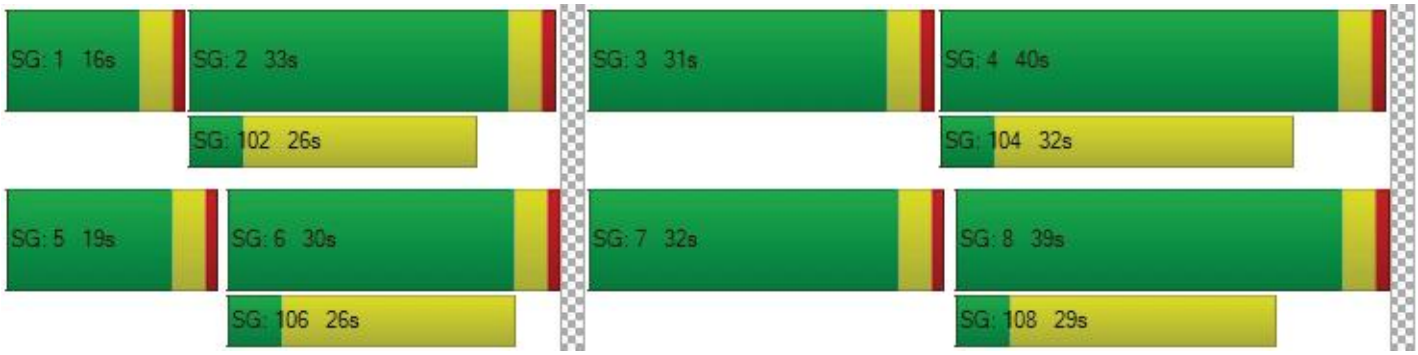
d_M, Delay for Movement [s/veh]	66.25	30.87	25.12	63.62	23.86	22.21	60.45	47.98	39.60	60.36	42.48	40.64
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	33.62			31.59			49.32			46.28		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.53											
Intersection LOS	D											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.872	2.978	2.756	2.771
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	483	583	600
d_b, Bicycle Delay [s]	36.82	34.50	30.10	29.40
l_b,int, Bicycle LOS Score for Intersection	2.426	2.196	2.416	2.281
Bicycle LOS	B	B	B	B

Sequence

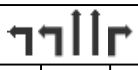
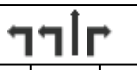
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	163	520	116	127	235	114	349	622	387	100	360	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	163	520	116	127	235	114	349	622	387	100	360	144
Peak Hour Factor	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	135	30	33	61	30	91	162	101	26	94	37
Total Analysis Volume [veh/h]	170	541	121	132	245	119	363	647	403	104	375	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	30	30	14	30	30	44	67	67	9	32	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	43	52	10	43	63	16	46	60	5	35	35
g / C, Green / Cycle	0.08	0.36	0.43	0.08	0.36	0.52	0.13	0.39	0.50	0.04	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.05	0.16	0.08	0.08	0.07	0.08	0.11	0.36	0.26	0.03	0.15	0.15
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1628
c, Capacity [veh/h]	277	1221	660	143	1221	803	451	694	768	139	525	475
d1, Uniform Delay [s]	53.13	29.53	21.08	54.62	26.79	14.68	50.33	35.37	20.19	56.88	35.51	35.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.24	0.49	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.19	1.17	0.61	20.64	0.37	0.39	3.42	12.09	2.51	7.85	0.81	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.44	0.18	0.92	0.20	0.15	0.80	0.93	0.52	0.75	0.52	0.53
d, Delay for Lane Group [s/veh]	55.32	30.70	21.69	75.26	27.16	15.07	53.75	47.46	22.69	64.73	36.32	36.50
Lane Group LOS	E	C	C	E	C	B	D	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.56	6.17	2.22	4.78	2.51	1.76	5.50	20.11	8.04	1.71	6.81	6.26
50th-Percentile Queue Length [ft/ln]	64.08	154.1	55.61	119.4	62.84	44.03	137.5	502.6	200.8	42.78	170.2	156.5
95th-Percentile Queue Length [veh/ln]	4.61	10.24	4.00	8.36	4.52	3.17	9.35	27.46	12.68	3.08	11.09	10.36
95th-Percentile Queue Length [ft/ln]	115.3	255.9	100.1	209.0	113.1	79.26	233.7	686.5	317.1	77.00	277.2	259.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.32	30.70	21.69	75.26	27.16	15.07	53.75	47.46	22.69	64.73	36.37	36.50
Movement LOS	E	C	C	E	C	B	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	34.42			37.06			42.01			41.09		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	39.24											
Intersection LOS	D											
Intersection V/C	0.626											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.830	2.720	2.898	2.717
Crosswalk LOS	C	B	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1050	467
d_b, Bicycle Delay [s]	36.82	36.82	13.54	35.27
l_b,int, Bicycle LOS Score for Intersection	2.246	1.969	3.891	2.079
Bicycle LOS	B	A	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	43.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	1069	219	69	777	93	84	606	98	116	542	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	1069	219	69	777	93	84	606	98	116	542	59
Peak Hour Factor	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	279	57	18	203	24	22	158	26	30	141	15
Total Analysis Volume [veh/h]	144	1115	228	72	810	97	88	632	102	121	565	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	42	0	10	36	0	12	54	0	14	56	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	44	44	6	38	38	8	44	44	10	47	47
g / C, Green / Cycle	0.10	0.36	0.36	0.05	0.32	0.32	0.06	0.37	0.37	0.08	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.26	0.04	0.18	0.18	0.05	0.35	0.07	0.07	0.31	0.04
s, saturation flow rate [veh/h]	1714	3427	1648	1714	3427	1704	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	169	1246	599	86	1079	537	110	665	566	143	700	595
d1, Uniform Delay [s]	53.21	33.04	33.04	56.52	34.19	34.23	55.40	36.73	25.54	54.25	32.65	23.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.35	0.11	0.11	0.26	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.26	3.75	7.56	18.87	2.10	4.24	12.53	19.34	0.15	12.72	5.27	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.73	0.73	0.84	0.56	0.56	0.80	0.95	0.18	0.85	0.81	0.10
d, Delay for Lane Group [s/veh]	64.48	36.79	40.60	75.40	36.29	38.47	67.93	56.08	25.69	66.97	37.92	23.42
Lane Group LOS	E	D	D	E	D	D	E	E	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.80	11.94	12.12	2.61	7.63	7.96	3.01	21.25	2.01	4.11	15.43	1.14
50th-Percentile Queue Length [ft/ln]	119.9	298.4	302.9	65.31	190.7	198.9	75.23	531.2	50.17	102.6	385.8	28.58
95th-Percentile Queue Length [veh/ln]	8.39	17.60	17.83	4.70	12.16	12.58	5.42	28.81	3.61	7.39	21.88	2.06
95th-Percentile Queue Length [ft/ln]	209.8	440.1	445.6	117.5	304.0	314.5	135.4	720.2	90.30	184.8	546.9	51.44

Movement, Approach, & Intersection Results

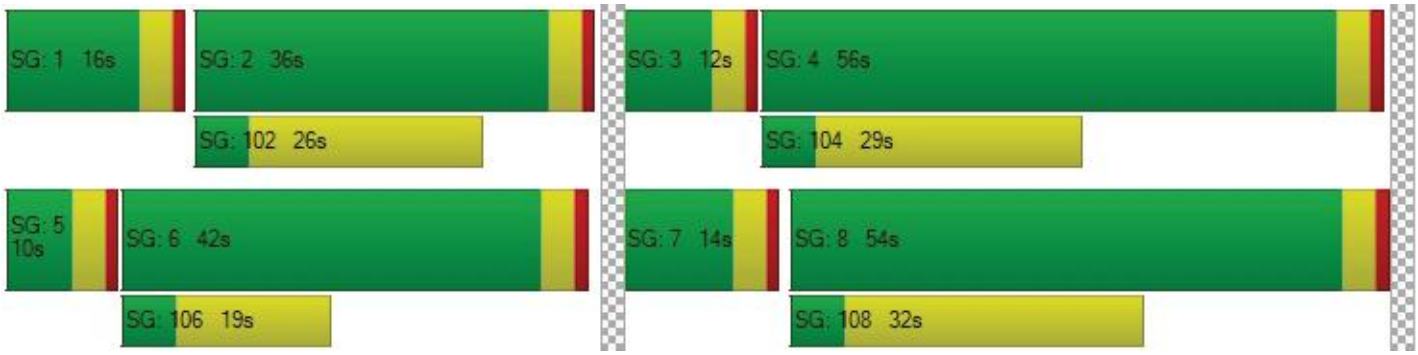
d_M, Delay for Movement [s/veh]	64.48	37.50	40.60	75.40	36.84	38.47	67.93	56.08	25.69	66.97	37.92	23.42
Movement LOS	E	D	D	E	D	D	E	E	C	E	D	C
d_A, Approach Delay [s/veh]	40.59			39.84			53.58			41.42		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.21											
Intersection LOS	D											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.048	2.922	2.733	2.556
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	533	833	867
d_b, Bicycle Delay [s]	28.02	32.27	20.42	19.27
l_b,int, Bicycle LOS Score for Intersection	2.377	2.098	2.916	2.794
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	96	151	218	18	141	22	31	636	65	90	429	27
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	151	218	18	141	22	31	636	65	90	429	27
Peak Hour Factor	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	39	57	5	37	6	8	166	17	23	112	7
Total Analysis Volume [veh/h]	100	157	227	19	147	23	32	663	68	94	447	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	84	0	0	84	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	53	53	53	53	53	53	59	59	59	59	59	59
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.44	0.44	0.49	0.49	0.49	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.08	0.09	0.15	0.02	0.08	0.02	0.03	0.37	0.04	0.13	0.25	0.02
s, saturation flow rate [veh/h]	1234	1800	1530	1015	1800	1530	934	1800	1530	736	1800	1530
c, Capacity [veh/h]	538	790	671	450	790	671	330	890	757	174	890	757
d1, Uniform Delay [s]	24.50	20.71	22.20	23.21	20.58	19.19	31.36	24.26	16.04	49.09	20.39	15.61
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.14	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.76	0.56	1.36	0.18	0.52	0.10	0.13	1.61	0.05	2.58	0.44	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.20	0.34	0.04	0.19	0.03	0.10	0.74	0.09	0.54	0.50	0.04
d, Delay for Lane Group [s/veh]	25.27	21.27	23.56	23.39	21.10	19.29	31.49	25.87	16.09	51.67	20.83	15.63
Lane Group LOS	C	C	C	C	C	B	C	C	B	D	C	B
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.02	2.84	4.47	0.36	2.64	0.39	0.70	15.07	1.01	2.85	8.42	0.40
50th-Percentile Queue Length [ft/ln]	50.51	71.08	111.7	9.09	66.12	9.67	17.53	376.7	25.13	71.25	210.5	10.07
95th-Percentile Queue Length [veh/ln]	3.64	5.12	7.94	0.65	4.76	0.70	1.26	21.44	1.81	5.13	13.18	0.73
95th-Percentile Queue Length [ft/ln]	90.92	127.9	198.3	16.36	119.0	17.41	31.56	535.8	45.24	128.2	329.4	18.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.27	21.27	23.56	23.39	21.10	19.29	31.49	25.87	16.09	51.67	20.83	15.63
Movement LOS	C	C	C	C	C	B	C	C	B	D	C	B
d_A, Approach Delay [s/veh]	23.17			21.11			25.24			25.67		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.47											
Intersection LOS	C											
Intersection V/C	0.517											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.473	2.291	2.613	2.630
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	1333	1333
d_b, Bicycle Delay [s]	32.27	32.27	6.67	6.67
l_b,int, Bicycle LOS Score for Intersection	2.358	1.871	2.819	2.498
Bicycle LOS	B	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	175	861	169	138	729	67	78	565	168	144	309	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	175	861	169	138	729	67	78	565	168	144	309	92
Peak Hour Factor	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	219	43	35	186	17	20	144	43	37	79	23
Total Analysis Volume [veh/h]	178	878	172	141	743	68	80	576	171	147	315	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	48	0	16	37	0	27	40	0	16	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	57	57	12	54	54	7	23	23	12	28	28
g / C, Green / Cycle	0.12	0.48	0.48	0.10	0.45	0.45	0.06	0.19	0.19	0.10	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.10	0.30	0.30	0.08	0.23	0.23	0.05	0.17	0.11	0.09	0.18	0.06
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1748	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	207	857	809	166	813	790	104	665	297	171	420	357
d1, Uniform Delay [s]	51.75	23.53	23.57	53.33	23.37	23.37	55.52	46.85	43.88	53.16	42.76	37.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	3.50	3.74	11.33	2.24	2.31	11.14	3.58	1.76	11.57	2.72	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.63	0.63	0.85	0.51	0.51	0.77	0.87	0.58	0.86	0.75	0.26
d, Delay for Lane Group [s/veh]	61.67	27.03	27.31	64.66	25.61	25.68	66.66	50.43	45.65	64.72	45.48	37.98
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.82	12.05	11.49	4.70	8.71	8.47	2.71	8.64	4.76	4.91	8.97	2.31
50th-Percentile Queue Length [ft/ln]	145.5	301.3	287.2	117.6	217.6	211.6	67.75	215.9	119.1	122.7	224.2	57.70
95th-Percentile Queue Length [veh/ln]	9.78	17.75	17.05	8.26	13.54	13.24	4.88	13.46	8.34	8.54	13.88	4.15
95th-Percentile Queue Length [ft/ln]	244.4	443.6	426.1	206.5	338.6	330.9	121.9	336.3	208.6	213.6	346.9	103.8

Movement, Approach, & Intersection Results

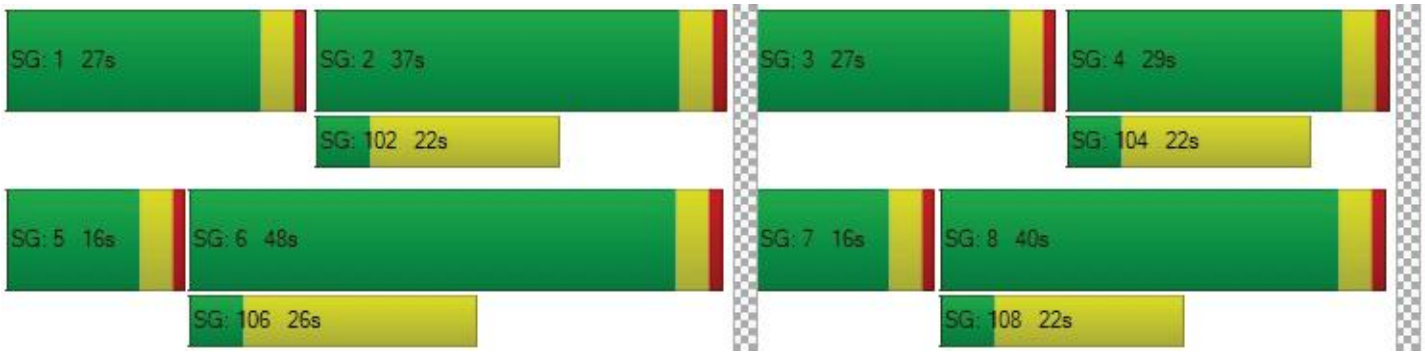
d_M, Delay for Movement [s/veh]	61.67	27.14	27.31	64.66	25.64	25.68	66.66	50.43	45.65	64.72	45.48	37.98
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	32.17			31.43			51.01			49.30		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.02											
Intersection LOS	D											
Intersection V/C	0.637											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.761	2.706	2.586	2.703
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	550	600	417
d_b, Bicycle Delay [s]	24.07	31.54	29.40	37.60
l_b,int, Bicycle LOS Score for Intersection	2.573	2.345	2.242	2.477
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	85	770	56	108	507	77	101	475	89	64	311	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	770	56	108	507	77	101	475	89	64	311	53
Peak Hour Factor	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	204	15	29	134	20	27	126	24	17	82	14
Total Analysis Volume [veh/h]	90	817	59	115	538	82	107	504	94	68	330	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	42	0	18	44	0	26	45	0	15	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	65	65	10	67	67	9	23	23	6	20	20
g / C, Green / Cycle	0.07	0.54	0.54	0.08	0.56	0.56	0.08	0.19	0.19	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.25	0.07	0.18	0.18	0.06	0.17	0.17	0.04	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1758	1714	1800	1718	1714	1800	1703	1714	1800	1711
c, Capacity [veh/h]	113	970	947	140	999	953	134	351	332	87	302	287
d1, Uniform Delay [s]	55.27	16.92	16.92	54.22	14.42	14.43	54.38	46.86	46.90	56.28	46.66	46.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.02	1.55	1.59	11.07	0.83	0.88	10.29	6.83	7.37	13.87	2.37	2.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.46	0.46	0.82	0.32	0.32	0.80	0.87	0.88	0.78	0.65	0.66
d, Delay for Lane Group [s/veh]	67.29	18.47	18.51	65.29	15.26	15.31	64.67	53.69	54.28	70.15	49.03	49.34
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.06	7.74	7.57	3.85	4.82	4.62	3.56	9.52	9.10	2.37	5.68	5.50
50th-Percentile Queue Length [ft/ln]	76.53	193.5	189.2	96.24	120.3	115.5	89.08	238.0	227.5	59.31	142.0	137.5
95th-Percentile Queue Length [veh/ln]	5.51	12.31	12.08	6.93	8.41	8.15	6.41	14.58	14.05	4.27	9.59	9.35
95th-Percentile Queue Length [ft/ln]	137.7	307.6	302.1	173.2	210.3	203.7	160.3	364.5	351.2	106.7	239.8	233.7

Movement, Approach, & Intersection Results

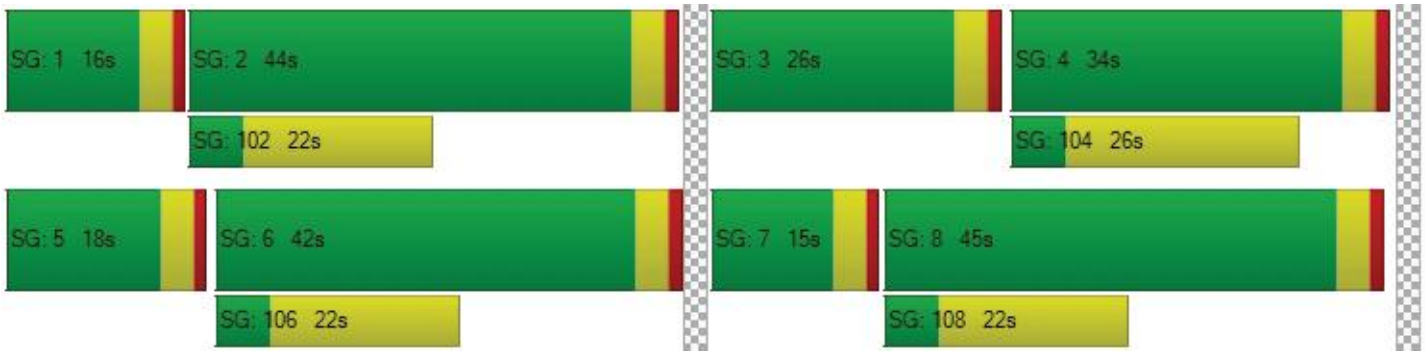
d_M, Delay for Movement [s/veh]	67.29	18.49	18.51	65.29	15.28	15.31	64.67	53.92	54.28	70.15	49.15	49.34
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.04			23.10			55.60			52.32		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.73											
Intersection LOS	D											
Intersection V/C	0.524											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.640	2.747	2.550	2.536
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	667	683	500
d_b, Bicycle Delay [s]	28.02	26.67	26.00	33.75
l_b,int, Bicycle LOS Score for Intersection	2.357	2.166	2.141	1.934
Bicycle LOS	B	B	B	A

Sequence

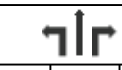
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	664	283	196	515	0	0	0	0	201	0	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	664	283	196	515	0	0	0	0	201	0	88
Peak Hour Factor	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961	0.961
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	173	74	51	134	0	0	0	0	52	0	23
Total Analysis Volume [veh/h]	0	691	294	204	536	0	0	0	0	209	0	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	47	0	47	85	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	70	70	16	87	87	21	21	21	21
g / C, Green / Cycle	0.00	0.59	0.59	0.14	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.38	0.19	0.12	0.30	0.00	0.00	0.00	0.16	0.06
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1644	1530	1303	1530
c, Capacity [veh/h]	1	1054	896	237	1302	1107	319	269	289	269
d1, Uniform Delay [s]	0.00	16.71	12.75	50.57	6.54	0.00	0.00	0.00	49.62	43.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.19	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	3.18	0.98	8.86	0.96	0.00	0.00	0.00	5.81	0.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.66	0.33	0.86	0.41	0.00	0.00	0.00	0.72	0.34
d, Delay for Lane Group [s/veh]	0.00	19.89	13.72	59.43	7.50	0.00	0.00	0.00	55.42	44.10
Lane Group LOS	A	B	B	E	A	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	13.17	4.21	6.57	5.19	0.00	0.00	0.00	6.61	2.46
50th-Percentile Queue Length [ft/ln]	0.00	329.2	105.3	164.3	129.6	0.00	0.00	0.00	165.25	61.53
95th-Percentile Queue Length [veh/ln]	0.00	19.12	7.58	10.78	8.92	0.00	0.00	0.00	10.83	4.43
95th-Percentile Queue Length [ft/ln]	0.00	478.0	189.5	269.4	223.0	0.00	0.00	0.00	270.66	110.75

Movement, Approach, & Intersection Results

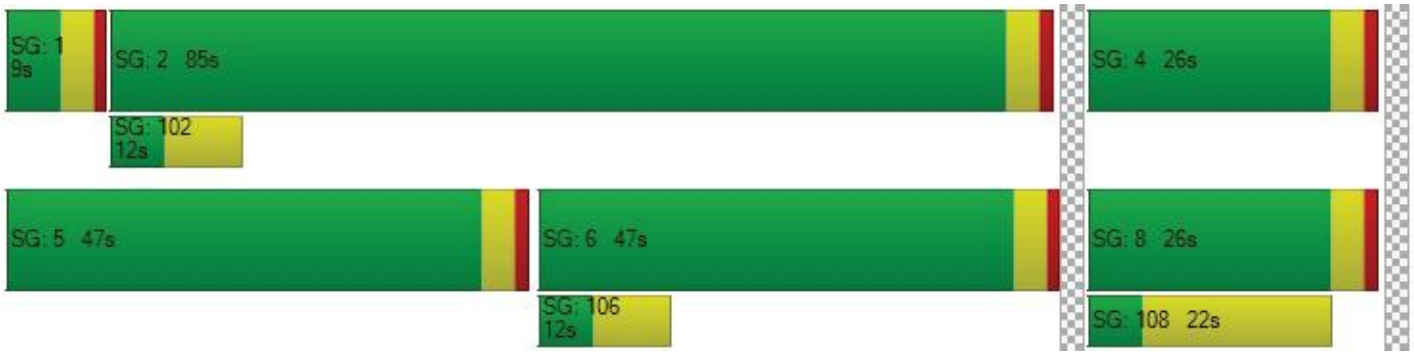
d_M, Delay for Movement [s/veh]	0.00	19.89	13.72	59.43	7.50	0.00	0.00	0.00	0.00	55.42	55.42	44.10
Movement LOS	A	B	B	E	A	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	18.05			21.82			0.00			51.96		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	24.46											
Intersection LOS	C											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.950	0.000	1.955	2.215
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	1350	367	367
d_b, Bicycle Delay [s]	24.70	6.34	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	3.185	2.781	1.560	2.056
Bicycle LOS	C	C	A	B

Sequence

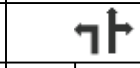
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	1366	112	38	688	56	87	141	294	122	67	73
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	1366	112	38	688	56	87	141	294	122	67	73
Peak Hour Factor	0.979	0.979	0.979	0.979	0.979	0.979	0.979	0.979	0.979	0.979	0.979	0.979
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	349	29	10	176	14	22	36	75	31	17	19
Total Analysis Volume [veh/h]	146	1395	114	39	703	57	89	144	300	125	68	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	33	58	0	9	34	0	17	39	0	14	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	64	64	4	56	56	8	26	26	10	28
g / C, Green / Cycle	0.10	0.54	0.54	0.03	0.47	0.47	0.07	0.22	0.22	0.08	0.23
(v / s)_i Volume / Saturation Flow Rate	0.09	0.42	0.43	0.02	0.21	0.04	0.05	0.08	0.20	0.07	0.09
s, saturation flow rate [veh/h]	1714	1800	1753	1714	3427	1530	1714	1800	1530	1714	1648
c, Capacity [veh/h]	176	967	942	52	1593	711	112	388	330	143	385
d1, Uniform Delay [s]	52.78	22.24	22.45	57.71	21.63	17.86	55.29	40.12	45.91	54.38	38.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.21	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.43	6.40	6.93	18.79	0.89	0.22	11.92	0.59	16.63	15.04	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.79	0.80	0.75	0.44	0.08	0.79	0.37	0.91	0.88	0.37
d, Delay for Lane Group [s/veh]	62.21	28.64	29.39	76.50	22.52	18.08	67.21	40.70	62.53	69.42	39.17
Lane Group LOS	E	C	C	E	C	B	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.78	18.20	18.22	1.45	6.80	0.93	3.03	3.70	10.21	4.33	3.61
50th-Percentile Queue Length [ft/ln]	119.4	454.8	455.5	36.19	170.0	23.19	75.64	92.62	255.1	108.19	90.28
95th-Percentile Queue Length [veh/ln]	8.36	25.19	25.22	2.61	11.08	1.67	5.45	6.67	15.44	7.74	6.50
95th-Percentile Queue Length [ft/ln]	209.0	629.7	630.6	65.14	276.9	41.74	136.1	166.7	386.1	193.48	162.50

Movement, Approach, & Intersection Results

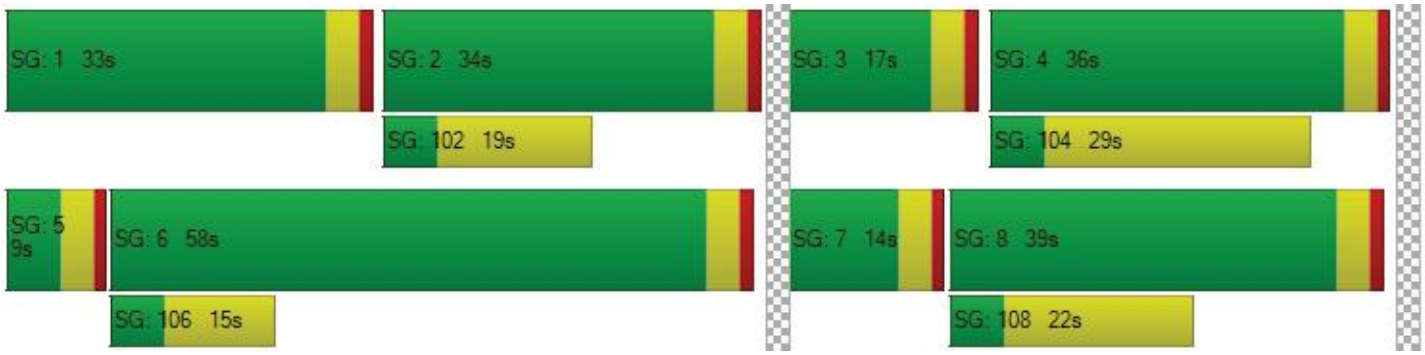
d_M, Delay for Movement [s/veh]	62.21	28.98	29.39	76.50	22.52	18.08	67.21	40.70	62.53	69.42	39.17	39.17
Movement LOS	E	C	C	E	C	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	31.94			24.84			57.42			53.28		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	36.12											
Intersection LOS	D											
Intersection V/C	0.719											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.920	2.938	2.342	2.139
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	500	583	533
d_b, Bicycle Delay [s]	18.15	33.75	30.10	32.27
l_b,int, Bicycle LOS Score for Intersection	2.925	2.219	2.439	2.002
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.427

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	88	400	0	0	314	39	80	0	165	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	400	0	0	314	39	80	0	165	0	0	0
Peak Hour Factor	0.921	0.921	1.000	1.000	0.921	0.921	0.921	1.000	0.921	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	109	0	0	85	11	22	0	45	0	0	0
Total Analysis Volume [veh/h]	96	434	0	0	341	42	87	0	179	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.26	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.30	0.00	0.00	0.00	0.00	0.00	35.23	0.00	12.07	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.26	0.26	0.00	0.00	0.00	0.00	1.97	0.00	1.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.59	6.59	0.00	0.00	0.00	0.00	49.25	0.00	25.99	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.50			0.00			19.65			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	5.11											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	907	60	95	571	0	5	0	30	191	0	49
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	907	60	95	571	0	5	0	30	191	0	49
Peak Hour Factor	0.890	0.890	0.890	0.890	0.890	0.890	0.890	0.890	0.890	0.890	0.890	0.890
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	255	17	27	160	0	1	0	8	54	0	14
Total Analysis Volume [veh/h]	0	1019	67	107	642	0	6	0	34	215	0	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	9	0	29	29	0	0	25	0	0	57	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	73	73	9	83	83	4	4	18	18
g / C, Green / Cycle	0.00	0.61	0.61	0.08	0.69	0.69	0.03	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.30	0.30	0.06	0.18	0.18	0.00	0.02	0.13	0.04
s, saturation flow rate [veh/h]	1714	1800	1761	1714	1800	1800	1714	1392	1687	1530
c, Capacity [veh/h]	0	1100	1076	133	1239	1239	54	44	248	225
d1, Uniform Delay [s]	0.00	13.07	13.07	54.45	7.10	7.10	56.51	57.72	50.03	45.29
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.62	1.66	10.75	0.51	0.51	0.91	25.41	8.90	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.50	0.50	0.80	0.26	0.26	0.11	0.78	0.87	0.24
d, Delay for Lane Group [s/veh]	0.00	14.69	14.73	65.21	7.60	7.60	57.42	83.13	58.93	45.84
Lane Group LOS	A	B	B	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	8.44	8.27	3.58	3.10	3.10	0.19	1.33	6.91	1.49
50th-Percentile Queue Length [ft/ln]	0.00	211.0	206.8	89.44	77.50	77.50	4.77	33.31	172.74	37.32
95th-Percentile Queue Length [veh/ln]	0.00	13.21	12.99	6.44	5.58	5.58	0.34	2.40	11.22	2.69
95th-Percentile Queue Length [ft/ln]	0.00	330.1	324.8	160.9	139.5	139.5	8.58	59.95	280.52	67.18

Movement, Approach, & Intersection Results

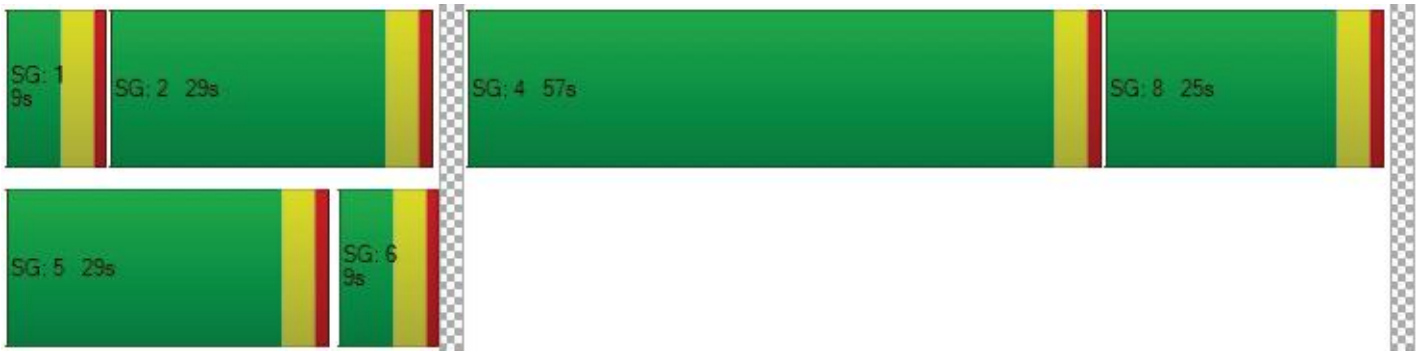
d_M, Delay for Movement [s/veh]	0.00	14.71	14.73	65.21	7.60	7.60	57.42	70.27	83.13	58.93	58.93	45.84
Movement LOS	A	B	B	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	14.71			15.83			79.27			56.26		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	21.54											
Intersection LOS	C											
Intersection V/C	0.519											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	417	350	883
d_b, Bicycle Delay [s]	55.10	37.60	40.84	18.70
l_b,int, Bicycle LOS Score for Intersection	2.456	2.178	1.593	2.005
Bicycle LOS	B	B	A	B

Sequence

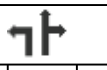
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	199	841	1	0	1	0	107	0	206
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1458	200	199	841	1	0	1	0	107	0	206
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	385	53	53	222	0	0	0	0	28	0	54
Total Analysis Volume [veh/h]	1	1541	211	210	889	1	0	1	0	113	0	218
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	12	0	28	31	0	9	30	0	50	71	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	68	68	17	84	84	0	10	10	19
g / C, Green / Cycle	0.00	0.57	0.57	0.14	0.70	0.70	0.00	0.08	0.08	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.45	0.14	0.12	0.26	0.00	0.00	0.00	0.07	0.14
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	3	1937	865	239	2408	1075	1	143	142	248
d1, Uniform Delay [s]	59.83	20.61	13.16	50.67	7.16	5.30	0.00	50.90	54.01	49.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	59.63	3.48	0.67	10.07	0.44	0.00	0.00	0.02	9.56	9.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.80	0.24	0.88	0.37	0.00	0.00	0.01	0.79	0.88
d, Delay for Lane Group [s/veh]	119.4	24.09	13.83	60.74	7.59	5.31	0.00	50.92	63.58	58.90
Lane Group LOS	F	C	B	E	A	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	17.15	3.00	6.85	4.35	0.01	0.00	0.03	3.73	7.04
50th-Percentile Queue Length [ft/ln]	1.95	428.8	74.90	171.1	108.6	0.19	0.00	0.71	93.25	176.11
95th-Percentile Queue Length [veh/ln]	0.14	23.94	5.39	11.14	7.76	0.01	0.00	0.05	6.71	11.40
95th-Percentile Queue Length [ft/ln]	3.52	598.6	134.8	278.4	194.1	0.34	0.00	1.29	167.85	284.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	119.4	24.09	13.83	60.74	7.59	5.31	0.00	50.92	50.92	63.58	58.90	58.90
Movement LOS	F	C	B	E	A	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	22.91			17.74			50.92			60.50		
Approach LOS	C			B			D			E		
d_I, Intersection Delay [s/veh]	25.04											
Intersection LOS	C											
Intersection V/C	0.715											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.993	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	450	433	1117
d_b, Bicycle Delay [s]	52.27	36.04	36.82	11.70
l_b,int, Bicycle LOS Score for Intersection	3.006	2.467	1.561	2.106
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	31.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.877

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	215	48	118	172	40	129	224	33	32	148	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	215	48	118	172	40	129	224	33	32	148	129
Peak Hour Factor	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919	0.919
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	58	13	32	47	11	35	61	9	9	40	35
Total Analysis Volume [veh/h]	33	234	52	128	187	44	140	244	36	35	161	140
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	427	471	442	438	492	420	464
Degree of Utilization, x	0.63	0.11	0.81	0.88	0.07	0.47	0.30

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.15	0.37	7.54	9.10	0.24	2.42	1.26
95th-Percentile Queue Length [ft]	103.82	9.26	188.62	227.46	5.89	60.54	31.45
Approach Delay [s/veh]	22.12		38.07	43.50		16.59	
Approach LOS	C		E	E		C	
Intersection Delay [s/veh]	31.08						
Intersection LOS	D						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	922	34	78	735	100	139	250	53	29	195	136
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	922	34	78	735	100	139	250	53	29	195	136
Peak Hour Factor	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	246	9	21	196	27	37	67	14	8	52	36
Total Analysis Volume [veh/h]	48	983	36	83	784	107	148	267	57	31	208	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	54	0	13	55	0	25	40	0	13	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	69	69	7	72	72	12	24	24	3	15	15
g / C, Green / Cycle	0.04	0.57	0.57	0.06	0.60	0.60	0.10	0.20	0.20	0.03	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.28	0.28	0.05	0.25	0.25	0.09	0.08	0.04	0.02	0.10	0.11
s, saturation flow rate [veh/h]	1714	1800	1778	1714	1800	1725	1714	3427	1530	1714	1800	1563
c, Capacity [veh/h]	62	1033	1021	104	1078	1033	176	700	312	47	232	201
d1, Uniform Delay [s]	57.37	15.22	15.22	55.63	12.92	12.92	52.85	41.20	39.46	57.78	50.73	51.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.65	1.70	1.72	12.91	1.21	1.27	10.06	0.34	0.28	14.31	6.12	8.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.50	0.50	0.80	0.42	0.42	0.84	0.38	0.18	0.66	0.80	0.84
d, Delay for Lane Group [s/veh]	76.02	16.92	16.94	68.54	14.13	14.19	62.91	41.55	39.74	72.09	56.85	59.83
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.76	8.58	8.48	2.85	6.73	6.47	4.87	3.46	1.42	1.12	5.78	5.43
50th-Percentile Queue Length [ft/ln]	44.11	214.4	212.0	71.32	168.2	161.6	121.7	86.43	35.61	28.02	144.4	135.7
95th-Percentile Queue Length [veh/ln]	3.18	13.38	13.26	5.13	10.99	10.64	8.49	6.22	2.56	2.02	9.72	9.25
95th-Percentile Queue Length [ft/ln]	79.39	334.5	331.4	128.3	274.6	265.9	212.2	155.5	64.09	50.43	242.9	231.2

Movement, Approach, & Intersection Results

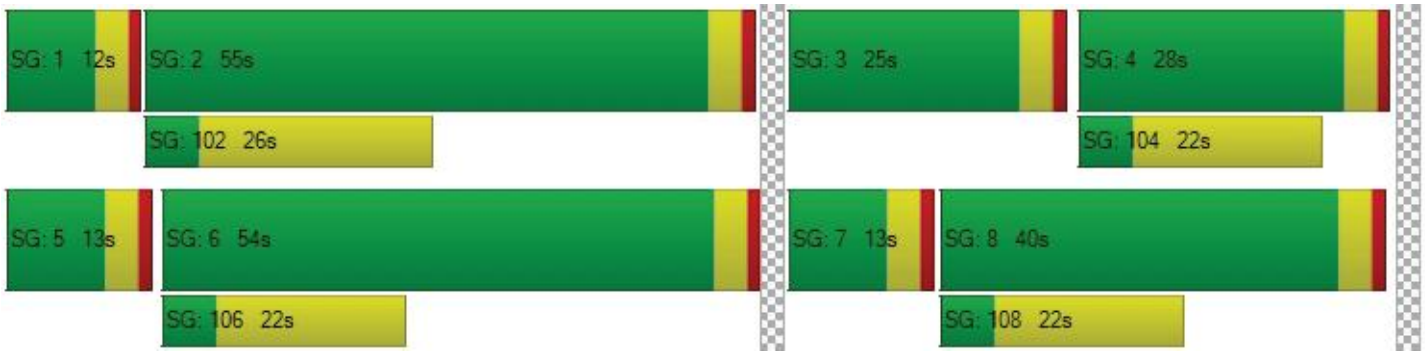
d_M, Delay for Movement [s/veh]	76.02	16.93	16.94	68.54	14.16	14.19	62.91	41.55	39.74	72.09	57.19	59.83
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	19.59			18.79			48.03			59.39		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	29.23											
Intersection LOS	C											
Intersection V/C	0.527											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.693	2.834	2.604	2.593
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	850	600	400
d_b, Bicycle Delay [s]	20.42	19.84	29.40	38.40
l_b,int, Bicycle LOS Score for Intersection	2.440	2.363	1.949	1.876
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	41.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.554

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	833	164	64	696	56	75	453	101	111	270	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	113	833	164	64	696	56	75	453	101	111	270	46
Peak Hour Factor	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	211	42	16	176	14	19	115	26	28	68	12
Total Analysis Volume [veh/h]	115	845	166	65	706	57	76	459	102	113	274	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	63	0	13	62	0	11	30	0	14	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	38	38	6	34	34	7	51	51	10	53	53
g / C, Green / Cycle	0.08	0.32	0.32	0.05	0.28	0.28	0.06	0.42	0.42	0.08	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.07	0.29	0.29	0.04	0.21	0.21	0.04	0.16	0.16	0.07	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1753	1714	1800	1688	1714	1800	1710
c, Capacity [veh/h]	139	571	539	84	513	499	96	758	711	137	801	761
d1, Uniform Delay [s]	54.31	39.34	39.37	56.42	39.07	39.08	55.98	23.96	23.99	54.39	20.32	20.36
k, delay calibration	0.11	0.14	0.14	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.70	7.58	8.09	14.17	2.27	2.34	13.76	1.45	1.57	11.71	0.57	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.91	0.91	0.78	0.75	0.75	0.80	0.38	0.38	0.83	0.20	0.21
d, Delay for Lane Group [s/veh]	66.02	46.93	47.46	70.59	41.34	41.41	69.74	25.41	25.56	66.10	20.90	20.97
Lane Group LOS	E	D	D	E	D	D	E	C	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.87	15.74	14.95	2.28	10.64	10.38	2.64	5.94	5.64	3.81	2.93	2.84
50th-Percentile Queue Length [ft/ln]	96.81	393.4	373.8	56.94	266.0	259.5	65.98	148.4	140.9	95.18	73.24	70.94
95th-Percentile Queue Length [veh/ln]	6.97	22.24	21.30	4.10	15.99	15.67	4.75	9.93	9.53	6.85	5.27	5.11
95th-Percentile Queue Length [ft/ln]	174.2	556.0	532.4	102.4	399.8	391.7	118.7	248.3	238.3	171.3	131.8	127.7

Movement, Approach, & Intersection Results

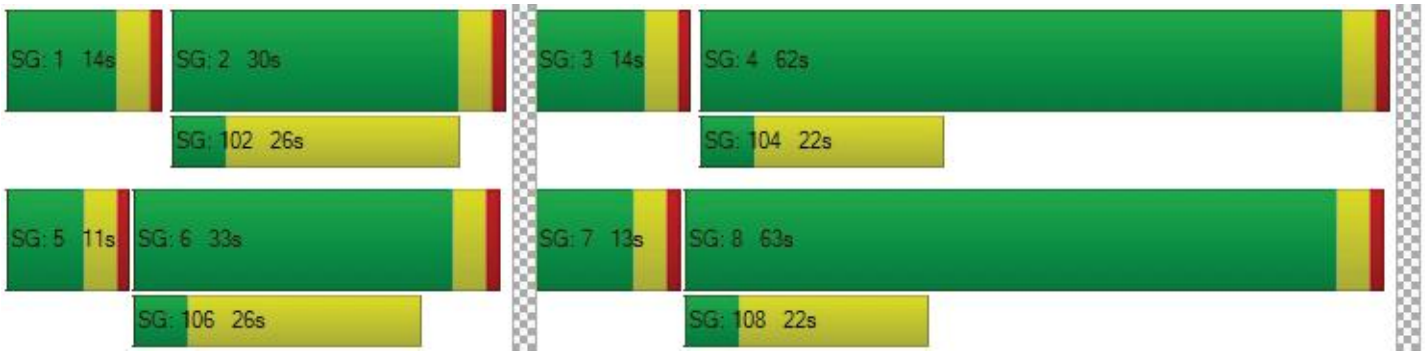
d_M, Delay for Movement [s/veh]	66.02	47.13	47.46	70.59	41.38	41.41	69.74	25.47	25.56	66.10	20.93	20.97
Movement LOS	E	D	D	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	49.11			43.67			30.76			32.70		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	41.40											
Intersection LOS	D											
Intersection V/C	0.554											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.801	2.760	2.526	2.534
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	967	433	483
d_b, Bicycle Delay [s]	15.50	16.02	36.82	34.50
l_b,int, Bicycle LOS Score for Intersection	2.489	2.243	2.085	1.918
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	868	69	34	681	106	136	178	9	42	83	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	868	69	34	681	106	136	178	9	42	83	20
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	238	19	9	186	29	37	49	2	12	23	5
Total Analysis Volume [veh/h]	20	951	76	37	746	116	149	195	10	46	91	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	44	0	10	45	0	40	50	0	16	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	80	80	4	81	81	12	16	16	4	8	8
g / C, Green / Cycle	0.02	0.67	0.67	0.03	0.68	0.68	0.10	0.14	0.14	0.03	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.01	0.29	0.29	0.02	0.25	0.25	0.09	0.11	0.01	0.03	0.05	0.01
s, saturation flow rate [veh/h]	1714	1800	1754	1714	1800	1717	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	35	1197	1166	51	1214	1157	179	247	210	59	121	103
d1, Uniform Delay [s]	58.25	9.47	9.47	57.74	8.43	8.43	52.69	50.08	44.94	57.47	54.97	52.95
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.77	1.15	1.18	17.78	0.84	0.89	9.51	5.55	0.09	19.14	8.94	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.43	0.43	0.73	0.36	0.36	0.83	0.79	0.05	0.78	0.75	0.21
d, Delay for Lane Group [s/veh]	72.03	10.62	10.65	75.51	9.27	9.32	62.20	55.63	45.04	76.60	63.90	53.97
Lane Group LOS	E	B	B	E	A	A	E	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.74	6.42	6.27	1.37	4.93	4.71	4.88	6.04	0.27	1.70	3.01	0.66
50th-Percentile Queue Length [ft/ln]	18.41	160.5	156.6	34.14	123.1	117.8	121.9	151.0	6.65	42.50	75.13	16.48
95th-Percentile Queue Length [veh/ln]	1.33	10.58	10.37	2.46	8.57	8.27	8.50	10.07	0.48	3.06	5.41	1.19
95th-Percentile Queue Length [ft/ln]	33.14	264.3	259.2	61.45	214.2	206.8	212.4	251.8	11.97	76.51	135.2	29.66

Movement, Approach, & Intersection Results

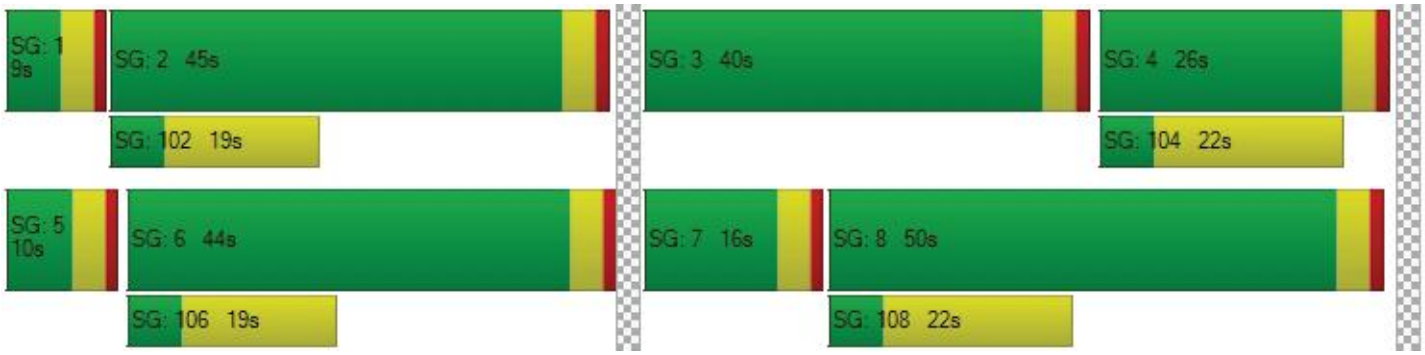
d_M, Delay for Movement [s/veh]	72.03	10.63	10.65	75.51	9.29	9.32	62.20	55.63	45.04	76.60	63.90	53.97
Movement LOS	E	B	B	E	A	A	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	11.80			12.02			58.09			66.20		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	22.06											
Intersection LOS	C											
Intersection V/C	0.448											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.676	2.709	2.288	2.260
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	683	767	367
d_b, Bicycle Delay [s]	26.67	26.00	22.82	40.02
l_b,int, Bicycle LOS Score for Intersection	2.423	2.301	2.144	1.822
Bicycle LOS	B	B	B	A

Sequence

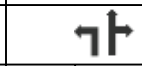
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	16	1461	163	160	882	2	5	2	5	165	0	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	1461	163	160	882	2	5	2	5	165	0	124
Peak Hour Factor	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	376	42	41	227	1	1	1	1	42	0	32
Total Analysis Volume [veh/h]	16	1503	168	165	907	2	5	2	5	170	0	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	40	0	22	31	0	13	33	0	25	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	76	76	13	87	87	1	1	14	14
g / C, Green / Cycle	0.02	0.63	0.63	0.11	0.72	0.72	0.01	0.01	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.01	0.33	0.33	0.10	0.18	0.00	0.00	0.00	0.10	0.08
s, saturation flow rate [veh/h]	1714	3427	1709	1714	4903	1530	1714	1599	1714	1530
c, Capacity [veh/h]	30	2160	1077	192	3553	1109	11	15	198	180
d1, Uniform Delay [s]	58.45	12.16	12.17	52.36	5.59	4.56	59.39	59.17	52.12	50.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.60	0.88	1.77	10.63	0.17	0.00	25.44	22.44	10.34	5.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.52	0.52	0.86	0.26	0.00	0.45	0.48	0.86	0.71
d, Delay for Lane Group [s/veh]	72.05	13.04	13.94	62.98	5.76	4.56	84.83	81.61	62.47	56.00
Lane Group LOS	E	B	B	E	A	A	F	F	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.60	8.06	8.31	5.44	2.39	0.01	0.23	0.30	5.59	3.96
50th-Percentile Queue Length [ft/ln]	14.92	201.3	207.8	136.1	59.69	0.34	5.77	7.57	139.72	98.96
95th-Percentile Queue Length [veh/ln]	1.07	12.71	13.04	9.27	4.30	0.02	0.42	0.55	9.47	7.13
95th-Percentile Queue Length [ft/ln]	26.85	317.7	326.0	231.7	107.4	0.61	10.38	13.63	236.65	178.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.05	13.27	13.94	62.98	5.76	4.56	84.83	81.61	81.61	62.47	56.00	56.00
Movement LOS	E	B	B	E	A	A	F	F	F	E	E	E
d_A, Approach Delay [s/veh]	13.90			14.55			82.95			59.69		
Approach LOS	B			B			F			E		
d_I, Intersection Delay [s/veh]	18.84											
Intersection LOS	B											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.995	3.246	1.965	2.161
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	450	483	683
d_b, Bicycle Delay [s]	29.40	36.04	34.50	26.00
l_b,int, Bicycle LOS Score for Intersection	2.487	2.150	1.579	2.051
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	213	12	34	162	31	62	171	22	10	113	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	213	12	34	162	31	62	171	22	10	113	42
Peak Hour Factor	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	57	3	9	44	8	17	46	6	3	30	11
Total Analysis Volume [veh/h]	16	229	13	37	174	33	67	184	24	11	122	45
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	636	638	634	628
Degree of Utilization, x	0.41	0.38	0.43	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.96	1.80	2.19	1.16
95th-Percentile Queue Length [ft]	49.07	44.89	54.76	29.09
Approach Delay [s/veh]	12.45	12.11	12.95	10.99
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	12.24			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.601

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	33	51	48	20	4	12	42	7	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	33	51	48	20	4	12	42	7	1
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	14	13	5	1	3	11	2	0
Total Analysis Volume [veh/h]	0	35	55	51	21	4	13	45	7	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	530	498
Degree of Utilization, x	0.31	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.29	0.49
95th-Percentile Queue Length [ft]	32.16	12.14
Approach Delay [s/veh]	12.77	11.40
Approach LOS	B	B
Intersection Delay [s/veh]	15.36	
Intersection LOS	C	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	39	2	143	22	4	12	39	142	7	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	2	143	22	4	12	39	142	7	5
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	38	6	1	3	10	38	2	1
Total Analysis Volume [veh/h]	42	2	153	24	4	13	42	152	7	5
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	518	513
Degree of Utilization, x	0.43	0.43

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.18	2.11
95th-Percentile Queue Length [ft]	54.42	52.83
Approach Delay [s/veh]	15.19	15.14
Approach LOS	C	C
Intersection Delay [s/veh]	15.36	
Intersection LOS	C	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	16	240	40	0	5	39	95	31	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	16	240	40	0	5	39	95	31	7
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	64	11	0	1	10	25	8	2
Total Analysis Volume [veh/h]	3	17	257	43	0	5	42	102	33	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	532	486	551
Degree of Utilization, x	0.60	0.31	0.07

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.94	1.29	0.23
95th-Percentile Queue Length [ft]	98.52	32.14	5.85
Approach Delay [s/veh]	19.45	12.58	
Approach LOS	C	B	
Intersection Delay [s/veh]	15.36		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.413

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	874	82	66	634	13	20	165	39	57	148	63
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	874	82	66	634	13	20	165	39	57	148	63
Peak Hour Factor	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	224	21	17	163	3	5	42	10	15	38	16
Total Analysis Volume [veh/h]	51	896	84	68	650	13	21	169	40	58	152	65
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	50	0	24	52	0	9	26	0	20	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	83	83	6	84	84	3	10	10	5	12	12
g / C, Green / Cycle	0.04	0.69	0.69	0.05	0.70	0.70	0.02	0.08	0.08	0.04	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.03	0.28	0.28	0.04	0.18	0.18	0.01	0.05	0.03	0.03	0.08	0.04
s, saturation flow rate [veh/h]	1714	1800	1746	1714	1800	1788	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	67	1243	1206	88	1265	1256	36	278	124	75	187	159
d1, Uniform Delay [s]	57.13	7.95	7.95	56.22	6.50	6.50	58.20	53.29	52.02	56.77	52.63	50.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.60	0.96	0.99	13.24	0.51	0.51	13.79	2.14	1.48	15.23	8.25	1.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.40	0.40	0.77	0.26	0.26	0.58	0.61	0.32	0.77	0.81	0.41
d, Delay for Lane Group [s/veh]	73.73	8.92	8.95	69.46	7.00	7.01	71.99	55.43	53.50	72.00	60.88	52.01
Lane Group LOS	E	A	A	E	A	A	E	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.84	5.43	5.28	2.36	3.03	3.01	0.77	2.55	1.19	2.06	4.91	1.91
50th-Percentile Queue Length [ft/ln]	46.00	135.6	131.8	58.99	75.76	75.31	19.28	63.73	29.77	51.47	122.7	47.68
95th-Percentile Queue Length [veh/ln]	3.31	9.25	9.04	4.25	5.45	5.42	1.39	4.59	2.14	3.71	8.55	3.43
95th-Percentile Queue Length [ft/ln]	82.79	231.1	226.0	106.1	136.3	135.5	34.71	114.7	53.59	92.64	213.6	85.82

Movement, Approach, & Intersection Results

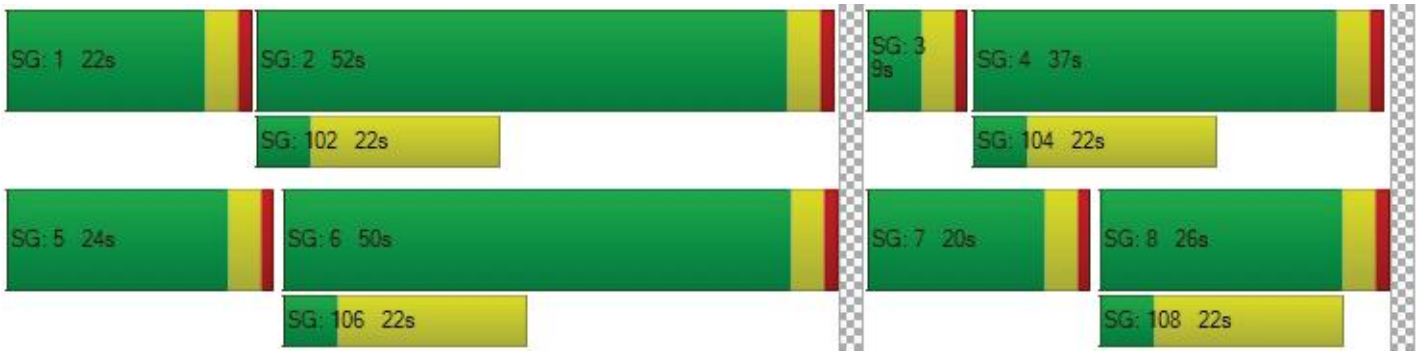
d_M, Delay for Movement [s/veh]	73.73	8.93	8.95	69.46	7.01	7.01	71.99	55.43	53.50	72.00	60.88	52.01
Movement LOS	E	A	A	E	A	A	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	12.14			12.82			56.60			61.13		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	22.81											
Intersection LOS	C											
Intersection V/C	0.413											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.662	2.649	2.402	2.565
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	800	367	550
d_b, Bicycle Delay [s]	22.82	21.60	40.02	31.54
l_b,int, Bicycle LOS Score for Intersection	2.410	2.163	1.749	2.013
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	1025	112	64	785	62	76	231	66	117	164	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	1025	112	64	785	62	76	231	66	117	164	58
Peak Hour Factor	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943	0.943
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	272	30	17	208	16	20	61	17	31	43	15
Total Analysis Volume [veh/h]	72	1087	119	68	832	66	81	245	70	124	174	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	57	0	11	57	0	12	33	0	19	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	74	74	6	74	74	7	14	14	10	17	17
g / C, Green / Cycle	0.05	0.62	0.62	0.05	0.61	0.61	0.06	0.11	0.11	0.09	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.34	0.34	0.04	0.25	0.25	0.05	0.09	0.09	0.07	0.07	0.07
s, saturation flow rate [veh/h]	1714	1800	1738	1714	1800	1754	1714	1800	1666	1714	1800	1643
c, Capacity [veh/h]	91	1108	1070	86	1103	1075	101	204	189	150	255	233
d1, Uniform Delay [s]	56.17	13.44	13.47	56.36	12.04	12.04	55.74	51.81	51.95	53.85	47.39	47.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.22	1.99	2.07	14.69	1.14	1.17	13.23	6.74	8.13	10.85	1.37	1.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.55	0.55	0.79	0.41	0.41	0.80	0.79	0.81	0.83	0.48	0.49
d, Delay for Lane Group [s/veh]	70.39	15.43	15.54	71.04	13.18	13.21	68.97	58.55	60.08	64.70	48.77	49.12
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.51	9.81	9.54	2.39	6.43	6.28	2.79	5.12	4.94	4.13	3.45	3.28
50th-Percentile Queue Length [ft/ln]	62.86	245.1	238.5	59.72	160.8	156.9	69.85	127.9	123.4	103.3	86.16	81.98
95th-Percentile Queue Length [veh/ln]	4.53	14.94	14.61	4.30	10.59	10.39	5.03	8.83	8.58	7.44	6.20	5.90
95th-Percentile Queue Length [ft/ln]	113.1	373.5	365.2	107.5	264.8	259.6	125.7	220.6	214.6	185.9	155.0	147.5

Movement, Approach, & Intersection Results

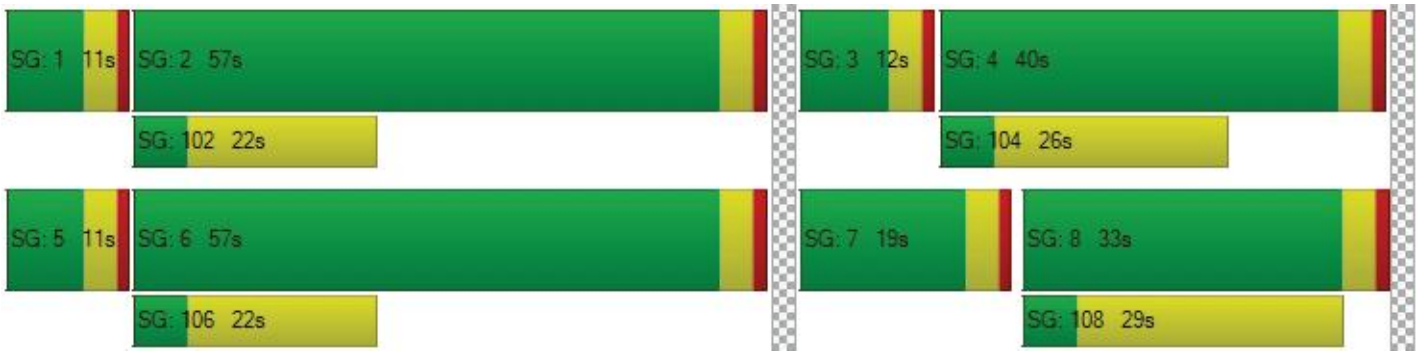
d_M, Delay for Movement [s/veh]	70.39	15.48	15.54	71.04	13.19	13.21	68.97	59.07	60.08	64.70	48.87	49.12
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	18.58			17.27			61.28			54.37		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	28.09											
Intersection LOS	C											
Intersection V/C	0.546											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.930	2.825	2.453	2.470
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	883	483	600
d_b, Bicycle Delay [s]	18.70	18.70	34.50	29.40
l_b,int, Bicycle LOS Score for Intersection	2.614	2.357	1.886	1.857
Bicycle LOS	B	B	A	A

Sequence

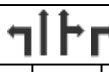
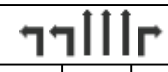
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	45.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	119	208	360	107	282	534	817	1020	94	152	605	306
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	208	360	107	282	534	817	1020	94	152	605	306
Peak Hour Factor	0.926	0.926	0.926	0.926	0.926	0.926	0.926	0.926	0.926	0.926	0.926	0.926
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	32	56	97	29	76	144	221	275	25	41	163	83
Total Analysis Volume [veh/h]	129	225	389	116	305	577	882	1102	102	164	653	330
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	36	0	13	30	0	40	59	0	12	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	33	33	9	31	31	31	34	54	54	8	28	28
g / C, Green / Cycle	0.09	0.28	0.28	0.08	0.26	0.26	0.26	0.28	0.45	0.45	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.25	0.07	0.17	0.19	0.19	0.26	0.22	0.07	0.05	0.13	0.22
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	156	944	422	129	467	397	397	944	2212	690	216	1140	356
d1, Uniform Delay [s]	53.62	33.70	42.23	55.0	39.6	40.5	40.5	41.90	23.31	19.36	55.18	40.77	45.06
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.35
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.56	0.60	28.17	19.3	6.93	11.0	11.0	5.01	0.17	0.10	5.38	0.46	25.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.24	0.92	0.90	0.65	0.73	0.73	0.93	0.50	0.15	0.76	0.57	0.93
d, Delay for Lane Group [s/veh]	64.19	34.30	70.40	74.4	46.5	51.5	51.5	46.90	23.49	19.46	60.56	41.22	70.50
Lane Group LOS	E	C	E	E	D	D	D	D	C	B	E	D	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.28	2.64	14.39	4.17	8.90	8.96	8.96	13.26	7.33	1.70	2.60	5.75	12.06
50th-Percentile Queue Length [ft/ln]	107.1	65.98	359.8	104.	222.	224.	224.	331.3	183.3	42.55	65.03	143.6	301.5
95th-Percentile Queue Length [veh/ln]	7.68	4.75	20.62	7.51	13.7	13.8	13.8	19.23	11.78	3.06	4.68	9.68	17.76
95th-Percentile Queue Length [ft/ln]	191.9	118.7	515.4	187.	344.	346.	346.	480.6	294.3	76.59	117.0	241.9	443.9

Movement, Approach, & Intersection Results

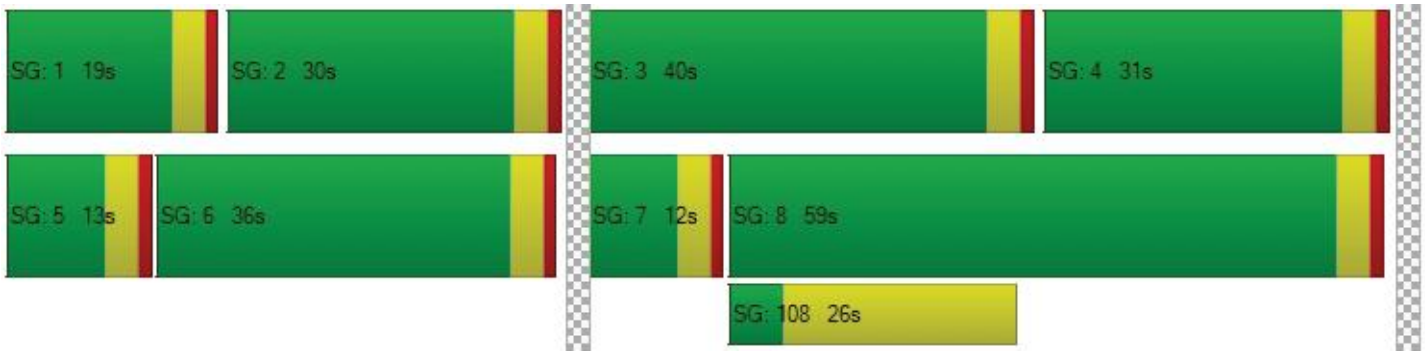
d_M, Delay for Movement [s/veh]	64.19	34.30	70.40	74.44	46.53	51.56	46.90	23.49	19.46	60.56	41.22	70.50
Movement LOS	E	C	E	E	D	D	D	C	B	E	D	E
d_A, Approach Delay [s/veh]	58.39			52.68			33.19			52.41		
Approach LOS	E			D			C			D		
d_I, Intersection Delay [s/veh]	45.30											
Intersection LOS	D											
Intersection V/C	0.803											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.682	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	433	917	450
d_b, Bicycle Delay [s]	32.27	36.82	17.60	36.04
l_b,int, Bicycle LOS Score for Intersection	2.173	2.383	2.707	2.190
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.560

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	48	43	114	42	359	674	752	63	37	631	140
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	48	43	114	42	359	674	752	63	37	631	140
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	13	11	30	11	94	177	198	17	10	166	37
Total Analysis Volume [veh/h]	78	51	45	120	44	378	709	792	66	39	664	147
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	28	0	29	23	0	36	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	19	19	19	29	73	73	4	48	48
g / C, Green / Cycle	0.06	0.06	0.06	0.16	0.16	0.16	0.24	0.61	0.61	0.03	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.05	0.05	0.14	0.21	0.16	0.04	0.02	0.16	0.16
s, saturation flow rate [veh/h]	1714	1800	1538	1714	1759	2708	3329	4903	1530	1714	3427	1640
c, Capacity [veh/h]	111	116	99	274	281	433	801	2996	935	54	1377	659
d1, Uniform Delay [s]	54.99	53.97	54.14	44.46	44.45	49.23	43.98	10.83	9.49	57.62	25.55	25.62
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.87	2.43	3.41	0.59	0.58	5.64	3.52	0.22	0.15	17.09	0.86	1.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.42	0.47	0.30	0.30	0.87	0.89	0.26	0.07	0.73	0.40	0.40
d, Delay for Lane Group [s/veh]	62.86	56.40	57.55	45.05	45.03	54.87	47.49	11.05	9.64	74.71	26.40	27.45
Lane Group LOS	E	E	E	D	D	D	D	B	A	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.56	1.51	1.46	2.18	2.23	5.86	10.49	3.23	0.73	1.43	5.70	5.73
50th-Percentile Queue Length [ft/ln]	63.88	37.83	36.44	54.50	55.87	146.4	262.3	80.68	18.29	35.71	142.4	143.2
95th-Percentile Queue Length [veh/ln]	4.60	2.72	2.62	3.92	4.02	9.83	15.81	5.81	1.32	2.57	9.61	9.66
95th-Percentile Queue Length [ft/ln]	114.9	68.09	65.59	98.11	100.5	245.6	395.2	145.2	32.93	64.28	240.3	241.3

Movement, Approach, & Intersection Results

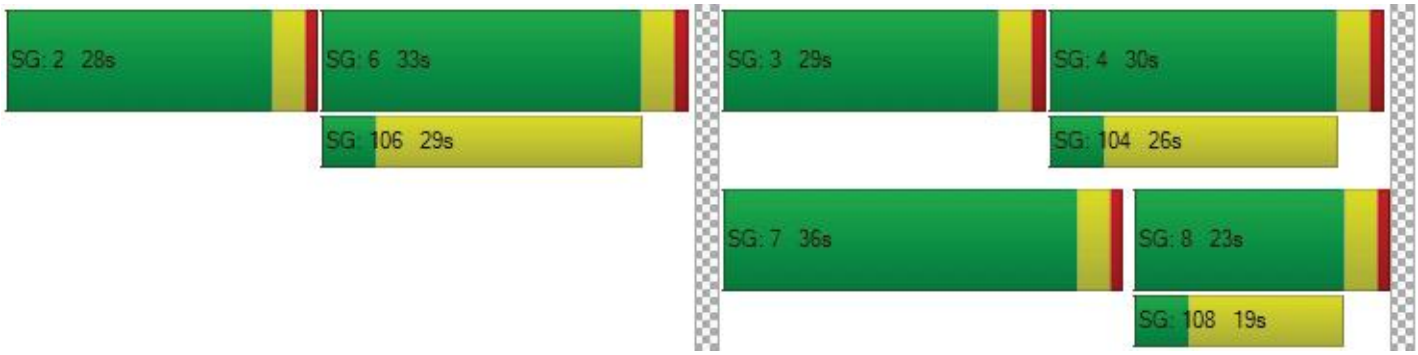
d_M, Delay for Movement [s/veh]	62.86	56.44	57.55	45.05	45.03	54.87	47.49	11.05	9.64	74.71	26.59	27.45
Movement LOS	E	E	E	D	D	D	D	B	A	E	C	C
d_A, Approach Delay [s/veh]	59.61			51.90			27.48			28.95		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	33.88											
Intersection LOS	C											
Intersection V/C	0.560											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.225	2.704	0.000	2.861
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	400	317	433
d_b, Bicycle Delay [s]	34.50	38.40	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.703	2.454	2.421	2.027
Bicycle LOS	A	B	B	B

Sequence

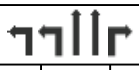
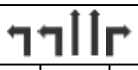
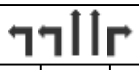
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	754	90	148	608	171	182	575	229	108	268	65
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	754	90	148	608	171	182	575	229	108	268	65
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	201	24	40	162	46	49	154	61	29	72	17
Total Analysis Volume [veh/h]	169	806	96	158	650	183	194	614	245	115	286	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	36	0	16	36	0	29	56	0	12	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	65	8	65	65	9	25	25	6	22	22
g / C, Green / Cycle	0.07	0.54	0.06	0.54	0.54	0.08	0.21	0.21	0.05	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.05	0.24	0.05	0.19	0.12	0.06	0.18	0.16	0.03	0.10	0.10
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1682
c, Capacity [veh/h]	226	1862	215	1850	826	262	715	319	167	324	303
d1, Uniform Delay [s]	54.92	16.37	55.11	15.67	14.43	54.07	45.77	44.73	56.07	44.87	44.96
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.88	0.74	4.81	0.53	0.62	4.08	3.14	3.87	4.99	1.52	1.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.43	0.73	0.35	0.22	0.74	0.86	0.77	0.69	0.56	0.57
d, Delay for Lane Group [s/veh]	59.80	17.11	59.93	16.20	15.05	58.15	48.91	48.60	61.06	46.39	46.66
Lane Group LOS	E	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.66	6.68	2.49	5.12	2.72	3.02	9.10	7.20	1.83	5.08	4.86
50th-Percentile Queue Length [ft/ln]	66.57	166.98	62.28	127.9	68.12	75.43	227.6	180.0	45.74	127.1	121.4
95th-Percentile Queue Length [veh/ln]	4.79	10.92	4.48	8.83	4.90	5.43	14.05	11.60	3.29	8.78	8.47
95th-Percentile Queue Length [ft/ln]	119.83	272.94	112.1	220.7	122.6	135.7	351.3	290.0	82.34	219.5	211.7

Movement, Approach, & Intersection Results

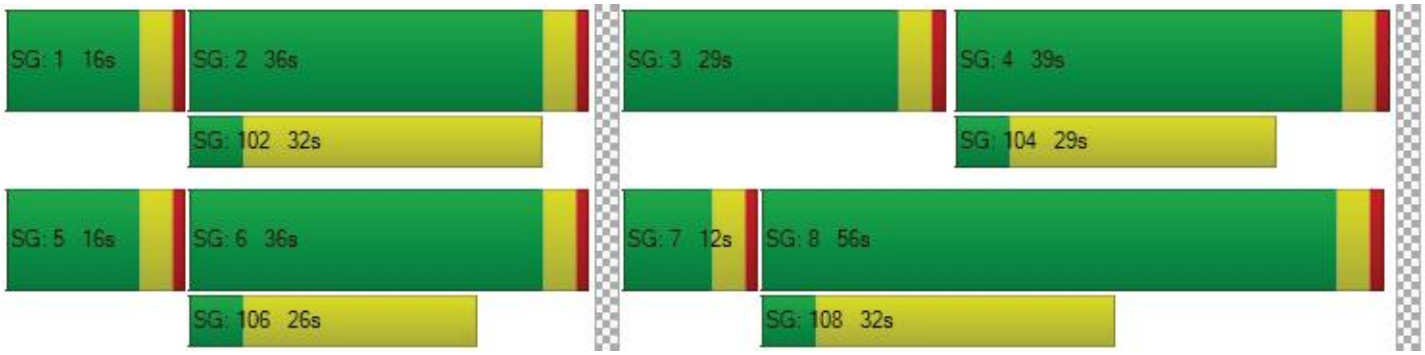
d_M, Delay for Movement [s/veh]	59.80	17.11	0.00	59.93	16.20	15.05	58.15	48.91	48.60	61.06	46.49	46.66
Movement LOS	E	B		E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.51			22.96			50.54			50.08		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.37											
Intersection LOS	D											
Intersection V/C	0.496											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.983	2.896	2.947	2.670
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	867	583
d_b, Bicycle Delay [s]	32.27	32.27	19.27	30.10
l_b,int, Bicycle LOS Score for Intersection	2.364	2.377	2.428	1.947
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	492	3	0	1	0	791	45	140	261	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	3	492	3	0	1	0	791	45	140	261	2
Peak Hour Factor	0.866	0.866	0.866	0.866	0.866	0.866	0.866	0.866	0.866	0.866	0.866	0.866
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	1	142	1	0	0	0	228	13	40	75	1
Total Analysis Volume [veh/h]	53	3	568	3	0	1	0	913	52	162	301	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	52	76	0	9	33	0	9	26	0	9	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	52	47	52	0	43	43	13	56	56
g / C, Green / Cycle	0.43	0.43	0.39	0.43	0.00	0.35	0.35	0.11	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.37	0.00	0.00	0.27	0.03	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1439	1488	1530	860	1714	3427	1530	1714	1800	1796
c, Capacity [veh/h]	628	761	600	470	0	1217	543	189	838	836
d1, Uniform Delay [s]	19.62	19.58	35.25	19.37	0.00	34.02	25.83	52.44	18.72	18.72
k, delay calibration	0.11	0.11	0.16	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.02	11.74	0.01	0.00	4.28	0.35	10.51	0.47	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.04	0.95	0.01	0.00	0.75	0.10	0.86	0.18	0.18
d, Delay for Lane Group [s/veh]	19.65	19.60	46.99	19.37	0.00	38.30	26.18	62.95	19.20	19.20
Lane Group LOS	B	B	D	B	A	D	C	E	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.43	0.50	17.65	0.06	0.00	12.32	1.06	5.34	2.58	2.58
50th-Percentile Queue Length [ft/ln]	10.66	12.40	441.3	1.62	0.00	307.8	26.39	133.4	64.55	64.45
95th-Percentile Queue Length [veh/ln]	0.77	0.89	24.54	0.12	0.00	18.07	1.90	9.13	4.65	4.64
95th-Percentile Queue Length [ft/ln]	19.20	22.33	613.5	2.92	0.00	451.7	47.50	228.1	116.1	116.0

Movement, Approach, & Intersection Results

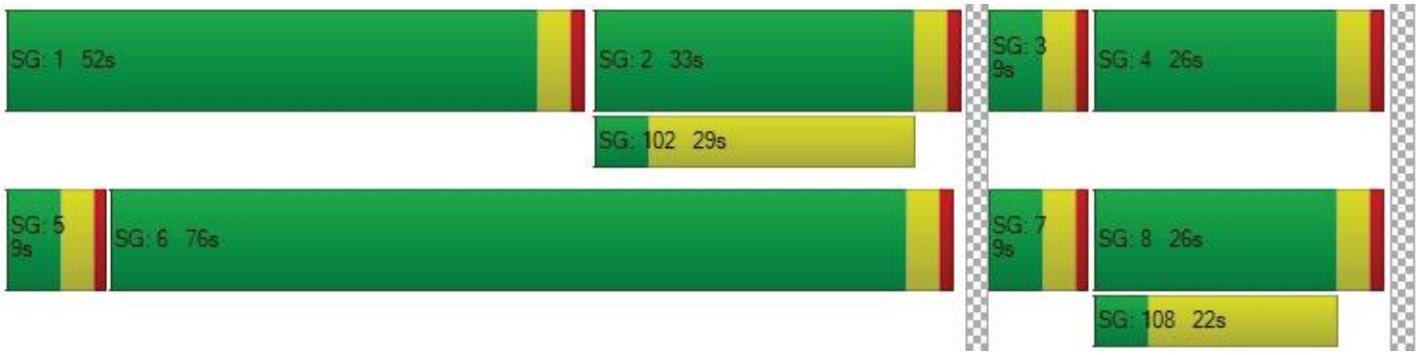
d_M, Delay for Movement [s/veh]	19.65	19.60	46.99	19.37	19.37	19.37	0.00	38.30	26.18	62.95	19.20	19.20
Movement LOS	B	B	D	B	B	B	A	D	C	E	B	B
d_A, Approach Delay [s/veh]	44.53			19.37			37.64			34.44		
Approach LOS	D			B			D			C		
d_I, Intersection Delay [s/veh]	38.97											
Intersection LOS	D											
Intersection V/C	0.746											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.479	0.000	2.873	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1350	1217	367	367
d_b, Bicycle Delay [s]	6.34	9.20	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.589	1.566	2.356	1.943
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1295	400	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1295	400	0
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	340	105	0
Total Analysis Volume [veh/h]	0	0	0	1360	420	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	22.17	9.49	8.17	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.83		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.669

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	1021	140	76	775	225	468	667	302	75	184	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	1021	140	76	775	225	468	667	302	75	184	58
Peak Hour Factor	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	277	38	21	211	61	127	181	82	20	50	16
Total Analysis Volume [veh/h]	71	1110	152	83	842	245	509	725	328	82	200	63
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	29	0	11	30	30	44	40	0	40	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	48	48	7	49	90	38	42	7	12	12
g / C, Green / Cycle	0.05	0.40	0.40	0.06	0.41	0.75	0.31	0.35	0.06	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.25	0.05	0.17	0.16	0.30	0.21	0.05	0.07	0.08
s, saturation flow rate [veh/h]	1714	3427	1691	1714	4903	1530	1714	3427	1714	1800	1656
c, Capacity [veh/h]	86	1361	672	100	1988	1151	537	1196	107	176	162
d1, Uniform Delay [s]	56.49	28.95	28.95	55.91	25.61	4.39	40.23	32.25	55.42	52.79	52.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.38	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.79	2.14	4.29	15.75	0.66	0.42	23.21	0.50	10.96	6.76	8.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.62	0.62	0.83	0.42	0.21	0.95	0.61	0.77	0.77	0.79
d, Delay for Lane Group [s/veh]	74.28	31.08	33.24	71.66	26.27	4.81	63.44	32.75	66.37	59.55	61.29
Lane Group LOS	E	C	C	E	C	A	E	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.56	10.05	10.32	2.92	5.86	1.70	17.95	8.73	2.77	4.29	4.16
50th-Percentile Queue Length [ft/ln]	63.89	251.1	258.0	73.09	146.4	42.50	448.64	218.22	69.26	107.3	103.9
95th-Percentile Queue Length [veh/ln]	4.60	15.25	15.59	5.26	9.83	3.06	24.89	13.57	4.99	7.69	7.48
95th-Percentile Queue Length [ft/ln]	115.0	381.1	389.7	131.5	245.6	76.49	622.32	339.35	124.6	192.2	187.1

Movement, Approach, & Intersection Results

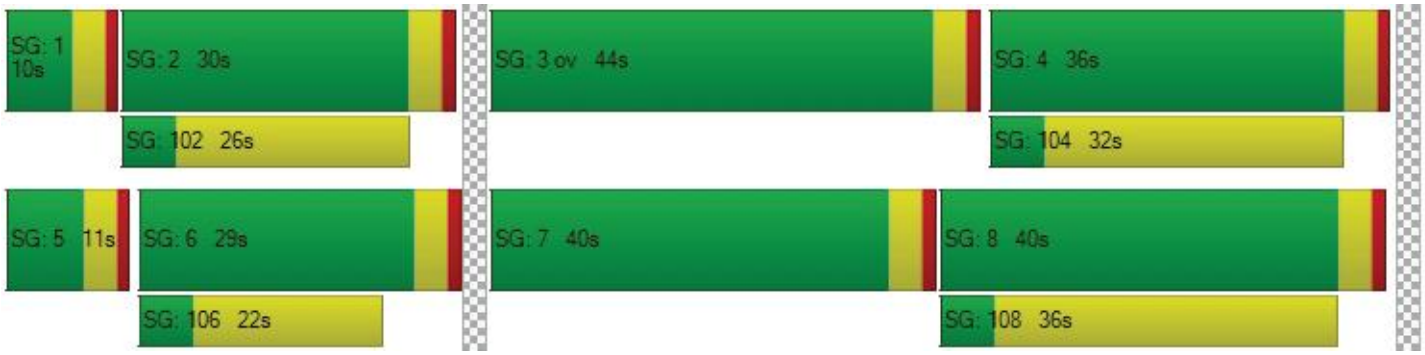
d_M, Delay for Movement [s/veh]	74.28	31.60	33.24	71.66	26.27	4.81	63.44	32.75	0.00	66.37	60.12	61.29
Movement LOS	E	C	C	E	C	A	E	C		E	E	E
d_A, Approach Delay [s/veh]	34.06			25.00			45.41			61.82		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	37.24											
Intersection LOS	D											
Intersection V/C	0.669											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.109	3.088	2.752	2.570
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	433	600	533
d_b, Bicycle Delay [s]	37.60	36.82	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	2.293	2.203	2.578	1.844
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.476

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	17	158	25	39	100	35	68	546	12	13	227	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	158	25	39	100	35	68	546	12	13	227	35
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	43	7	11	27	10	19	149	3	4	62	10
Total Analysis Volume [veh/h]	19	173	27	43	109	38	74	597	13	14	248	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	78	88	0	9	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	63	63	7	43	2	38	38
g / C, Green / Cycle	0.52	0.52	0.06	0.36	0.02	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.04	0.34	0.01	0.14	0.02
s, saturation flow rate [veh/h]	1720	1599	1714	1793	1714	1800	1530
c, Capacity [veh/h]	935	875	98	645	27	573	487
d1, Uniform Delay [s]	15.49	15.22	55.75	37.27	58.62	32.33	28.59
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.59	0.57	11.19	7.91	14.83	0.52	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.22	0.76	0.95	0.52	0.43	0.08
d, Delay for Lane Group [s/veh]	16.07	15.79	66.95	45.18	73.44	32.85	28.66
Lane Group LOS	B	B	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.39	2.90	2.51	18.48	0.53	5.78	0.78
50th-Percentile Queue Length [ft/ln]	84.85	72.58	62.85	462.00	13.32	144.5	19.53
95th-Percentile Queue Length [veh/ln]	6.11	5.23	4.53	25.53	0.96	9.72	1.41
95th-Percentile Queue Length [ft/ln]	152.74	130.64	113.13	638.25	23.98	243.1	35.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.07	16.07	16.07	15.79	15.79	15.79	66.95	45.18	45.18	73.44	32.85	28.66
Movement LOS	B	B	B	B	B	B	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	16.07			15.79			47.53			34.21		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	35.39											
Intersection LOS	D											
Intersection V/C	0.476											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.903	1.962	2.414	0.000
Crosswalk LOS	A	A	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	250
d_b, Bicycle Delay [s]	42.50	42.50	5.40	45.94
l_b,int, Bicycle LOS Score for Intersection	1.921	1.873	2.688	2.055
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.438

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	5	19	54	26	3	0	14	23	8	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	19	54	26	3	0	14	23	8	12
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	14	7	1	0	4	6	2	3
Total Analysis Volume [veh/h]	5	20	57	28	3	0	15	24	8	13
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	10	10
g / C, Green / Cycle	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.07	0.04
s, saturation flow rate [veh/h]	1696	1630
c, Capacity [veh/h]	174	170
d1, Uniform Delay [s]	54.19	52.52
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	4.02	1.25
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.35
d, Delay for Lane Group [s/veh]	58.20	53.77
Lane Group LOS	E	D
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	3.55	1.79
50th-Percentile Queue Length [ft/ln]	88.77	44.64
95th-Percentile Queue Length [veh/ln]	6.39	3.21
95th-Percentile Queue Length [ft/ln]	159.78	80.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.20	58.20	58.20	58.20	58.20	53.77	53.77	53.77	53.77	53.77
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	58.20					53.77				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	27.02									
Intersection LOS	C									
Intersection V/C	0.438									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.848	1.971
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.708	1.612
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	8	128	402	18	1	6	12	184	18	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	128	402	18	1	6	12	184	18	9
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	34	107	5	0	2	3	49	5	2
Total Analysis Volume [veh/h]	8	136	426	19	1	6	13	195	19	10
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	58	0	0	9	0	58	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	82	76	82	73	73
g / C, Green / Cycle	0.68	0.63	0.68	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.12	0.25	0.02	0.11	0.02
s, saturation flow rate [veh/h]	1225	1786	999	1800	1530
c, Capacity [veh/h]	861	1127	643	1087	924
d1, Uniform Delay [s]	6.75	10.89	7.17	10.54	9.58
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.42	1.04	0.02	0.36	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.40	0.03	0.18	0.03
d, Delay for Lane Group [s/veh]	7.17	11.93	7.19	10.91	9.65
Lane Group LOS	A	B	A	B	A
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.30	5.91	0.15	2.36	0.32
50th-Percentile Queue Length [ft/ln]	32.48	147.76	3.74	58.96	8.01
95th-Percentile Queue Length [veh/ln]	2.34	9.90	0.27	4.24	0.58
95th-Percentile Queue Length [ft/ln]	58.46	247.44	6.74	106.12	14.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.17	7.17	11.93	11.93	11.93	7.19	7.19	10.91	9.65	9.65
Movement LOS	A	A	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	10.77					10.46				
Approach LOS	B					B				
d_I, Intersection Delay [s/veh]	27.02									
Intersection LOS	C									
Intersection V/C	0.438									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.315	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900
d_b, Bicycle Delay [s]	18.15	18.15
l_b,int, Bicycle LOS Score for Intersection	2.307	1.923
Bicycle LOS	B	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	7	16	152	12	4	4	7	52	62	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	16	152	12	4	4	7	52	62	2
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	40	3	1	1	2	14	16	1
Total Analysis Volume [veh/h]	7	17	161	13	4	4	7	55	66	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	34	0	0	0	0	34	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	16
g / C, Green / Cycle	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.12	0.04	0.04
s, saturation flow rate [veh/h]	1716	1683	1530
c, Capacity [veh/h]	265	262	206
d1, Uniform Delay [s]	50.84	46.64	47.02
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	4.55	0.50	0.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.25	0.33
d, Delay for Lane Group [s/veh]	55.38	47.14	47.94
Lane Group LOS	E	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.28	1.82	1.90
50th-Percentile Queue Length [ft/ln]	156.88	45.38	47.51
95th-Percentile Queue Length [veh/ln]	10.38	3.27	3.42
95th-Percentile Queue Length [ft/ln]	259.59	81.68	85.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.38	55.38	55.38	55.38	55.38	47.14	47.14	47.14	47.94	47.94
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	55.38					47.54				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	27.02									
Intersection LOS	C									
Intersection V/C	0.438									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.922	2.257
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500
d_b, Bicycle Delay [s]	33.75	33.75
l_b,int, Bicycle LOS Score for Intersection	1.843	1.771
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	956	47	48	575	25	53	305	64	44	212	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	956	47	48	575	25	53	305	64	44	212	71
Peak Hour Factor	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959	0.959
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	249	12	13	150	7	14	80	17	11	55	19
Total Analysis Volume [veh/h]	180	997	49	50	600	26	55	318	67	46	221	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	30	66	0	15	51	0	13	28	0	11	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	80	80	5	69	69	5	16	16	4	15	15
g / C, Green / Cycle	0.12	0.66	0.66	0.04	0.58	0.58	0.04	0.13	0.13	0.03	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.11	0.29	0.29	0.03	0.18	0.18	0.03	0.11	0.11	0.03	0.08	0.09
s, saturation flow rate [veh/h]	1714	1800	1770	1714	1800	1774	1714	1800	1694	1714	1800	1650
c, Capacity [veh/h]	210	1193	1173	65	1040	1025	71	237	223	59	225	206
d1, Uniform Delay [s]	51.62	9.66	9.66	57.21	12.95	12.95	56.98	50.77	50.89	57.49	50.17	50.34
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.66	1.19	1.21	17.18	0.75	0.76	16.46	7.26	8.41	19.68	3.48	4.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.44	0.44	0.77	0.30	0.30	0.78	0.83	0.84	0.78	0.67	0.70
d, Delay for Lane Group [s/veh]	61.28	10.84	10.87	74.39	13.70	13.72	73.43	58.03	59.30	77.17	53.65	54.56
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.87	6.60	6.51	1.81	4.48	4.42	1.98	6.23	6.05	1.71	4.56	4.38
50th-Percentile Queue Length [ft/ln]	146.7	165.1	162.8	45.34	111.9	110.5	49.40	155.8	151.1	42.68	114.0	109.5
95th-Percentile Queue Length [veh/ln]	9.84	10.82	10.70	3.26	7.95	7.87	3.56	10.33	10.08	3.07	8.06	7.81
95th-Percentile Queue Length [ft/ln]	246.0	270.4	267.4	81.62	198.6	196.7	88.92	258.1	251.9	76.83	201.5	195.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.28	10.86	10.87	74.39	13.71	13.72	73.43	58.51	59.30	77.17	53.94	54.56
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	18.26			18.20			60.50			57.21		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	30.12											
Intersection LOS	C											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.693	2.666	2.484	2.591
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	783	400	367
d_b, Bicycle Delay [s]	14.02	22.20	38.40	40.02
l_b,int, Bicycle LOS Score for Intersection	2.571	2.117	1.923	1.841
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	36.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	182	958	368	67	880	54	92	340	135	232	281	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	182	958	368	67	880	54	92	340	135	232	281	75
Peak Hour Factor	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	46	243	93	17	223	14	23	86	34	59	71	19
Total Analysis Volume [veh/h]	185	972	373	68	892	55	93	345	137	235	285	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	30	47	0	10	27	0	29	36	0	27	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	60	60	6	51	51	8	20	20	18	30	30
g / C, Green / Cycle	0.13	0.50	0.50	0.05	0.42	0.42	0.07	0.16	0.16	0.15	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.11	0.28	0.24	0.04	0.26	0.04	0.05	0.14	0.14	0.14	0.10	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1629	1714	1800	1672
c, Capacity [veh/h]	215	1710	764	86	1452	648	119	296	268	263	446	414
d1, Uniform Delay [s]	51.45	21.02	19.91	56.39	26.94	20.67	54.91	48.70	48.83	49.84	37.85	37.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.67	1.38	2.23	15.00	1.95	0.26	10.38	6.73	8.08	11.15	0.62	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.57	0.49	0.79	0.61	0.08	0.78	0.85	0.86	0.89	0.42	0.42
d, Delay for Lane Group [s/veh]	61.12	22.39	22.14	71.39	28.90	20.93	65.29	55.43	56.90	60.99	38.47	38.58
Lane Group LOS	E	C	C	E	C	C	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.03	9.69	7.28	2.40	10.22	0.98	3.11	7.84	7.32	7.72	4.68	4.41
50th-Percentile Queue Length [ft/ln]	150.7	242.2	181.9	59.88	255.5	24.41	77.82	196.0	183.0	192.8	117.0	110.1
95th-Percentile Queue Length [veh/ln]	10.05	14.79	11.70	4.31	15.46	1.76	5.60	12.43	11.76	12.27	8.23	7.85
95th-Percentile Queue Length [ft/ln]	251.3	369.8	292.6	107.7	386.6	43.93	140.0	310.8	294.0	306.7	205.7	196.2

Movement, Approach, & Intersection Results

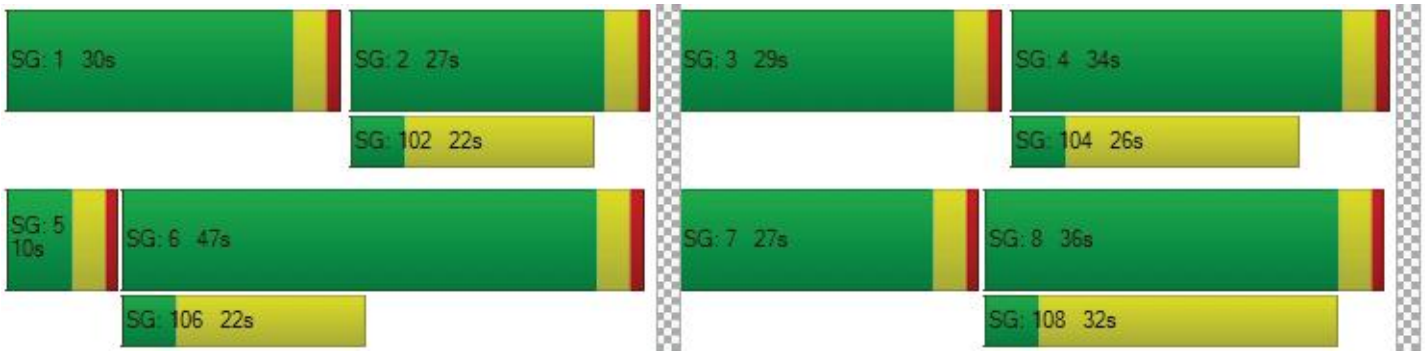
d_M, Delay for Movement [s/veh]	61.12	22.39	22.14	71.39	28.90	20.93	65.29	55.83	56.90	60.99	38.51	38.58
Movement LOS	E	C	C	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	27.01			31.31			57.62			47.38		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	36.19											
Intersection LOS	D											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.081	2.818	2.530	2.585
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	383	533	500
d_b, Bicycle Delay [s]	24.70	39.20	32.27	33.75
l_b,int, Bicycle LOS Score for Intersection	2.822	2.397	2.034	2.051
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.321

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	164	64	4	101	23	42	130	1	7	77	12
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	164	64	4	101	23	42	130	1	7	77	12
Peak Hour Factor	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929	0.929
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	44	17	1	27	6	11	35	0	2	21	3
Total Analysis Volume [veh/h]	0	177	69	4	109	25	45	140	1	8	83	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	767	735	698	629	725
Degree of Utilization, x	0.32	0.19	0.27	0.14	0.02

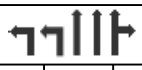
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.39	0.69	1.07	0.50	0.05
95th-Percentile Queue Length [ft]	34.67	17.18	26.83	12.59	1.37
Approach Delay [s/veh]	9.89	9.03	10.03	9.19	
Approach LOS	A	A	B	A	
Intersection Delay [s/veh]	9.64				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	937	121	64	940	30	75	256	340	136	91	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	257	937	121	64	940	30	75	256	340	136	91	88
Peak Hour Factor	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	67	244	31	17	244	8	19	67	88	35	24	23
Total Analysis Volume [veh/h]	267	974	126	67	977	31	78	266	353	141	95	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	45	0	12	39	0	18	51	0	12	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	61	61	6	55	55	7	30	30	7	30	30
g / C, Green / Cycle	0.10	0.51	0.51	0.05	0.46	0.46	0.06	0.25	0.25	0.06	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.21	0.04	0.19	0.19	0.05	0.08	0.23	0.04	0.03	0.06
s, saturation flow rate [veh/h]	3329	3427	1696	1714	3427	1772	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	324	1729	856	86	1566	810	101	870	389	194	868	388
d1, Uniform Delay [s]	53.14	18.76	18.76	56.36	21.94	21.95	55.67	36.21	43.41	55.56	34.41	35.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.24	0.77	1.55	14.29	0.84	1.63	11.69	0.20	10.93	5.12	0.06	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.43	0.43	0.78	0.42	0.42	0.77	0.31	0.91	0.73	0.11	0.23
d, Delay for Lane Group [s/veh]	58.38	19.53	20.31	70.65	22.79	23.58	67.36	36.40	54.34	60.68	34.46	35.88
Lane Group LOS	E	B	C	E	C	C	E	D	D	E	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.18	6.56	6.68	2.35	6.44	6.84	2.66	3.20	11.27	2.24	1.08	2.16
50th-Percentile Queue Length [ft/ln]	104.6	163.9	166.9	58.68	161.0	171.1	66.45	79.90	281.8	55.92	27.04	54.04
95th-Percentile Queue Length [veh/ln]	7.53	10.76	10.92	4.23	10.60	11.14	4.78	5.75	16.78	4.03	1.95	3.89
95th-Percentile Queue Length [ft/ln]	188.3	268.9	272.9	105.6	265.0	278.3	119.6	143.8	419.5	100.6	48.67	97.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.38	19.72	20.31	70.65	23.04	23.58	67.36	36.40	54.34	60.68	34.46	35.88
Movement LOS	E	B	C	E	C	C	E	D	D	E	C	D
d_A, Approach Delay [s/veh]	27.32			26.02			48.95			46.16		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.05											
Intersection LOS	C											
Intersection V/C	0.547											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.918	2.645	2.719
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	583	783	683
d_b, Bicycle Delay [s]	26.00	30.10	22.20	26.00
l_b,int, Bicycle LOS Score for Intersection	2.311	2.151	2.135	1.829
Bicycle LOS	B	B	B	A

Sequence

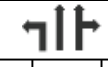
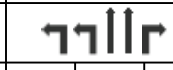
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	46.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.829

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	371	673	11	254	25	40	443	23	718	443	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	371	673	11	254	25	40	443	23	718	443	71
Peak Hour Factor	0.955	0.955	0.955	0.955	0.955	0.955	0.955	0.955	0.955	0.955	0.955	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	97	176	3	66	7	10	116	6	188	116	19
Total Analysis Volume [veh/h]	34	388	705	12	266	26	42	464	24	752	464	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	59	0	9	59	0	29	21	0	31	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	58	58	2	57	57	4	17	17	27	40	40
g / C, Green / Cycle	0.03	0.49	0.49	0.01	0.47	0.47	0.03	0.14	0.14	0.23	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.01	0.22	0.46	0.01	0.08	0.08	0.02	0.14	0.02	0.23	0.14	0.05
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1745	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	94	875	744	24	849	823	56	486	217	749	1144	511
d1, Uniform Delay [s]	57.23	20.20	29.39	58.75	18.24	18.27	57.54	51.13	44.91	46.50	30.79	27.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.30	1.63	22.50	15.32	0.44	0.47	17.73	11.10	0.22	16.22	0.23	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.44	0.95	0.50	0.17	0.18	0.75	0.96	0.11	1.00	0.41	0.14
d, Delay for Lane Group [s/veh]	59.53	21.83	51.89	74.06	18.69	18.73	75.27	62.22	45.13	62.72	31.02	28.10
Lane Group LOS	E	C	D	E	B	B	E	E	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.54	7.44	23.27	0.46	2.47	2.43	1.54	7.65	0.64	12.78	5.21	1.52
50th-Percentile Queue Length [ft/ln]	13.42	186.0	581.7	11.60	61.64	60.79	38.54	191.2	16.02	319.4	130.3	37.97
95th-Percentile Queue Length [veh/ln]	0.97	11.91	31.18	0.84	4.44	4.38	2.77	12.19	1.15	18.68	8.96	2.73
95th-Percentile Queue Length [ft/ln]	24.16	297.8	779.5	20.89	110.9	109.4	69.37	304.7	28.83	467.0	223.9	68.35

Movement, Approach, & Intersection Results

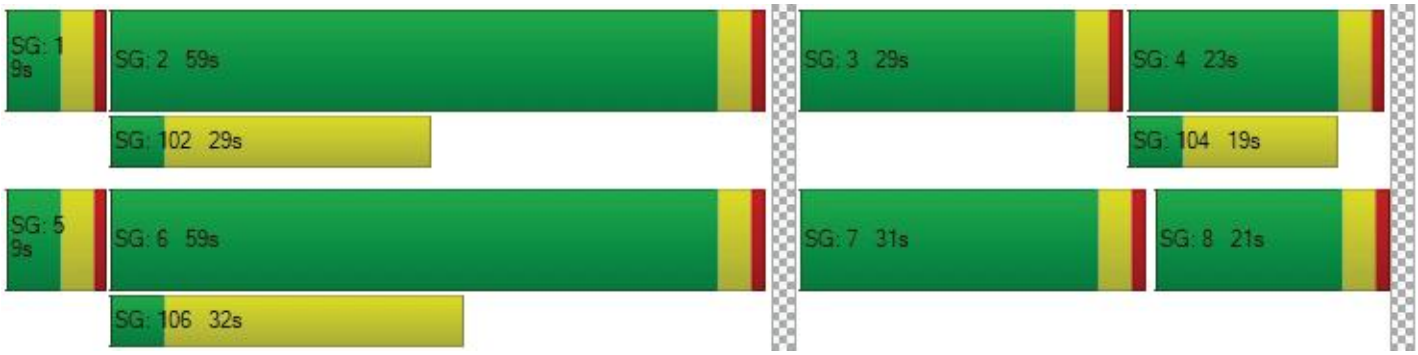
d_M, Delay for Movement [s/veh]	59.53	21.83	51.89	74.06	18.71	18.73	75.27	62.22	45.13	62.72	31.02	28.10
Movement LOS	E	C	D	E	B	B	E	E	D	F	C	C
d_A, Approach Delay [s/veh]	41.78			20.89			62.48			49.34		
Approach LOS	D			C			E			D		
d_I, Intersection Delay [s/veh]	46.20											
Intersection LOS	D											
Intersection V/C	0.829											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.343	2.756	3.042
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	917	283	317
d_b, Bicycle Delay [s]	17.60	17.60	44.20	42.50
l_b,int, Bicycle LOS Score for Intersection	3.419	1.810	1.997	2.624
Bicycle LOS	C	A	A	B

Sequence

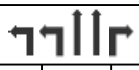
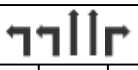
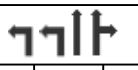
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	247	951	696	98	948	67	178	452	354	395	240	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	247	951	696	98	948	67	178	452	354	395	240	82
Peak Hour Factor	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	64	245	179	25	244	17	46	116	91	102	62	21
Total Analysis Volume [veh/h]	254	978	716	101	975	69	183	465	364	406	247	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	22	48	0	12	38	0	24	40	40	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	60	60	8	50	50	9	20	42	16	27	27
g / C, Green / Cycle	0.15	0.50	0.50	0.07	0.42	0.42	0.07	0.17	0.35	0.13	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.47	0.06	0.20	0.05	0.05	0.14	0.24	0.12	0.10	0.10
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1646
c, Capacity [veh/h]	499	1717	767	114	2048	639	248	567	534	444	404	370
d1, Uniform Delay [s]	46.93	20.90	28.07	55.54	25.39	21.30	54.40	48.34	33.38	51.33	39.91	39.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.42	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.80	1.38	19.88	18.98	0.80	0.34	4.30	3.00	5.77	7.80	0.71	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.57	0.93	0.88	0.48	0.11	0.74	0.82	0.68	0.91	0.43	0.43
d, Delay for Lane Group [s/veh]	47.73	22.27	47.94	74.52	26.18	21.64	58.69	51.34	39.15	59.13	40.62	40.72
Lane Group LOS	D	C	D	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.55	9.72	22.71	3.63	6.85	1.25	2.86	6.95	9.85	6.49	4.46	4.11
50th-Percentile Queue Length [ft/ln]	88.87	243.0	567.7	90.80	171.1	31.33	71.44	173.6	246.3	162.3	111.5	102.7
95th-Percentile Queue Length [veh/ln]	6.40	14.84	30.53	6.54	11.14	2.26	5.14	11.27	15.00	10.67	7.92	7.40
95th-Percentile Queue Length [ft/ln]	159.9	370.9	763.1	163.4	278.4	56.40	128.5	281.7	374.9	266.8	198.1	184.9

Movement, Approach, & Intersection Results

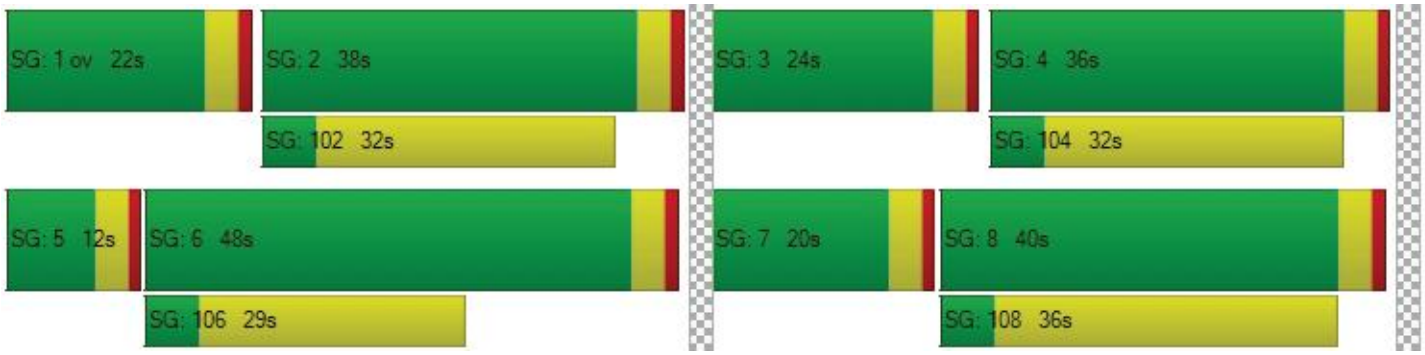
d_M, Delay for Movement [s/veh]	47.73	22.27	47.94	74.52	26.18	21.64	58.69	51.34	39.15	59.13	40.65	40.72
Movement LOS	D	C	D	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	35.03			30.17			48.29			50.84		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.06											
Intersection LOS	D											
Intersection V/C	0.847											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.265	3.032	2.933	2.890
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	567	600	533
d_b, Bicycle Delay [s]	24.07	30.82	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	3.167	2.189	2.395	2.168
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.464

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	5	4	23	3	46	4	21	43	157	1081	15
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	5	4	23	3	46	4	21	43	157	1081	15
Peak Hour Factor	0.923	0.923	0.923	0.923	0.923	0.923	0.923	0.923	0.923	0.923	0.923	0.923
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	1	1	6	1	12	1	6	12	43	293	4
Total Analysis Volume [veh/h]	16	5	4	25	3	50	4	23	47	170	1171	16
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	70	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	90	84	84
g / C, Green / Cycle	0.06	0.06	0.75	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.24	0.33	0.33
s, saturation flow rate [veh/h]	1676	1525	911	1800	1791
c, Capacity [veh/h]	145	146	699	1259	1253
d1, Uniform Delay [s]	54.34	55.53	4.99	8.10	8.10
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.40	3.19	1.15	1.27	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.55	0.31	0.47	0.47
d, Delay for Lane Group [s/veh]	55.75	58.72	6.14	9.37	9.38
Lane Group LOS	E	E	A	A	A
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.52	2.52	1.61	6.76	6.74
50th-Percentile Queue Length [ft/ln]	37.94	62.99	40.13	169.01	168.50
95th-Percentile Queue Length [veh/ln]	2.73	4.54	2.89	11.02	11.00
95th-Percentile Queue Length [ft/ln]	68.29	113.38	72.24	275.61	274.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.75	55.75	55.75	55.75	58.72	58.72	58.72	58.72	6.14	6.14	9.38	9.38
Movement LOS	E	E	E	E	E	E	E	E	A	A	A	A
d_A, Approach Delay [s/veh]	55.75				58.72				8.88			
Approach LOS	E				E				A			
d_I, Intersection Delay [s/veh]	14.77											
Intersection LOS	B											
Intersection V/C	0.464											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.773	0.000	2.828
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1100
d_b, Bicycle Delay [s]	45.94	45.94	12.15
l_b,int, Bicycle LOS Score for Intersection	1.601	1.609	2.578
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	10	487	53	23	5	6	94	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	487	53	23	5	6	94	2
Peak Hour Factor	0.9230	0.9230	0.9230	0.9230	0.9230	0.9230	0.9230	0.9230
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	132	14	6	1	2	25	1
Total Analysis Volume [veh/h]	11	528	57	25	5	7	102	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	70	0	0	0	22	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	79	79	79	11
g / C, Green / Cycle	0.01	0.66	0.66	0.66	0.09
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.18	0.05	0.07
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1551
c, Capacity [veh/h]	23	1183	1183	1006	141
d1, Uniform Delay [s]	58.75	8.00	8.55	7.45	53.62
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.81	0.33	0.55	0.16	11.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.18	0.27	0.08	0.82
d, Delay for Lane Group [s/veh]	72.56	8.33	9.10	7.61	64.98
Lane Group LOS	E	A	A	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.42	2.17	3.44	0.78	3.89
50th-Percentile Queue Length [ft/ln]	10.56	54.16	85.99	19.58	97.13
95th-Percentile Queue Length [veh/ln]	0.76	3.90	6.19	1.41	6.99
95th-Percentile Queue Length [ft/ln]	19.00	97.50	154.77	35.24	174.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.56	8.79	9.10	7.61	64.98	64.98	64.98	64.98
Movement LOS	E	A	A	A	E	E	E	E
d_A, Approach Delay [s/veh]	9.76				64.98			
Approach LOS	A				E			
d_I, Intersection Delay [s/veh]	14.77							
Intersection LOS	B							
Intersection V/C	0.464							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.169
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1100	300
d_b, Bicycle Delay [s]	12.15	43.35
l_b,int, Bicycle LOS Score for Intersection	2.051	1.748
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	188.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.992

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	2	18	74	0	20	117	1003	7	7	509	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	2	18	74	0	20	117	1003	7	7	509	125
Peak Hour Factor	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	1	5	20	0	5	32	270	2	2	137	34
Total Analysis Volume [veh/h]	4	2	19	80	0	22	126	1081	8	8	548	135
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

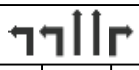
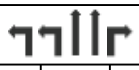
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.04	0.04	0.99	0.00	0.03	0.14	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	69.44	82.03	16.01	188.9	211.2	10.64	9.54	0.00	0.00	10.62	0.00	0.00
Movement LOS	F	F	C	F	F	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.50	0.50	0.50	5.44	5.44	0.10	0.47	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.60	12.60	12.60	135.8	135.8	2.58	11.85	0.00	0.00	0.94	0.00	0.00
d_A, Approach Delay [s/veh]	29.84			150.45			0.99			0.12		
Approach LOS	D			F			A			A		
d_I, Intersection Delay [s/veh]	8.55											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.689

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	553	970	285	96	540	41	70	663	405	158	753	183
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	553	970	285	96	540	41	70	663	405	158	753	183
Peak Hour Factor	0.945	0.945	0.945	0.945	0.945	0.945	0.945	0.945	0.945	0.945	0.945	0.945
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	146	257	75	25	143	11	19	175	107	42	199	48
Total Analysis Volume [veh/h]	585	1026	302	102	571	43	74	702	429	167	797	194
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	49	0	13	33	0	9	47	0	11	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	51	51	9	37	37	5	37	37	7	39	39
g / C, Green / Cycle	0.19	0.43	0.43	0.07	0.31	0.31	0.04	0.31	0.31	0.06	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.18	0.30	0.20	0.06	0.17	0.17	0.02	0.20	0.28	0.05	0.28	0.29
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1756	3329	3427	1530	3329	1800	1680
c, Capacity [veh/h]	644	1468	655	125	554	540	128	1052	470	194	589	549
d1, Uniform Delay [s]	47.35	27.99	24.43	54.83	34.74	34.76	56.75	36.23	40.03	56.01	37.97	38.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.30	0.11	0.28	0.28
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.30	2.79	2.33	12.05	4.06	4.18	4.11	0.74	16.97	10.53	9.82	10.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.70	0.46	0.82	0.56	0.56	0.58	0.67	0.91	0.86	0.87	0.87
d, Delay for Lane Group [s/veh]	52.65	30.78	26.76	66.88	38.81	38.93	60.86	36.97	57.00	66.55	47.79	48.63
Lane Group LOS	D	C	C	E	D	D	E	D	E	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.99	12.40	6.50	3.46	8.19	8.03	1.18	9.04	14.27	2.79	15.60	14.73
50th-Percentile Queue Length [ft/ln]	224.8	309.9	162.5	86.43	204.8	200.6	29.42	225.9	356.8	69.75	389.9	368.1
95th-Percentile Queue Length [veh/ln]	13.91	18.17	10.68	6.22	12.89	12.67	2.12	13.97	20.47	5.02	22.08	21.02
95th-Percentile Queue Length [ft/ln]	347.8	454.3	267.1	155.5	322.1	316.8	52.96	349.1	511.7	125.5	551.9	525.4

Movement, Approach, & Intersection Results

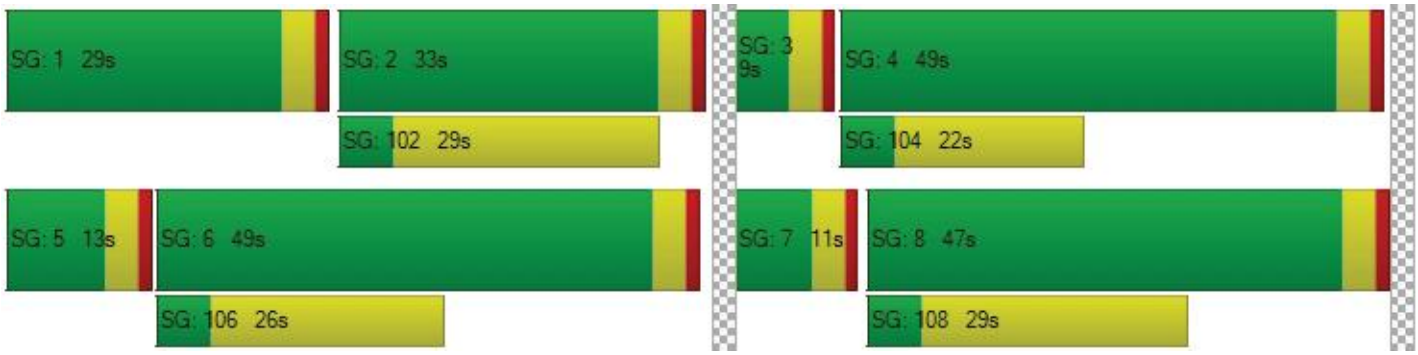
d_M, Delay for Movement [s/veh]	52.65	30.78	26.76	66.88	38.86	38.93	60.86	36.97	57.00	66.55	48.09	48.63
Movement LOS	D	C	C	E	D	D	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	36.83			42.86			45.56			50.84		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.05											
Intersection LOS	D											
Intersection V/C	0.689											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.038	2.707	2.975	3.017
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	483	717	750
d_b, Bicycle Delay [s]	23.44	34.50	24.70	23.44
l_b,int, Bicycle LOS Score for Intersection	3.138	2.150	2.554	2.515
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	42.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.841

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	236	1176	727	154	1201	87	267	863	219	633	638	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	1176	727	154	1201	87	267	863	219	633	638	106
Peak Hour Factor	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	60	299	185	39	305	22	68	219	56	161	162	27
Total Analysis Volume [veh/h]	240	1195	739	157	1221	88	271	877	223	643	648	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	10	37	0	25	43	0	27	45	45
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	45	72	6	42	42	12	30	30	23	41	51
g / C, Green / Cycle	0.08	0.38	0.60	0.05	0.35	0.35	0.10	0.25	0.25	0.19	0.34	0.42
(v / s)_i Volume / Saturation Flow Rate	0.07	0.24	0.48	0.05	0.25	0.25	0.08	0.22	0.22	0.19	0.19	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1739	3329	3427	1619	3329	3427	2708
c, Capacity [veh/h]	250	1848	921	166	1206	612	340	851	402	638	1157	1140
d1, Uniform Delay [s]	55.33	30.81	18.40	56.83	33.76	33.76	52.65	43.37	43.37	48.50	32.46	20.95
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.22	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.66	1.76	7.34	21.20	3.73	7.17	4.28	3.12	11.56	18.45	0.43	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.65	0.80	0.94	0.72	0.72	0.80	0.88	0.88	1.01	0.56	0.09
d, Delay for Lane Group [s/veh]	73.98	32.57	25.74	78.03	37.50	40.93	56.92	46.48	54.93	66.95	32.89	20.99
Lane Group LOS	E	C	C	E	D	D	E	D	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.26	9.72	16.71	2.86	11.51	12.26	4.19	10.96	11.31	11.13	7.73	0.93
50th-Percentile Queue Length [ft/ln]	106.5	242.9	417.7	71.54	287.6	306.4	104.8	274.1	282.7	278.2	193.2	23.20
95th-Percentile Queue Length [veh/ln]	7.65	14.83	23.41	5.15	17.07	18.00	7.55	16.39	16.82	16.67	12.29	1.67
95th-Percentile Queue Length [ft/ln]	191.1	370.7	585.3	128.7	426.7	450.0	188.7	409.8	420.6	416.7	307.2	41.76

Movement, Approach, & Intersection Results

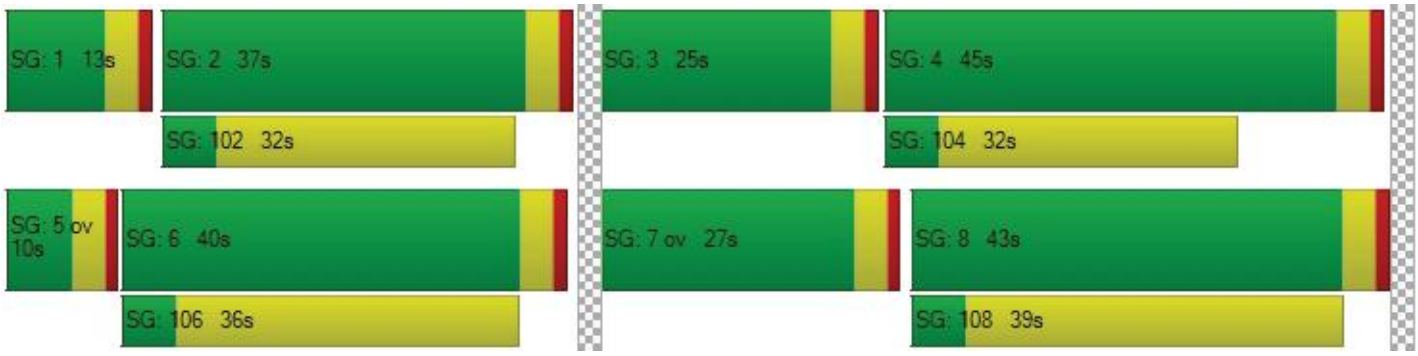
d_M, Delay for Movement [s/veh]	73.98	32.57	25.74	78.03	38.49	40.93	56.92	47.74	54.93	66.95	32.89	20.99
Movement LOS	E	C	C	E	D	D	E	D	D	F	C	C
d_A, Approach Delay [s/veh]	34.82			42.87			50.72			47.62		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	42.86											
Intersection LOS	D											
Intersection V/C	0.841											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.397	3.111	3.027	3.208
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	550	650	683
d_b, Bicycle Delay [s]	29.40	31.54	27.34	26.00
l_b,int, Bicycle LOS Score for Intersection	2.755	2.366	2.314	2.714
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.472

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	986	622	0	1033	422	0	0	0	347	0	432
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	986	622	0	1033	422	0	0	0	347	0	432
Peak Hour Factor	1.000	0.959	0.959	1.000	0.959	0.959	1.000	1.000	1.000	0.959	1.000	0.959
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	257	162	0	269	110	0	0	0	90	0	113
Total Analysis Volume [veh/h]	0	1028	649	0	1077	440	0	0	0	362	0	450
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	50	0	0	50	0	0	0	0	70	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	88	88		24	24	24
g / C, Green / Cycle	0.73	0.73		0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.30	0.22		0.16	0.17	0.17
s, saturation flow rate [veh/h]	3427	4903		1714	1581	1530
c, Capacity [veh/h]	2505	3584		347	320	310
d1, Uniform Delay [s]	6.20	5.57		45.65	45.97	46.10
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.50	0.22		4.53	5.82	6.47
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.30		0.81	0.84	0.85
d, Delay for Lane Group [s/veh]	6.70	5.78		50.18	51.78	52.56
Lane Group LOS	A	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.62	2.86		8.41	8.18	8.09
50th-Percentile Queue Length [ft/ln]	115.52	71.45		210.1	204.4	202.3
95th-Percentile Queue Length [veh/ln]	8.15	5.14		13.16	12.87	12.76
95th-Percentile Queue Length [ft/ln]	203.65	128.61		329.0	321.7	318.9

Movement, Approach, & Intersection Results

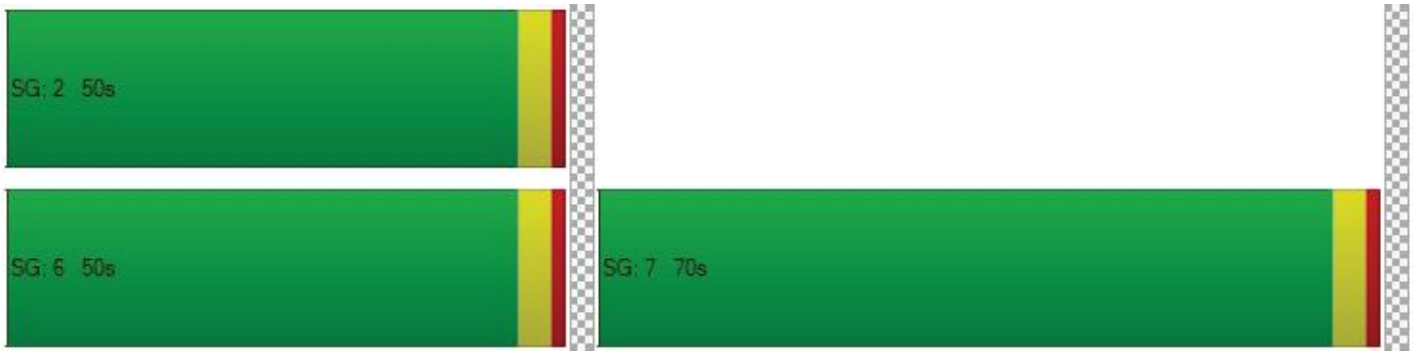
d_M, Delay for Movement [s/veh]	0.00	6.70	0.00	0.00	5.78	0.00	0.00	0.00	0.00	50.57	0.00	52.25
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	6.70			5.78			0.00			51.48		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	18.83											
Intersection LOS	B											
Intersection V/C	0.472											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	0	1100
d_b, Bicycle Delay [s]	22.82	22.82	60.00	12.15
l_b,int, Bicycle LOS Score for Intersection	2.408	2.152	4.132	2.899
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.629

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1339	389	0	1805	0	0	0	0	518	0	492
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1339	389	0	1805	0	0	0	0	518	0	492
Peak Hour Factor	1.000	0.949	0.949	1.000	0.949	0.949	0.949	0.949	0.949	0.949	1.000	0.949
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	353	102	0	476	0	0	0	0	136	0	130
Total Analysis Volume [veh/h]	0	1411	410	0	1902	0	0	0	0	546	0	518
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	35	0	0	35	0	0	0	0	85	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	68	68		44	44
g / C, Green / Cycle	0.56	0.56		0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.29	0.29		0.16	0.34
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	2762	3682		1232	566
d1, Uniform Delay [s]	16.07	16.14		28.48	36.00
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.68	0.52		0.25	6.34
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.52		0.44	0.91
d, Delay for Lane Group [s/veh]	16.75	16.66		28.73	42.33
Lane Group LOS	B	B		C	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	7.86	7.94		5.97	15.20
50th-Percentile Queue Length [ft/ln]	196.60	198.57		149.18	380.10
95th-Percentile Queue Length [veh/ln]	12.46	12.56		9.97	21.60
95th-Percentile Queue Length [ft/ln]	311.58	314.12		249.33	539.96

Movement, Approach, & Intersection Results

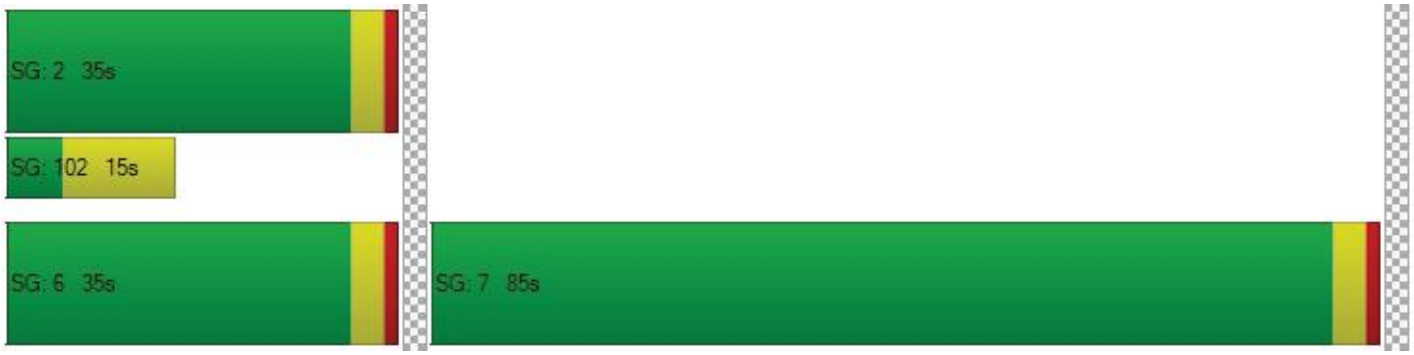
d_M, Delay for Movement [s/veh]	0.00	16.75	0.00	0.00	16.66	0.00	0.00	0.00	0.00	28.73	0.00	42.33
Movement LOS		B			B					C		D
d_A, Approach Delay [s/veh]	16.75			16.66			0.00			35.35		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	21.23											
Intersection LOS	C											
Intersection V/C	0.629											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	517	0	1350
d_b, Bicycle Delay [s]	33.00	33.00	60.00	6.34
l_b,int, Bicycle LOS Score for Intersection	2.336	2.344	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.477

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1075	256	0	892	474	0	0	0	240	0	498
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1075	256	0	892	474	0	0	0	240	0	498
Peak Hour Factor	1.000	0.930	0.930	1.000	0.930	0.930	1.000	1.000	1.000	0.930	1.000	0.930
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	289	69	0	240	127	0	0	0	65	0	134
Total Analysis Volume [veh/h]	0	1156	275	0	959	510	0	0	0	258	0	535
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	69	0	0	69	0	0	0	0	51	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	85	85		27	27
g / C, Green / Cycle	0.71	0.71		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.24	0.28		0.15	0.20
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3464	2421		389	615
d1, Uniform Delay [s]	6.77	7.18		42.21	44.69
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.26	0.49		1.94	3.98
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.40		0.66	0.87
d, Delay for Lane Group [s/veh]	7.03	7.67		44.16	48.67
Lane Group LOS	A	A		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	3.55	4.74		7.17	7.98
50th-Percentile Queue Length [ft/ln]	88.75	118.54		179.21	199.45
95th-Percentile Queue Length [veh/ln]	6.39	8.31		11.56	12.61
95th-Percentile Queue Length [ft/ln]	159.76	207.81		288.99	315.25

Movement, Approach, & Intersection Results

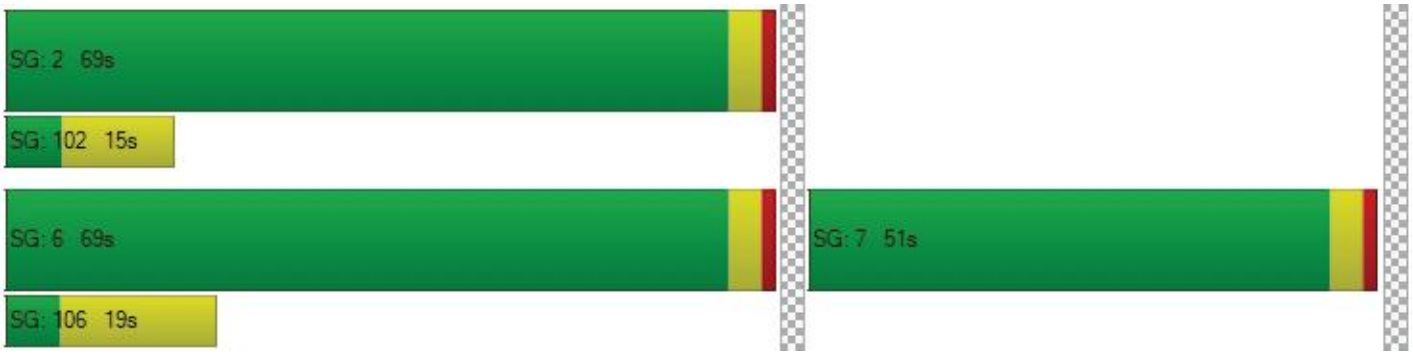
d_M, Delay for Movement [s/veh]	0.00	7.03	0.00	0.00	7.67	0.00	0.00	0.00	0.00	44.16	0.00	48.67
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	7.03			7.67			0.00			47.20		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	18.19											
Intersection LOS	B											
Intersection V/C	0.477											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.340
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	1083	0	783
d_b, Bicycle Delay [s]	12.60	12.60	60.00	22.20
l_b,int, Bicycle LOS Score for Intersection	2.195	2.351	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	18.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1287	562	0	969	394	298	0	392	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1287	562	0	969	394	298	0	392	0	0	0
Peak Hour Factor	1.000	0.946	0.946	1.000	0.946	0.946	0.946	1.000	0.946	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	340	149	0	256	104	79	0	104	0	0	0
Total Analysis Volume [veh/h]	0	1360	594	0	1024	416	315	0	414	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	34	0	0	34	0	86	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	76	76	36	36	
g / C, Green / Cycle	0.64	0.64	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.28	0.30	0.09	0.27	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	3118	2179	990	455	
d1, Uniform Delay [s]	11.01	11.35	32.70	40.59	
k, delay calibration	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.45	0.73	0.18	7.28	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.44	0.47	0.32	0.91	
d, Delay for Lane Group [s/veh]	11.46	12.08	32.89	47.88	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.92	6.96	3.60	12.59	
50th-Percentile Queue Length [ft/ln]	147.94	173.97	90.04	314.75	
95th-Percentile Queue Length [veh/ln]	9.91	11.29	6.48	18.41	
95th-Percentile Queue Length [ft/ln]	247.68	282.13	162.07	460.23	

Movement, Approach, & Intersection Results

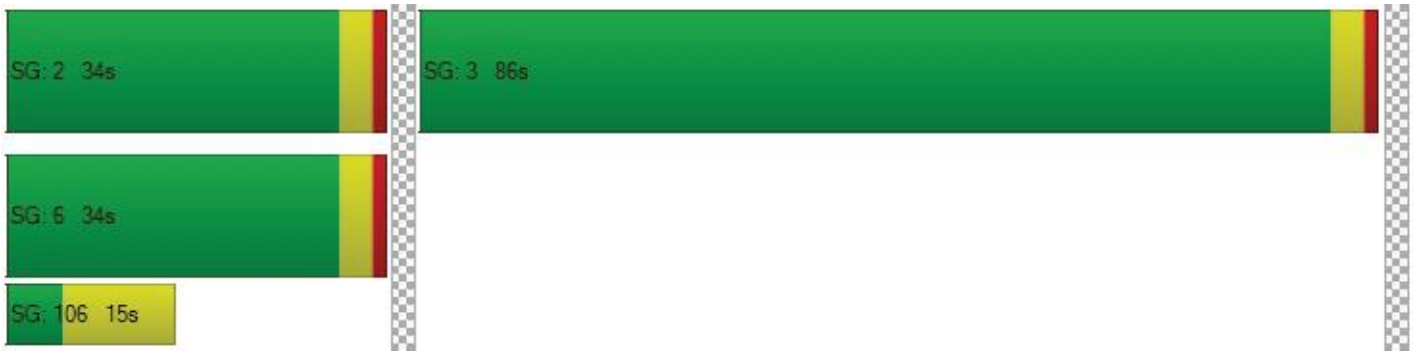
d_M, Delay for Movement [s/veh]	0.00	11.46	0.00	0.00	12.08	0.00	32.89	0.00	47.88	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	11.46			12.08			41.40			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	18.67											
Intersection LOS	B											
Intersection V/C	0.569											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	1367	0
d_b, Bicycle Delay [s]	33.75	33.75	6.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.308	2.404	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	30.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.688

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1236	419	513	1182	0	509	43	548	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1236	419	513	1182	0	509	43	548	0	0	0
Peak Hour Factor	1.000	0.970	0.970	0.970	0.970	1.000	0.970	0.970	0.970	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	319	108	132	305	0	131	11	141	0	0	0
Total Analysis Volume [veh/h]	0	1274	432	529	1219	0	525	44	565	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	31	0	31	62	0	0	58	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	53	53	22	78	34	34	34	
g / C, Green / Cycle	0.44	0.44	0.18	0.65	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.28	0.16	0.25	0.22	0.23	0.25	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1626	1530	
c, Capacity [veh/h]	2154	672	600	3201	481	456	429	
d1, Uniform Delay [s]	25.49	26.29	47.94	9.62	39.85	40.47	41.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.13	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.20	4.68	4.46	0.35	2.89	3.92	7.17	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.59	0.64	0.88	0.38	0.79	0.83	0.88	
d, Delay for Lane Group [s/veh]	26.69	30.97	52.39	9.97	42.74	44.39	48.43	
Lane Group LOS	C	C	D	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.29	10.37	8.06	4.79	10.63	10.90	11.46	
50th-Percentile Queue Length [ft/ln]	232.31	259.31	201.52	119.78	265.6	272.4	286.4	
95th-Percentile Queue Length [veh/ln]	14.29	15.65	12.72	8.38	15.97	16.31	17.01	
95th-Percentile Queue Length [ft/ln]	357.30	391.35	317.92	209.52	399.2	407.7	425.1	

Movement, Approach, & Intersection Results

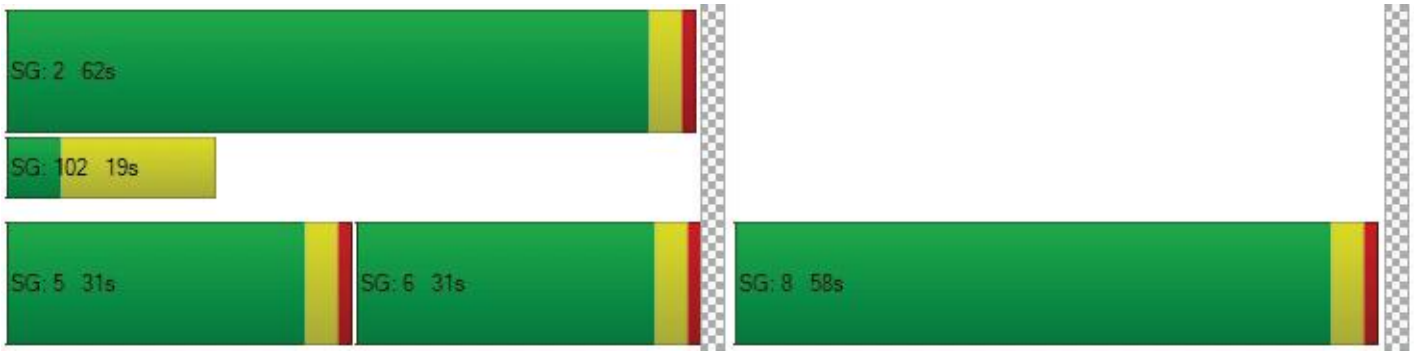
d_M, Delay for Movement [s/veh]	0.00	26.69	30.97	52.39	9.97	0.00	43.20	44.39	47.09	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	D	D			
d_A, Approach Delay [s/veh]	27.77			22.81			45.19			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	30.18											
Intersection LOS	C											
Intersection V/C	0.688											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.423	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	967	900	0
d_b, Bicycle Delay [s]	36.04	16.02	18.15	60.00
l_b,int, Bicycle LOS Score for Intersection	2.498	2.521	3.431	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	893	509	501	647	0	451	7	212	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	893	509	501	647	0	451	7	212	0	0	0
Peak Hour Factor	1.000	0.948	0.948	0.948	0.948	1.000	0.948	0.948	0.948	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	235	134	132	171	0	119	2	56	0	0	0
Total Analysis Volume [veh/h]	0	942	537	528	682	0	476	7	224	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	56	0	35	91	0	0	29	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	65	65	22	91	21	21	
g / C, Green / Cycle	0.55	0.55	0.18	0.76	0.17	0.17	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.35	0.16	0.20	0.14	0.15	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1537	
c, Capacity [veh/h]	1866	833	607	2605	577	266	
d1, Uniform Delay [s]	17.17	19.19	47.68	4.31	47.85	48.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.16	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.98	3.83	4.02	0.24	3.06	11.66	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.50	0.64	0.87	0.26	0.83	0.87	
d, Delay for Lane Group [s/veh]	18.15	23.02	51.70	4.56	50.91	59.92	
Lane Group LOS	B	C	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.23	11.04	7.99	2.26	7.10	7.57	
50th-Percentile Queue Length [ft/ln]	205.67	276.06	199.78	56.55	177.49	189.32	
95th-Percentile Queue Length [veh/ln]	12.93	16.49	12.63	4.07	11.47	12.09	
95th-Percentile Queue Length [ft/ln]	323.27	412.30	315.69	101.79	286.73	302.15	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	18.15	23.02	51.70	4.56	0.00	50.91	59.92	59.92	0.00	0.00	0.00
Movement LOS		B	C	D	A		D	E	E			
d_A, Approach Delay [s/veh]	19.92			25.13			53.85			0.00		
Approach LOS	B			C			D			A		
d_I, Intersection Delay [s/veh]	28.84											
Intersection LOS	C											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	1450	417	0
d_b, Bicycle Delay [s]	19.27	4.54	37.60	60.00
l_b,int, Bicycle LOS Score for Intersection	2.373	2.558	2.726	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.842

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	512	1223	467	480	861	796	914	0	457	463	0	566
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	512	1223	467	480	861	796	914	0	457	463	0	566
Peak Hour Factor	0.977	0.977	0.977	0.977	0.977	0.977	0.977	1.000	0.977	0.977	1.000	0.977
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	131	313	119	123	220	204	234	0	117	118	0	145
Total Analysis Volume [veh/h]	524	1252	478	491	881	815	936	0	468	474	0	579
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	81	0	0	81	0	39	0	0	39	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	77	77	77	77	35	35
g / C, Green / Cycle	0.64	0.64	0.64	0.64	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.42	0.26	0.56	0.18	0.28	0.14
s, saturation flow rate [veh/h]	1243	4903	875	4903	3329	3329
c, Capacity [veh/h]	741	3146	501	3146	971	971
d1, Uniform Delay [s]	21.23	10.35	32.83	9.39	41.88	35.10
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.64	0.38	35.52	0.22	7.37	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.40	0.98	0.28	0.96	0.49
d, Delay for Lane Group [s/veh]	26.87	10.72	68.35	9.61	49.24	35.48
Lane Group LOS	C	B	E	A	D	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.10	5.19	9.95	3.31	14.49	5.78
50th-Percentile Queue Length [ft/ln]	152.61	129.69	248.68	82.71	362.19	144.48
95th-Percentile Queue Length [veh/ln]	10.16	8.92	15.12	5.95	20.73	9.72
95th-Percentile Queue Length [ft/ln]	253.91	223.08	377.99	148.87	518.24	243.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.87	10.72	0.00	68.35	9.61	0.00	49.24	0.00	0.00	35.48	0.00	0.00
Movement LOS	C	B		E	A		D			D		
d_A, Approach Delay [s/veh]	15.49			30.63			49.24			35.48		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	29.06											
Intersection LOS	C											
Intersection V/C	0.842											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.345	3.202
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1283	1283	583	583
d_b, Bicycle Delay [s]	7.70	7.70	30.10	30.10
l_b,int, Bicycle LOS Score for Intersection	2.536	2.314	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	174	1468	329	62	520	118	237	979	186	107	541	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	174	1468	329	62	520	118	237	979	186	107	541	102
Peak Hour Factor	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	46	386	86	16	137	31	62	257	49	28	142	27
Total Analysis Volume [veh/h]	183	1544	346	65	547	124	249	1029	196	113	569	107
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	34	43	0	9	18	0	43	55	0	13	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	51	51	4	46	46	20	40	40	9	29	29
g / C, Green / Cycle	0.07	0.42	0.42	0.04	0.38	0.38	0.16	0.33	0.33	0.07	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.05	0.31	0.23	0.02	0.11	0.08	0.15	0.30	0.13	0.07	0.17	0.07
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	250	2070	646	123	1883	588	280	1140	509	129	836	373
d1, Uniform Delay [s]	54.31	29.24	25.88	56.76	25.62	24.77	49.11	38.20	30.66	54.96	41.13	36.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.11	2.50	3.17	3.49	0.39	0.82	9.27	2.97	0.48	16.78	0.98	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.75	0.54	0.53	0.29	0.21	0.89	0.90	0.39	0.88	0.68	0.29
d, Delay for Lane Group [s/veh]	58.42	31.73	29.05	60.25	26.01	25.59	58.37	41.17	31.14	71.74	42.11	37.30
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.85	12.78	7.89	1.03	3.69	2.51	8.01	14.71	4.42	3.98	7.73	2.61
50th-Percentile Queue Length [ft/ln]	71.25	319.4	197.2	25.70	92.16	62.81	200.1	367.7	110.5	99.51	193.1	65.26
95th-Percentile Queue Length [veh/ln]	5.13	18.64	12.50	1.85	6.64	4.52	12.65	21.00	7.87	7.16	12.28	4.70
95th-Percentile Queue Length [ft/ln]	128.2	466.0	312.3	46.27	165.8	113.0	316.1	524.9	196.7	179.1	307.1	117.4

Movement, Approach, & Intersection Results

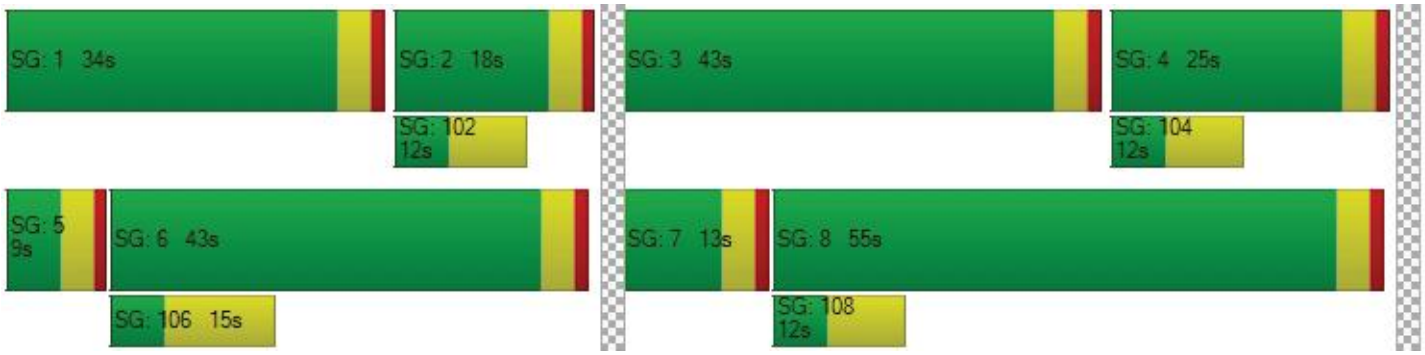
d_M, Delay for Movement [s/veh]	58.42	31.73	29.05	60.25	26.01	25.59	58.37	41.17	31.14	71.74	42.11	37.30
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	33.64			28.97			42.74			45.70		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.48											
Intersection LOS	D											
Intersection V/C	0.701											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.182	3.150	2.850	2.830
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	233	850	350
d_b, Bicycle Delay [s]	27.34	46.82	19.84	40.84
l_b,int, Bicycle LOS Score for Intersection	2.700	1.964	2.776	2.211
Bicycle LOS	B	A	C	B

Sequence

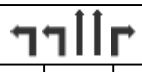
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.642

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	791	257	87	219	179	347	879	21	68	490	173
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	791	257	87	219	179	347	879	21	68	490	173
Peak Hour Factor	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	202	66	22	56	46	89	225	5	17	125	44
Total Analysis Volume [veh/h]	56	810	263	89	224	183	355	900	21	70	502	177
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	18	33	0	11	26	26	46	67	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	49	49	7	51	82	27	44	44	5	21	32
g / C, Green / Cycle	0.04	0.41	0.41	0.06	0.42	0.69	0.23	0.36	0.36	0.04	0.17	0.26
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.17	0.05	0.07	0.12	0.21	0.26	0.26	0.02	0.15	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1786	3329	3427	1530
c, Capacity [veh/h]	73	1395	623	100	1449	1048	393	654	649	125	590	404
d1, Uniform Delay [s]	56.84	27.62	25.47	56.12	21.39	6.76	44.98	32.70	32.71	56.76	48.17	36.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.16	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.10	1.77	2.09	21.83	0.23	0.36	10.97	1.41	1.43	3.84	3.56	0.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.58	0.42	0.89	0.15	0.17	0.90	0.71	0.71	0.56	0.85	0.44
d, Delay for Lane Group [s/veh]	71.94	29.38	27.56	77.95	21.62	7.12	55.95	34.12	34.14	60.59	51.74	37.52
Lane Group LOS	E	C	C	E	C	A	E	C	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.99	9.29	5.72	3.28	2.00	1.68	11.41	11.66	11.58	1.11	7.56	4.42
50th-Percentile Queue Length [ft/ln]	49.71	232.2	142.9	82.06	50.06	42.10	285.3	291.5	289.5	27.77	188.9	110.4
95th-Percentile Queue Length [veh/ln]	3.58	14.29	9.64	5.91	3.60	3.03	16.95	17.26	17.17	2.00	12.07	7.87
95th-Percentile Queue Length [ft/ln]	89.48	357.1	241.0	147.7	90.12	75.77	423.8	431.5	429.1	49.98	301.7	196.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.94	29.38	27.56	77.95	21.62	7.12	55.95	34.13	34.14	60.59	51.74	37.52
Movement LOS	E	C	C	E	C	A	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	31.07			26.38			40.20			49.20		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.35											
Intersection LOS	D											
Intersection V/C	0.642											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.703	2.767	2.708	2.888
Crosswalk LOS	B	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	367	1050	433
d_b, Bicycle Delay [s]	34.50	40.02	13.54	36.82
l_b,int, Bicycle LOS Score for Intersection	2.491	1.969	2.612	2.178
Bicycle LOS	B	A	B	B

Sequence

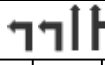
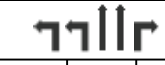
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.601

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	35	857	66	377	983	405	440	672	84	60	177	364
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	857	66	377	983	405	440	672	84	60	177	364
Peak Hour Factor	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965	0.965
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	222	17	98	255	105	114	174	22	16	46	94
Total Analysis Volume [veh/h]	36	888	68	391	1019	420	456	696	87	62	183	377
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	33	0	20	44	44	24	58	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	54	54	16	66	89	19	30	30	4	15	35
g / C, Green / Cycle	0.03	0.45	0.45	0.13	0.55	0.74	0.16	0.25	0.25	0.04	0.13	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.18	0.19	0.12	0.21	0.27	0.14	0.22	0.22	0.02	0.05	0.25
s, saturation flow rate [veh/h]	1714	3427	1735	3329	4903	1530	3329	1800	1731	3329	3427	1530
c, Capacity [veh/h]	50	1539	779	444	2712	1137	521	446	429	121	438	451
d1, Uniform Delay [s]	57.75	22.34	22.36	51.06	15.13	5.47	49.48	43.61	43.64	56.76	48.21	39.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.27
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.23	0.82	1.62	5.84	0.40	0.93	4.85	6.46	6.84	3.29	0.64	9.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.41	0.41	0.88	0.38	0.37	0.88	0.89	0.90	0.51	0.42	0.84
d, Delay for Lane Group [s/veh]	74.97	23.16	23.98	56.91	15.53	6.39	54.32	50.07	50.48	60.05	48.85	49.23
Lane Group LOS	E	C	C	E	B	A	D	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.32	6.19	6.47	6.12	5.24	3.58	7.02	12.17	11.78	0.98	2.57	11.53
50th-Percentile Queue Length [ft/ln]	33.11	154.7	161.7	153.0	131.1	89.47	175.4	304.1	294.6	24.47	64.27	288.1
95th-Percentile Queue Length [veh/ln]	2.38	10.27	10.64	10.18	9.00	6.44	11.36	17.89	17.41	1.76	4.63	17.10
95th-Percentile Queue Length [ft/ln]	59.59	256.7	266.0	254.4	225.0	161.0	284.0	447.1	435.3	44.05	115.6	427.3

Movement, Approach, & Intersection Results

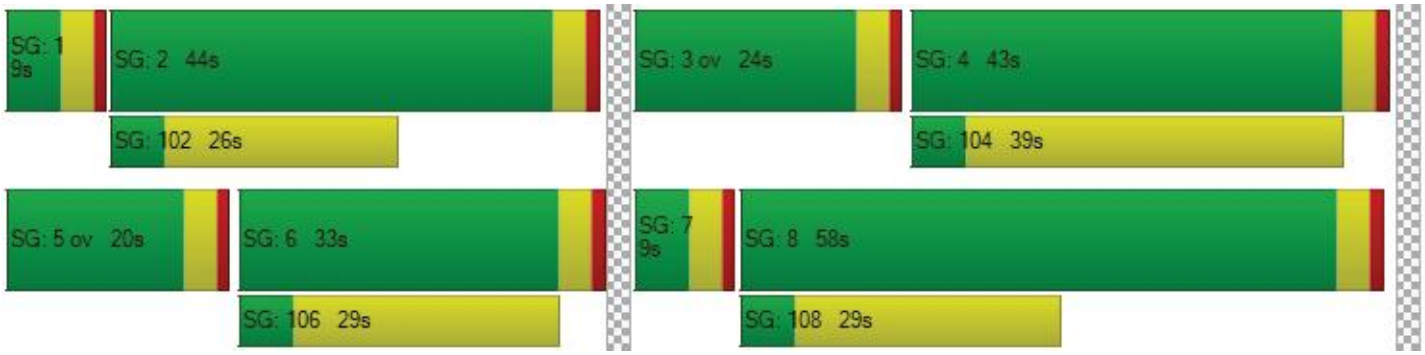
d_M, Delay for Movement [s/veh]	74.97	23.39	23.98	56.91	15.53	6.39	54.32	50.25	50.48	60.05	48.85	49.23
Movement LOS	E	C	C	E	B	A	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	25.31			22.27			51.76			50.20		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.43											
Intersection LOS	C											
Intersection V/C	0.601											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.004	3.328	2.773	2.857
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	667	900	650
d_b, Bicycle Delay [s]	34.50	26.67	18.15	27.34
l_b,int, Bicycle LOS Score for Intersection	2.105	2.566	2.582	2.073
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	460.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	30.565

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	601	29	67	890	130	243	49	30	13	21	83
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	601	29	67	890	130	243	49	30	13	21	83
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	157	8	18	232	34	63	13	8	3	5	22
Total Analysis Volume [veh/h]	8	628	30	70	930	136	254	51	31	14	22	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	12	12	5	16	16	91	91	91	91
g / C, Green / Cycle	0.01	0.10	0.10	0.04	0.13	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.00	0.13	0.13	0.04	0.21	0.21	30.35	0.02	0.57	0.06
s, saturation flow rate [veh/h]	1714	3427	1758	1714	3427	1685	10	1530	63	1530
c, Capacity [veh/h]	17	346	178	71	455	224	63	1159	90	1159
d1, Uniform Delay [s]	59.11	53.94	53.94	57.45	52.03	52.03	51.27	3.61	35.68	3.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.29	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.69	135.8	155.1	44.71	265.8	278.0	1778.15	0.01	7.60	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	1.25	1.26	0.98	1.57	1.57	4.87	0.03	0.40	0.08
d, Delay for Lane Group [s/veh]	78.80	189.7	209.1	102.1	317.9	330.0	1829.42	3.61	43.28	3.77
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.33	11.74	13.01	3.01	23.65	24.02	32.82	0.17	1.07	0.49
50th-Percentile Queue Length [ft/ln]	8.34	293.5	325.1	75.20	591.3	600.4	820.58	4.18	26.68	12.18
95th-Percentile Queue Length [veh/ln]	0.60	18.84	20.60	5.41	37.20	37.73	59.08	0.30	1.92	0.88
95th-Percentile Queue Length [ft/ln]	15.01	471.0	515.0	135.3	929.8	943.3	1477.04	7.52	48.03	21.93

Movement, Approach, & Intersection Results

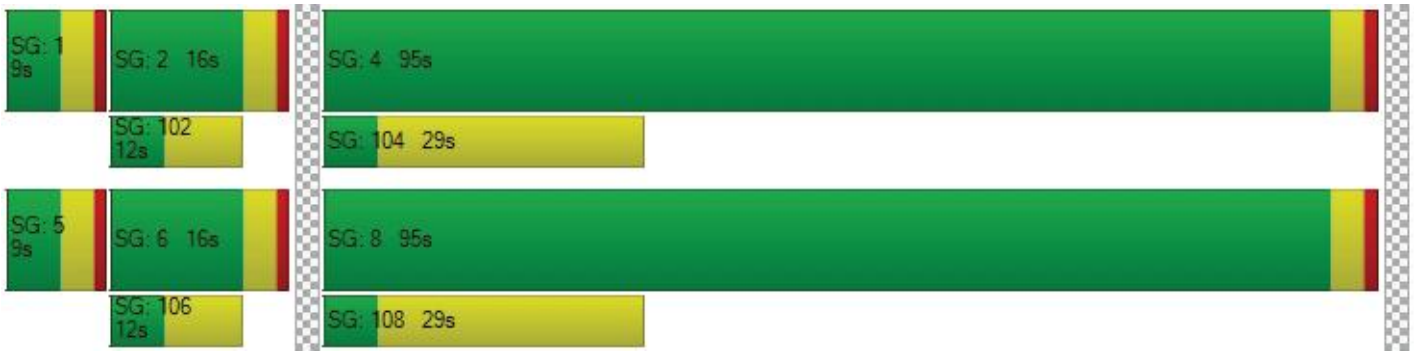
d_M, Delay for Movement [s/veh]	78.80	195.7	209.1	102.1	320.7	330.0	1829.	1829.	3.61	43.28	43.28	3.77
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	194.94			308.38			1660.97			15.34		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	460.03											
Intersection LOS	F											
Intersection V/C	30.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.858	3.264	2.119	2.044
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	1.926	2.184	2.114	1.763
Bicycle LOS	A	B	B	A

Sequence

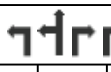
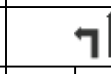
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1772	2665	1687	1772
c, Capacity [veh/h]	1	2920	1533	1	2919	1405	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-2

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Report File: K:\...\3 OY 2024 CUM AM.pdf

Scenario 3 OY 2024 CUM AM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.575	30.0	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.587	25.9	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.483	19.6	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.575	24.1	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.712	29.2	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.495	17.6	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.427	31.7	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.631	36.6	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.597	32.0	C
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	WB Right	0.785	55.6	E
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.470	21.5	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.525	30.3	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.725	38.4	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.493	39.9	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.872	47.9	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.580	33.7	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.617	47.4	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.896	32.8	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.663	25.4	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.772	42.6	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.676	40.5	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	1.928	863.1	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.768	47.5	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.696	41.9	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.746	42.2	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.744	42.4	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.497	26.0	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.742	44.9	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	SB Left	0.592	37.1	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.647	24.6	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.771	37.4	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.369	36.5	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.460	19.5	B
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.589	24.0	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	0.836	29.0	D
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.543	29.4	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	SB Left	0.587	39.8	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.463	20.7	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.640	35.0	C
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	WB Thru	1.064	67.8	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	0.799	25.1	D
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.563	33.2	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	NB Left	0.562	28.5	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.775	44.6	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	SB Right	0.674	51.8	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.536	34.1	C
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.518	34.7	C
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.287	13.8	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.620	34.8	C
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.505	33.0	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SWB Right	0.325	32.3	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.647	38.2	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	NB Left	0.670	30.0	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Thru	0.323	9.9	A
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.462	26.8	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.447	29.5	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.738	43.3	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.521	27.8	C
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	0.020	67.0	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Right	0.824	51.6	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.729	34.2	C
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.513	23.7	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	SB Thru	0.862	34.1	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.560	21.2	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.797	30.0	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.817	35.2	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.735	33.2	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	EB Left	0.710	25.6	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.698	38.3	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.692	36.8	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.688	33.6	C
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	39.736	657.8	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.575

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	303	0	0	712	200	0	0	0	360	4	252
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	14	6	0	0	4	0	0	0	0	17	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	190	327	0	0	759	212	0	0	0	399	4	267
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	50	86	0	0	200	56	0	0	0	105	1	70
Total Analysis Volume [veh/h]	200	344	0	0	799	223	0	0	0	420	4	281
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	20	52	0	0	32	0	0	0	0	0	68	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	16	79	60	60		33	33
g / C, Green / Cycle	0.13	0.66	0.50	0.50		0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.10	0.20	0.21		0.25	0.18
s, saturation flow rate [veh/h]	1714	3427	3427	1614		1715	1530
c, Capacity [veh/h]	225	2264	1699	800		468	417
d1, Uniform Delay [s]	51.25	7.69	19.04	19.34		42.14	38.86
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	11.22	0.14	0.71	1.66		6.89	1.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.15	0.40	0.43		0.91	0.67
d, Delay for Lane Group [s/veh]	62.47	7.83	19.75	20.99		49.04	40.76
Lane Group LOS	E	A	B	C		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	6.60	1.65	6.08	6.37		12.94	7.58
50th-Percentile Queue Length [ft/ln]	165.11	41.31	151.90	159.25		323.44	189.47
95th-Percentile Queue Length [veh/ln]	10.82	2.97	10.12	10.51		18.84	12.09
95th-Percentile Queue Length [ft/ln]	270.48	74.36	252.96	262.72		470.91	302.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.47	7.83	0.00	0.00	19.93	20.99	0.00	0.00	0.00	49.04	49.04	40.76
Movement LOS	E	A			B	C				D	D	D
d_A, Approach Delay [s/veh]	27.92			20.16			0.00			45.74		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	29.96											
Intersection LOS	C											
Intersection V/C	0.575											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.855	2.185
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	467	0	1067
d_b, Bicycle Delay [s]	21.60	35.27	60.00	13.07
l_b,int, Bicycle LOS Score for Intersection	2.008	2.122	4.132	2.723
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	302	906	0	0	822	355	0	0	0	421	1	309
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	5	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	320	966	0	0	875	376	0	0	0	451	1	328
Peak Hour Factor	0.964	0.964	1.000	1.000	0.964	0.964	1.000	1.000	1.000	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	83	251	0	0	227	98	0	0	0	117	0	85
Total Analysis Volume [veh/h]	332	1002	0	0	908	390	0	0	0	468	1	340
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	20	66	0	0	46	0	0	0	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	82	64	64		30	30	30
g / C, Green / Cycle	0.12	0.68	0.53	0.53		0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.10	0.29	0.26	0.25		0.14	0.14	0.22
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1715	1530
c, Capacity [veh/h]	389	2343	1828	816		428	428	382
d1, Uniform Delay [s]	51.98	8.49	17.78	17.54		39.12	39.12	43.41
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.39	0.57	0.97	2.00		1.09	1.09	7.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.43	0.50	0.48		0.55	0.55	0.89
d, Delay for Lane Group [s/veh]	57.37	9.07	18.74	19.54		40.21	40.21	51.16
Lane Group LOS	E	A	B	B		D	D	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.19	5.60	8.06	7.07		6.15	6.15	10.50
50th-Percentile Queue Length [ft/ln]	129.71	139.96	201.38	176.80		153.6	153.6	262.5
95th-Percentile Queue Length [veh/ln]	8.92	9.48	12.71	11.43		10.21	10.21	15.82
95th-Percentile Queue Length [ft/ln]	223.10	236.97	317.75	285.84		255.2	255.2	395.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.37	9.07	0.00	0.00	18.74	19.54	0.00	0.00	0.00	40.21	40.21	51.16
Movement LOS	E	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	21.09			18.98			0.00			44.81		
Approach LOS	C			B			A			D		
d_I, Intersection Delay [s/veh]	25.87											
Intersection LOS	C											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.083	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	700	0	833
d_b, Bicycle Delay [s]	14.02	25.35	60.00	20.42
l_b,int, Bicycle LOS Score for Intersection	2.660	2.630	4.132	2.894
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.483

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	792	0	0	1079	0	0	0	0	510	0	291
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	846	0	0	1148	0	0	0	0	543	0	308
Peak Hour Factor	1.000	0.869	1.000	1.000	0.869	1.000	1.000	1.000	1.000	0.869	0.869	0.869
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	243	0	0	330	0	0	0	0	156	0	89
Total Analysis Volume [veh/h]	0	974	0	0	1321	0	0	0	0	625	0	354
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	63	0	0	63	0	0	0	0	0	57	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83		29	29	29
g / C, Green / Cycle	0.69	0.69		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.20	0.27		0.19	0.19	0.21
s, saturation flow rate [veh/h]	4903	4903		1714	1697	1530
c, Capacity [veh/h]	3375	3375		420	416	375
d1, Uniform Delay [s]	7.27	7.98		42.24	42.35	43.48
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	0.34		3.13	3.30	6.30
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.39		0.78	0.78	0.87
d, Delay for Lane Group [s/veh]	7.49	8.32		45.37	45.65	49.78
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.10	4.61		9.36	9.40	9.91
50th-Percentile Queue Length [ft/ln]	77.42	115.34		233.9	234.8	247.7
95th-Percentile Queue Length [veh/ln]	5.57	8.14		14.37	14.42	15.07
95th-Percentile Queue Length [ft/ln]	139.36	203.40		359.3	360.5	376.8

Movement, Approach, & Intersection Results

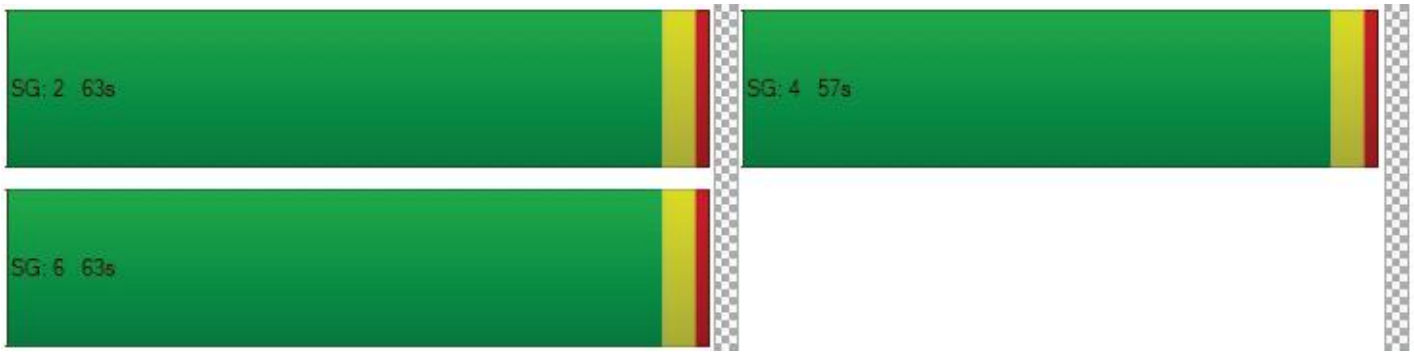
d_M, Delay for Movement [s/veh]	0.00	7.49	0.00	0.00	8.32	0.00	0.00	0.00	0.00	45.51	45.65	49.45
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	7.49			8.32			0.00			46.93		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.62											
Intersection LOS	B											
Intersection V/C	0.483											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	0	883
d_b, Bicycle Delay [s]	15.50	15.50	60.00	18.70
l_b,int, Bicycle LOS Score for Intersection	2.095	2.286	4.132	3.175
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.575

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	427	319	160	805	0	153	5	296	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	21	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	473	360	170	874	0	162	5	326	0	0	0
Peak Hour Factor	1.000	0.952	0.952	0.952	0.952	1.000	0.952	0.952	0.952	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	124	95	45	230	0	43	1	86	0	0	0
Total Analysis Volume [veh/h]	0	497	378	179	918	0	170	5	342	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	49	0	23	72	0	0	48	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	64	64	14	83	29	29	
g / C, Green / Cycle	0.53	0.53	0.12	0.69	0.25	0.25	
(v / s)_i Volume / Saturation Flow Rate	0.15	0.25	0.10	0.27	0.10	0.22	
s, saturation flow rate [veh/h]	3427	1530	1714	3427	1717	1530	
c, Capacity [veh/h]	1829	816	207	2357	421	376	
d1, Uniform Delay [s]	15.26	17.33	51.78	7.99	38.04	43.99	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.37	1.89	10.20	0.49	0.65	12.82	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.27	0.46	0.86	0.39	0.42	0.91	
d, Delay for Lane Group [s/veh]	15.63	19.22	61.98	8.47	38.69	56.81	
Lane Group LOS	B	B	E	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	3.77	6.77	5.87	4.86	4.42	11.15	
50th-Percentile Queue Length [ft/ln]	94.13	169.26	146.76	121.61	110.46	278.79	
95th-Percentile Queue Length [veh/ln]	6.78	11.04	9.84	8.48	7.87	16.63	
95th-Percentile Queue Length [ft/ln]	169.43	275.94	246.10	212.04	196.64	415.70	

Movement, Approach, & Intersection Results

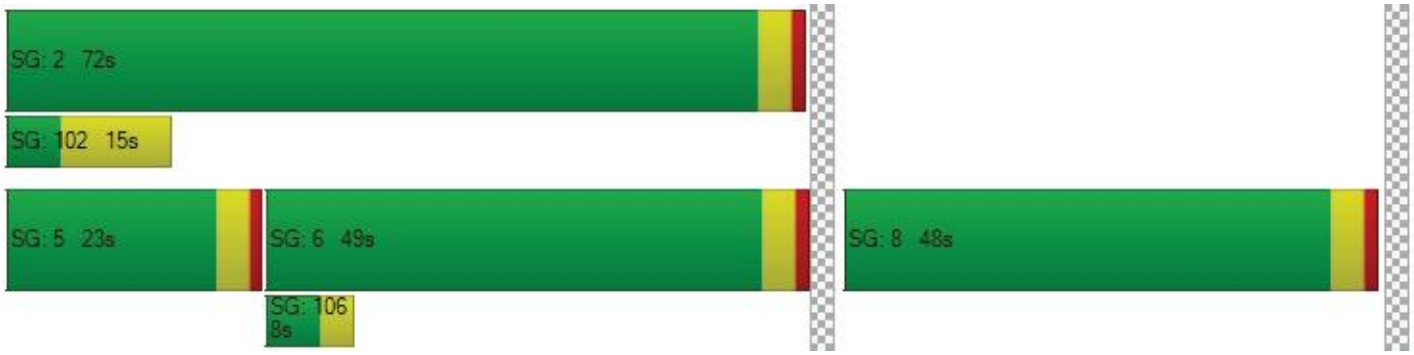
d_M, Delay for Movement [s/veh]	0.00	15.63	19.22	61.98	8.47	0.00	38.69	38.69	56.81	0.00	0.00	0.00
Movement LOS		B	B	E	A		D	D	E			
d_A, Approach Delay [s/veh]	17.18			17.20			50.68			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	24.15											
Intersection LOS	C											
Intersection V/C	0.575											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.123	1.987
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	1133	733	0
d_b, Bicycle Delay [s]	23.44	11.27	24.07	60.00
l_b,int, Bicycle LOS Score for Intersection	2.041	2.465	2.413	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	817	408	302	931	0	411	3	402	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	7	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	872	439	320	996	0	436	3	426	0	0	0
Peak Hour Factor	1.000	0.966	0.966	0.966	0.966	1.000	0.966	0.966	0.966	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	226	114	83	258	0	113	1	110	0	0	0
Total Analysis Volume [veh/h]	0	903	454	331	1031	0	451	3	441	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	60	0	18	78	0	0	42	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	68	68	14	86	26	26	26	
g / C, Green / Cycle	0.57	0.57	0.11	0.71	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.38	0.42	0.10	0.30	0.18	0.18	0.19	
s, saturation flow rate [veh/h]	1800	1610	3329	3427	1714	1618	1530	
c, Capacity [veh/h]	1017	909	382	2443	378	357	337	
d1, Uniform Delay [s]	18.24	19.64	52.22	7.08	44.31	44.70	45.09	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.15	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.47	5.55	6.02	0.54	4.90	7.03	10.02	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.67	0.75	0.87	0.42	0.80	0.84	0.87	
d, Delay for Lane Group [s/veh]	21.71	25.19	58.23	7.61	49.21	51.73	55.12	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.62	15.01	5.21	5.10	9.05	9.15	9.32	
50th-Percentile Queue Length [ft/ln]	340.44	375.27	130.31	127.50	226.1	228.7	232.8	
95th-Percentile Queue Length [veh/ln]	19.67	21.36	8.96	8.80	13.98	14.11	14.32	
95th-Percentile Queue Length [ft/ln]	491.73	534.12	223.91	220.09	349.5	352.8	358.0	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	22.58	25.19	58.23	7.61	0.00	50.05	51.73	54.01	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	23.45			19.91			51.98			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	29.18											
Intersection LOS	C											
Intersection V/C	0.712											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.364	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	1233	633	0
d_b, Bicycle Delay [s]	17.07	8.82	28.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.679	2.683	3.036	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.495

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	946	463	0	1265	26	160	0	553	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1009	491	0	1347	26	170	0	586	0	0	0
Peak Hour Factor	1.000	0.942	0.942	1.000	0.942	1.000	0.942	0.942	0.942	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	268	130	0	357	7	45	0	156	0	0	0
Total Analysis Volume [veh/h]	0	1071	521	0	1430	26	180	0	622	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	67	0	0	67	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	84	84	28	28	28	
g / C, Green / Cycle	0.70	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.29	0.11	0.20	0.20	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3436	3436	399	356	356	
d1, Uniform Delay [s]	6.88	7.59	39.47	44.34	44.34	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.24	0.37	0.80	6.75	6.75	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.31	0.42	0.45	0.87	0.87	
d, Delay for Lane Group [s/veh]	7.12	7.96	40.27	51.09	51.09	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.30	4.87	4.66	9.54	9.54	
50th-Percentile Queue Length [ft/ln]	82.58	121.85	116.4	238.4	238.4	
95th-Percentile Queue Length [veh/ln]	5.95	8.49	8.20	14.60	14.60	
95th-Percentile Queue Length [ft/ln]	148.65	212.36	204.9	365.0	365.0	

Movement, Approach, & Intersection Results

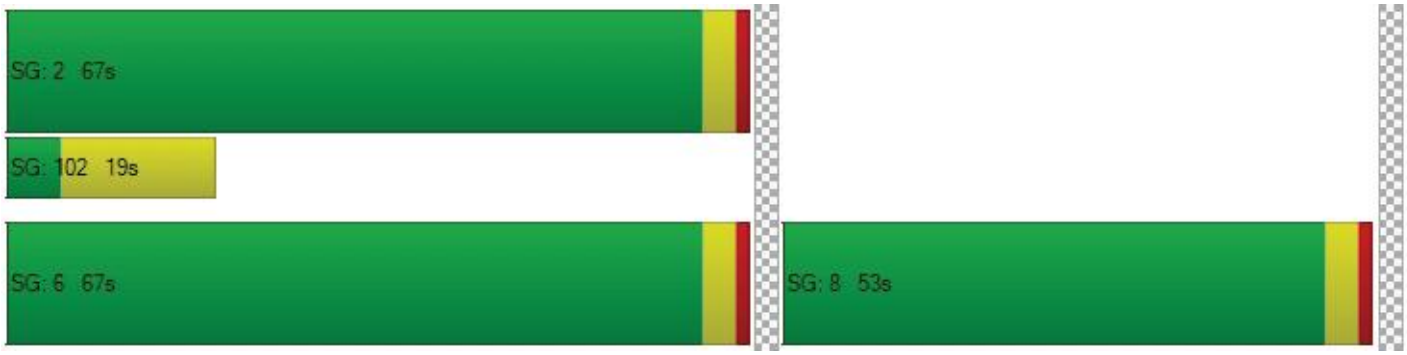
d_M, Delay for Movement [s/veh]	0.00	7.12	0.00	0.00	7.96	0.00	40.27	51.09	51.09	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	7.12			7.96			48.67			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.57											
Intersection LOS	B											
Intersection V/C	0.495											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.342	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1050	817	0
d_b, Bicycle Delay [s]	13.54	13.54	21.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.149	2.346	2.883	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.427

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	570	67	55	502	93	117	199	75	90	208	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	604	71	58	532	99	124	211	80	95	220	65
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	169	20	16	149	28	35	59	22	27	62	18
Total Analysis Volume [veh/h]	44	678	80	65	597	111	139	237	90	107	247	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	0	10	35	0	48	29	0	45	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	73	73	6	75	75	12	16	16	9	14	14
g / C, Green / Cycle	0.03	0.61	0.61	0.05	0.62	0.62	0.10	0.13	0.13	0.08	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.03	0.21	0.21	0.04	0.20	0.20	0.08	0.09	0.10	0.06	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1734	1714	1800	1703	1714	1800	1635	1714	1800	1662
c, Capacity [veh/h]	56	1090	1050	82	1117	1057	170	242	220	135	206	190
d1, Uniform Delay [s]	57.62	11.90	11.90	56.52	10.82	10.82	53.02	49.62	49.75	54.29	51.78	51.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.96	0.90	0.94	15.31	0.77	0.82	9.35	3.65	4.34	9.83	6.93	8.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.35	0.35	0.79	0.33	0.33	0.82	0.70	0.72	0.79	0.80	0.82
d, Delay for Lane Group [s/veh]	78.58	12.80	12.84	71.83	11.59	11.65	62.36	53.26	54.09	64.12	58.72	60.24
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.65	5.31	5.13	2.30	4.67	4.45	4.55	5.10	4.80	3.55	5.22	5.01
50th-Percentile Queue Length [ft/ln]	41.30	132.6	128.2	57.48	116.8	111.1	113.7	127.4	119.9	88.67	130.4	125.3
95th-Percentile Queue Length [veh/ln]	2.97	9.08	8.84	4.14	8.22	7.90	8.05	8.80	8.39	6.38	8.96	8.68
95th-Percentile Queue Length [ft/ln]	74.34	227.0	221.0	103.4	205.4	197.6	201.2	220.0	209.7	159.6	224.0	217.1

Movement, Approach, & Intersection Results

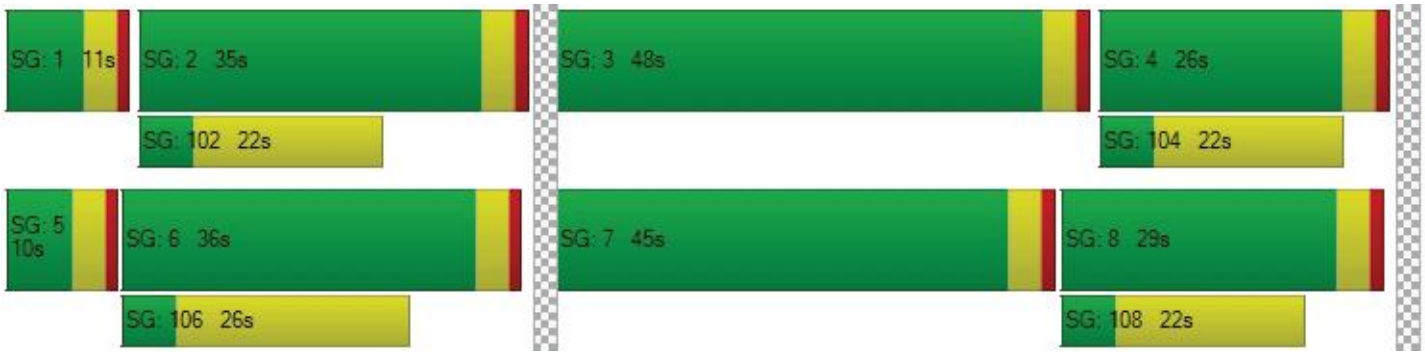
d_M, Delay for Movement [s/veh]	78.58	12.82	12.84	71.83	11.61	11.65	62.36	53.50	54.09	64.12	59.23	60.24
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	16.43			16.68			56.26			60.63		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	31.68											
Intersection LOS	C											
Intersection V/C	0.427											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.626	2.639	2.484	2.600
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	517	417	367
d_b, Bicycle Delay [s]	32.27	33.00	37.60	40.02
l_b,int, Bicycle LOS Score for Intersection	2.221	2.197	1.944	1.912
Bicycle LOS	B	B	A	A

Sequence

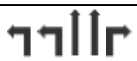
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.631

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	725	72	337	942	150	215	192	53	91	197	246
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	13	0	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	782	76	357	1008	159	228	204	56	96	209	261
Peak Hour Factor	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	213	21	97	275	43	62	56	15	26	57	71
Total Analysis Volume [veh/h]	87	852	83	389	1098	173	248	222	61	105	228	284
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	39	0	21	48	0	15	39	0	21	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	52	52	16	61	61	11	27	27	9	25	25
g / C, Green / Cycle	0.06	0.44	0.44	0.13	0.51	0.51	0.09	0.22	0.22	0.08	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.05	0.12	0.32	0.11	0.07	0.06	0.04	0.06	0.13	0.19
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	108	1491	665	443	1730	772	300	760	339	132	376	319
d1, Uniform Delay [s]	55.47	25.50	20.26	51.07	21.65	16.59	53.68	38.86	37.85	54.45	43.02	46.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.82	1.60	0.39	5.75	1.79	0.67	5.78	0.21	0.25	10.31	1.58	9.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.57	0.12	0.88	0.63	0.22	0.83	0.29	0.18	0.80	0.61	0.89
d, Delay for Lane Group [s/veh]	68.29	27.10	20.64	56.82	23.44	17.26	59.46	39.07	38.10	64.76	44.60	55.35
Lane Group LOS	E	C	C	E	C	B	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.98	9.36	1.47	6.08	11.41	2.80	3.92	2.76	1.49	3.50	6.30	9.02
50th-Percentile Queue Length [ft/ln]	74.59	233.9	36.72	152.1	285.3	69.91	97.95	68.97	37.21	87.49	157.6	225.4
95th-Percentile Queue Length [veh/ln]	5.37	14.38	2.64	10.13	16.96	5.03	7.05	4.97	2.68	6.30	10.42	13.94
95th-Percentile Queue Length [ft/ln]	134.2	359.4	66.09	253.2	423.8	125.8	176.3	124.1	66.98	157.4	260.5	348.5

Movement, Approach, & Intersection Results

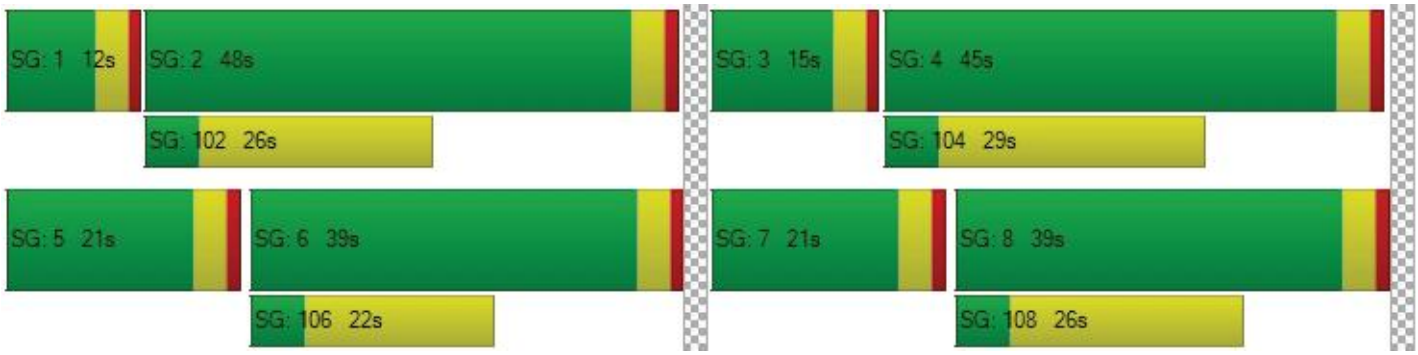
d_M, Delay for Movement [s/veh]	68.29	27.10	20.64	56.82	23.44	17.26	59.46	39.07	38.10	64.76	44.60	55.35
Movement LOS	E	C	C	E	C	B	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	30.08			30.62			48.48			52.98		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.55											
Intersection LOS	D											
Intersection V/C	0.631											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.840	3.033	2.751	2.681
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	733	583	683
d_b, Bicycle Delay [s]	30.10	24.07	30.10	26.00
l_b,int, Bicycle LOS Score for Intersection	2.403	2.929	1.998	2.578
Bicycle LOS	B	C	A	B

Sequence

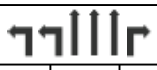
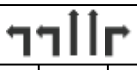
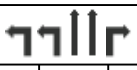
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	919	38	219	1191	403	291	252	173	16	252	199
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	9	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	170	983	40	232	1268	427	308	267	183	17	267	211
Peak Hour Factor	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	262	11	62	338	114	82	71	49	5	71	56
Total Analysis Volume [veh/h]	181	1048	43	247	1352	455	328	285	195	18	285	225
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	23	47	0	19	52	0	9	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	59	59	11	62	62	14	32	32	2	20	20
g / C, Green / Cycle	0.07	0.49	0.49	0.09	0.52	0.52	0.11	0.27	0.27	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.21	0.03	0.07	0.28	0.30	0.10	0.08	0.13	0.01	0.08	0.15
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	222	2393	747	311	2525	788	382	911	407	64	584	261
d1, Uniform Delay [s]	55.27	20.00	16.18	53.25	19.49	20.09	52.16	35.27	37.06	58.04	45.05	48.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.13	0.58	0.15	4.56	0.82	3.07	5.66	0.19	0.88	2.38	0.63	8.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.44	0.06	0.79	0.54	0.58	0.86	0.31	0.48	0.28	0.49	0.86
d, Delay for Lane Group [s/veh]	62.41	20.58	16.33	57.81	20.31	23.17	57.82	35.46	37.93	60.42	45.69	56.76
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.92	6.42	0.66	3.84	8.45	9.26	5.14	3.38	4.93	0.29	3.90	7.14
50th-Percentile Queue Length [ft/ln]	73.03	160.4	16.42	96.12	211.1	231.6	128.6	84.53	123.1	7.27	97.60	178.5
95th-Percentile Queue Length [veh/ln]	5.26	10.57	1.18	6.92	13.21	14.26	8.86	6.09	8.57	0.52	7.03	11.52
95th-Percentile Queue Length [ft/ln]	131.4	264.3	29.55	173.0	330.3	356.4	221.6	152.1	214.1	13.09	175.6	288.1

Movement, Approach, & Intersection Results

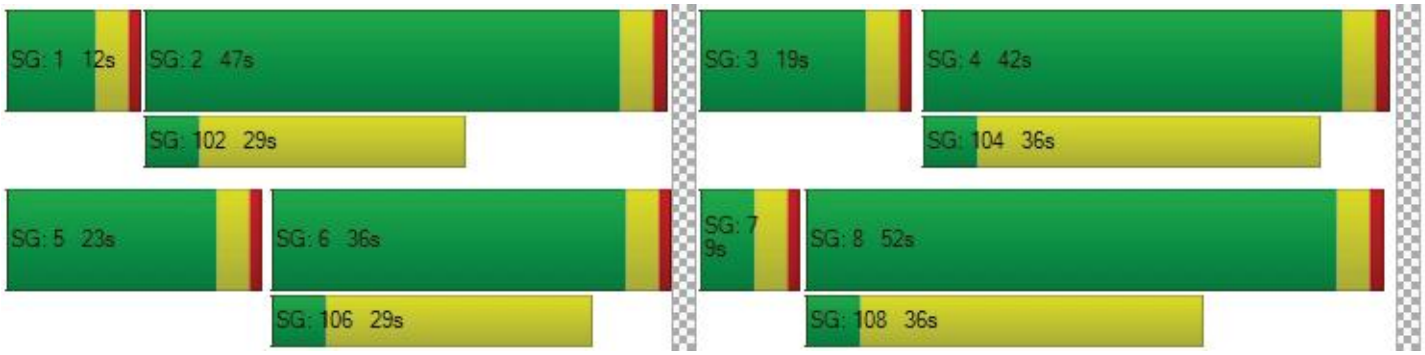
d_M, Delay for Movement [s/veh]	62.41	20.58	16.33	57.81	20.31	23.17	57.82	35.46	37.93	60.42	45.69	56.76
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	26.39			25.45			45.13			50.91		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.00											
Intersection LOS	C											
Intersection V/C	0.597											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.172	3.260	2.850	2.763
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	717	800	633
d_b, Bicycle Delay [s]	32.27	24.70	21.60	28.02
l_b,int, Bicycle LOS Score for Intersection	2.259	2.689	2.226	1.995
Bicycle LOS	B	B	B	A

Sequence

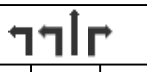
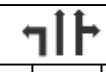
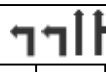
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	55.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	268	102	147	286	257	107	507	78	172	1112	236
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	6	6	0	0	4	0	0	0	4	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	290	108	156	307	272	113	537	87	182	1179	250
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	77	29	42	82	73	30	143	23	49	315	67
Total Analysis Volume [veh/h]	135	310	115	167	328	291	121	574	93	194	1260	267
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	16	41	0	13	51	0	17	55	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	45	12	37	37	9	51	51	9	51	51
g / C, Green / Cycle	0.06	0.27	0.38	0.10	0.31	0.31	0.08	0.42	0.42	0.08	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.08	0.10	0.18	0.19	0.07	0.13	0.13	0.06	0.43	0.44
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1530	1714	3427	1676	3329	1800	1694
c, Capacity [veh/h]	187	480	579	171	559	475	129	1446	707	260	765	720
d1, Uniform Delay [s]	55.71	38.98	25.09	53.85	34.88	35.22	55.24	23.05	23.11	54.14	34.50	34.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.48	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.21	6.57	0.77	26.25	4.47	5.79	24.92	0.12	0.25	4.22	34.48	46.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.65	0.20	0.97	0.59	0.61	0.94	0.31	0.31	0.75	1.01	1.05
d, Delay for Lane Group [s/veh]	60.92	45.55	25.86	80.10	39.34	41.01	80.15	23.17	23.36	58.37	68.98	81.00
Lane Group LOS	E	D	C	F	D	D	F	C	C	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.15	8.95	2.35	6.27	8.75	7.99	4.53	4.22	4.22	3.02	28.99	29.69
50th-Percentile Queue Length [ft/ln]	53.65	223.7	58.65	156.6	218.8	199.6	113.2	105.4	105.4	75.59	724.7	742.2
95th-Percentile Queue Length [veh/ln]	3.86	13.86	4.22	10.37	13.61	12.62	8.02	7.58	7.59	5.44	38.13	39.98
95th-Percentile Queue Length [ft/ln]	96.56	346.4	105.5	259.3	340.1	315.5	200.4	189.5	189.6	136.0	953.2	999.5

Movement, Approach, & Intersection Results

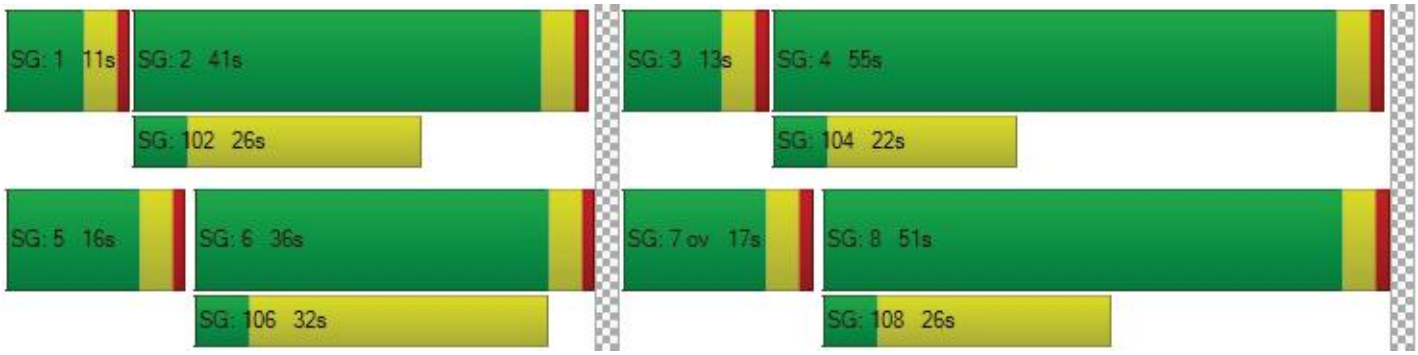
d_M, Delay for Movement [s/veh]	60.92	45.55	25.86	80.10	39.34	41.01	80.15	23.22	23.36	58.37	73.62	81.00
Movement LOS	E	D	C	F	D	D	F	C	C	E	E	F
d_A, Approach Delay [s/veh]	45.21			48.62			31.97			73.05		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	55.63											
Intersection LOS	E											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.659	2.604	2.870	3.055
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	617	783	850
d_b, Bicycle Delay [s]	32.27	28.70	22.20	19.84
l_b,int, Bicycle LOS Score for Intersection	2.484	2.208	1.993	2.979
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	367	0	567	0	537	236	0	946	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	389	0	601	0	569	250	0	1003	0
Peak Hour Factor	1.000	1.000	1.000	0.908	1.000	0.908	1.000	0.908	0.908	1.000	0.908	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	107	0	165	0	157	69	0	276	0
Total Analysis Volume [veh/h]	0	0	0	428	0	662	0	627	275	0	1105	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	71	0	0	0	49	0	0	49	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		34	34	78	78
g / C, Green / Cycle		0.28	0.28	0.65	0.65
(v / s)_i Volume / Saturation Flow Rate		0.13	0.24	0.13	0.23
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		936	761	3198	3198
d1, Uniform Delay [s]		35.57	41.03	8.32	9.37
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.35	3.22	0.14	0.30
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.46	0.87	0.20	0.35
d, Delay for Lane Group [s/veh]		35.92	44.25	8.46	9.67
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]		5.23	9.59	2.12	4.22
50th-Percentile Queue Length [ft/ln]		130.70	239.65	53.04	105.42
95th-Percentile Queue Length [veh/ln]		8.98	14.66	3.82	7.58
95th-Percentile Queue Length [ft/ln]		224.44	366.59	95.47	189.62

Movement, Approach, & Intersection Results

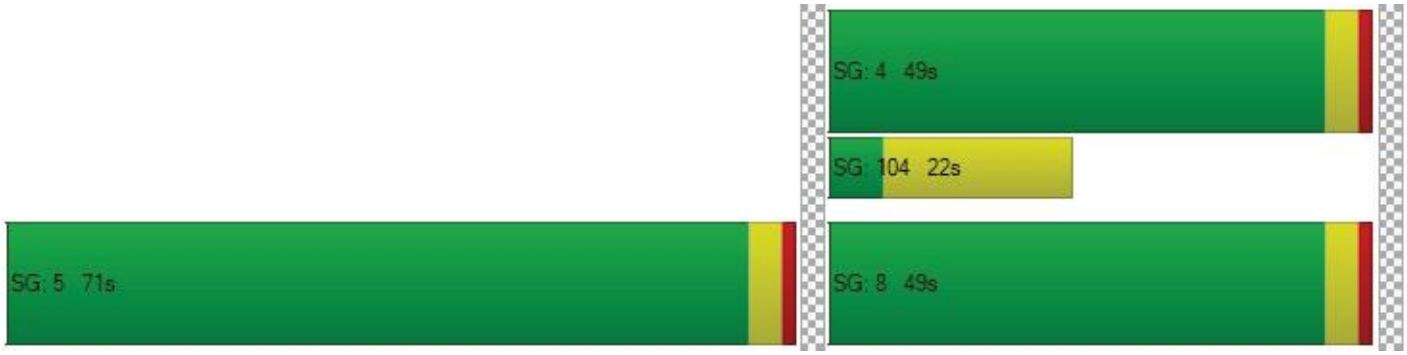
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.92	0.00	44.25	0.00	8.46	0.00	0.00	9.67	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			40.98			8.46			9.67		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	21.50											
Intersection LOS	C											
Intersection V/C	0.470											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.528	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1117	750	750
d_b, Bicycle Delay [s]	60.00	11.70	23.44	23.44
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	1.904	2.167
Bicycle LOS	D	A	A	B

Sequence

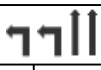
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	30.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	278	2	306	0	0	0	354	565	0	0	1595	179
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	295	2	324	0	0	0	375	599	0	0	1691	190
Peak Hour Factor	0.952	0.952	0.952	1.000	1.000	1.000	0.952	0.952	1.000	1.000	0.952	0.952
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	1	85	0	0	0	98	157	0	0	444	50
Total Analysis Volume [veh/h]	310	2	340	0	0	0	394	629	0	0	1776	200
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	28	0	0	0	0	32	92	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45		17	67	46
g / C, Green / Cycle	0.37	0.37	0.37		0.14	0.56	0.38
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.14		0.12	0.13	0.27
s, saturation flow rate [veh/h]	1714	1596	1530		3329	4903	6538
c, Capacity [veh/h]	642	598	573		471	2741	2512
d1, Uniform Delay [s]	27.11	27.14	27.16		50.17	13.39	31.24
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.55	1.69	1.77		4.02	0.04	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.36	0.36		0.84	0.23	0.71
d, Delay for Lane Group [s/veh]	28.66	28.83	28.93		54.19	13.43	31.61
Lane Group LOS	C	C	C		D	B	C
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.03	4.75	4.59		6.02	2.86	10.81
50th-Percentile Queue Length [ft/ln]	125.8	118.6	114.6		150.49	71.44	270.34
95th-Percentile Queue Length [veh/ln]	8.71	8.32	8.10		10.04	5.14	16.21
95th-Percentile Queue Length [ft/ln]	217.7	208.0	202.4		251.09	128.59	405.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.71	28.83	28.89	0.00	0.00	0.00	54.19	13.43	0.00	0.00	31.61	0.00
Movement LOS	C	C	C				D	B			C	
d_A, Approach Delay [s/veh]	28.80			0.00			29.13			31.61		
Approach LOS	C			A			C			C		
d_I, Intersection Delay [s/veh]	30.34											
Intersection LOS	C											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.305	1.923	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	0	1467	933
d_b, Bicycle Delay [s]	38.40	60.00	4.27	17.07
l_b,int, Bicycle LOS Score for Intersection	2.635	4.132	2.122	2.292
Bicycle LOS	B	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	38.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.725

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	63	529	155	69	828	410	232	502	139	414	1336	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	42	45	0	32	0	0	0	0	33	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	603	209	73	910	435	246	532	147	472	1416	70
Peak Hour Factor	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	164	57	20	247	118	67	145	40	128	385	19
Total Analysis Volume [veh/h]	73	655	227	79	989	473	267	578	160	513	1539	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	23	40	0	28	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	44	44	5	45	45	12	34	34	21	43	43
g / C, Green / Cycle	0.04	0.37	0.37	0.04	0.37	0.37	0.10	0.28	0.28	0.17	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.02	0.13	0.15	0.02	0.20	0.31	0.08	0.12	0.10	0.15	0.31	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	127	1817	567	129	1820	568	331	1394	435	576	1754	547
d1, Uniform Delay [s]	56.76	27.43	27.91	56.79	29.71	34.33	52.89	34.84	34.32	48.51	36.06	26.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.08	0.56	2.10	4.65	1.17	13.39	4.63	0.20	0.52	4.99	1.54	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.36	0.40	0.61	0.54	0.83	0.81	0.41	0.37	0.89	0.88	0.14
d, Delay for Lane Group [s/veh]	60.85	27.99	30.01	61.44	30.88	47.73	57.52	35.04	34.84	53.50	37.60	26.15
Lane Group LOS	E	C	C	E	C	D	E	D	C	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.16	4.65	5.16	1.26	7.66	14.49	4.15	4.60	3.81	7.88	14.09	1.50
50th-Percentile Queue Length [ft/ln]	29.02	116.3	128.8	31.58	191.5	362.2	103.8	115.1	95.22	197.1	352.2	37.44
95th-Percentile Queue Length [veh/ln]	2.09	8.19	8.88	2.27	12.20	20.73	7.47	8.12	6.86	12.49	20.24	2.70
95th-Percentile Queue Length [ft/ln]	52.24	204.8	221.9	56.84	305.0	518.3	186.8	203.0	171.3	312.2	506.0	67.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.85	27.99	30.01	61.44	30.88	47.73	57.52	35.04	34.84	53.50	37.60	26.15
Movement LOS	E	C	C	E	C	D	E	D	C	D	D	C
d_A, Approach Delay [s/veh]	30.98			37.62			40.98			41.03		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.38											
Intersection LOS	D											
Intersection V/C	0.725											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.148	3.140	3.367	3.275
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	600	683
d_b, Bicycle Delay [s]	27.34	27.34	29.40	26.00
l_b,int, Bicycle LOS Score for Intersection	2.085	2.407	2.112	2.730
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.493

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	239	13	94	239	197	132	419	37	45	589	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	27	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	253	14	100	253	209	140	482	39	48	651	87
Peak Hour Factor	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	21	76	4	30	76	63	42	146	12	14	197	26
Total Analysis Volume [veh/h]	83	306	17	121	306	252	169	582	47	58	786	105
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	16	40	0	26	44	0	24	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	56	56	10	59	59	14	33	33	5	24	24
g / C, Green / Cycle	0.06	0.46	0.46	0.08	0.49	0.49	0.12	0.27	0.27	0.04	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.01	0.07	0.17	0.17	0.10	0.12	0.03	0.03	0.17	0.17
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1512	1714	4903	1506	1687	3427	1694
c, Capacity [veh/h]	104	1585	707	146	863	736	198	1342	412	77	699	345
d1, Uniform Delay [s]	55.65	19.04	17.54	54.04	19.00	19.06	52.08	35.90	32.66	56.62	46.02	46.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.10	0.27	0.06	11.32	1.10	1.32	9.99	0.22	0.12	13.99	3.05	6.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.19	0.02	0.83	0.35	0.35	0.85	0.43	0.11	0.76	0.85	0.86
d, Delay for Lane Group [s/veh]	68.75	19.31	17.60	65.36	20.11	20.38	62.08	36.13	32.78	70.60	49.08	52.29
Lane Group LOS	E	B	B	E	C	C	E	D	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.86	2.58	0.27	4.05	5.38	4.70	5.54	4.72	1.05	2.04	8.81	9.09
50th-Percentile Queue Length [ft/ln]	71.44	64.56	6.76	101.3	134.4	117.5	138.4	117.9	26.20	50.94	220.3	227.1
95th-Percentile Queue Length [veh/ln]	5.14	4.65	0.49	7.30	9.18	8.26	9.40	8.28	1.89	3.67	13.68	14.03
95th-Percentile Queue Length [ft/ln]	128.5	116.2	12.17	182.4	229.4	206.5	234.9	207.0	47.16	91.68	342.0	350.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.75	19.31	17.60	65.36	20.11	20.38	62.08	36.13	32.78	70.60	49.86	52.29
Movement LOS	E	B	B	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	29.35			28.28			41.43			51.39		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.88											
Intersection LOS	D											
Intersection V/C	0.493											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.601	2.673	3.072	2.944
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	667	633
d_b, Bicycle Delay [s]	32.27	29.40	26.67	28.02
l_b,int, Bicycle LOS Score for Intersection	1.895	2.120	1.999	2.082
Bicycle LOS	A	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	47.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.872

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	571	733	124	771	237	274	346	109	156	659	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	2	0	0	9	11	21	0	2	14	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	127	607	779	131	817	260	301	388	116	167	713	108
Peak Hour Factor	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	161	207	35	217	69	80	103	31	44	189	29
Total Analysis Volume [veh/h]	135	644	827	139	867	276	320	412	123	177	757	115
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	24	61	0	14	51	0	15	26	0	19	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	61	61	10	60	60	11	24	24	9	22	36
g / C, Green / Cycle	0.09	0.51	0.51	0.08	0.50	0.50	0.09	0.20	0.20	0.07	0.18	0.30
(v / s)_i Volume / Saturation Flow Rate	0.08	0.36	0.54	0.08	0.25	0.18	0.10	0.08	0.08	0.05	0.15	0.08
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	163	921	783	143	1714	765	305	982	306	237	882	454
d1, Uniform Delay [s]	53.34	22.27	29.29	54.87	20.07	18.29	54.50	41.89	41.73	54.66	47.73	32.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.19	4.40	48.00	28.98	1.07	1.32	37.78	0.29	0.85	4.63	2.57	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.70	1.06	0.97	0.51	0.36	1.05	0.42	0.40	0.75	0.86	0.25
d, Delay for Lane Group [s/veh]	63.53	26.66	77.30	83.85	21.14	19.62	92.28	42.18	42.58	59.29	50.30	32.40
Lane Group LOS	E	C	F	F	C	B	F	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.46	14.55	31.91	5.34	8.24	4.92	6.20	3.59	3.25	2.78	7.51	2.59
50th-Percentile Queue Length [ft/ln]	111.5	363.6	797.7	133.3	206.0	122.8	155.0	89.74	81.28	69.44	187.7	64.86
95th-Percentile Queue Length [veh/ln]	7.92	20.80	43.01	9.12	12.95	8.55	10.46	6.46	5.85	5.00	12.00	4.67
95th-Percentile Queue Length [ft/ln]	198.1	520.0	1075.	228.1	323.7	213.7	261.6	161.5	146.3	124.9	300.0	116.7

Movement, Approach, & Intersection Results

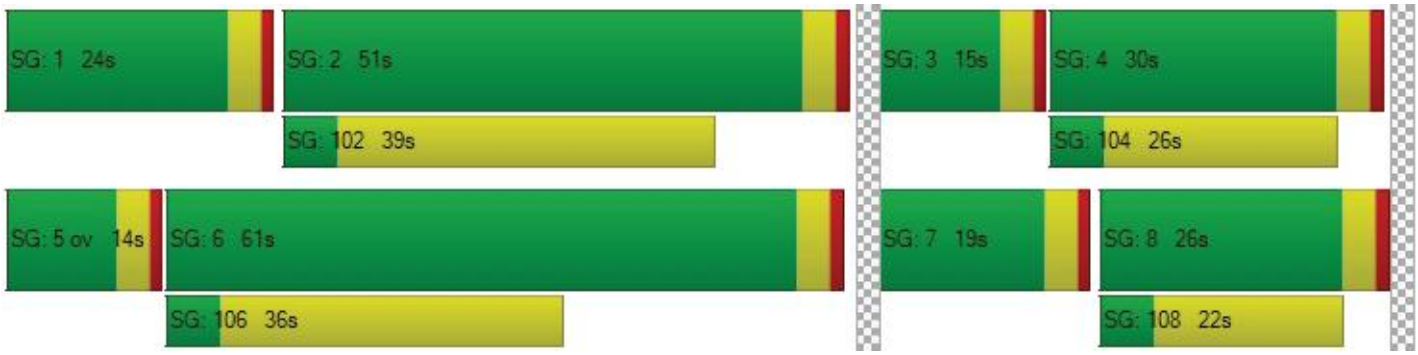
d_M, Delay for Movement [s/veh]	63.53	26.66	77.30	83.85	21.14	19.62	92.28	42.18	42.58	59.29	50.30	32.40
Movement LOS	E	C	F	F	C	B	F	D	D	E	D	C
d_A, Approach Delay [s/veh]	55.83			27.61			60.99			49.85		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	47.89											
Intersection LOS	D											
Intersection V/C	0.872											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.856	2.852	3.084	3.218
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	783	367	433
d_b, Bicycle Delay [s]	16.54	22.20	40.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.885	2.617	2.030	2.137
Bicycle LOS	C	B	B	B

Sequence

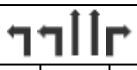
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	33.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	157	629	56	220	1054	104	94	405	109	90	492	139
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	5	0	0	4	6	10	6	0	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	672	59	233	1121	116	110	435	116	95	526	147
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	189	17	65	315	33	31	122	33	27	148	41
Total Analysis Volume [veh/h]	186	754	66	262	1258	130	123	488	130	107	590	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	23	50	0	10	48	0	9	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	68	68	12	71	71	6	19	19	5	18	18
g / C, Green / Cycle	0.07	0.57	0.57	0.10	0.59	0.59	0.05	0.16	0.16	0.04	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.06	0.15	0.04	0.08	0.37	0.08	0.04	0.10	0.08	0.03	0.12	0.11
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	239	2783	868	325	2034	908	166	783	244	139	742	232
d1, Uniform Delay [s]	54.77	13.26	11.73	53.02	15.66	10.83	56.23	47.04	46.29	56.93	49.12	48.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.47	0.24	0.17	4.69	1.42	0.33	6.28	0.82	1.79	8.72	1.98	4.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.27	0.08	0.81	0.62	0.14	0.74	0.62	0.53	0.77	0.79	0.71
d, Delay for Lane Group [s/veh]	60.24	13.50	11.90	57.71	17.08	11.16	62.50	47.86	48.09	65.65	51.10	52.46
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.95	3.48	0.84	4.08	10.99	1.60	1.98	4.60	3.69	1.77	5.82	4.96
50th-Percentile Queue Length [ft/ln]	73.63	87.06	20.89	101.9	274.6	39.92	49.58	114.9	92.32	44.36	145.4	123.9
95th-Percentile Queue Length [veh/ln]	5.30	6.27	1.50	7.34	16.42	2.87	3.57	8.12	6.65	3.19	9.77	8.61
95th-Percentile Queue Length [ft/ln]	132.5	156.7	37.59	183.5	410.5	71.85	89.24	202.9	166.1	79.85	244.3	215.2

Movement, Approach, & Intersection Results

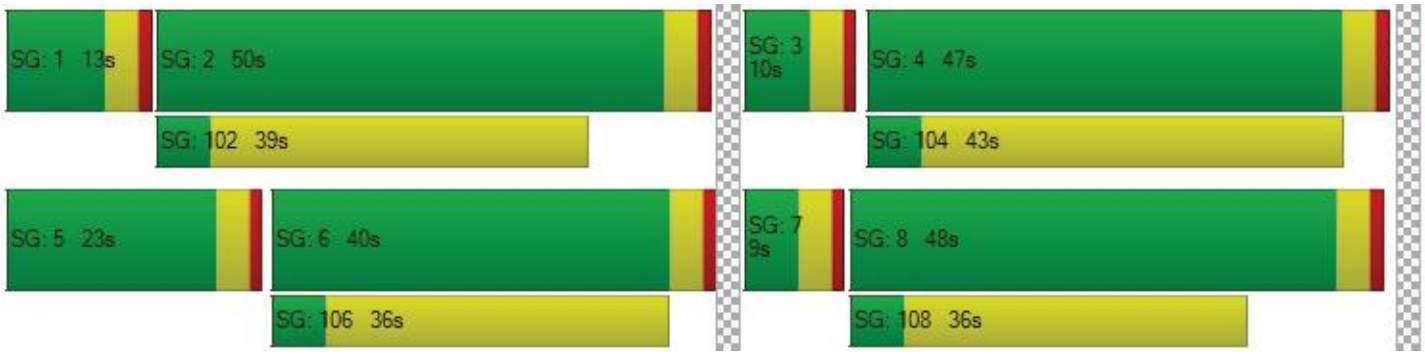
d_M, Delay for Movement [s/veh]	60.24	13.50	11.90	57.71	17.08	11.16	62.50	47.86	48.09	65.65	51.10	52.46
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.04			23.06			50.33			53.17		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.66											
Intersection LOS	C											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.135	3.332	3.142	3.046
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	767	733	717
d_b, Bicycle Delay [s]	29.40	22.82	24.07	24.70
l_b,int, Bicycle LOS Score for Intersection	2.113	2.921	1.967	2.034
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	47.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	239	145	76	282	121	87	249	108	94	464	69
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	12	1	0	8	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	265	155	81	307	128	92	264	114	100	492	73
Peak Hour Factor	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	79	46	24	91	38	27	78	34	30	146	22
Total Analysis Volume [veh/h]	177	314	184	96	364	152	109	313	135	119	584	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	29	0	12	23	23	0	28	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	41	41	8	35	35	23	23	31	31
g / C, Green / Cycle	0.12	0.35	0.35	0.07	0.30	0.30	0.19	0.19	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.10	0.15	0.15	0.06	0.11	0.10	0.17	0.17	0.24	0.24
s, saturation flow rate [veh/h]	1714	1800	1581	1714	3427	1530	1768	1499	1775	1573
c, Capacity [veh/h]	200	620	545	114	1010	451	343	291	464	411
d1, Uniform Delay [s]	52.21	30.19	30.25	55.37	33.40	33.15	46.92	47.04	42.85	42.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.17	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.12	2.13	2.47	14.82	1.00	2.02	6.97	8.74	9.93	11.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.43	0.43	0.84	0.36	0.34	0.87	0.88	0.90	0.90
d, Delay for Lane Group [s/veh]	64.33	32.32	32.72	70.18	34.40	35.16	53.89	55.78	52.78	53.94
Lane Group LOS	E	C	C	E	C	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.92	6.22	5.59	3.34	4.34	3.73	9.32	8.15	13.20	11.84
50th-Percentile Queue Length [ft/ln]	147.9	155.5	139.6	83.52	108.4	93.30	232.91	203.85	329.94	296.02
95th-Percentile Queue Length [veh/ln]	9.90	10.31	9.46	6.01	7.75	6.72	14.32	12.84	19.16	17.48
95th-Percentile Queue Length [ft/ln]	247.6	257.8	236.5	150.3	193.8	167.9	358.06	320.93	478.89	437.10

Movement, Approach, & Intersection Results

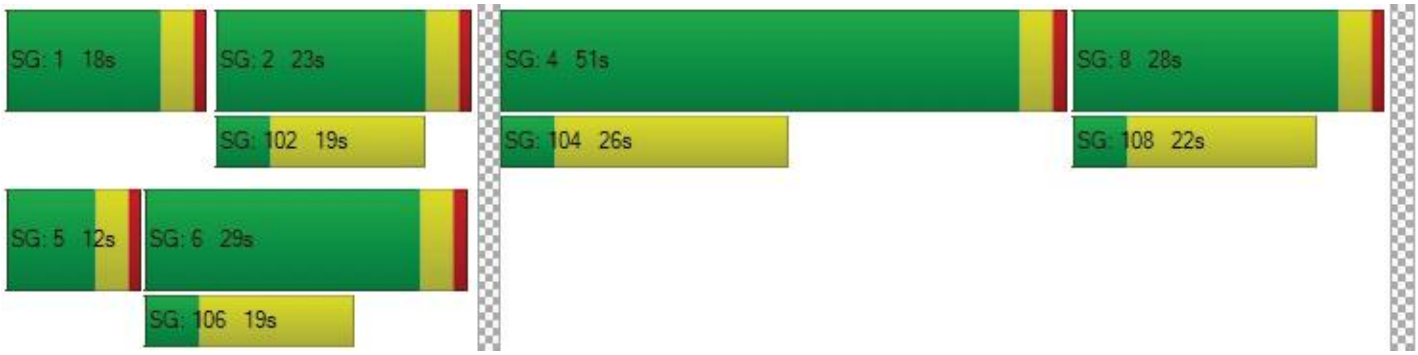
d_M, Delay for Movement [s/veh]	64.33	32.39	32.72	70.18	34.40	35.16	53.89	54.63	55.78	52.78	53.35	53.94
Movement LOS	E	C	C	E	C	D	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	40.85			40.20			54.76			53.33		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	47.39											
Intersection LOS	D											
Intersection V/C	0.617											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.567	2.650	2.505	2.483
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	317	400	783
d_b, Bicycle Delay [s]	37.60	42.50	38.40	22.20
l_b,int, Bicycle LOS Score for Intersection	2.116	2.065	2.019	2.211
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.896

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	0	849	0	520	798	0	1435	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	26	0	0	0	12	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	185	0	900	0	563	846	0	1537	0
Peak Hour Factor	1.000	1.000	1.000	0.945	1.000	0.945	1.000	0.945	0.945	1.000	0.945	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	49	0	238	0	149	224	0	407	0
Total Analysis Volume [veh/h]	0	0	0	196	0	952	0	596	895	0	1626	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	43	0	0	0	77	0	0	77	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		39	39	39	73	73	73
g / C, Green / Cycle		0.32	0.32	0.32	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.11	0.31	0.31	0.12	0.58	0.33
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		555	495	495	2989	933	2989
d1, Uniform Delay [s]		30.98	39.83	39.83	10.41	22.04	13.69
k, delay calibration		0.11	0.43	0.43	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.38	28.98	28.98	0.15	21.19	0.72
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.35	0.96	0.96	0.20	0.96	0.54
d, Delay for Lane Group [s/veh]		31.36	68.81	68.81	10.56	43.23	14.40
Lane Group LOS		C	E	E	B	D	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		4.41	17.57	17.57	2.33	27.33	8.41
50th-Percentile Queue Length [ft/ln]		110.2	439.3	439.3	58.29	683.18	210.25
95th-Percentile Queue Length [veh/ln]		7.85	24.45	24.45	4.20	35.90	13.17
95th-Percentile Queue Length [ft/ln]		196.3	611.2	611.2	104.93	897.51	329.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	31.36	0.00	68.81	0.00	10.56	43.23	0.00	14.40	0.00
Movement LOS				C		E		B	D		B	
d_A, Approach Delay [s/veh]	0.00			62.42			30.17			14.40		
Approach LOS	A			E			C			B		
d_I, Intersection Delay [s/veh]	32.84											
Intersection LOS	C											
Intersection V/C	0.896											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.426	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	1217	1217
d_b, Bicycle Delay [s]	60.00	27.34	9.20	9.20
l_b,int, Bicycle LOS Score for Intersection	4.132	3.454	2.380	2.454
Bicycle LOS	D	C	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	873	0	494	0	0	0	0	441	0	0	1219	197
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	16	36
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	925	0	524	0	0	0	0	505	0	0	1308	245
Peak Hour Factor	0.879	1.000	0.879	1.000	1.000	1.000	1.000	0.879	1.000	1.000	0.879	0.879
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	263	0	149	0	0	0	0	144	0	0	372	70
Total Analysis Volume [veh/h]	1052	0	596	0	0	0	0	575	0	0	1488	279
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	97	0	0	0	0	0	0	23	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	48	48	48		64	64	64
g / C, Green / Cycle	0.40	0.40	0.40		0.53	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.32	0.32	0.36		0.12	0.30	0.18
s, saturation flow rate [veh/h]	1714	1697	1530		4903	4903	1530
c, Capacity [veh/h]	686	679	612		2615	2615	816
d1, Uniform Delay [s]	31.79	31.94	33.70		14.80	18.76	15.98
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.23	2.37	5.03		0.19	0.90	1.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.81	0.90		0.22	0.57	0.34
d, Delay for Lane Group [s/veh]	34.02	34.31	38.73		14.99	19.66	17.12
Lane Group LOS	C	C	D		B	B	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.28	14.37	15.54		2.79	9.23	4.57
50th-Percentile Queue Length [ft/ln]	357.0	359.2	388.5		69.83	230.64	114.36
95th-Percentile Queue Length [veh/ln]	20.48	20.59	22.01		5.03	14.21	8.08
95th-Percentile Queue Length [ft/ln]	511.9	514.6	550.2		125.69	355.17	202.05

Movement, Approach, & Intersection Results

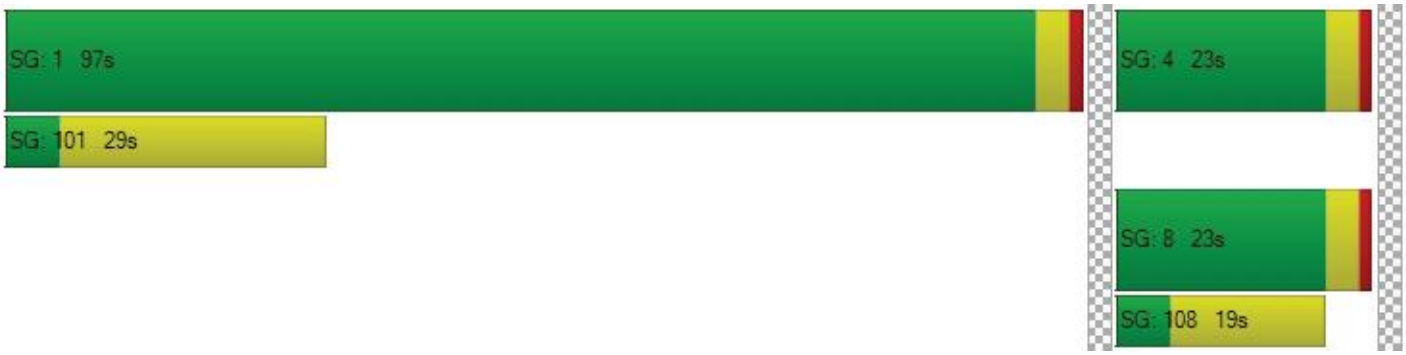
d_M, Delay for Movement [s/veh]	34.16	0.00	38.38	0.00	0.00	0.00	0.00	14.99	0.00	0.00	19.66	17.12
Movement LOS	C		D					B			B	B
d_A, Approach Delay [s/veh]	35.68			0.00			14.99			19.26		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	25.43											
Intersection LOS	C											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.548	0.000	0.000	3.018
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1550	0	317	317
d_b, Bicycle Delay [s]	3.04	60.00	42.50	42.50
l_b,int, Bicycle LOS Score for Intersection	4.279	4.132	1.876	2.531
Bicycle LOS	E	D	A	B

Sequence

Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.772

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	199	67	50	341	230	100	448	210	342	1200	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	52	13	1	0	8	0	0	0	38	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	224	72	53	369	244	106	475	261	363	1272	122
Peak Hour Factor	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	58	61	20	14	100	66	29	129	71	99	345	33
Total Analysis Volume [veh/h]	232	243	78	58	401	265	115	516	283	394	1381	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	47	0	10	36	0	9	41	41	22	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	44	44	5	32	32	5	39	60	16	50	50
g / C, Green / Cycle	0.14	0.37	0.37	0.04	0.27	0.27	0.04	0.32	0.50	0.14	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.05	0.03	0.20	0.20	0.03	0.15	0.18	0.12	0.40	0.09
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1565	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	243	659	560	75	483	420	139	1098	758	454	1423	635
d1, Uniform Delay [s]	51.12	27.87	25.41	56.79	40.03	40.11	57.08	32.61	18.74	50.76	34.37	22.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.26	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.70	1.59	0.52	15.41	9.58	11.23	11.79	0.31	0.73	5.17	6.15	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.37	0.14	0.77	0.74	0.74	0.83	0.47	0.37	0.87	0.97	0.21
d, Delay for Lane Group [s/veh]	69.82	29.46	25.93	72.19	49.61	51.34	68.87	32.93	19.47	55.93	40.52	22.62
Lane Group LOS	E	C	C	E	D	D	E	C	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.16	5.41	1.58	2.06	10.79	9.66	1.96	6.04	4.98	6.12	20.43	2.43
50th-Percentile Queue Length [ft/ln]	204.1	135.3	39.48	51.55	269.7	241.5	48.95	151.1	124.6	152.9	510.6	60.70
95th-Percentile Queue Length [veh/ln]	12.85	9.23	2.84	3.71	16.18	14.76	3.52	10.08	8.65	10.18	27.84	4.37
95th-Percentile Queue Length [ft/ln]	321.2	230.6	71.06	92.79	404.4	368.9	88.10	251.9	216.1	254.4	695.9	109.2

Movement, Approach, & Intersection Results

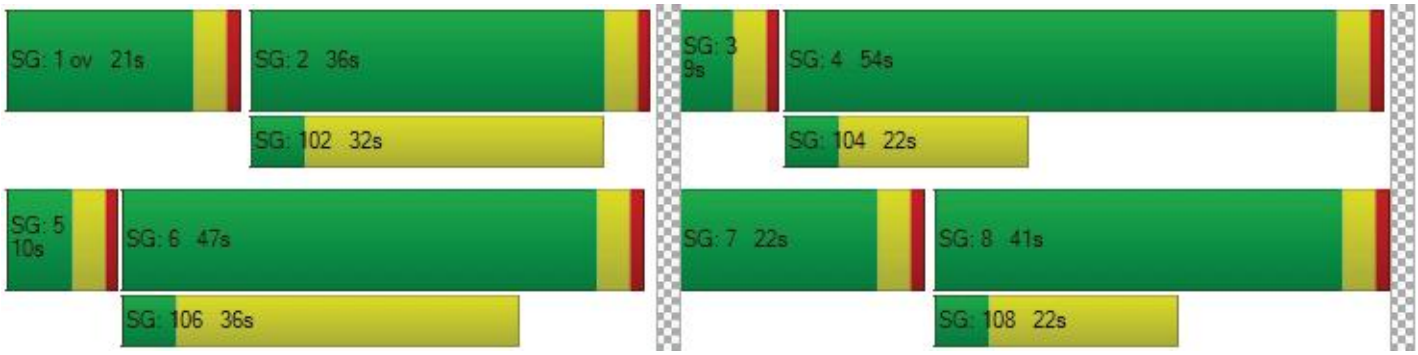
d_M, Delay for Movement [s/veh]	69.82	29.46	25.93	72.19	49.81	51.34	68.87	32.93	19.47	55.93	40.52	22.62
Movement LOS	E	C	C	E	D	D	E	C	B	E	D	C
d_A, Approach Delay [s/veh]	45.90			52.16			33.28			42.46		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	42.59											
Intersection LOS	D											
Intersection V/C	0.772											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.633	2.552	3.081	3.142
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	533	617	833
d_b, Bicycle Delay [s]	24.70	32.27	28.70	20.42
l_b,int, Bicycle LOS Score for Intersection	2.472	2.157	2.314	3.133
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.676

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	214	404	115	164	793	203	183	414	153	284	1138	98
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	91	29	0	72	0	1	0	0	19	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	519	151	174	913	215	195	439	162	320	1206	104
Peak Hour Factor	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	62	141	41	47	248	58	53	119	44	87	327	28
Total Analysis Volume [veh/h]	246	563	164	189	990	233	211	476	176	347	1308	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	25	43	0	22	40	40	13	36	0	19	42	42
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	19	44	44	15	40	53	9	30	30	14	36	55
g / C, Green / Cycle	0.16	0.37	0.37	0.13	0.34	0.45	0.08	0.25	0.25	0.12	0.30	0.46
(v / s)_i Volume / Saturation Flow Rate	0.14	0.11	0.11	0.11	0.20	0.15	0.06	0.10	0.12	0.10	0.27	0.07
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	273	1804	563	219	1649	680	250	1232	384	400	1452	699
d1, Uniform Delay [s]	49.53	27.08	26.85	51.33	33.12	21.83	54.81	37.26	38.01	51.87	40.53	19.10
k, delay calibration	0.14	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.92	0.45	1.31	9.78	1.63	1.37	7.65	0.20	0.85	5.85	2.30	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.31	0.29	0.86	0.60	0.34	0.85	0.39	0.46	0.87	0.90	0.16
d, Delay for Lane Group [s/veh]	62.45	27.53	28.16	61.12	34.74	23.20	62.47	37.46	38.87	57.71	42.83	19.20
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.20	3.93	3.54	6.16	8.20	4.55	3.41	3.90	4.48	5.45	12.55	1.88
50th-Percentile Queue Length [ft/ln]	205.0	98.14	88.51	154.0	204.8	113.7	85.34	97.57	112.0	136.2	313.7	47.00
95th-Percentile Queue Length [veh/ln]	12.90	7.07	6.37	10.23	12.89	8.05	6.14	7.03	7.95	9.28	18.36	3.38
95th-Percentile Queue Length [ft/ln]	322.5	176.6	159.3	255.8	322.2	201.1	153.6	175.6	198.8	231.8	459.0	84.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.45	27.53	28.16	61.12	34.74	23.20	62.47	37.46	38.87	57.71	42.83	19.20
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	B
d_A, Approach Delay [s/veh]	36.47			36.37			43.86			44.24		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.45											
Intersection LOS	D											
Intersection V/C	0.676											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.044	3.114	3.152	3.146
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	600	533	633
d_b, Bicycle Delay [s]	27.34	29.40	32.27	28.02
l_b,int, Bicycle LOS Score for Intersection	2.095	2.336	2.034	2.532
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	863.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.928

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	102	0	0	0	0	621	36	198	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	1	0	0	0	0	29	0	2	19	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	0	109	0	0	0	0	687	38	212	1637	0
Peak Hour Factor	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	0	33	0	0	0	0	209	12	64	497	0
Total Analysis Volume [veh/h]	27	0	132	0	0	0	0	835	46	258	1989	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.93	0.00	0.23	0.00	0.00	0.00	0.00	0.01	0.00	0.33	0.02	0.00
d_M, Delay for Movement [s/veh]	863.1	1288.	612.3	904.7	711.6	19.57	17.27	0.00	0.00	11.93	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	14.72	14.72	14.72	0.00	0.00	0.00	0.00	0.00	0.00	1.46	0.00	0.00
95th-Percentile Queue Length [ft/ln]	368.0	368.0	368.0	0.00	0.00	0.00	0.00	0.00	0.00	36.54	0.00	0.00
d_A, Approach Delay [s/veh]	654.94			545.32			0.00			1.37		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	32.62											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	47.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.768

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	515	78	132	724	162	149	428	114	235	797	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	2	0	0	23	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	152	550	83	140	769	172	158	477	121	249	860	83
Peak Hour Factor	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	150	23	38	210	47	43	130	33	68	235	23
Total Analysis Volume [veh/h]	166	602	91	153	841	188	173	522	132	272	941	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	44	0	16	43	0	18	33	0	27	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	43	43	12	42	42	14	28	28	21	35	35
g / C, Green / Cycle	0.11	0.36	0.36	0.10	0.35	0.35	0.12	0.24	0.24	0.17	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.20	0.20	0.09	0.29	0.30	0.10	0.15	0.09	0.16	0.27	0.06
s, saturation flow rate [veh/h]	1714	1800	1718	1714	1800	1688	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	186	639	610	171	624	585	198	812	362	300	1015	453
d1, Uniform Delay [s]	52.82	31.10	31.11	53.36	36.33	36.38	52.19	41.22	38.24	48.54	40.97	31.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.18	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.70	3.46	3.62	14.49	13.65	14.62	11.21	0.86	0.61	15.51	4.30	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.56	0.56	0.89	0.85	0.85	0.87	0.64	0.36	0.91	0.93	0.20
d, Delay for Lane Group [s/veh]	66.52	34.56	34.73	67.86	49.98	51.00	63.39	42.08	38.85	64.05	45.27	31.81
Lane Group LOS	E	C	C	E	D	D	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.64	8.82	8.46	5.25	16.56	15.74	5.73	7.04	3.32	9.26	13.96	2.02
50th-Percentile Queue Length [ft/ln]	140.9	220.5	211.4	131.1	413.9	393.4	143.3	176.0	82.99	231.4	349.1	50.50
95th-Percentile Queue Length [veh/ln]	9.53	13.69	13.23	9.00	23.23	22.24	9.66	11.39	5.98	14.25	20.09	3.64
95th-Percentile Queue Length [ft/ln]	238.3	342.3	330.6	225.0	580.8	556.1	241.5	284.7	149.3	356.2	502.3	90.89

Movement, Approach, & Intersection Results

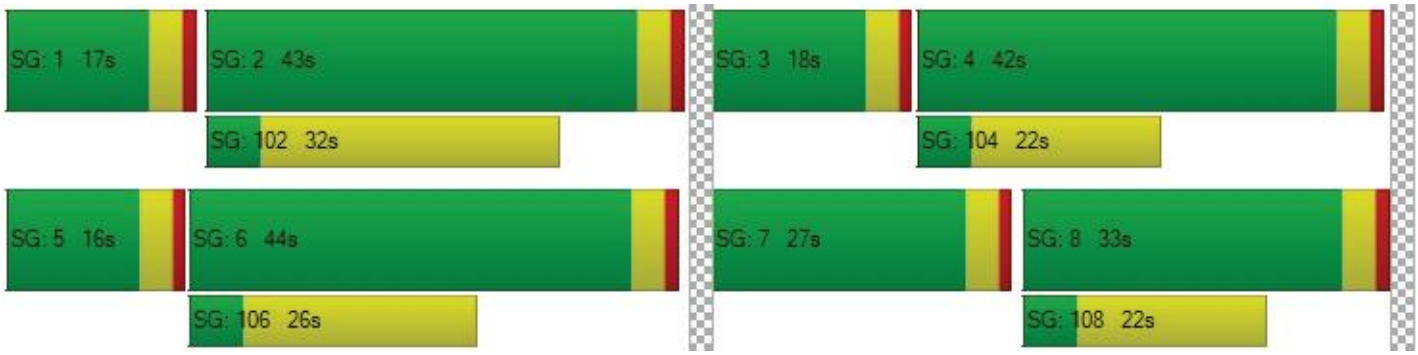
d_M, Delay for Movement [s/veh]	66.52	34.63	34.73	67.86	50.36	51.00	63.39	42.08	38.85	64.05	45.27	31.81
Movement LOS	E	C	C	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	40.80			52.72			46.02			48.25		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	47.54											
Intersection LOS	D											
Intersection V/C	0.768											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.725	2.714	2.813	2.804
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	650	483	633
d_b, Bicycle Delay [s]	26.67	27.34	34.50	28.02
l_b,int, Bicycle LOS Score for Intersection	2.268	2.535	2.242	2.635
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	41.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	436	79	192	814	126	211	375	100	151	611	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	9	2	0	8	2	3	14	0	3	9	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	471	86	204	871	136	227	412	106	163	657	133
Peak Hour Factor	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	131	24	57	241	38	63	114	29	45	182	37
Total Analysis Volume [veh/h]	93	522	95	226	966	151	252	457	118	181	728	147
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	30	0	24	42	0	30	37	0	29	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	38	38	18	48	48	20	34	34	15	29	29
g / C, Green / Cycle	0.07	0.32	0.32	0.15	0.40	0.40	0.16	0.28	0.28	0.12	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.05	0.15	0.06	0.13	0.28	0.10	0.15	0.13	0.08	0.11	0.21	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	114	1085	484	253	1362	608	281	956	427	212	817	365
d1, Uniform Delay [s]	55.26	33.05	29.87	50.23	30.34	24.17	49.14	36.00	33.81	51.51	44.19	38.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.89	1.53	0.90	10.63	3.15	0.98	12.76	0.37	0.35	9.35	3.62	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.48	0.20	0.89	0.71	0.25	0.90	0.48	0.28	0.85	0.89	0.40
d, Delay for Lane Group [s/veh]	68.15	34.58	30.78	60.86	33.49	25.15	61.90	36.38	34.16	60.86	47.81	39.22
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.18	6.35	2.13	7.39	12.16	3.04	8.38	5.62	2.74	5.88	10.81	3.73
50th-Percentile Queue Length [ft/ln]	79.62	158.7	53.37	184.8	303.9	76.11	209.5	140.5	68.61	147.0	270.2	93.30
95th-Percentile Queue Length [veh/ln]	5.73	10.48	3.84	11.85	17.87	5.48	13.13	9.51	4.94	9.86	16.20	6.72
95th-Percentile Queue Length [ft/ln]	143.3	262.0	96.07	296.3	446.8	137.0	328.2	237.8	123.4	246.5	405.0	167.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.15	34.58	30.78	60.86	33.49	25.15	61.90	36.38	34.16	60.86	47.81	39.22
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	38.47			37.16			43.84			48.85		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.93											
Intersection LOS	D											
Intersection V/C	0.696											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.884	3.017	2.760	2.766
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	633	550	533
d_b, Bicycle Delay [s]	36.82	28.02	31.54	32.27
l_b,int, Bicycle LOS Score for Intersection	2.145	2.668	2.242	2.431
Bicycle LOS	B	B	B	B

Sequence

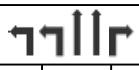
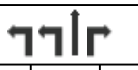
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	325	161	36	120	324	392	93	245	148	141	699	133
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	18	66	0	0	46	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	363	237	38	127	389	416	99	260	169	149	741	141
Peak Hour Factor	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	105	68	11	37	112	120	29	75	49	43	214	41
Total Analysis Volume [veh/h]	420	274	44	147	450	481	114	301	195	172	857	163
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	22	30	30	22	30	30	10	50	50	18	58	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	48	60	12	43	53	6	36	57	8	38	38
g / C, Green / Cycle	0.14	0.40	0.50	0.10	0.36	0.44	0.05	0.30	0.47	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.13	0.08	0.03	0.09	0.13	0.31	0.03	0.17	0.13	0.05	0.29	0.29
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1701
c, Capacity [veh/h]	476	1355	764	175	1216	670	166	537	726	235	574	543
d1, Uniform Delay [s]	50.44	23.84	15.48	52.89	28.75	27.63	56.07	35.47	18.98	54.65	39.25	39.29
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.20	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.57	0.34	0.14	10.10	0.87	6.49	4.91	0.92	0.20	4.35	10.52	11.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.20	0.06	0.84	0.37	0.72	0.68	0.56	0.27	0.73	0.91	0.91
d, Delay for Lane Group [s/veh]	56.01	24.17	15.63	62.98	29.62	34.12	60.98	36.39	19.18	59.00	49.77	50.60
Lane Group LOS	E	C	B	E	C	C	E	D	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.54	2.63	0.66	4.84	4.97	12.32	1.81	7.54	3.31	2.69	16.32	15.60
50th-Percentile Queue Length [ft/ln]	163.5	65.78	16.39	121.0	124.1	307.9	45.31	188.5	82.67	67.29	407.9	389.9
95th-Percentile Queue Length [veh/ln]	10.74	4.74	1.18	8.45	8.62	18.07	3.26	12.05	5.95	4.85	22.94	22.08
95th-Percentile Queue Length [ft/ln]	268.3	118.4	29.51	211.2	215.5	451.8	81.55	301.2	148.8	121.1	573.5	551.8

Movement, Approach, & Intersection Results

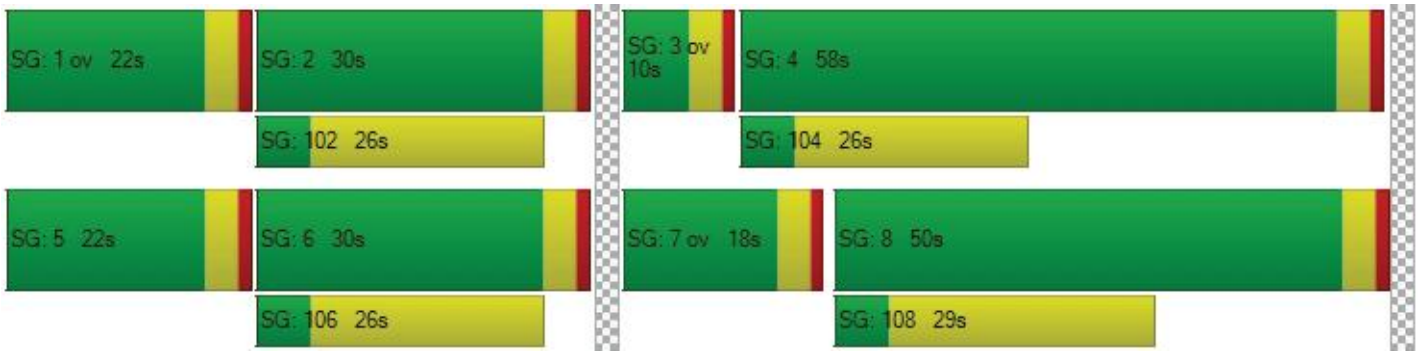
d_M, Delay for Movement [s/veh]	56.01	24.17	15.63	62.98	29.62	34.12	60.98	36.39	19.18	59.00	50.09	50.60
Movement LOS	E	C	B	E	C	C	E	D	B	E	D	D
d_A, Approach Delay [s/veh]	41.78			36.18			35.48			51.45		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.23											
Intersection LOS	D											
Intersection V/C	0.746											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.826	2.733	2.939	2.742
Crosswalk LOS	C	B	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	767	900
d_b, Bicycle Delay [s]	36.82	36.82	22.82	18.15
l_b,int, Bicycle LOS Score for Intersection	2.168	2.449	2.566	2.543
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	671	122	53	1008	95	70	390	93	154	601	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	121	20	0	91	0	0	0	0	13	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	832	149	56	1159	101	74	413	99	176	637	63
Peak Hour Factor	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	219	39	15	306	27	20	109	26	46	168	17
Total Analysis Volume [veh/h]	115	878	157	59	1223	107	78	436	104	186	672	66
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	9	35	0	10	52	0	20	62	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	5	42	42	6	38	38	15	47	47
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.35	0.35	0.05	0.32	0.32	0.12	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.20	0.03	0.26	0.26	0.05	0.24	0.07	0.11	0.37	0.04
s, saturation flow rate [veh/h]	1714	3427	1664	1714	3427	1727	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	129	1307	635	71	1193	601	86	574	488	213	708	602
d1, Uniform Delay [s]	55.03	28.80	28.83	57.07	34.36	34.36	56.73	36.70	29.84	51.60	35.22	23.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.16	0.11	0.11	0.30	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.46	1.56	3.20	20.49	4.17	8.02	27.37	3.13	0.22	10.55	16.52	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.53	0.53	0.83	0.74	0.74	0.91	0.76	0.21	0.87	0.95	0.11
d, Delay for Lane Group [s/veh]	73.49	30.36	32.03	77.55	38.53	42.38	84.11	39.84	30.06	62.15	51.74	23.15
Lane Group LOS	E	C	C	E	D	D	F	D	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.10	8.02	8.11	2.18	11.91	12.64	3.00	11.90	2.24	6.12	21.86	1.21
50th-Percentile Queue Length [ft/ln]	102.6	200.3	202.6	54.55	297.6	316.1	75.10	297.5	56.02	152.9	546.5	30.26
95th-Percentile Queue Length [veh/ln]	7.39	12.66	12.77	3.93	17.57	18.48	5.41	17.56	4.03	10.17	29.53	2.18
95th-Percentile Queue Length [ft/ln]	184.7	316.4	319.3	98.20	439.1	461.9	135.1	439.0	100.8	254.2	738.2	54.47

Movement, Approach, & Intersection Results

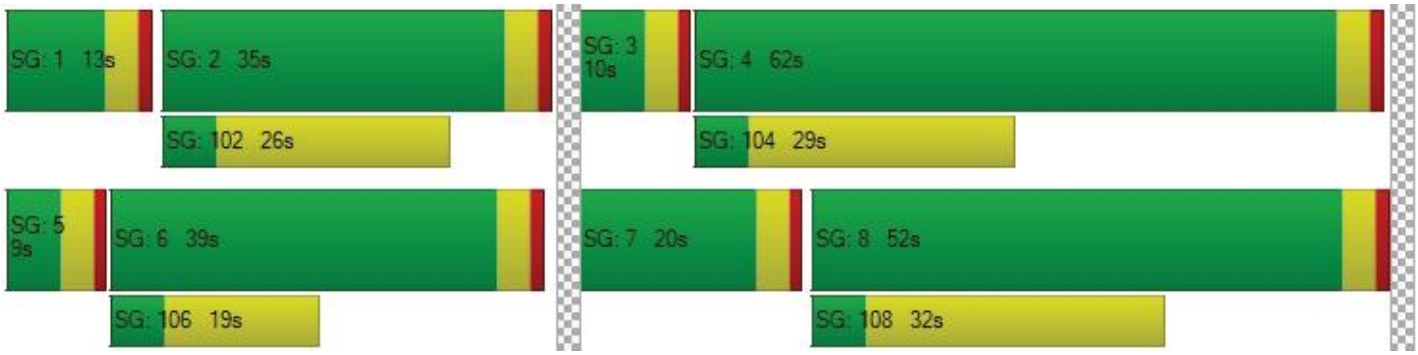
d_M, Delay for Movement [s/veh]	73.49	30.70	32.03	77.55	39.60	42.38	84.11	39.84	30.06	62.15	51.74	23.15
Movement LOS	E	C	C	E	D	D	F	D	C	E	D	C
d_A, Approach Delay [s/veh]	35.16			41.42			43.78			51.80		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.36											
Intersection LOS	D											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.065	2.945	2.714	2.530
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	517	800	967
d_b, Bicycle Delay [s]	30.10	33.00	21.60	16.02
l_b,int, Bicycle LOS Score for Intersection	2.192	2.324	2.579	3.084
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	127	114	14	154	84	41	337	58	140	598	22
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	1	3	0	2	0	0	20	0	2	13	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	136	124	15	165	89	43	377	61	150	647	23
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	37	34	4	45	25	12	104	17	41	178	6
Total Analysis Volume [veh/h]	97	150	137	17	182	98	47	416	67	165	713	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	27	0	0	27	0	0	93	0	0	93	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	55	55	55	55	55	55	57	57	57	57	57	57
g / C, Green / Cycle	0.46	0.46	0.46	0.46	0.46	0.46	0.48	0.48	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.09	0.08	0.09	0.02	0.10	0.06	0.06	0.23	0.04	0.18	0.40	0.02
s, saturation flow rate [veh/h]	1117	1800	1530	1109	1800	1530	732	1800	1530	927	1800	1530
c, Capacity [veh/h]	498	824	700	508	824	700	127	856	728	324	856	728
d1, Uniform Delay [s]	24.27	19.24	19.37	21.68	19.62	18.85	52.86	21.46	17.26	37.29	27.33	16.78
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	0.49	0.62	0.12	0.62	0.42	1.78	0.43	0.05	1.23	2.55	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.18	0.20	0.03	0.22	0.14	0.37	0.49	0.09	0.51	0.83	0.03
d, Delay for Lane Group [s/veh]	25.14	19.73	20.00	21.80	20.24	19.26	54.64	21.89	17.31	38.52	29.87	16.80
Lane Group LOS	C	B	B	C	C	B	D	C	B	D	C	B
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.96	2.59	2.40	0.31	3.21	1.67	1.44	8.01	1.03	4.32	17.86	0.38
50th-Percentile Queue Length [ft/ln]	49.12	64.85	60.11	7.76	80.34	41.75	35.97	200.2	25.87	107.9	446.4	9.38
95th-Percentile Queue Length [veh/ln]	3.54	4.67	4.33	0.56	5.78	3.01	2.59	12.65	1.86	7.73	24.79	0.68
95th-Percentile Queue Length [ft/ln]	88.41	116.7	108.2	13.97	144.6	75.15	64.75	316.2	46.57	193.1	619.7	16.89

Movement, Approach, & Intersection Results

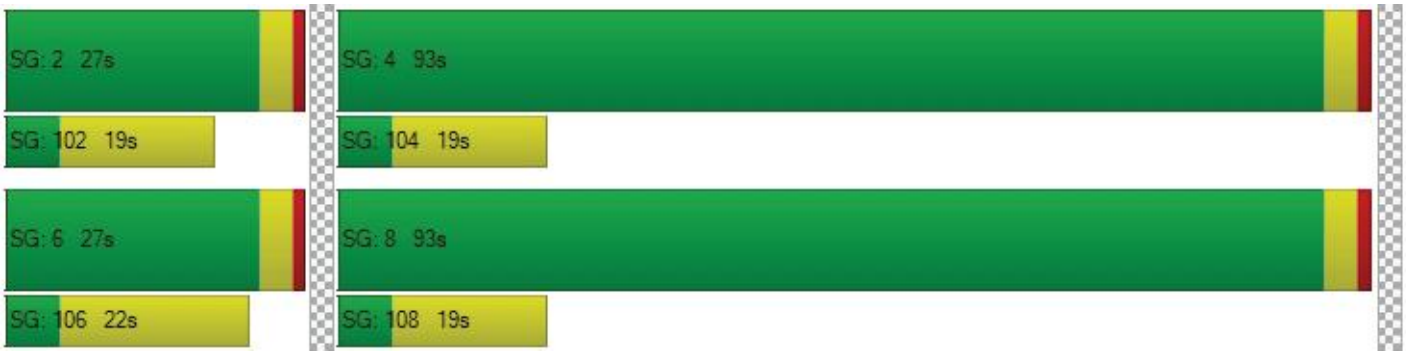
d_M, Delay for Movement [s/veh]	25.14	19.73	20.00	21.80	20.24	19.26	54.64	21.89	17.31	38.52	29.87	16.80
Movement LOS	C	B	B	C	C	B	D	C	B	D	C	B
d_A, Approach Delay [s/veh]	21.19			20.01			24.22			31.09		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.01											
Intersection LOS	C											
Intersection V/C	0.497											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.576	2.340	2.635	2.627
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	383	1483	1483
d_b, Bicycle Delay [s]	39.20	39.20	4.00	4.00
l_b,int, Bicycle LOS Score for Intersection	2.193	2.050	2.434	3.050
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	44.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	208	617	205	96	791	141	73	255	105	226	437	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	3	0	2	0	0	11	0	2	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	220	658	220	102	840	149	77	281	111	242	470	139
Peak Hour Factor	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	170	57	26	217	39	20	73	29	63	122	36
Total Analysis Volume [veh/h]	228	681	228	106	870	154	80	291	115	251	487	144
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	52	0	13	43	0	10	26	0	29	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	54	54	9	46	46	6	21	21	20	35	35
g / C, Green / Cycle	0.15	0.45	0.45	0.08	0.38	0.38	0.05	0.18	0.18	0.16	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.13	0.26	0.26	0.06	0.29	0.29	0.05	0.08	0.08	0.15	0.27	0.09
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1707	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	253	813	744	129	682	647	86	603	269	281	522	444
d1, Uniform Delay [s]	50.28	24.49	24.51	54.72	32.66	32.68	56.80	44.53	44.06	49.12	41.47	33.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.15	0.31	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.19	3.05	3.34	12.29	8.17	8.63	31.16	0.60	1.07	12.38	18.39	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.58	0.58	0.82	0.77	0.77	0.93	0.48	0.43	0.89	0.93	0.32
d, Delay for Lane Group [s/veh]	61.47	27.53	27.85	67.01	40.83	41.31	87.96	45.13	45.14	61.49	59.86	33.81
Lane Group LOS	E	C	C	E	D	D	F	D	D	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.50	10.58	9.78	3.60	14.75	14.09	3.16	3.96	3.14	8.32	16.55	3.36
50th-Percentile Queue Length [ft/ln]	187.5	264.6	244.4	89.92	368.6	352.2	78.93	98.94	78.40	208.0	413.7	83.95
95th-Percentile Queue Length [veh/ln]	11.99	15.92	14.91	6.47	21.05	20.25	5.68	7.12	5.64	13.05	23.22	6.04
95th-Percentile Queue Length [ft/ln]	299.7	397.9	372.6	161.8	526.1	506.2	142.0	178.0	141.1	326.2	580.6	151.1

Movement, Approach, & Intersection Results

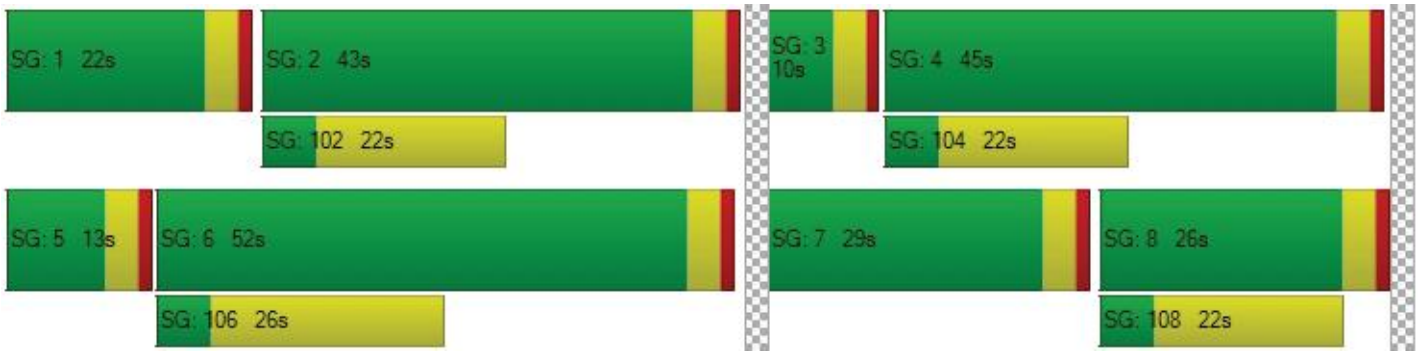
d_M, Delay for Movement [s/veh]	61.47	27.63	27.85	67.01	41.02	41.31	87.96	45.13	45.14	61.49	59.86	33.81
Movement LOS	E	C	C	E	D	D	F	D	D	E	E	C
d_A, Approach Delay [s/veh]	34.46			43.50			52.18			56.07		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	44.88											
Intersection LOS	D											
Intersection V/C	0.742											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.778	2.712	2.579	2.713
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	650	367	683
d_b, Bicycle Delay [s]	21.60	27.34	40.02	26.00
l_b,int, Bicycle LOS Score for Intersection	2.498	2.492	1.961	3.015
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	87	511	35	58	717	69	67	402	82	69	527	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	11	3	0	11	0	0	3	0	2	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	553	40	61	771	73	71	429	87	75	561	58
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	161	12	18	225	21	21	125	25	22	163	17
Total Analysis Volume [veh/h]	107	645	47	71	899	85	83	500	101	87	654	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	46	0	10	43	0	11	52	0	12	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	64	64	6	61	61	7	27	27	8	27	27
g / C, Green / Cycle	0.08	0.53	0.53	0.05	0.50	0.50	0.06	0.22	0.22	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.19	0.04	0.28	0.28	0.05	0.17	0.17	0.05	0.20	0.20
s, saturation flow rate [veh/h]	1714	1800	1757	1714	1800	1746	1714	1800	1697	1714	1800	1741
c, Capacity [veh/h]	129	951	929	86	906	879	100	405	382	108	414	400
d1, Uniform Delay [s]	54.76	16.55	16.56	56.49	20.47	20.47	55.91	43.50	43.55	55.47	44.70	44.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.83	1.10	1.12	17.79	2.41	2.48	15.75	3.00	3.24	12.82	6.54	6.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.37	0.37	0.83	0.55	0.55	0.83	0.76	0.77	0.80	0.89	0.89
d, Delay for Lane Group [s/veh]	67.58	17.65	17.68	74.28	22.87	22.95	71.66	46.50	46.79	68.29	51.24	51.49
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.65	5.85	5.73	2.56	10.03	9.75	2.92	8.90	8.46	2.98	11.26	10.93
50th-Percentile Queue Length [ft/ln]	91.19	146.3	143.1	63.89	250.8	243.8	73.09	222.3	211.4	74.59	281.5	273.3
95th-Percentile Queue Length [veh/ln]	6.57	9.82	9.65	4.60	15.23	14.87	5.26	13.79	13.23	5.37	16.77	16.36
95th-Percentile Queue Length [ft/ln]	164.1	245.5	241.2	115.0	380.6	371.8	131.5	344.6	330.7	134.2	419.1	408.9

Movement, Approach, & Intersection Results

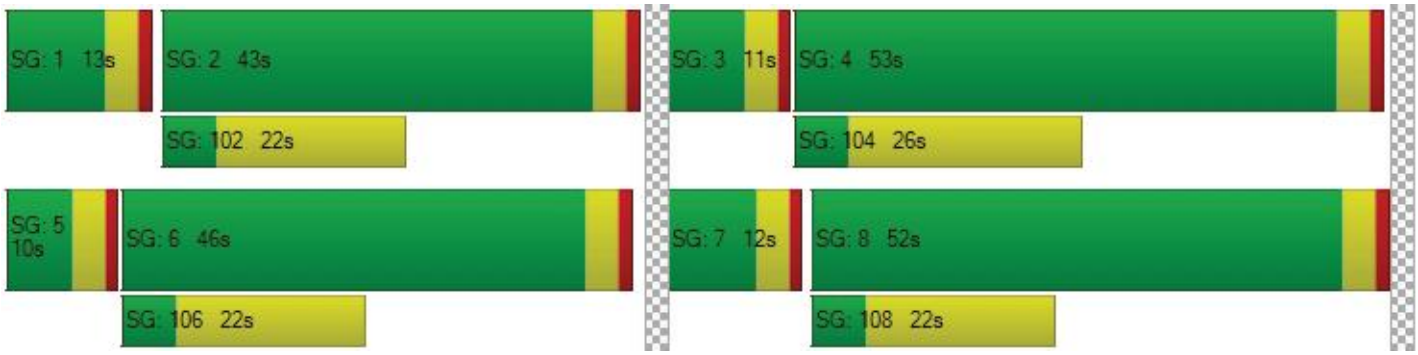
d_M, Delay for Movement [s/veh]	67.58	17.67	17.68	74.28	22.91	22.95	71.66	46.61	46.79	68.29	51.35	51.49
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.35			26.37			49.67			53.18		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.13											
Intersection LOS	D											
Intersection V/C	0.592											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.683	2.769	2.613	2.593
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	650	800	817
d_b, Bicycle Delay [s]	25.35	27.34	21.60	21.00
l_b,int, Bicycle LOS Score for Intersection	2.219	2.430	2.124	2.227
Bicycle LOS	B	B	B	B

Sequence

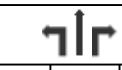
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	418	151	65	572	0	0	0	0	234	0	137
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	84	0	0	58	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	527	160	69	664	0	0	0	0	248	0	145
Peak Hour Factor	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	154	47	20	194	0	0	0	0	72	0	42
Total Analysis Volume [veh/h]	0	615	187	81	775	0	0	0	0	289	0	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	59	0	27	77	0	0	34	0	0	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	73	73	7	80	80	28	28	28	28
g / C, Green / Cycle	0.00	0.61	0.61	0.06	0.67	0.67	0.23	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.00	0.34	0.12	0.05	0.43	0.00	0.00	0.00	0.22	0.11
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1693	1530	1332	1530
c, Capacity [veh/h]	1	1092	928	104	1201	1021	424	356	370	356
d1, Uniform Delay [s]	0.00	14.10	10.57	55.57	11.68	0.00	0.00	0.00	46.23	39.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.35	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.10	0.49	11.79	2.68	0.00	0.00	0.00	11.06	0.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.56	0.20	0.78	0.65	0.00	0.00	0.00	0.78	0.47
d, Delay for Lane Group [s/veh]	0.00	16.20	11.06	67.35	14.36	0.00	0.00	0.00	57.29	40.70
Lane Group LOS	A	B	B	E	B	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	10.20	2.31	2.76	12.10	0.00	0.00	0.00	9.54	4.40
50th-Percentile Queue Length [ft/ln]	0.00	254.9	57.66	68.96	302.4	0.00	0.00	0.00	238.59	110.12
95th-Percentile Queue Length [veh/ln]	0.00	15.44	4.15	4.97	17.80	0.00	0.00	0.00	14.61	7.85
95th-Percentile Queue Length [ft/ln]	0.00	385.8	103.7	124.1	445.0	0.00	0.00	0.00	365.25	196.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.20	11.06	67.35	14.36	0.00	0.00	0.00	0.00	57.29	57.29	40.70
Movement LOS	A	B	B	E	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	15.00			19.38			0.00			51.17		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	24.60											
Intersection LOS	C											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.090	0.000	1.955	2.191
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	1217	500	500
d_b, Bicycle Delay [s]	17.60	9.20	33.75	33.75
l_b,int, Bicycle LOS Score for Intersection	2.883	2.972	1.560	2.315
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	186	806	132	35	1068	89	30	30	200	150	136	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	140	0	0	104	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	994	140	37	1236	94	32	32	212	160	144	72
Peak Hour Factor	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	271	38	10	337	26	9	9	58	44	39	20
Total Analysis Volume [veh/h]	215	1084	153	40	1348	103	35	35	231	174	157	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	67	0	9	55	0	10	26	0	18	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	66	66	4	53	53	4	20	20	14	30
g / C, Green / Cycle	0.14	0.55	0.55	0.03	0.44	0.44	0.03	0.17	0.17	0.12	0.25
(v / s)_i Volume / Saturation Flow Rate	0.13	0.35	0.35	0.02	0.39	0.07	0.02	0.02	0.15	0.10	0.14
s, saturation flow rate [veh/h]	1714	1800	1723	1714	3427	1530	1714	1800	1530	1714	1700
c, Capacity [veh/h]	240	994	952	54	1520	679	51	300	255	199	430
d1, Uniform Delay [s]	50.74	18.48	18.59	57.64	30.61	19.91	57.63	42.48	49.06	52.16	38.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.22	3.06	3.28	18.14	8.00	0.47	14.58	0.17	15.72	11.27	1.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.63	0.64	0.74	0.89	0.15	0.68	0.12	0.91	0.87	0.55
d, Delay for Lane Group [s/veh]	61.95	21.54	21.87	75.78	38.61	20.39	72.21	42.65	64.78	63.43	39.98
Lane Group LOS	E	C	C	E	D	C	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	7.09	12.46	12.16	1.48	19.08	1.82	1.26	0.90	7.89	5.77	6.16
50th-Percentile Queue Length [ft/ln]	177.1	311.4	304.1	36.89	476.9	45.44	31.54	22.57	197.2	144.25	154.03
95th-Percentile Queue Length [veh/ln]	11.45	18.24	17.88	2.66	26.24	3.27	2.27	1.63	12.50	9.71	10.23
95th-Percentile Queue Length [ft/ln]	286.3	456.1	447.1	66.41	655.9	81.79	56.77	40.63	312.3	242.74	255.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.95	21.68	21.87	75.78	38.61	20.39	72.21	42.65	64.78	63.43	39.98	39.98
Movement LOS	E	C	C	E	D	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	27.66			38.35			63.07			49.93		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	37.44											
Intersection LOS	D											
Intersection V/C	0.771											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.989	2.984	2.335	2.163
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	850	367	500
d_b, Bicycle Delay [s]	13.54	19.84	40.02	33.75
l_b,int, Bicycle LOS Score for Intersection	2.758	2.790	2.056	2.236
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	36.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.369

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	134	290	0	0	261	111	57	0	66	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.060	1.000	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	3	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	311	0	0	280	119	60	0	70	0	0	0
Peak Hour Factor	0.913	0.913	1.000	1.000	0.913	0.913	0.913	1.000	0.913	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	85	0	0	77	33	16	0	19	0	0	0
Total Analysis Volume [veh/h]	156	341	0	0	307	130	66	0	77	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.68	0.00	0.00	0.00	0.00	0.00	36.50	0.00	10.98	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.48	0.48	0.00	0.00	0.00	0.00	1.58	0.00	0.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	11.92	11.92	0.00	0.00	0.00	0.00	39.50	0.00	9.55	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.73			0.00			22.76			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	4.28											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	551	201	49	753	1	0	0	2	174	0	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	73	58	0	0	0	0	0	9	0	84
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	584	286	110	798	1	0	0	2	193	0	126
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	154	76	29	211	0	0	0	1	51	0	33
Total Analysis Volume [veh/h]	1	617	302	116	844	1	0	0	2	204	0	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	26	9	0	48	31	0	0	9	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	77	77	10	86	86	0	0	17	17
g / C, Green / Cycle	0.00	0.64	0.64	0.08	0.72	0.72	0.00	0.00	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.27	0.27	0.07	0.23	0.23	0.00	0.00	0.12	0.09
s, saturation flow rate [veh/h]	1714	1800	1603	1714	1800	1799	1800	1392	1687	1530
c, Capacity [veh/h]	4	1148	1022	144	1296	1295	5	4	240	217
d1, Uniform Delay [s]	59.79	10.79	10.79	53.99	6.16	6.16	59.66	59.75	50.24	48.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.17	1.15	1.29	10.00	0.67	0.67	0.00	75.25	8.27	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.42	0.42	0.80	0.33	0.33	0.00	0.51	0.85	0.61
d, Delay for Lane Group [s/veh]	97.95	11.93	12.08	63.99	6.83	6.83	59.66	135.00	58.52	51.15
Lane Group LOS	F	B	B	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	6.47	5.81	3.84	3.80	3.80	0.00	0.14	6.52	3.91
50th-Percentile Queue Length [ft/ln]	1.70	161.8	145.1	96.03	94.91	94.88	0.00	3.59	162.99	97.86
95th-Percentile Queue Length [veh/ln]	0.12	10.64	9.76	6.91	6.83	6.83	0.00	0.26	10.71	7.05
95th-Percentile Queue Length [ft/ln]	3.07	266.1	243.9	172.8	170.8	170.7	0.00	6.45	267.68	176.15

Movement, Approach, & Intersection Results

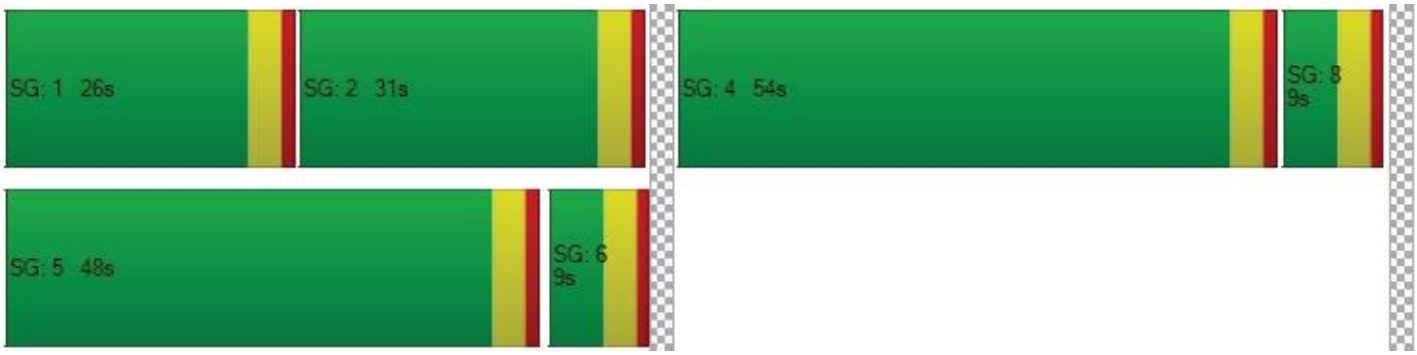
d_M, Delay for Movement [s/veh]	97.95	11.96	12.08	63.99	6.83	6.83	59.66	59.66	135.0	58.52	58.52	51.15
Movement LOS	F	B	B	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	12.09			13.73			135.00			55.61		
Approach LOS	B			B			F			E		
d_I, Intersection Delay [s/veh]	19.52											
Intersection LOS	B											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	450	83	833
d_b, Bicycle Delay [s]	55.10	36.04	55.10	20.42
l_b,int, Bicycle LOS Score for Intersection	2.319	2.352	1.561	2.116
Bicycle LOS	B	B	A	B

Sequence

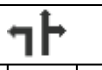
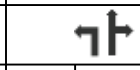
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	130	1237	0	0	0	0	145	0	253
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	813	117	138	1237	0	0	0	0	145	0	268
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	223	32	38	339	0	0	0	0	40	0	73
Total Analysis Volume [veh/h]	3	890	128	151	1355	0	0	0	0	159	0	294
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	42	0	25	58	0	10	30	0	23	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	66	66	13	78	78	0	12	13	25
g / C, Green / Cycle	0.00	0.55	0.55	0.10	0.65	0.65	0.00	0.10	0.11	0.21
(v / s)_i Volume / Saturation Flow Rate	0.00	0.26	0.08	0.09	0.40	0.00	0.00	0.00	0.09	0.19
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	7	1888	843	179	2231	996	1	185	186	323
d1, Uniform Delay [s]	59.59	16.34	13.20	52.78	12.08	0.00	0.00	0.00	52.53	46.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	33.02	0.85	0.38	10.26	1.24	0.00	0.00	0.00	10.44	9.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.47	0.15	0.84	0.61	0.00	0.00	0.00	0.85	0.91
d, Delay for Lane Group [s/veh]	92.62	17.19	13.58	63.03	13.32	0.00	0.00	0.00	62.97	56.13
Lane Group LOS	F	B	B	E	B	A	A	A	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	7.48	1.78	4.98	10.17	0.00	0.00	0.00	5.24	9.41
50th-Percentile Queue Length [ft/ln]	3.95	186.9	44.39	124.4	254.2	0.00	0.00	0.00	131.05	235.24
95th-Percentile Queue Length [veh/ln]	0.28	11.96	3.20	8.63	15.40	0.00	0.00	0.00	9.00	14.44
95th-Percentile Queue Length [ft/ln]	7.11	299.0	79.89	215.8	384.9	0.00	0.00	0.00	224.92	361.00

Movement, Approach, & Intersection Results

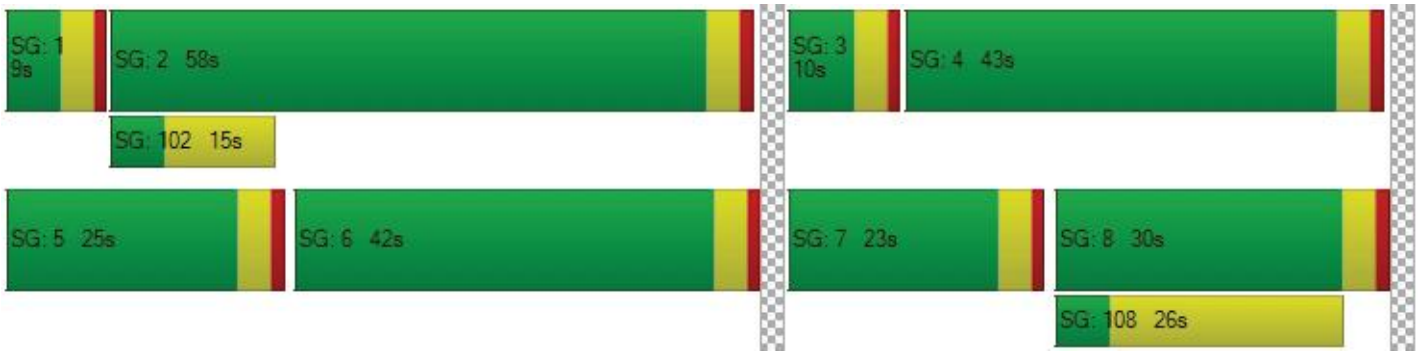
d_M, Delay for Movement [s/veh]	92.62	17.19	13.58	63.03	13.32	0.00	0.00	0.00	0.00	62.97	56.13	56.13
Movement LOS	F	B	B	E	B	A	A	A	A	E	E	E
d_A, Approach Delay [s/veh]	16.96			18.31			0.00			58.53		
Approach LOS	B			B			A			E		
d_I, Intersection Delay [s/veh]	23.96											
Intersection LOS	C											
Intersection V/C	0.589											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.962	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	900	433	650
d_b, Bicycle Delay [s]	28.02	18.15	36.82	27.34
l_b,int, Bicycle LOS Score for Intersection	2.402	2.802	1.560	2.307
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.836

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	162	58	56	145	76	103	129	56	67	230	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	3	0	0	11	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	176	61	59	157	81	109	148	59	71	251	162
Peak Hour Factor	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	50	17	17	44	23	31	42	17	20	71	46
Total Analysis Volume [veh/h]	61	199	69	67	177	91	123	167	67	80	283	183
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	414	458	436	415	465	434	483
Degree of Utilization, x	0.63	0.15	0.77	0.70	0.14	0.84	0.38

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.17	0.53	6.54	5.24	0.50	8.03	1.75
95th-Percentile Queue Length [ft]	104.18	13.16	163.49	131.00	12.51	200.74	43.69
Approach Delay [s/veh]	22.26		33.70	26.02		32.14	
Approach LOS	C		D	D		D	
Intersection Delay [s/veh]	29.00						
Intersection LOS	D						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	29.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.543

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	676	27	61	902	92	147	156	48	43	206	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	7	1	0	4	0	0	11	0	1	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	724	30	65	960	98	156	176	51	47	225	109
Peak Hour Factor	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	189	8	17	250	26	41	46	13	12	59	28
Total Analysis Volume [veh/h]	56	754	31	68	1000	102	163	183	53	49	234	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	51	0	11	52	0	32	36	0	22	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	69	69	6	71	71	13	24	24	4	15	15
g / C, Green / Cycle	0.04	0.58	0.58	0.05	0.59	0.59	0.11	0.20	0.20	0.04	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.22	0.04	0.31	0.31	0.10	0.05	0.03	0.03	0.10	0.10
s, saturation flow rate [veh/h]	1714	1800	1775	1714	1800	1742	1714	3427	1530	1714	1800	1607
c, Capacity [veh/h]	71	1041	1026	86	1056	1022	193	686	306	65	226	201
d1, Uniform Delay [s]	56.98	13.68	13.68	56.36	14.86	14.87	52.18	40.55	39.76	57.15	51.02	51.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.02	1.05	1.07	14.69	1.90	1.97	9.49	0.21	0.27	15.73	6.44	8.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.38	0.38	0.79	0.53	0.53	0.84	0.27	0.17	0.75	0.80	0.83
d, Delay for Lane Group [s/veh]	73.99	14.73	14.75	71.04	16.76	16.84	61.67	40.76	40.03	72.88	57.45	59.79
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.02	5.95	5.87	2.39	9.38	9.11	5.32	2.32	1.33	1.76	5.68	5.39
50th-Percentile Queue Length [ft/ln]	50.49	148.7	146.8	59.72	234.4	227.7	133.0	57.95	33.20	43.96	141.9	134.7
95th-Percentile Queue Length [veh/ln]	3.64	9.95	9.85	4.30	14.40	14.06	9.10	4.17	2.39	3.17	9.58	9.20
95th-Percentile Queue Length [ft/ln]	90.88	248.7	246.2	107.5	359.9	351.5	227.5	104.3	59.76	79.13	239.5	229.9

Movement, Approach, & Intersection Results

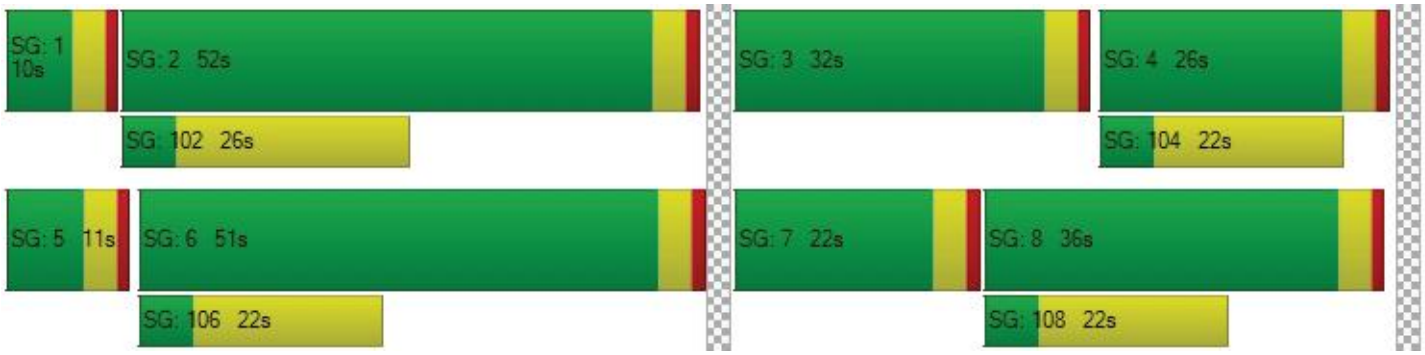
d_M, Delay for Movement [s/veh]	73.99	14.74	14.75	71.04	16.80	16.84	61.67	40.76	40.03	72.88	57.99	59.79
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	18.68			19.95			49.21			60.34		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	29.44											
Intersection LOS	C											
Intersection V/C	0.543											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.694	2.826	2.597	2.578
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	800	533	367
d_b, Bicycle Delay [s]	22.20	21.60	32.27	40.02
l_b,int, Bicycle LOS Score for Intersection	2.253	2.525	1.889	1.887
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	39.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	568	91	33	877	42	50	340	93	134	370	43
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	1	5	0	0	5	12	15	6	2	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	607	96	35	935	57	68	366	101	142	396	46
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	167	26	10	258	16	19	101	28	39	109	13
Total Analysis Volume [veh/h]	67	669	106	39	1031	63	75	404	111	157	437	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	63	0	10	63	0	11	30	0	17	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	42	42	4	40	40	7	45	45	13	51	51
g / C, Green / Cycle	0.05	0.35	0.35	0.03	0.34	0.34	0.06	0.38	0.38	0.11	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.02	0.31	0.31	0.04	0.15	0.15	0.09	0.14	0.14
s, saturation flow rate [veh/h]	1714	1800	1715	1714	1800	1764	1714	1800	1669	1714	1800	1735
c, Capacity [veh/h]	85	637	607	54	604	592	95	675	626	182	767	740
d1, Uniform Delay [s]	56.42	32.15	32.16	57.58	38.19	38.20	56.01	27.49	27.54	52.75	22.90	22.92
k, delay calibration	0.11	0.11	0.11	0.11	0.19	0.19	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.96	1.00	1.06	16.45	9.59	9.80	13.74	1.72	1.89	11.22	1.12	1.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.62	0.62	0.72	0.91	0.91	0.79	0.39	0.40	0.86	0.32	0.32
d, Delay for Lane Group [s/veh]	71.38	33.16	33.22	74.04	47.78	48.01	69.75	29.21	29.43	63.97	24.02	24.08
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.36	9.67	9.24	1.42	16.98	16.68	2.61	5.91	5.58	5.22	4.90	4.75
50th-Percentile Queue Length [ft/ln]	59.01	241.8	230.9	35.53	424.4	417.0	65.13	147.7	139.4	130.4	122.5	118.8
95th-Percentile Queue Length [veh/ln]	4.25	14.78	14.22	2.56	23.73	23.38	4.69	9.90	9.45	8.96	8.53	8.33
95th-Percentile Queue Length [ft/ln]	106.2	369.3	355.5	63.95	593.3	584.5	117.2	247.4	236.2	224.1	213.2	208.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.38	33.18	33.22	74.04	47.89	48.01	69.75	29.28	29.43	63.97	24.05	24.08
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	36.22			48.79			34.45			33.77		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	39.84											
Intersection LOS	D											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.816	2.781	2.541	2.548
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	433	533
d_b, Bicycle Delay [s]	15.50	15.50	36.82	32.27
l_b,int, Bicycle LOS Score for Intersection	2.254	2.494	2.046	2.092
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	645	75	23	871	122	103	90	11	74	78	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	0	0	3	2	6	12	0	5	5	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	686	80	24	926	131	115	107	12	83	88	33
Peak Hour Factor	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	185	22	6	250	35	31	29	3	22	24	9
Total Analysis Volume [veh/h]	23	742	86	26	1001	142	124	116	13	90	95	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	49	0	9	49	0	36	26	0	36	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	82	82	3	82	82	11	11	11	8	8	8
g / C, Green / Cycle	0.02	0.68	0.68	0.02	0.69	0.69	0.09	0.09	0.09	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.01	0.23	0.23	0.02	0.32	0.32	0.07	0.06	0.01	0.05	0.05	0.02
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1723	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	39	1229	1185	42	1232	1179	153	166	141	115	127	108
d1, Uniform Delay [s]	58.11	7.88	7.88	58.00	8.83	8.84	53.67	52.85	49.87	55.08	54.73	53.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.91	0.76	0.79	14.32	1.31	1.37	9.86	5.23	0.28	10.74	8.48	1.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.34	0.34	0.62	0.47	0.47	0.81	0.70	0.09	0.78	0.75	0.33
d, Delay for Lane Group [s/veh]	72.03	8.65	8.68	72.32	10.14	10.21	63.53	58.08	50.15	65.82	63.21	54.88
Lane Group LOS	E	A	A	E	B	B	E	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.84	4.48	4.33	0.95	7.01	6.75	4.09	3.64	0.37	3.03	3.12	1.09
50th-Percentile Queue Length [ft/ln]	21.03	111.9	108.2	23.70	175.2	168.6	102.3	90.91	9.25	75.63	77.96	27.25
95th-Percentile Queue Length [veh/ln]	1.51	7.95	7.74	1.71	11.35	11.01	7.37	6.55	0.67	5.45	5.61	1.96
95th-Percentile Queue Length [ft/ln]	37.86	198.6	193.5	42.67	283.8	275.1	184.2	163.6	16.65	136.1	140.3	49.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.03	8.66	8.68	72.32	10.17	10.21	63.53	58.08	50.15	65.82	63.21	54.88
Movement LOS	E	A	A	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	10.37			11.55			60.34			62.92		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	20.65											
Intersection LOS	C											
Intersection V/C	0.463											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.696	2.719	2.271	2.256
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	750	367	367
d_b, Bicycle Delay [s]	23.44	23.44	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.262	2.524	1.977	1.924
Bicycle LOS	B	B	A	A

Sequence

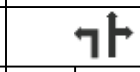
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	838	104	156	1207	9	0	1	0	214	0	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060	1.060	1.000
In-Process Volume [veh/h]	117	0	0	0	0	0	0	123	96	0	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	128	838	110	156	1207	9	0	124	96	227	97	109
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	229	30	43	330	2	0	34	26	62	27	30
Total Analysis Volume [veh/h]	140	916	120	170	1319	10	0	136	105	248	106	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	33	0	25	43	0	18	33	0	29	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	51	51	14	54	54	0	19	19	39
g / C, Green / Cycle	0.09	0.43	0.43	0.12	0.45	0.45	0.00	0.16	0.16	0.32
(v / s)_i Volume / Saturation Flow Rate	0.08	0.20	0.20	0.10	0.27	0.01	0.00	0.14	0.14	0.14
s, saturation flow rate [veh/h]	1714	3427	1695	1714	4903	1530	1714	1671	1714	1646
c, Capacity [veh/h]	157	1467	726	198	2215	691	2	271	276	531
d1, Uniform Delay [s]	53.91	24.61	24.62	52.10	24.67	18.15	0.00	49.22	49.37	31.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.39	1.09	2.21	10.25	1.19	0.04	0.00	9.67	12.70	0.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.47	0.47	0.86	0.60	0.01	0.00	0.89	0.90	0.42
d, Delay for Lane Group [s/veh]	69.29	25.70	26.83	62.35	25.86	18.19	0.00	58.89	62.07	32.46
Lane Group LOS	E	C	C	E	C	B	A	E	E	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.85	7.24	7.41	5.58	9.50	0.16	0.00	7.78	8.25	5.21
50th-Percentile Queue Length [ft/ln]	121.2	181.0	185.2	139.6	237.4	4.05	0.00	194.54	206.16	130.31
95th-Percentile Queue Length [veh/ln]	8.46	11.66	11.87	9.46	14.55	0.29	0.00	12.36	12.96	8.96
95th-Percentile Queue Length [ft/ln]	211.4	291.4	296.8	236.4	363.7	7.30	0.00	308.91	323.90	223.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.29	25.98	26.83	62.35	25.86	18.19	0.00	58.89	58.89	62.07	32.46	32.46
Movement LOS	E	C	C	E	C	B	A	E	E	E	C	C
d_A, Approach Delay [s/veh]	31.22			29.94			58.89			47.98		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	34.96											
Intersection LOS	C											
Intersection V/C	0.640											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.006	3.229	2.117	2.248
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	650	483	667
d_b, Bicycle Delay [s]	34.50	27.34	34.50	26.67
l_b,int, Bicycle LOS Score for Intersection	2.206	2.384	1.957	2.340
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	67.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.064

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	193	42	6	194	82	55	115	18	31	173	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	4	0	0	0	0	3	4	129	8	0	102	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	205	45	6	206	90	62	251	27	33	285	41
Peak Hour Factor	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	61	13	2	61	27	18	75	8	10	85	12
Total Analysis Volume [veh/h]	26	244	54	7	245	107	74	299	32	39	339	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	392	403	406	427
Degree of Utilization, x	0.83	0.89	1.00	1.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.58	9.18	12.23	14.37
95th-Percentile Queue Length [ft]	189.47	229.53	305.81	359.13
Approach Delay [s/veh]	43.57	52.12	74.07	93.53
Approach LOS	E	F	F	F
Intersection Delay [s/veh]	67.83			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	43	60	69	61	1	41	86	14	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	46	64	73	65	1	43	91	15	10
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	12	17	19	17	0	11	24	4	3
Total Analysis Volume [veh/h]	4	48	67	77	68	1	45	96	16	11
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	470	439
Degree of Utilization, x	0.56	0.39

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.40	1.79
95th-Percentile Queue Length [ft]	85.08	44.67
Approach Delay [s/veh]	20.07	16.27
Approach LOS	C	C
Intersection Delay [s/veh]	25.11	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	46	6	95	57	0	27	55	146	14	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	17	105	0	0	0	0	89	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	23	206	60	0	29	58	244	15	4
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	6	54	16	0	8	15	64	4	1
Total Analysis Volume [veh/h]	51	24	216	63	0	30	61	256	16	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	462	460
Degree of Utilization, x	0.77	0.80

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.62	7.30
95th-Percentile Queue Length [ft]	165.54	182.43
Approach Delay [s/veh]	32.16	35.31
Approach LOS	D	E
Intersection Delay [s/veh]	25.11	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	13	66	23	1	13	45	123	26	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	14	70	24	1	14	48	130	35	6
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	18	6	0	4	13	34	9	2
Total Analysis Volume [veh/h]	2	15	74	25	1	15	50	137	37	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	444	439	491
Degree of Utilization, x	0.26	0.46	0.09

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.05	2.37	0.29
95th-Percentile Queue Length [ft]	26.18	59.21	7.16
Approach Delay [s/veh]	13.99	16.48	
Approach LOS	B	C	
Intersection Delay [s/veh]	25.11		
Intersection LOS	D		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	33.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.563

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	591	196	103	849	50	80	110	135	123	108	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	39	0	0	0	0	8	2	60	42	0	42	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	626	208	109	900	61	87	177	185	130	156	71
Peak Hour Factor	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	40	158	52	27	227	15	22	45	47	33	39	18
Total Analysis Volume [veh/h]	160	631	210	110	907	61	88	178	186	131	157	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	47	0	20	42	0	27	38	0	15	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	67	67	9	63	63	8	17	17	11	20	20
g / C, Green / Cycle	0.11	0.55	0.55	0.08	0.52	0.52	0.07	0.14	0.14	0.09	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.09	0.24	0.24	0.06	0.27	0.27	0.05	0.05	0.12	0.08	0.09	0.05
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1760	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	189	997	913	136	941	921	113	490	219	156	302	256
d1, Uniform Delay [s]	52.42	15.79	15.79	54.37	18.74	18.75	55.16	46.49	50.18	53.71	45.56	43.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.07	1.41	1.54	10.88	2.05	2.10	10.75	0.45	8.95	11.48	1.39	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.44	0.44	0.81	0.52	0.52	0.78	0.36	0.85	0.84	0.52	0.28
d, Delay for Lane Group [s/veh]	62.50	17.21	17.34	65.25	20.79	20.84	65.91	46.95	59.13	65.19	46.95	44.23
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.26	7.34	6.75	3.68	9.26	9.07	2.96	2.44	5.99	4.39	4.39	1.92
50th-Percentile Queue Length [ft/ln]	131.4	183.3	168.7	92.01	231.5	226.8	74.02	61.09	149.6	109.6	109.8	48.01
95th-Percentile Queue Length [veh/ln]	9.02	11.78	11.01	6.62	14.25	14.01	5.33	4.40	10.00	7.82	7.83	3.46
95th-Percentile Queue Length [ft/ln]	225.3	294.4	275.2	165.6	356.3	350.3	133.2	109.9	249.9	195.5	195.7	86.41

Movement, Approach, & Intersection Results

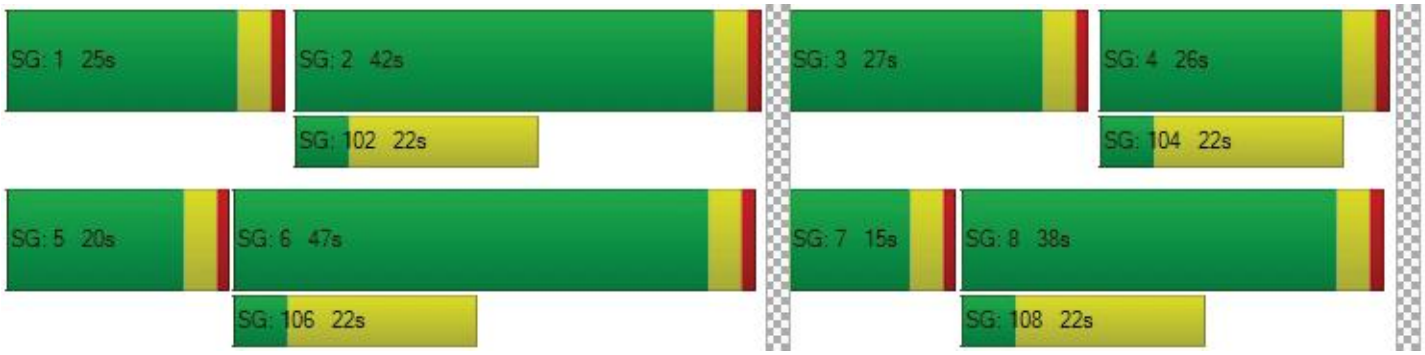
d_M, Delay for Movement [s/veh]	62.50	17.25	17.34	65.25	20.82	20.84	65.91	46.95	59.13	65.19	46.95	44.23
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	24.50			25.35			55.65			53.04		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	33.24											
Intersection LOS	C											
Intersection V/C	0.563											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.749	2.680	2.477	2.608
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	633	567	367
d_b, Bicycle Delay [s]	24.70	28.02	30.82	40.02
l_b,int, Bicycle LOS Score for Intersection	2.385	2.449	1.933	2.154
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	725	49	22	1043	36	57	200	93	134	203	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	20	0	0	0	0	8	9	6	32	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	769	52	23	1106	46	69	218	131	142	219	53
Peak Hour Factor	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	199	13	6	287	12	18	57	34	37	57	14
Total Analysis Volume [veh/h]	55	798	54	24	1147	48	72	226	136	147	227	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	56	0	9	54	0	20	34	0	21	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	73	73	3	71	71	6	16	16	12	21	21
g / C, Green / Cycle	0.04	0.61	0.61	0.02	0.59	0.59	0.05	0.13	0.13	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.24	0.01	0.33	0.33	0.04	0.11	0.11	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1714	1800	1760	1714	1800	1775	1714	1800	1580	1714	1800	1681
c, Capacity [veh/h]	70	1100	1075	40	1068	1053	93	236	207	174	321	300
d1, Uniform Delay [s]	57.01	11.94	11.94	58.06	14.92	14.92	56.01	50.64	50.87	52.97	44.06	44.14
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.98	1.05	1.07	13.74	2.15	2.19	12.61	6.28	8.49	10.53	0.99	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.39	0.39	0.60	0.56	0.56	0.77	0.80	0.83	0.84	0.45	0.46
d, Delay for Lane Group [s/veh]	73.99	12.99	13.02	71.80	17.07	17.11	68.62	56.92	59.36	63.50	45.05	45.24
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.98	6.02	5.89	0.87	10.26	10.14	2.48	5.93	5.55	4.86	3.93	3.77
50th-Percentile Queue Length [ft/ln]	49.61	150.4	147.2	21.86	256.5	253.4	62.00	148.3	138.7	121.5	98.37	94.18
95th-Percentile Queue Length [veh/ln]	3.57	10.04	9.87	1.57	15.51	15.36	4.46	9.93	9.41	8.48	7.08	6.78
95th-Percentile Queue Length [ft/ln]	89.29	250.9	246.8	39.35	387.8	384.0	111.6	248.1	235.2	211.9	177.0	169.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.99	13.00	13.02	71.80	17.09	17.11	68.62	57.31	59.36	63.50	45.11	45.24
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	16.70			18.17			59.83			51.43		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	28.55											
Intersection LOS	C											
Intersection V/C	0.562											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.935	2.817	2.464	2.458
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	833	500	517
d_b, Bicycle Delay [s]	19.27	20.42	33.75	33.00
l_b,int, Bicycle LOS Score for Intersection	2.308	2.565	1.918	1.914
Bicycle LOS	B	B	A	A

Sequence

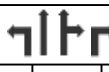
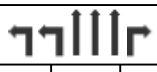
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	44.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	86	48	77	136	246	885	267	400	59	134	1190	220
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	4	0	0	6	47
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	51	82	144	261	938	283	428	63	142	1267	280
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	14	23	40	72	259	78	118	17	39	349	77
Total Analysis Volume [veh/h]	100	56	90	159	288	1034	312	472	69	157	1397	309
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	12	0	50	50	0	17	47	0	11	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	41	41	13	47	47	47	13	42	42	7	36	36
g / C, Green / Cycle	0.07	0.34	0.34	0.11	0.39	0.39	0.39	0.11	0.35	0.35	0.06	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.09	0.16	0.34	0.34	0.09	0.10	0.05	0.05	0.28	0.20
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	114	1176	525	190	698	593	593	361	1736	542	194	1491	465
d1, Uniform Delay [s]	55.50	26.32	27.50	52.2	26.8	34.0	34.0	52.64	27.69	26.21	55.84	40.63	36.40
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.20
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.04	0.08	0.71	9.22	1.80	16.1	16.1	6.27	0.08	0.10	7.75	3.45	3.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.05	0.17	0.84	0.41	0.87	0.87	0.87	0.27	0.13	0.81	0.94	0.66
d, Delay for Lane Group [s/veh]	73.54	26.39	28.21	61.4	28.6	50.1	50.1	58.90	27.78	26.31	63.59	44.07	39.45
Lane Group LOS	E	C	C	E	C	D	D	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.57	0.55	1.92	5.18	6.36	16.3	16.3	4.93	3.26	1.36	2.56	13.70	8.26
50th-Percentile Queue Length [ft/ln]	89.25	13.83	47.98	129.	159.	408.	408.	123.3	81.48	34.07	63.94	342.5	206.4
95th-Percentile Queue Length [veh/ln]	6.43	1.00	3.45	8.91	10.5	22.9	22.9	8.58	5.87	2.45	4.60	19.77	12.97
95th-Percentile Queue Length [ft/ln]	160.6	24.89	86.37	222.	262.	574.	574.	214.4	146.6	61.33	115.0	494.3	324.2

Movement, Approach, & Intersection Results

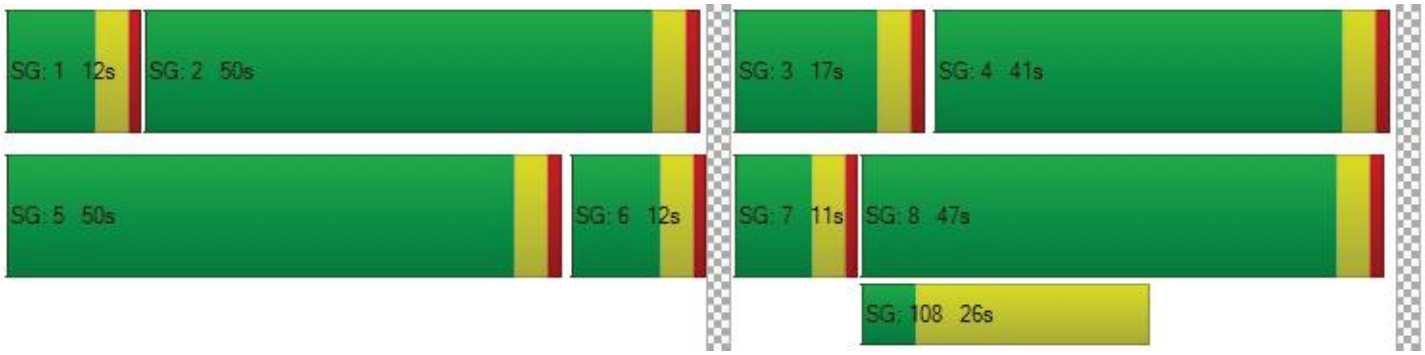
d_M, Delay for Movement [s/veh]	73.54	26.39	28.21	61.48	28.60	50.15	58.90	27.78	26.31	63.59	44.07	39.45
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	46.22			47.17			39.04			44.95		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.63											
Intersection LOS	D											
Intersection V/C	0.775											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.592	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	767	717	617
d_b, Bicycle Delay [s]	52.27	22.82	24.70	28.70
l_b,int, Bicycle LOS Score for Intersection	1.763	2.781	2.029	2.584
Bicycle LOS	A	C	B	B

Sequence

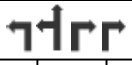
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	51.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	25	34	338	49	955	255	331	25	30	552	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	45	0	0	0	4	0	0	53	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	27	36	403	52	1012	270	355	27	32	638	101
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	7	10	108	14	271	72	95	7	9	171	27
Total Analysis Volume [veh/h]	50	29	39	432	56	1086	290	381	29	34	685	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	44	44	44	13	51	51	3	42	42
g / C, Green / Cycle	0.05	0.05	0.05	0.37	0.37	0.37	0.11	0.43	0.43	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.03	0.14	0.14	0.40	0.09	0.08	0.02	0.02	0.15	0.16
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1733	2708	3329	4903	1530	1714	3427	1678
c, Capacity [veh/h]	80	84	71	629	636	993	356	2084	650	49	1188	582
d1, Uniform Delay [s]	56.17	55.43	55.96	28.06	28.01	38.00	52.43	21.51	20.22	57.79	30.31	30.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.13	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.77	2.43	6.38	0.39	0.38	46.95	4.57	0.19	0.13	16.51	1.22	2.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.35	0.55	0.39	0.38	1.09	0.82	0.18	0.04	0.70	0.45	0.45
d, Delay for Lane Group [s/veh]	63.95	57.86	62.34	28.45	28.39	84.95	56.99	21.70	20.35	74.30	31.53	32.91
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.66	0.91	1.28	5.25	5.24	20.76	4.49	2.28	0.50	1.25	6.13	6.30
50th-Percentile Queue Length [ft/ln]	41.52	22.71	32.07	131.3	131.0	519.1	112.3	56.96	12.61	31.17	153.2	157.6
95th-Percentile Queue Length [veh/ln]	2.99	1.64	2.31	9.01	9.00	29.96	7.97	4.10	0.91	2.24	10.19	10.42
95th-Percentile Queue Length [ft/ln]	74.74	40.88	57.73	225.3	224.9	748.9	199.2	102.5	22.70	56.10	254.7	260.5

Movement, Approach, & Intersection Results

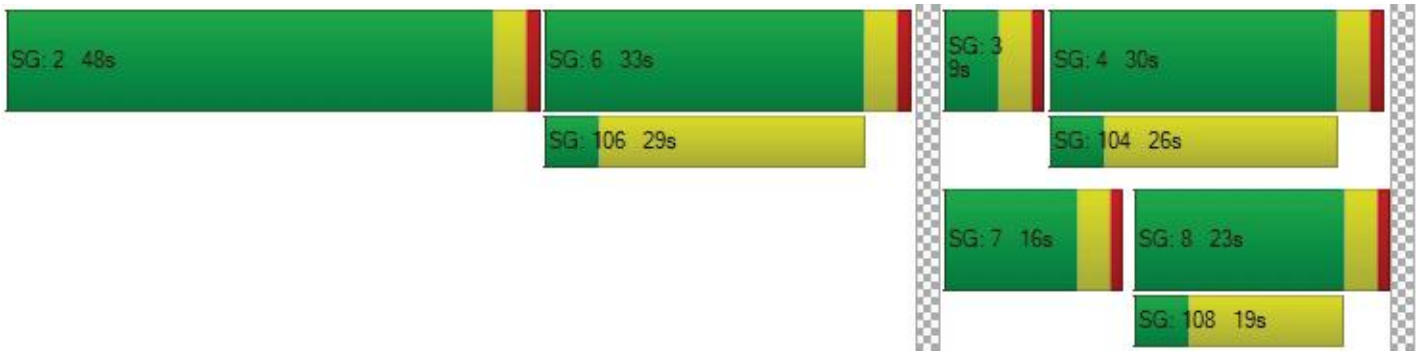
d_M, Delay for Movement [s/veh]	63.95	57.86	62.34	28.43	28.39	84.95	56.99	21.70	20.35	74.30	31.84	32.91
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	61.92			67.43			36.27			33.73		
Approach LOS	E			E			D			C		
d_I, Intersection Delay [s/veh]	51.79											
Intersection LOS	D											
Intersection V/C	0.674											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.204	2.793	0.000	2.843
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.657	4.157	1.945	2.014
Bicycle LOS	A	D	A	B

Sequence

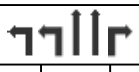
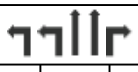
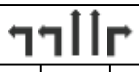
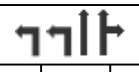
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.536

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	228	643	85	59	766	139	149	155	92	143	309	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	7	2	0	1	2	27	22	0	12	51	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	242	689	92	63	813	149	185	186	98	164	379	80
Peak Hour Factor	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	65	186	25	17	219	40	50	50	26	44	102	22
Total Analysis Volume [veh/h]	261	743	99	68	877	161	200	201	106	177	409	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	44	0	9	37	0	14	38	0	29	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	71	4	64	64	9	20	20	9	20	20
g / C, Green / Cycle	0.09	0.59	0.04	0.53	0.53	0.08	0.17	0.17	0.07	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.02	0.26	0.11	0.06	0.06	0.07	0.05	0.14	0.14
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1693
c, Capacity [veh/h]	314	2013	125	1818	811	253	578	258	245	299	281
d1, Uniform Delay [s]	53.41	13.05	56.75	17.78	14.79	54.49	44.06	44.57	54.40	48.62	48.66
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.69	0.52	3.69	0.92	0.55	5.43	0.36	1.05	4.04	6.80	7.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.37	0.55	0.48	0.20	0.79	0.35	0.41	0.72	0.85	0.86
d, Delay for Lane Group [s/veh]	59.10	13.57	60.44	18.70	15.34	59.92	44.42	45.62	58.44	55.41	56.09
Lane Group LOS	E	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.11	5.29	1.08	7.74	2.42	3.16	2.68	2.90	2.76	7.95	7.58
50th-Percentile Queue Length [ft/ln]	102.87	132.27	26.93	193.5	60.41	79.02	66.99	72.58	68.92	198.8	189.4
95th-Percentile Queue Length [veh/ln]	7.41	9.06	1.94	12.30	4.35	5.69	4.82	5.23	4.96	12.58	12.09
95th-Percentile Queue Length [ft/ln]	185.17	226.58	48.48	307.6	108.7	142.2	120.5	130.6	124.0	314.4	302.2

Movement, Approach, & Intersection Results

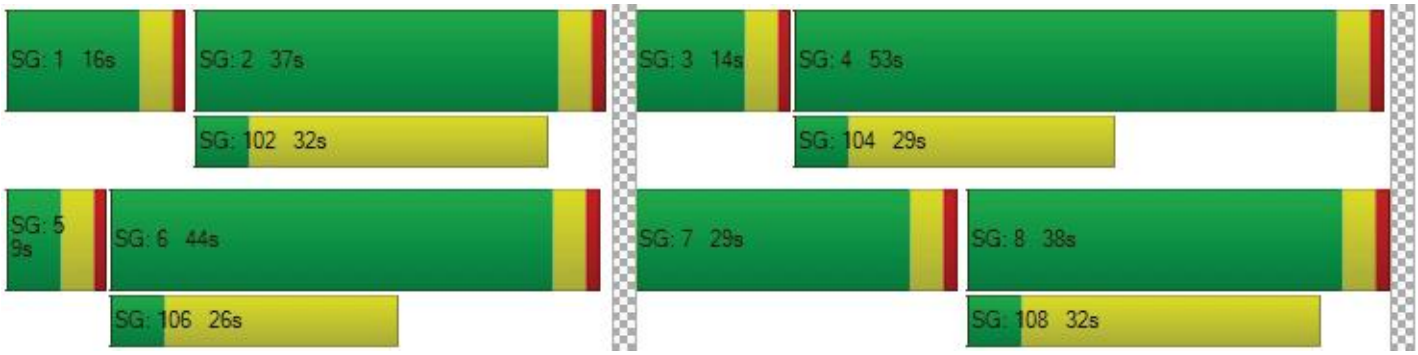
d_M, Delay for Movement [s/veh]	59.10	13.57	0.00	60.44	18.70	15.34	59.92	44.42	45.62	58.44	55.67	56.09
Movement LOS	E	B		E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	25.41			20.78			50.78			56.45		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	34.11											
Intersection LOS	C											
Intersection V/C	0.536											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.004	2.907	2.904	2.621
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	550	567	817
d_b, Bicycle Delay [s]	26.67	31.54	30.82	21.00
l_b,int, Bicycle LOS Score for Intersection	2.388	2.472	1.978	2.114
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.518

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	220	4	8	0	1	182	33	263	473	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	35	0	39	0	0	0	0	24	0	86	62	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	3	272	4	8	0	1	217	35	365	563	2
Peak Hour Factor	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	76	1	2	0	0	61	10	102	157	1
Total Analysis Volume [veh/h]	94	3	304	4	9	0	1	242	39	408	629	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	9	33	0	51	26	0	52	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	26	33	0	44	44	31	75	75
g / C, Green / Cycle	0.28	0.28	0.22	0.28	0.00	0.37	0.37	0.26	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.20	0.01	0.00	0.07	0.03	0.24	0.18	0.18
s, saturation flow rate [veh/h]	1428	1379	1530	1418	1714	3427	1530	1714	1800	1798
c, Capacity [veh/h]	373	497	331	443	4	1260	563	441	1121	1119
d1, Uniform Delay [s]	33.06	33.10	45.96	31.78	59.78	25.81	24.62	43.47	10.37	10.37
k, delay calibration	0.11	0.26	0.28	0.11	0.11	0.50	0.50	0.12	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	0.23	21.66	0.03	36.23	0.34	0.24	9.79	0.63	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.11	0.92	0.03	0.27	0.19	0.07	0.93	0.28	0.28
d, Delay for Lane Group [s/veh]	33.19	33.34	67.62	31.81	96.01	26.15	24.85	53.26	11.00	11.00
Lane Group LOS	C	C	E	C	F	C	C	D	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.94	1.27	10.81	0.28	0.07	2.43	0.77	12.92	3.90	3.90
50th-Percentile Queue Length [ft/ln]	23.50	31.82	270.1	7.05	1.68	60.67	19.13	322.8	97.52	97.41
95th-Percentile Queue Length [veh/ln]	1.69	2.29	16.20	0.51	0.12	4.37	1.38	18.81	7.02	7.01
95th-Percentile Queue Length [ft/ln]	42.30	57.28	404.9	12.69	3.02	109.2	34.43	470.2	175.5	175.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.19	33.34	67.62	31.81	31.81	31.81	96.01	26.15	24.85	53.26	11.00	11.00
Movement LOS	C	C	E	C	C	C	F	C	C	D	B	B
d_A, Approach Delay [s/veh]	59.31			31.81			26.22			27.59		
Approach LOS	E			C			C			C		
d_I, Intersection Delay [s/veh]	34.73											
Intersection LOS	C											
Intersection V/C	0.518											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.482	0.000	2.887	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	367	383
d_b, Bicycle Delay [s]	28.02	28.02	40.02	39.20
l_b,int, Bicycle LOS Score for Intersection	2.221	1.581	1.792	2.417
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.287

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	3	0	397	746	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0000	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	146	0	60	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	149	0	481	794	1
Peak Hour Factor	0.9060	0.9060	1.0000	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	41	0	133	219	0
Total Analysis Volume [veh/h]	0	164	0	531	876	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.29	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	25.79	13.81	9.70	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.18	1.18	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	29.49	29.49	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.81		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.620

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	854	95	88	904	383	181	80	118	143	332	79
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	88	0	12	131	3	60	0	0	0	0	10
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	118	993	101	105	1089	409	252	85	125	152	352	94
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	32	271	28	29	298	112	69	23	34	42	96	26
Total Analysis Volume [veh/h]	129	1085	110	115	1190	447	275	93	137	166	385	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	14	37	37	32	40	0	28	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	53	53	10	52	78	22	28	14	20	20
g / C, Green / Cycle	0.09	0.44	0.44	0.08	0.43	0.65	0.18	0.23	0.11	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.23	0.07	0.24	0.29	0.16	0.03	0.10	0.14	0.14
s, saturation flow rate [veh/h]	1714	3427	1716	1714	4903	1530	1714	3427	1714	1800	1671
c, Capacity [veh/h]	154	1498	750	139	2101	989	317	804	195	295	274
d1, Uniform Delay [s]	53.78	24.76	24.77	54.32	25.87	10.58	47.49	36.14	52.15	48.79	48.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.19	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.48	1.35	2.69	11.73	1.11	1.49	11.71	0.06	9.80	7.04	7.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.53	0.53	0.83	0.57	0.45	0.87	0.12	0.85	0.86	0.86
d, Delay for Lane Group [s/veh]	65.26	26.12	27.46	66.04	26.99	12.07	59.20	36.20	61.94	55.83	56.73
Lane Group LOS	E	C	C	E	C	B	E	D	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.32	8.50	8.80	3.87	8.67	6.02	8.99	1.09	5.43	7.91	7.47
50th-Percentile Queue Length [ft/ln]	108.0	212.5	219.9	96.82	216.7	150.4	224.78	27.23	135.8	197.6	186.6
95th-Percentile Queue Length [veh/ln]	7.73	13.28	13.66	6.97	13.50	10.04	13.91	1.96	9.25	12.52	11.95
95th-Percentile Queue Length [ft/ln]	193.2	332.1	341.5	174.2	337.4	251.0	347.72	49.02	231.3	312.9	298.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.26	26.47	27.46	66.04	26.99	12.07	59.20	36.20	0.00	61.94	56.14	56.73
Movement LOS	E	C	C	E	C	B	E	D		E	E	E
d_A, Approach Delay [s/veh]	30.33			25.74			53.39			57.71		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	34.81											
Intersection LOS	C											
Intersection V/C	0.620											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.155	3.133	2.684	2.505
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	550	600	533
d_b, Bicycle Delay [s]	30.82	31.54	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	2.288	2.523	1.863	2.099
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.505

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	29	126	6	43	129	75	30	216	16	7	341	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	2	0	0	0	6	0	0	6	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	134	6	48	137	80	32	235	17	7	367	70
Peak Hour Factor	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	44	2	16	45	26	10	76	6	2	119	23
Total Analysis Volume [veh/h]	40	174	8	63	178	104	42	306	22	9	478	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	37	0	0	37	0	9	74	0	9	74	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	4	37	1	34	34
g / C, Green / Cycle	0.58	0.58	0.03	0.31	0.01	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.14	0.22	0.02	0.18	0.01	0.27	0.06
s, saturation flow rate [veh/h]	1617	1604	1714	1779	1714	1800	1530
c, Capacity [veh/h]	975	967	54	547	20	517	440
d1, Uniform Delay [s]	12.03	13.19	57.67	35.30	58.91	41.49	32.40
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.54	1.03	20.28	1.06	14.68	7.51	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.36	0.77	0.60	0.45	0.92	0.21
d, Delay for Lane Group [s/veh]	12.57	14.22	77.95	36.36	73.58	49.00	32.63
Lane Group LOS	B	B	E	D	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.95	5.05	1.57	8.29	0.35	14.68	2.05
50th-Percentile Queue Length [ft/ln]	73.74	126.25	39.30	207.29	8.86	366.9	51.24
95th-Percentile Queue Length [veh/ln]	5.31	8.74	2.83	13.01	0.64	20.96	3.69
95th-Percentile Queue Length [ft/ln]	132.73	218.39	70.74	325.35	15.94	524.0	92.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.57	12.57	12.57	14.22	14.22	14.22	77.95	36.36	36.36	73.58	49.00	32.63
Movement LOS	B	B	B	B	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	12.57			14.22			41.08			46.81		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	32.97											
Intersection LOS	C											
Intersection V/C	0.505											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.940	2.048	2.445	0.000
Crosswalk LOS	A	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	550	1167	1167
d_b, Bicycle Delay [s]	31.54	31.54	10.42	10.42
l_b,int, Bicycle LOS Score for Intersection	1.926	2.129	2.170	2.513
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	32.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	21	14	9	8	0	42	34	21	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	6	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	28	15	10	8	0	45	36	22	16
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	5	3	3	0	14	11	7	5
Total Analysis Volume [veh/h]	1	36	19	13	10	0	57	46	28	20
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	31	0	0	0	0	31	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	13	13
g / C, Green / Cycle	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.06	0.09
s, saturation flow rate [veh/h]	1377	1600
c, Capacity [veh/h]	197	219
d1, Uniform Delay [s]	49.98	52.21
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	1.32	3.84
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.69
d, Delay for Lane Group [s/veh]	51.30	56.05
Lane Group LOS	D	E
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	2.31	4.69
50th-Percentile Queue Length [ft/ln]	57.71	117.28
95th-Percentile Queue Length [veh/ln]	4.16	8.24
95th-Percentile Queue Length [ft/ln]	103.88	206.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.30	51.30	51.30	51.30	51.30	56.05	56.05	56.05	56.05	56.05
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	51.30					56.05				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.25									
Intersection LOS	C									
Intersection V/C	0.325									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.859	1.917
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	450
d_b, Bicycle Delay [s]	36.04	36.04
l_b,int, Bicycle LOS Score for Intersection	1.614	1.682
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	42	159	11	5	1	9	169	11	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	1	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	45	170	19	5	1	10	179	12	6
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	14	54	6	2	0	3	57	4	2
Total Analysis Volume [veh/h]	13	57	217	24	6	1	13	228	15	8
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	50	0	0	9	0	50	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	82	76	82	74	74
g / C, Green / Cycle	0.68	0.63	0.68	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.06	0.14	0.01	0.13	0.02
s, saturation flow rate [veh/h]	1192	1762	1178	1800	1530
c, Capacity [veh/h]	813	1116	796	1102	936
d1, Uniform Delay [s]	6.67	9.37	6.51	10.34	9.17
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.46	0.01	0.43	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.22	0.02	0.21	0.02
d, Delay for Lane Group [s/veh]	6.88	9.83	6.52	10.76	9.21
Lane Group LOS	A	A	A	B	A
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.61	2.82	0.11	2.75	0.25
50th-Percentile Queue Length [ft/ln]	15.16	70.38	2.75	68.72	6.17
95th-Percentile Queue Length [veh/ln]	1.09	5.07	0.20	4.95	0.44
95th-Percentile Queue Length [ft/ln]	27.29	126.68	4.95	123.70	11.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.88	6.88	9.83	9.83	9.83	6.52	6.52	10.76	9.21	9.21
Movement LOS	A	A	A	A	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	9.18					10.41				
Approach LOS	A					B				
d_I, Intersection Delay [s/veh]	32.25									
Intersection LOS	C									
Intersection V/C	0.325									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.258	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767
d_b, Bicycle Delay [s]	22.82	22.82
l_b,int, Bicycle LOS Score for Intersection	1.979	1.962
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	10	36	12	1	3	14	94	78	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	38	13	1	3	15	100	83	2
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	12	4	0	1	5	32	26	1
Total Analysis Volume [veh/h]	0	14	48	17	1	4	19	127	106	3
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	30	0	0	0	0	30	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	13
g / C, Green / Cycle	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.08	0.09	0.07
s, saturation flow rate [veh/h]	989	1717	1530
c, Capacity [veh/h]	140	216	162
d1, Uniform Delay [s]	50.42	52.47	51.65
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.64	3.95	4.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.69	0.67
d, Delay for Lane Group [s/veh]	54.06	56.42	56.44
Lane Group LOS	D	E	E
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.40	4.66	3.37
50th-Percentile Queue Length [ft/ln]	59.98	116.49	84.35
95th-Percentile Queue Length [veh/ln]	4.32	8.20	6.07
95th-Percentile Queue Length [ft/ln]	107.96	205.00	151.84

Movement, Approach, & Intersection Results

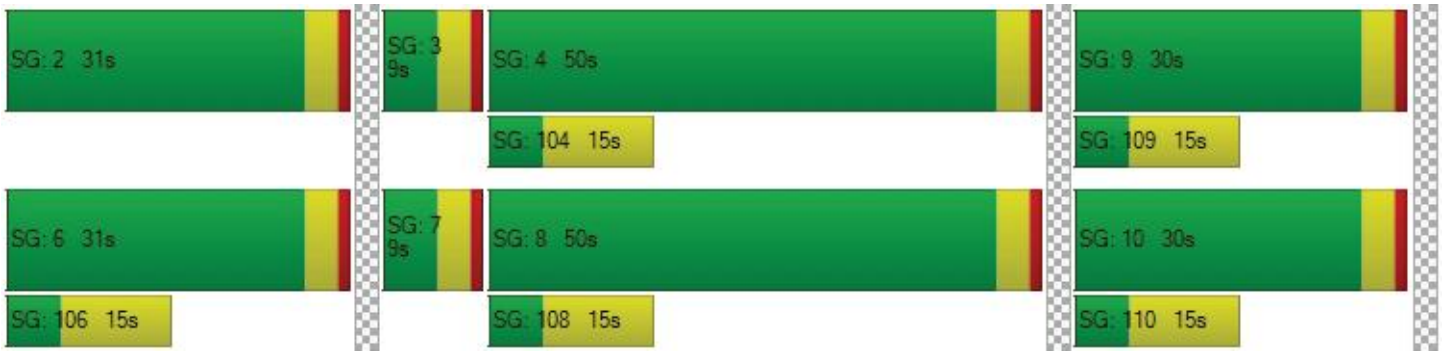
d_M, Delay for Movement [s/veh]	54.06	54.06	54.06	54.06	54.06	56.42	56.42	56.42	56.44	56.44
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	54.06					56.43				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.25									
Intersection LOS	C									
Intersection V/C	0.325									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.920	2.224
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433
d_b, Bicycle Delay [s]	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	1.640	1.975
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	38.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	589	159	100	785	63	135	118	67	107	130	261
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	31	0	10	32	0	0	1	0	0	0	8
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	655	169	116	864	67	143	126	71	113	138	285
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	176	45	31	232	18	38	34	19	30	37	76
Total Analysis Volume [veh/h]	132	703	181	124	927	72	153	135	76	121	148	306
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	41	0	15	41	0	16	41	0	23	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	55	55	10	54	54	12	28	28	10	27	27
g / C, Green / Cycle	0.09	0.46	0.46	0.09	0.45	0.45	0.10	0.23	0.23	0.09	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.25	0.25	0.07	0.28	0.28	0.09	0.06	0.06	0.07	0.08	0.20
s, saturation flow rate [veh/h]	1714	1800	1674	1714	1800	1755	1714	1800	1590	1714	1800	1530
c, Capacity [veh/h]	157	825	767	149	816	796	171	422	373	150	399	340
d1, Uniform Delay [s]	53.67	23.63	23.63	53.95	24.93	24.94	53.36	37.42	37.54	53.78	39.58	45.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.47	2.69	2.89	11.44	3.52	3.61	14.49	0.32	0.39	9.87	0.57	9.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.56	0.56	0.83	0.62	0.62	0.89	0.26	0.27	0.81	0.37	0.90
d, Delay for Lane Group [s/veh]	65.14	26.32	26.53	65.40	28.45	28.55	67.86	37.75	37.93	63.66	40.15	55.30
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.42	9.92	9.28	4.16	11.57	11.31	5.25	2.68	2.49	4.00	3.78	9.76
50th-Percentile Queue Length [ft/ln]	110.4	248.1	231.9	103.9	289.1	282.6	131.1	66.94	62.28	99.98	94.61	243.9
95th-Percentile Queue Length [veh/ln]	7.87	15.09	14.27	7.48	17.14	16.82	9.00	4.82	4.48	7.20	6.81	14.88
95th-Percentile Queue Length [ft/ln]	196.6	377.2	356.7	187.0	428.6	420.5	225.0	120.4	112.1	179.9	170.3	372.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.14	26.39	26.53	65.40	28.50	28.55	67.86	37.78	37.93	63.66	40.15	55.30
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	31.45			32.57			50.45			53.16		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.16											
Intersection LOS	D											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.732	2.761	2.455	2.633
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	617	617	733
d_b, Bicycle Delay [s]	28.70	28.70	28.70	24.07
l_b,int, Bicycle LOS Score for Intersection	2.398	2.486	1.860	2.034
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	731	162	10	1158	67	27	177	83	258	306	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	1	13	0	4	22	0	0	2	2	0	1	3
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	788	172	15	1249	71	29	190	90	273	325	43
Peak Hour Factor	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	207	45	4	328	19	8	50	24	72	85	11
Total Analysis Volume [veh/h]	56	827	180	16	1311	75	30	199	94	286	341	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	26	0	9	26	0	32	36	0	49	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	67	67	2	64	64	3	13	13	22	32	32
g / C, Green / Cycle	0.04	0.56	0.56	0.02	0.53	0.53	0.03	0.11	0.11	0.19	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.12	0.01	0.38	0.05	0.02	0.08	0.09	0.17	0.11	0.11
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1612	1714	1800	1728
c, Capacity [veh/h]	71	1901	849	30	1819	812	48	196	176	318	480	461
d1, Uniform Delay [s]	56.99	15.68	13.48	58.47	21.40	13.90	57.70	52.00	52.23	47.77	36.23	36.25
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.23	0.73	0.57	14.10	2.51	0.23	12.63	6.26	8.47	9.09	0.56	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.44	0.21	0.54	0.72	0.09	0.63	0.77	0.81	0.90	0.41	0.41
d, Delay for Lane Group [s/veh]	74.22	16.41	14.05	72.57	23.91	14.12	70.34	58.25	60.70	56.86	36.79	36.84
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.02	6.70	2.57	0.60	14.16	1.06	1.07	4.77	4.59	9.13	4.83	4.66
50th-Percentile Queue Length [ft/ln]	50.57	167.4	64.25	14.98	354.0	26.40	26.76	119.1	114.6	228.3	120.7	116.5
95th-Percentile Queue Length [veh/ln]	3.64	10.94	4.63	1.08	20.33	1.90	1.93	8.35	8.10	14.09	8.44	8.20
95th-Percentile Queue Length [ft/ln]	91.03	273.5	115.6	26.97	508.3	47.51	48.16	208.6	202.5	352.2	210.9	205.0

Movement, Approach, & Intersection Results

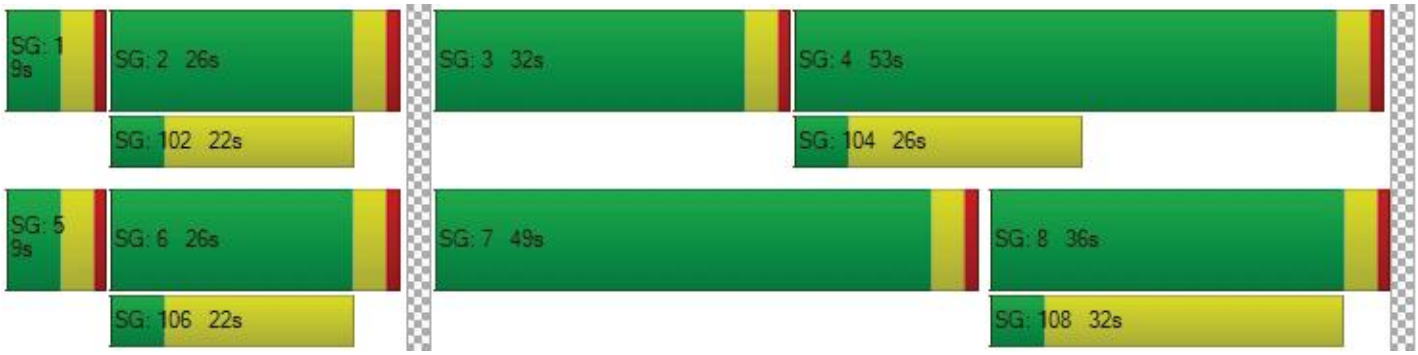
d_M, Delay for Movement [s/veh]	74.22	16.41	14.05	72.57	23.91	14.12	70.34	58.84	60.70	56.86	36.81	36.84
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	19.06			23.94			60.45			45.34		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	30.01											
Intersection LOS	C											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.076	2.843	2.470	2.523
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	533	817
d_b, Bicycle Delay [s]	40.02	40.02	32.27	21.00
l_b,int, Bicycle LOS Score for Intersection	2.437	2.716	1.826	2.114
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.323

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	102	8	8	123	45	21	43	2	21	147	7
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	108	8	8	130	48	22	46	2	22	156	7
Peak Hour Factor	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	32	2	2	38	14	6	13	1	6	46	2
Total Analysis Volume [veh/h]	7	126	9	9	152	56	26	54	2	26	183	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	722	755	679	647	751
Degree of Utilization, x	0.20	0.29	0.12	0.32	0.01

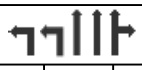
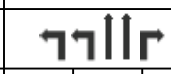
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.73	1.19	0.41	1.40	0.03
95th-Percentile Queue Length [ft]	18.19	29.76	10.24	34.89	0.81
Approach Delay [s/veh]	9.21	9.69	9.03	10.77	
Approach LOS	A	A	A	B	
Intersection Delay [s/veh]	9.86				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.462

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	292	941	78	41	857	43	25	45	128	165	161	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	9	0	0	13	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	310	1006	83	43	921	46	27	48	136	175	171	72
Peak Hour Factor	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	85	276	23	12	253	13	7	13	37	48	47	20
Total Analysis Volume [veh/h]	340	1104	91	47	1011	50	30	53	149	192	188	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	26	63	0	12	49	0	12	28	0	17	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	77	77	4	66	66	3	14	14	9	20	20
g / C, Green / Cycle	0.12	0.64	0.64	0.04	0.55	0.55	0.03	0.12	0.12	0.07	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.10	0.23	0.23	0.03	0.20	0.20	0.02	0.02	0.10	0.06	0.05	0.05
s, saturation flow rate [veh/h]	3329	3427	1731	1714	3427	1757	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	407	2195	1108	60	1896	972	46	397	177	250	562	251
d1, Uniform Delay [s]	51.47	10.10	10.10	57.42	15.05	15.06	57.82	47.63	51.95	54.47	44.36	44.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.55	0.46	0.92	18.99	0.56	1.08	14.26	0.15	10.10	4.92	0.35	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.36	0.36	0.78	0.37	0.37	0.65	0.13	0.84	0.77	0.33	0.31
d, Delay for Lane Group [s/veh]	56.02	10.56	11.02	76.41	15.61	16.14	72.08	47.78	62.05	59.39	44.71	44.92
Lane Group LOS	E	B	B	E	B	B	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.25	4.83	5.02	1.73	5.43	5.71	1.09	0.72	4.89	3.02	2.51	2.13
50th-Percentile Queue Length [ft/ln]	131.3	120.7	125.4	43.34	135.6	142.8	27.14	18.10	122.2	75.46	62.81	53.28
95th-Percentile Queue Length [veh/ln]	9.01	8.44	8.69	3.12	9.25	9.64	1.95	1.30	8.51	5.43	4.52	3.84
95th-Percentile Queue Length [ft/ln]	225.2	210.9	217.3	78.01	231.1	240.8	48.86	32.59	212.8	135.8	113.0	95.90

Movement, Approach, & Intersection Results

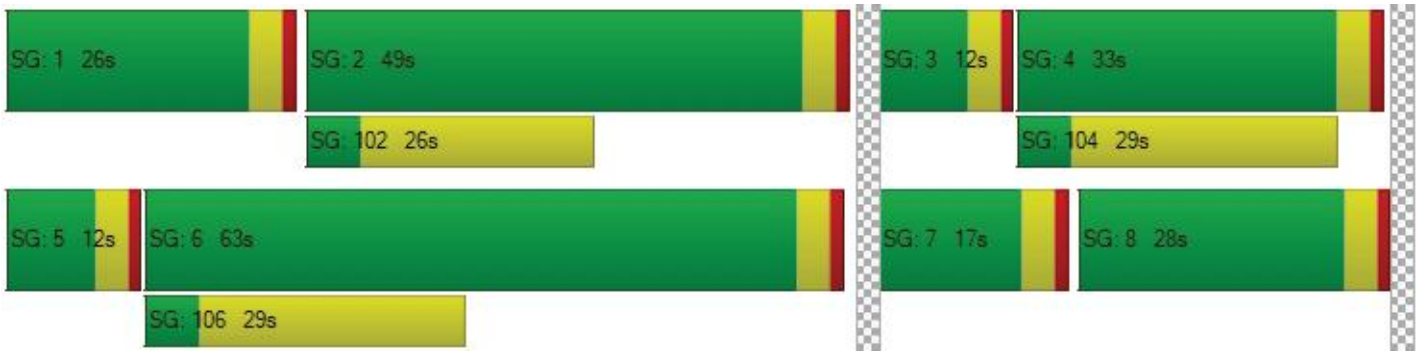
d_M, Delay for Movement [s/veh]	56.02	10.69	11.02	76.41	15.77	16.14	72.08	47.78	62.05	59.39	44.71	44.92
Movement LOS	E	B	B	E	B	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	20.75			18.36			60.09			50.88		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	26.84											
Intersection LOS	C											
Intersection V/C	0.462											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.932	2.600	2.700
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	750	400	483
d_b, Bicycle Delay [s]	15.50	23.44	38.40	34.50
l_b,int, Bicycle LOS Score for Intersection	2.404	2.169	1.751	1.938
Bicycle LOS	B	B	A	A

Sequence

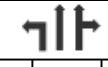
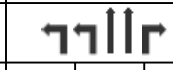
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.447

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	215	398	8	307	42	18	107	21	394	320	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	74	0	0	86	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	302	422	8	411	45	19	113	22	418	339	32
Peak Hour Factor	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	77	108	2	105	11	5	29	6	107	86	8
Total Analysis Volume [veh/h]	60	308	430	8	419	46	19	115	22	426	346	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	36	0	9	36	0	11	10	0	65	64	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	78	78	1	75	75	2	6	6	18	22	22
g / C, Green / Cycle	0.04	0.65	0.65	0.01	0.63	0.63	0.02	0.05	0.05	0.15	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.17	0.28	0.00	0.13	0.13	0.01	0.03	0.01	0.13	0.10	0.02
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1739	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	120	1175	999	17	1128	1089	34	176	78	508	631	282
d1, Uniform Delay [s]	56.77	8.73	10.07	59.08	9.62	9.64	58.29	55.88	54.79	49.40	44.42	40.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	0.54	1.36	18.42	0.42	0.44	13.52	4.08	1.92	3.77	0.75	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.26	0.43	0.47	0.21	0.21	0.56	0.65	0.28	0.84	0.55	0.12
d, Delay for Lane Group [s/veh]	59.96	9.27	11.42	77.50	10.04	10.08	71.81	59.96	56.71	53.16	45.17	41.00
Lane Group LOS	E	A	B	E	B	B	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.95	3.40	5.56	0.33	2.72	2.66	0.70	1.81	0.68	6.46	4.75	0.83
50th-Percentile Queue Length [ft/ln]	23.67	84.99	139.0	8.25	67.94	66.42	17.51	45.24	17.08	161.6	118.6	20.87
95th-Percentile Queue Length [veh/ln]	1.70	6.12	9.43	0.59	4.89	4.78	1.26	3.26	1.23	10.63	8.32	1.50
95th-Percentile Queue Length [ft/ln]	42.60	152.9	235.7	14.84	122.2	119.5	31.51	81.42	30.75	265.8	207.9	37.56

Movement, Approach, & Intersection Results

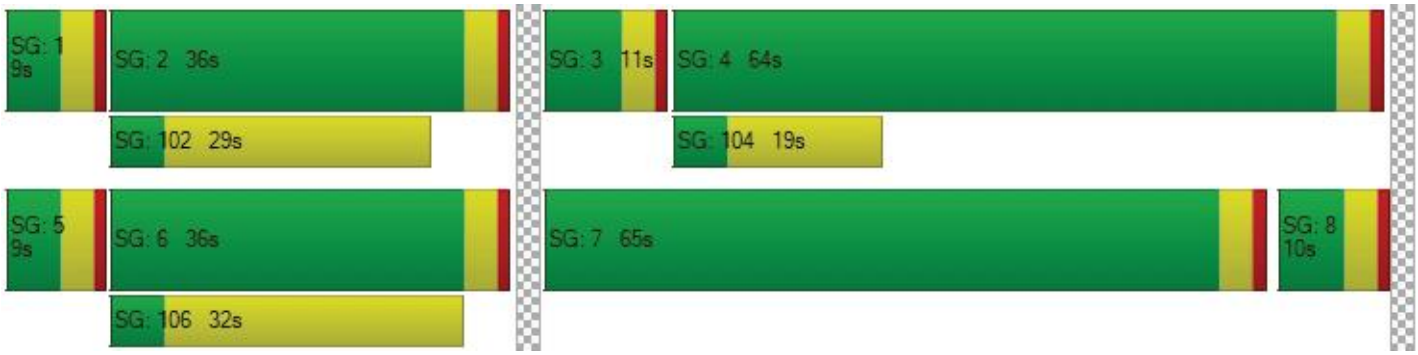
d_M, Delay for Movement [s/veh]	59.96	9.27	11.42	77.50	10.06	10.08	71.81	59.96	56.71	53.16	45.17	41.00
Movement LOS	E	A	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	14.24			11.20			60.94			49.23		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	29.48											
Intersection LOS	C											
Intersection V/C	0.447											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.349	2.694	2.906
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	100	1000
d_b, Bicycle Delay [s]	32.27	32.27	54.15	15.00
l_b,int, Bicycle LOS Score for Intersection	2.876	1.950	1.688	2.224
Bicycle LOS	C	A	A	B

Sequence

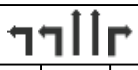
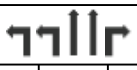
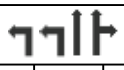
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	43.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	466	1012	370	91	1138	69	86	116	267	506	305	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	88	0	1	130	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	494	1161	392	97	1336	73	91	123	283	536	323	75
Peak Hour Factor	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	130	305	103	25	351	19	24	32	74	141	85	20
Total Analysis Volume [veh/h]	519	1221	412	102	1405	77	96	129	298	564	340	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	45	0	12	36	0	13	40	40	23	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	66	66	8	57	57	5	11	32	19	25	25
g / C, Green / Cycle	0.14	0.55	0.55	0.07	0.47	0.47	0.04	0.09	0.27	0.16	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.16	0.36	0.27	0.06	0.29	0.05	0.03	0.04	0.19	0.17	0.12	0.12
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1684
c, Capacity [veh/h]	472	1880	839	114	2323	725	148	319	410	527	372	348
d1, Uniform Delay [s]	51.50	18.98	16.72	55.57	23.30	17.50	56.40	51.29	39.93	50.50	42.91	42.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.29	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	52.92	1.75	2.05	19.99	1.18	0.30	4.68	0.83	6.41	40.30	1.44	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.65	0.49	0.89	0.60	0.11	0.65	0.40	0.73	1.07	0.58	0.58
d, Delay for Lane Group [s/veh]	104.4	20.74	18.77	75.56	24.47	17.80	61.08	52.12	46.34	90.80	44.35	44.45
Lane Group LOS	F	C	B	E	C	B	E	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.53	11.99	7.33	3.70	9.88	1.25	1.53	1.87	8.69	10.83	5.94	5.57
50th-Percentile Queue Length [ft/ln]	263.3	299.7	183.3	92.40	246.9	31.20	38.22	46.74	217.3	270.8	148.5	139.2
95th-Percentile Queue Length [veh/ln]	16.54	17.67	11.78	6.65	15.03	2.25	2.75	3.37	13.53	16.75	9.94	9.44
95th-Percentile Queue Length [ft/ln]	413.4	441.7	294.3	166.3	375.7	56.17	68.79	84.13	338.1	418.7	248.4	235.9

Movement, Approach, & Intersection Results

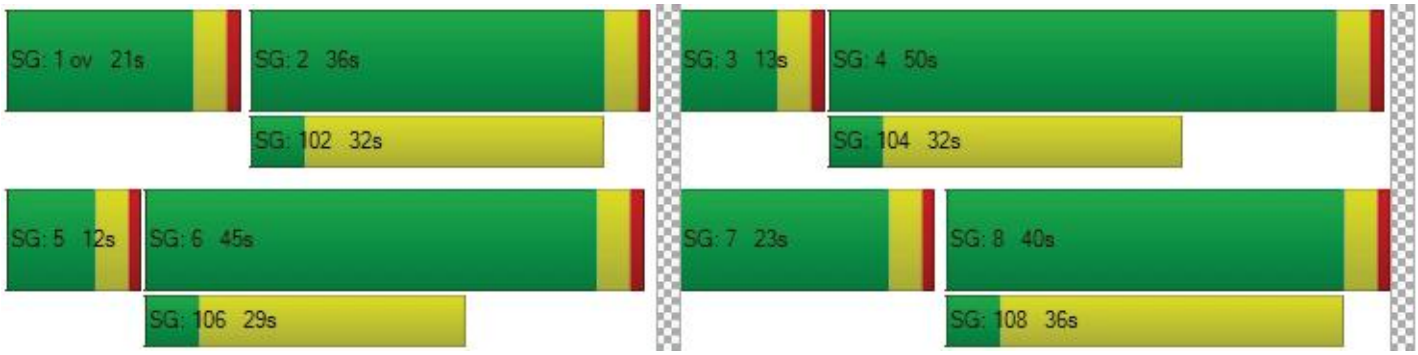
d_M, Delay for Movement [s/veh]	104.4	20.74	18.77	75.56	24.47	17.80	61.08	52.12	46.34	90.80	44.39	44.45
Movement LOS	F	C	B	E	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	40.54			27.44			50.47			71.03		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	43.29											
Intersection LOS	D											
Intersection V/C	0.738											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.343	3.104	2.919	2.836
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	533	600	767
d_b, Bicycle Delay [s]	26.00	32.27	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	3.335	2.431	1.991	2.371
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	27.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	8	9	4	23	1	73	5	50	26	56	314	11
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	10	4	24	1	77	5	53	28	59	334	12
Peak Hour Factor	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	3	1	7	0	22	1	15	8	17	95	3
Total Analysis Volume [veh/h]	9	11	5	27	1	88	6	60	32	67	381	14
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	71	65	65
g / C, Green / Cycle	0.12	0.12	0.59	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.03	0.10	0.12	0.11	0.11
s, saturation flow rate [veh/h]	1651	1483	825	1800	1778
c, Capacity [veh/h]	231	223	471	974	962
d1, Uniform Delay [s]	48.17	51.95	11.99	14.20	14.21
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	3.87	1.01	0.47	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.70	0.21	0.20	0.20
d, Delay for Lane Group [s/veh]	48.66	55.82	13.00	14.68	14.69
Lane Group LOS	D	E	B	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.45	4.82	1.25	2.89	2.87
50th-Percentile Queue Length [ft/ln]	36.37	120.57	31.25	72.34	71.73
95th-Percentile Queue Length [veh/ln]	2.62	8.42	2.25	5.21	5.16
95th-Percentile Queue Length [ft/ln]	65.47	210.61	56.25	130.21	129.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.66	48.66	48.66	48.66	55.82	55.82	55.82	55.82	13.00	13.00	14.68	14.69
Movement LOS	D	D	D	D	E	E	E	E	B	B	B	B
d_A, Approach Delay [s/veh]	48.66				55.82				14.35			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	27.76											
Intersection LOS	C											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.780	0.000	2.718
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	250
d_b, Bicycle Delay [s]	45.94	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.601	1.670	1.912
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	16	545	49	18	10	9	194	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	578	52	19	11	10	206	1
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	165	15	5	3	3	59	0
Total Analysis Volume [veh/h]	19	659	59	22	13	11	235	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	19	0	0	0	73	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	62	62	62	22
g / C, Green / Cycle	0.02	0.52	0.52	0.52	0.19
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.22	0.05	0.17
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1548
c, Capacity [veh/h]	34	936	936	796	290
d1, Uniform Delay [s]	58.30	16.13	17.76	14.58	47.61
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.79	0.73	1.43	0.26	9.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.28	0.43	0.10	0.90
d, Delay for Lane Group [s/veh]	72.10	16.87	19.18	14.84	57.20
Lane Group LOS	E	B	B	B	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.70	4.15	7.10	1.18	8.34
50th-Percentile Queue Length [ft/ln]	17.55	103.83	177.55	29.41	208.48
95th-Percentile Queue Length [veh/ln]	1.26	7.48	11.47	2.12	13.08
95th-Percentile Queue Length [ft/ln]	31.59	186.89	286.81	52.94	326.88

Movement, Approach, & Intersection Results

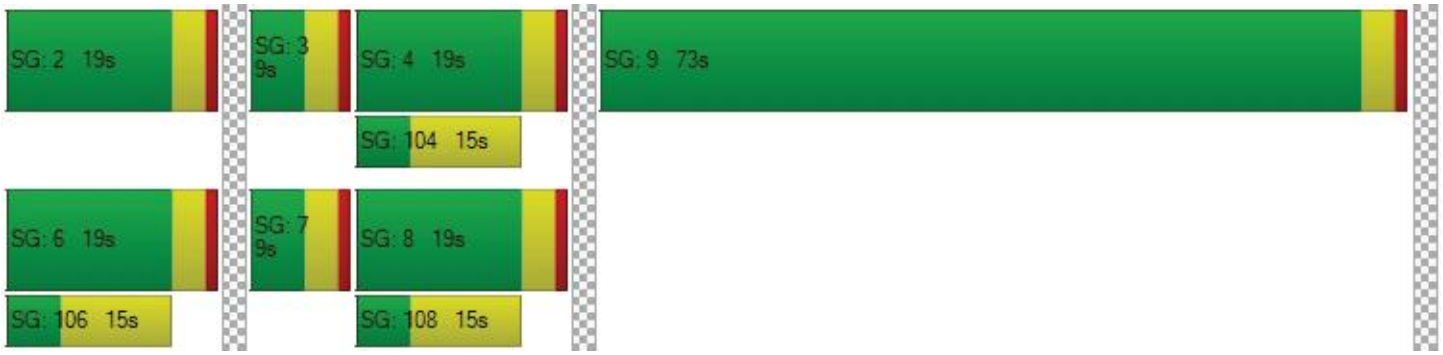
d_M, Delay for Movement [s/veh]	72.10	18.27	19.18	14.84	57.20	57.20	57.20	57.20
Movement LOS	E	B	B	B	E	E	E	E
d_A, Approach Delay [s/veh]	19.25				57.20			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	27.76							
Intersection LOS	C							
Intersection V/C	0.521							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.105
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	1150
d_b, Bicycle Delay [s]	45.94	10.84
l_b,int, Bicycle LOS Score for Intersection	2.168	1.987
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	67.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	1	21	92	3	29	14	399	8	14	605	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	1	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1	22	98	3	31	15	424	8	15	641	76
Peak Hour Factor	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	0	6	28	1	9	4	120	2	4	181	21
Total Analysis Volume [veh/h]	7	1	25	111	3	35	17	479	9	17	724	86
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

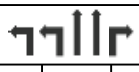
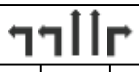
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.03	0.67	0.02	0.06	0.02	0.00	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	22.92	30.62	10.35	65.14	67.05	11.36	9.46	0.00	0.00	8.37	0.00	0.00
Movement LOS	C	D	B	F	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.24	4.09	4.09	0.19	0.06	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.91	5.91	5.91	102.2	102.2	4.63	1.58	0.00	0.00	1.19	0.00	0.00
d_A, Approach Delay [s/veh]	13.63			52.55			0.32			0.17		
Approach LOS	B			F			A			A		
d_I, Intersection Delay [s/veh]	5.67											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	51.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.824

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	439	581	136	84	759	31	35	281	464	265	376	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	30	0	0	32	0	0	1	0	0	0	1
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	465	646	144	89	837	33	37	299	492	281	399	88
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	121	169	38	23	219	9	10	78	129	73	104	23
Total Analysis Volume [veh/h]	486	675	150	93	875	34	39	312	514	294	417	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	46	0	13	36	0	9	46	0	15	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	43	43	8	32	32	4	42	42	11	49	49
g / C, Green / Cycle	0.16	0.36	0.36	0.07	0.27	0.27	0.03	0.35	0.35	0.09	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.10	0.05	0.25	0.25	0.01	0.09	0.34	0.09	0.15	0.15
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1776	3329	3427	1530	3329	1800	1689
c, Capacity [veh/h]	527	1231	550	116	484	477	106	1192	532	305	734	689
d1, Uniform Delay [s]	49.77	30.68	27.31	55.12	43.01	43.01	56.92	28.07	38.43	54.30	24.63	24.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.43	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.23	1.76	1.22	11.73	29.38	29.64	2.14	0.12	28.84	16.67	0.29	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.55	0.27	0.80	0.95	0.95	0.37	0.26	0.97	0.96	0.36	0.36
d, Delay for Lane Group [s/veh]	57.00	32.44	28.54	66.85	72.39	72.65	59.06	28.19	67.27	70.97	24.93	24.95
Lane Group LOS	E	C	C	E	E	E	E	C	E	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.69	8.06	3.26	3.15	17.13	16.94	0.61	3.26	18.86	5.12	5.23	4.92
50th-Percentile Queue Length [ft/ln]	192.2	201.4	81.42	78.81	428.2	423.4	15.29	81.38	471.4	128.0	130.7	123.0
95th-Percentile Queue Length [veh/ln]	12.24	12.71	5.86	5.67	23.92	23.69	1.10	5.86	25.98	8.84	8.98	8.56
95th-Percentile Queue Length [ft/ln]	306.0	317.8	146.5	141.8	597.9	592.2	27.53	146.4	649.5	220.8	224.5	214.0

Movement, Approach, & Intersection Results

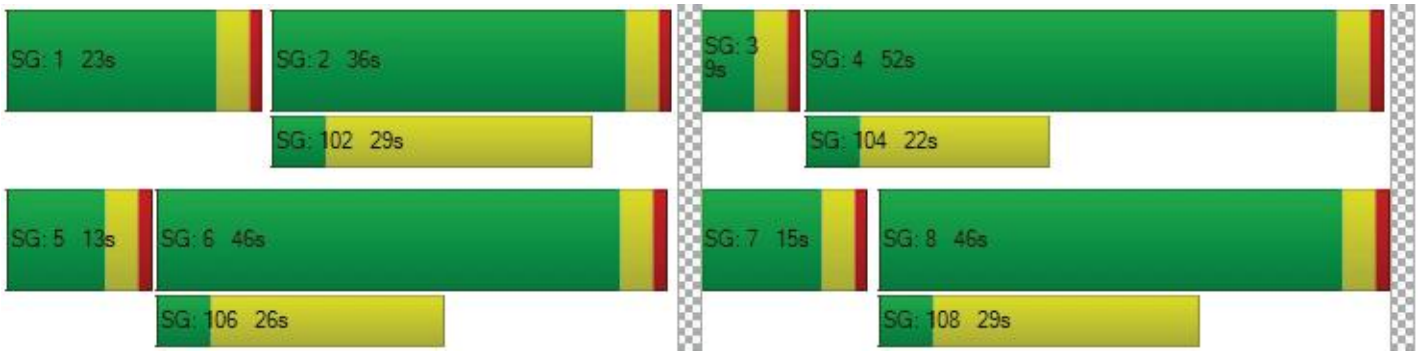
d_M, Delay for Movement [s/veh]	57.00	32.44	28.54	66.85	72.52	72.65	59.06	28.19	67.27	70.97	24.94	24.95
Movement LOS	E	C	C	E	E	E	E	C	E	E	C	C
d_A, Approach Delay [s/veh]	41.10			71.99			52.80			41.79		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	51.56											
Intersection LOS	D											
Intersection V/C	0.824											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.026	2.668	2.860	2.906
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	533	700	800
d_b, Bicycle Delay [s]	25.35	32.27	25.35	21.60
l_b,int, Bicycle LOS Score for Intersection	2.641	2.386	2.273	2.222
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	180	1217	675	109	1386	98	170	259	151	546	419	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	1	10	0	6	18	0	0	0	1	0	0	4
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	1300	716	122	1487	104	180	275	161	579	444	104
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	347	191	33	397	28	48	73	43	155	119	28
Total Analysis Volume [veh/h]	205	1389	765	130	1589	111	192	294	172	619	474	111
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	9	36	0	35	43	0	28	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	59	87	5	55	55	9	16	16	24	31	40
g / C, Green / Cycle	0.08	0.49	0.72	0.04	0.46	0.46	0.08	0.14	0.14	0.20	0.26	0.33
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.50	0.04	0.33	0.33	0.06	0.09	0.11	0.19	0.14	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1741	3329	3427	1530	3329	3427	2708
c, Capacity [veh/h]	250	2400	1106	139	1563	794	260	465	207	666	883	901
d1, Uniform Delay [s]	54.71	21.82	9.22	57.34	26.44	26.47	54.12	49.04	50.51	47.17	38.38	27.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.60	1.03	3.56	23.04	2.90	5.64	4.10	1.43	8.23	6.42	0.51	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.58	0.69	0.94	0.72	0.72	0.74	0.63	0.83	0.93	0.54	0.12
d, Delay for Lane Group [s/veh]	61.31	22.85	12.78	80.39	29.34	32.11	58.22	50.47	58.75	53.59	38.89	27.93
Lane Group LOS	E	C	B	F	C	C	E	D	E	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.28	9.35	10.80	2.41	13.41	14.27	2.99	4.26	5.50	9.64	6.07	1.13
50th-Percentile Queue Length [ft/ln]	82.04	233.7	270.0	60.24	335.3	356.7	74.67	106.5	137.5	240.8	151.8	28.20
95th-Percentile Queue Length [veh/ln]	5.91	14.37	16.19	4.34	19.42	20.47	5.38	7.65	9.35	14.73	10.12	2.03
95th-Percentile Queue Length [ft/ln]	147.6	359.1	404.8	108.4	485.5	511.6	134.4	191.2	233.6	368.1	252.9	50.76

Movement, Approach, & Intersection Results

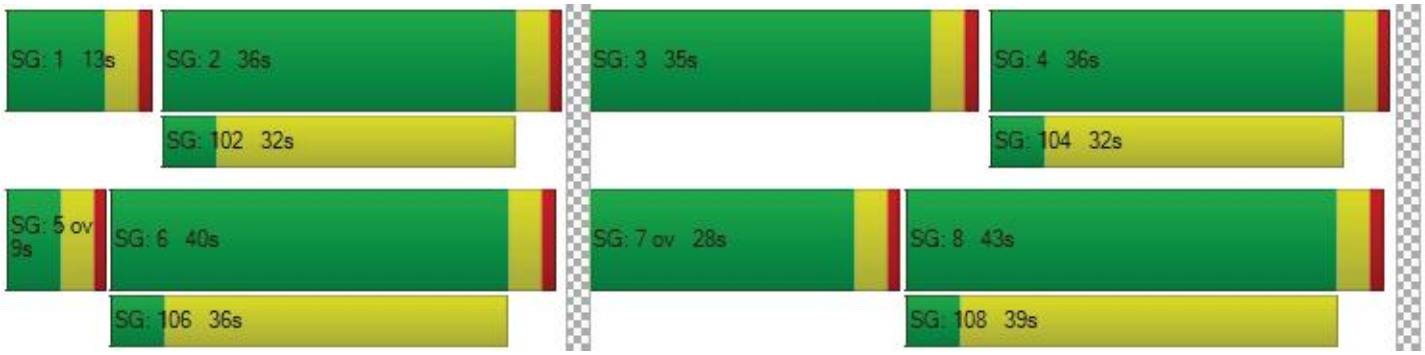
d_M, Delay for Movement [s/veh]	61.31	22.85	12.78	80.39	30.15	32.11	58.22	50.47	58.75	53.59	38.89	27.93
Movement LOS	E	C	B	F	C	C	E	D	E	D	D	C
d_A, Approach Delay [s/veh]	22.93			33.84			54.90			45.44		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.18											
Intersection LOS	C											
Intersection V/C	0.729											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.444	3.170	2.917	3.124
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.857	2.566	1.922	2.553
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	762	445	0	774	408	0	0	0	490	0	531
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	9	0	0	6	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	817	445	0	826	439	0	0	0	519	0	563
Peak Hour Factor	1.000	0.924	1.000	1.000	0.924	0.924	1.000	1.000	1.000	0.924	1.000	0.924
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	221	111	0	223	119	0	0	0	140	0	152
Total Analysis Volume [veh/h]	0	884	445	0	894	475	0	0	0	562	0	609
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	43	0	0	43	0	0	0	0	77	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	77	77		35	35	35
g / C, Green / Cycle	0.64	0.64		0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.26	0.18		0.23	0.24	0.26
s, saturation flow rate [veh/h]	3427	4903		1714	1606	1530
c, Capacity [veh/h]	2204	3153		498	466	444
d1, Uniform Delay [s]	10.30	9.35		39.13	39.93	40.57
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	0.23		2.77	4.07	5.75
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.28		0.78	0.84	0.88
d, Delay for Lane Group [s/veh]	10.85	9.57		41.90	44.00	46.32
Lane Group LOS	B	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.52	3.34		10.90	11.25	11.61
50th-Percentile Queue Length [ft/ln]	137.99	83.52		272.3	281.3	290.2
95th-Percentile Queue Length [veh/ln]	9.37	6.01		16.31	16.75	17.20
95th-Percentile Queue Length [ft/ln]	234.31	150.34		407.7	418.8	429.9

Movement, Approach, & Intersection Results

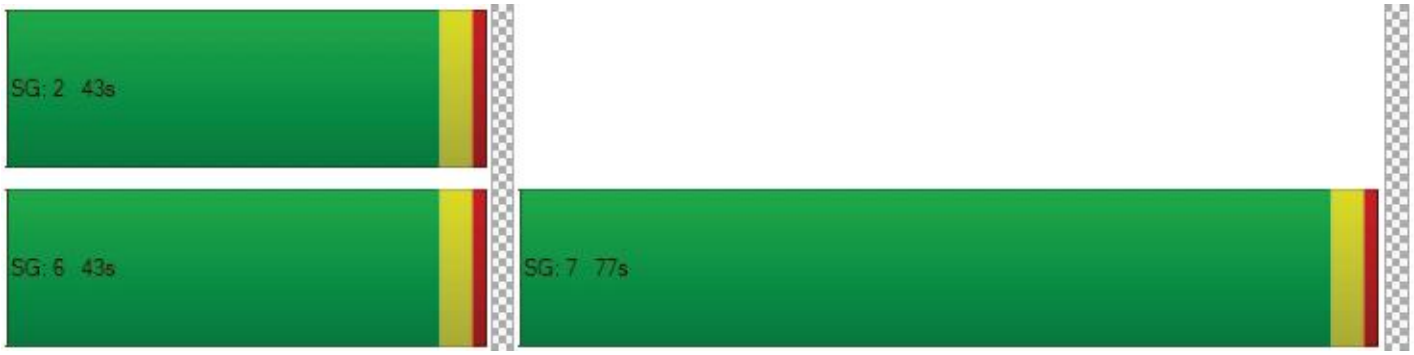
d_M, Delay for Movement [s/veh]	0.00	10.85	0.00	0.00	9.57	0.00	0.00	0.00	0.00	42.54	0.00	45.49
Movement LOS		B			A					D		D
d_A, Approach Delay [s/veh]	10.85			9.57			0.00			44.07		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	23.65											
Intersection LOS	C											
Intersection V/C	0.513											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	0	1217
d_b, Bicycle Delay [s]	27.34	27.34	60.00	9.20
l_b,int, Bicycle LOS Score for Intersection	2.289	2.051	4.132	3.492
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.862

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	993	543	0	1748	0	0	0	0	738	0	637
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	26	0	0	124	0	0	0	0	0	0	62
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1079	576	0	1977	0	0	0	0	782	0	737
Peak Hour Factor	1.000	0.910	0.910	1.000	0.910	0.910	0.910	0.910	0.910	0.910	1.000	0.910
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	296	158	0	543	0	0	0	0	215	0	202
Total Analysis Volume [veh/h]	0	1186	633	0	2173	0	0	0	0	859	0	810
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	19	0	0	19	0	0	0	0	101	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	44	44		68	68
g / C, Green / Cycle	0.37	0.37		0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.24	0.33		0.26	0.53
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	1808	2411		1880	864
d1, Uniform Delay [s]	31.54	35.81		15.33	24.17
k, delay calibration	0.50	0.50		0.11	0.22
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.88	6.01		0.17	10.10
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.90		0.46	0.94
d, Delay for Lane Group [s/veh]	33.41	41.83		15.50	34.27
Lane Group LOS	C	D		B	C
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	9.77	15.76		6.79	22.49
50th-Percentile Queue Length [ft/ln]	244.23	394.02		169.81	562.14
95th-Percentile Queue Length [veh/ln]	14.90	22.27		11.07	30.26
95th-Percentile Queue Length [ft/ln]	372.38	556.79		276.66	756.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	33.41	0.00	0.00	41.83	0.00	0.00	0.00	0.00	15.50	0.00	34.27
Movement LOS		C			D					B		C
d_A, Approach Delay [s/veh]	33.41			41.83			0.00			24.61		
Approach LOS	C			D			A			C		
d_I, Intersection Delay [s/veh]	34.13											
Intersection LOS	C											
Intersection V/C	0.862											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	0	1617
d_b, Bicycle Delay [s]	45.94	45.94	60.00	2.20
l_b,int, Bicycle LOS Score for Intersection	2.212	2.456	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.560

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	654	272	0	983	466	0	0	0	363	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	4	0	0	32	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	697	272	0	1074	466	0	0	0	385	0	501
Peak Hour Factor	1.000	0.960	0.868	1.000	0.960	1.000	1.000	1.000	1.000	0.960	1.000	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	182	78	0	280	117	0	0	0	100	0	130
Total Analysis Volume [veh/h]	0	726	313	0	1119	466	0	0	0	401	0	522
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	55	0	0	55	0	0	0	0	65	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	80	80		32	32
g / C, Green / Cycle	0.67	0.67		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.15	0.33		0.23	0.19
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3278	2291		454	717
d1, Uniform Delay [s]	7.74	9.79		42.33	40.17
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.16	0.75		5.84	1.43
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.49		0.88	0.73
d, Delay for Lane Group [s/veh]	7.89	10.54		48.17	41.61
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.36	7.00		12.07	7.14
50th-Percentile Queue Length [ft/ln]	58.98	174.96		301.71	178.56
95th-Percentile Queue Length [veh/ln]	4.25	11.34		17.77	11.53
95th-Percentile Queue Length [ft/ln]	106.16	283.42		444.14	288.14

Movement, Approach, & Intersection Results

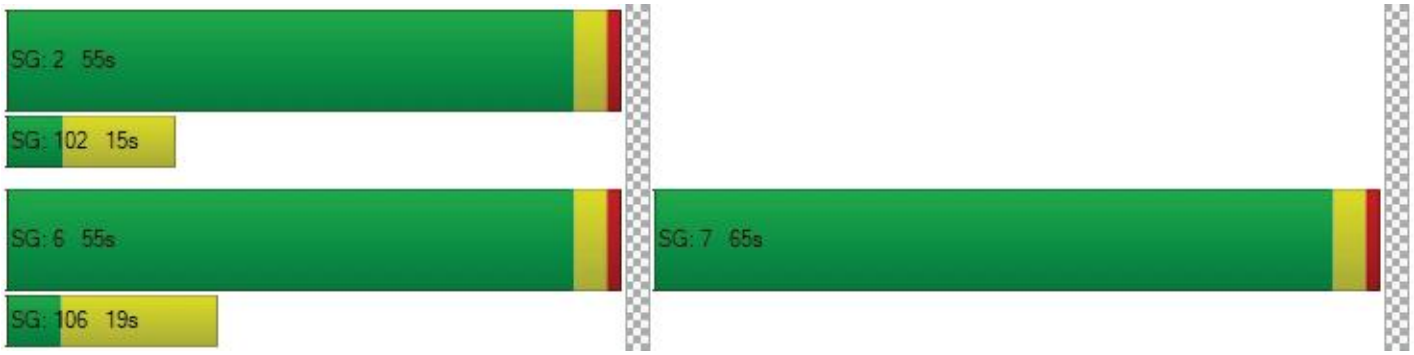
d_M, Delay for Movement [s/veh]	0.00	7.89	0.00	0.00	10.54	0.00	0.00	0.00	0.00	48.17	0.00	41.61
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	7.89			10.54			0.00			44.46		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	21.16											
Intersection LOS	C											
Intersection V/C	0.560											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.371
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	850	0	1017
d_b, Bicycle Delay [s]	19.84	19.84	60.00	14.50
l_b,int, Bicycle LOS Score for Intersection	1.959	2.483	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1074	381	0	966	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1142	381	0	1030	238	308	0	671	0	0	0
Peak Hour Factor	1.000	0.927	1.000	1.000	0.927	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	308	95	0	278	60	83	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1232	381	0	1111	238	332	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	60	60	
g / C, Green / Cycle	0.43	0.43	0.50	0.50	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.32	0.10	0.47	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	2129	1488	1662	764	
d1, Uniform Delay [s]	25.66	28.42	16.72	28.57	
k, delay calibration	0.50	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.15	3.46	0.06	9.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.58	0.75	0.20	0.95	
d, Delay for Lane Group [s/veh]	26.81	31.88	16.78	38.55	
Lane Group LOS	C	C	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.98	13.83	2.56	21.13	
50th-Percentile Queue Length [ft/ln]	224.41	345.65	64.12	528.33	
95th-Percentile Queue Length [veh/ln]	13.89	19.92	4.62	28.67	
95th-Percentile Queue Length [ft/ln]	347.25	498.10	115.41	716.81	

Movement, Approach, & Intersection Results

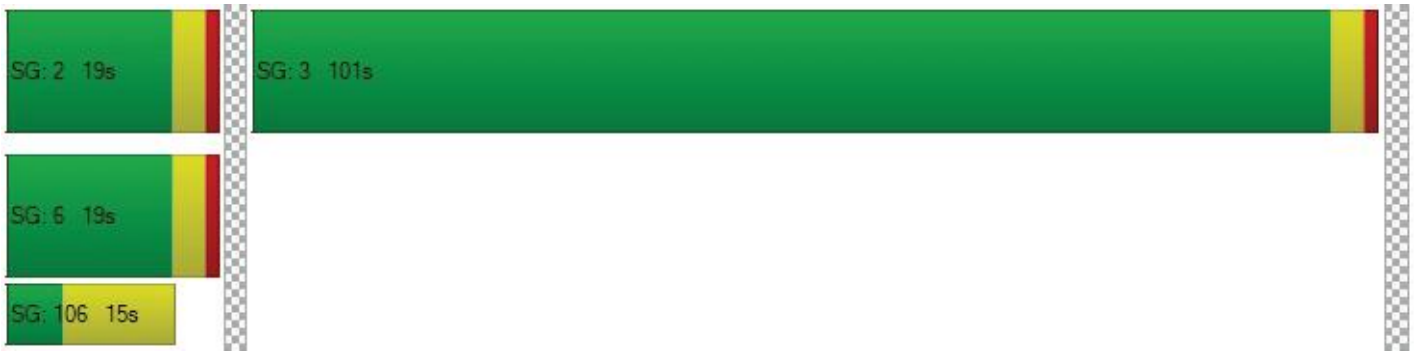
d_M, Delay for Movement [s/veh]	0.00	26.81	0.00	0.00	31.88	0.00	16.78	0.00	38.55	0.00	0.00	0.00
Movement LOS		C			C		B		D			
d_A, Approach Delay [s/veh]	26.81			31.88			31.70			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	29.99											
Intersection LOS	C											
Intersection V/C	0.797											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.237	2.476	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.817

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1234	483	460	1488	0	401	6	617	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	21	0	92	32	0	5	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1329	512	580	1609	0	430	6	654	0	0	0
Peak Hour Factor	1.000	0.914	0.914	0.914	0.914	1.000	0.914	0.914	0.914	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	364	140	159	440	0	118	2	179	0	0	0
Total Analysis Volume [veh/h]	0	1454	560	635	1760	0	470	7	716	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	51	0	29	80	0	0	40	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	50	50	25	78	34	34	34	
g / C, Green / Cycle	0.41	0.41	0.21	0.65	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.37	0.19	0.36	0.23	0.25	0.26	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1565	1530	
c, Capacity [veh/h]	2021	631	684	3191	484	442	432	
d1, Uniform Delay [s]	29.48	32.71	46.81	11.41	40.22	41.42	41.74	
k, delay calibration	0.50	0.50	0.11	0.50	0.29	0.35	0.36	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.25	16.95	6.20	0.69	8.93	18.04	21.58	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.72	0.89	0.93	0.55	0.82	0.90	0.92	
d, Delay for Lane Group [s/veh]	31.72	49.66	53.01	12.10	49.15	59.46	63.32	
Lane Group LOS	C	D	D	B	D	E	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.92	17.71	9.85	8.20	12.10	13.44	13.90	
50th-Percentile Queue Length [ft/ln]	297.92	442.70	246.25	204.90	302.5	336.0	347.5	
95th-Percentile Queue Length [veh/ln]	17.58	24.61	15.00	12.89	17.81	19.45	20.02	
95th-Percentile Queue Length [ft/ln]	439.45	615.23	374.93	322.27	445.2	486.3	500.4	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	31.72	49.66	53.01	12.10	0.00	50.74	59.46	61.60	0.00	0.00	0.00
Movement LOS		C	D	D	B		D	E	E			
d_A, Approach Delay [s/veh]	36.71			22.94			57.31			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	35.21											
Intersection LOS	D											
Intersection V/C	0.817											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.437	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	1267	600	0
d_b, Bicycle Delay [s]	22.20	8.07	29.40	60.00
l_b,int, Bicycle LOS Score for Intersection	2.667	2.877	3.528	4.132
Bicycle LOS	B	C	D	D

Sequence

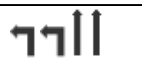
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	33.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	651	332	534	851	0	304	8	427	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	26	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	694	352	592	908	0	322	8	453	0	0	0
Peak Hour Factor	1.000	0.964	0.964	0.964	0.964	1.000	0.964	0.964	0.964	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	180	91	154	235	0	84	2	117	0	0	0
Total Analysis Volume [veh/h]	0	720	365	614	942	0	334	8	470	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	34	43	0	0	77	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	43	43	25	71	41	41	
g / C, Green / Cycle	0.36	0.36	0.21	0.60	0.34	0.34	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.24	0.18	0.27	0.10	0.31	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1534	
c, Capacity [veh/h]	1219	544	687	2040	1125	519	
d1, Uniform Delay [s]	31.54	32.72	46.34	13.55	29.22	38.19	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.11	6.46	4.36	0.75	0.15	7.32	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.59	0.67	0.89	0.46	0.30	0.92	
d, Delay for Lane Group [s/veh]	33.65	39.18	50.70	14.31	29.37	45.52	
Lane Group LOS	C	D	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.82	9.88	9.29	7.10	3.59	14.38	
50th-Percentile Queue Length [ft/ln]	220.58	247.04	232.31	177.41	89.63	359.52	
95th-Percentile Queue Length [veh/ln]	13.69	15.04	14.29	11.47	6.45	20.60	
95th-Percentile Queue Length [ft/ln]	342.36	375.92	357.29	286.63	161.33	515.00	

Movement, Approach, & Intersection Results

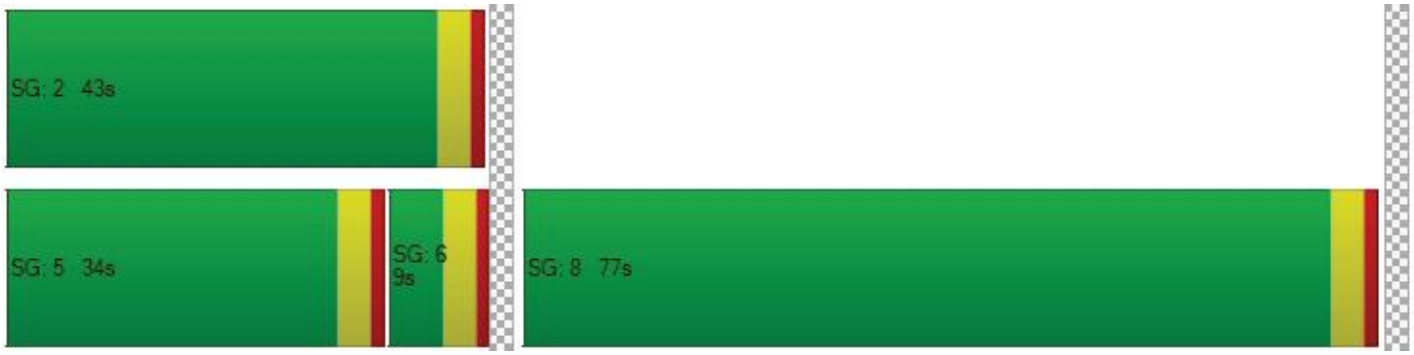
d_M, Delay for Movement [s/veh]	0.00	33.65	39.18	50.70	14.31	0.00	29.37	45.52	45.52	0.00	0.00	0.00
Movement LOS		C	D	D	B		C	D	D			
d_A, Approach Delay [s/veh]	35.51			28.67			38.87			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	33.22											
Intersection LOS	C											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	650	1217	0
d_b, Bicycle Delay [s]	55.10	27.34	9.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.156	2.843	2.899	4.132
Bicycle LOS	B	C	C	D

Sequence

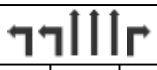
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	420	718	357	500	741	821	855	0	501	428	0	550
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	4	0	13	6	0	0	0	0	0	0	7
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	445	765	378	543	791	870	906	0	531	454	0	590
Peak Hour Factor	0.955	0.955	0.955	0.955	0.955	0.955	0.955	1.000	0.955	0.955	1.000	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	116	200	99	142	207	228	237	0	139	119	0	154
Total Analysis Volume [veh/h]	466	801	396	569	828	911	949	0	556	475	0	618
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	62	0	0	62	0	58	0	0	58	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	74	74	74	74	38	38
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.36	0.16	0.42	0.17	0.29	0.14
s, saturation flow rate [veh/h]	1306	4903	1340	4903	3329	3329
c, Capacity [veh/h]	719	3026	741	3026	1053	1053
d1, Uniform Delay [s]	22.88	10.51	25.25	10.58	39.24	32.72
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.48	0.21	7.52	0.22	3.15	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.26	0.77	0.27	0.90	0.45
d, Delay for Lane Group [s/veh]	27.35	10.73	32.77	10.81	42.39	33.02
Lane Group LOS	C	B	C	B	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.37	3.20	7.44	3.33	13.69	5.57
50th-Percentile Queue Length [ft/ln]	134.30	80.10	186.11	83.36	342.30	139.17
95th-Percentile Queue Length [veh/ln]	9.17	5.77	11.92	6.00	19.76	9.44
95th-Percentile Queue Length [ft/ln]	229.33	144.18	297.98	150.04	494.02	235.91

Movement, Approach, & Intersection Results

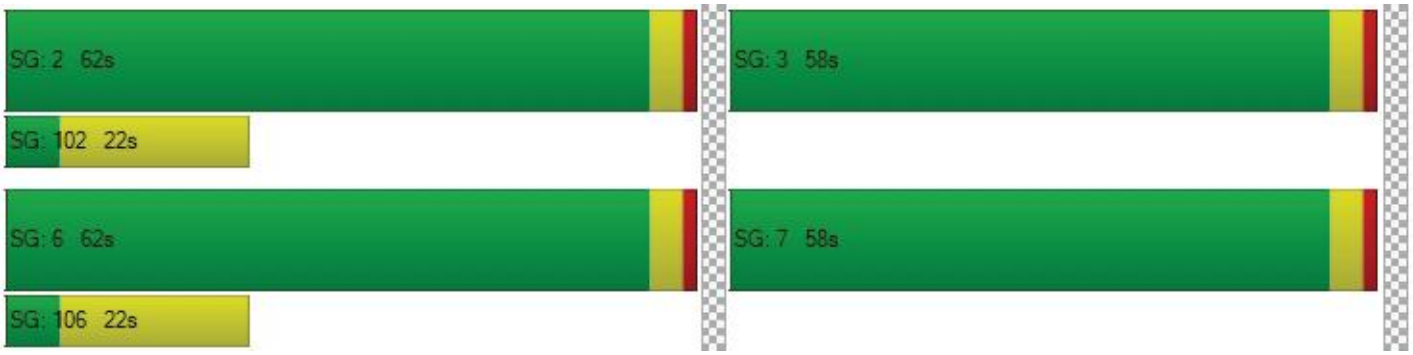
d_M, Delay for Movement [s/veh]	27.35	10.73	0.00	32.77	10.81	0.00	42.39	0.00	0.00	33.02	0.00	0.00
Movement LOS	C	B		C	B		D			C		
d_A, Approach Delay [s/veh]	16.84			19.75			42.39			33.02		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	25.65											
Intersection LOS	C											
Intersection V/C	0.710											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.254	3.328
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	900	900
d_b, Bicycle Delay [s]	16.02	16.02	18.15	18.15
l_b,int, Bicycle LOS Score for Intersection	2.256	2.328	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	38.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	333	80	108	705	218	77	409	118	156	1102	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	4	4	0	0	0	4	0	6	6	6
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	187	353	89	118	747	231	82	438	125	171	1174	115
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	103	26	34	218	67	24	128	36	50	342	34
Total Analysis Volume [veh/h]	218	411	104	138	871	269	96	510	146	199	1368	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	29	0	11	27	0	12	59	0	21	68	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	36	36	7	34	34	8	45	45	16	53	53
g / C, Green / Cycle	0.08	0.30	0.30	0.06	0.28	0.28	0.07	0.38	0.38	0.13	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.07	0.08	0.07	0.04	0.18	0.18	0.06	0.15	0.10	0.12	0.40	0.09
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	250	1481	462	190	1393	435	114	1287	575	226	1511	675
d1, Uniform Delay [s]	54.93	31.91	31.36	55.66	37.40	37.32	55.37	27.48	25.86	51.14	31.21	20.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.23	0.47	1.13	5.22	2.13	6.48	14.82	0.20	0.23	10.51	2.33	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.28	0.23	0.73	0.63	0.62	0.84	0.40	0.25	0.88	0.91	0.20
d, Delay for Lane Group [s/veh]	64.16	32.37	32.49	60.87	39.53	43.80	70.18	27.68	26.09	61.65	33.54	20.70
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.58	3.11	2.42	2.19	7.67	7.62	3.34	5.41	2.93	6.53	18.45	2.34
50th-Percentile Queue Length [ft/ln]	89.50	77.70	60.41	54.82	191.8	190.5	83.52	135.2	73.28	163.2	461.1	58.58
95th-Percentile Queue Length [veh/ln]	6.44	5.59	4.35	3.95	12.22	12.15	6.01	9.22	5.28	10.72	25.49	4.22
95th-Percentile Queue Length [ft/ln]	161.0	139.8	108.7	98.67	305.4	303.7	150.3	230.5	131.9	267.9	637.2	105.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.16	32.37	32.49	60.87	39.53	43.80	70.18	27.68	26.09	61.65	33.54	20.70
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	41.84			42.73			32.80			35.82		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	38.28											
Intersection LOS	D											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.076	3.072	2.892	2.867
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	383	917	1067
d_b, Bicycle Delay [s]	37.60	39.20	17.60	13.07
l_b,int, Bicycle LOS Score for Intersection	1.963	2.263	2.180	2.963
Bicycle LOS	A	B	B	C

Sequence

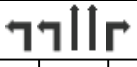
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	36.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.692

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	170	66	105	390	270	118	333	69	166	1013	134
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	12	0	0	18	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	180	70	111	413	286	125	365	73	176	1092	142
Peak Hour Factor	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	53	21	33	122	84	37	108	22	52	322	42
Total Analysis Volume [veh/h]	61	212	83	131	487	337	147	430	86	208	1288	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	12	33	0	14	35	35	16	56	0	17	57	57
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	33	33	10	38	54	12	51	51	10	49	63
g / C, Green / Cycle	0.05	0.28	0.28	0.08	0.32	0.45	0.10	0.43	0.43	0.08	0.41	0.52
(v / s)_i Volume / Saturation Flow Rate	0.04	0.06	0.05	0.08	0.14	0.22	0.09	0.15	0.15	0.06	0.38	0.11
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1697	3329	3427	1530
c, Capacity [veh/h]	79	951	425	143	1078	685	171	765	721	269	1391	799
d1, Uniform Delay [s]	56.58	33.38	33.12	54.59	32.87	23.46	53.16	23.26	23.29	54.07	33.94	15.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.21	0.54	1.03	19.69	1.37	2.52	11.57	0.27	0.29	4.69	3.20	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.22	0.20	0.92	0.45	0.49	0.86	0.35	0.35	0.77	0.93	0.21
d, Delay for Lane Group [s/veh]	70.79	33.93	34.14	74.28	34.24	25.98	64.72	23.53	23.58	58.76	37.13	15.49
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.14	2.47	1.98	4.71	5.86	7.18	4.91	5.11	4.85	3.26	18.08	2.47
50th-Percentile Queue Length [ft/ln]	53.58	61.65	49.53	117.6	146.6	179.4	122.7	127.6	121.3	81.42	452.0	61.82
95th-Percentile Queue Length [veh/ln]	3.86	4.44	3.57	8.26	9.84	11.57	8.54	8.81	8.47	5.86	25.06	4.45
95th-Percentile Queue Length [ft/ln]	96.45	110.9	89.15	206.6	245.9	289.2	213.6	220.3	211.6	146.5	626.4	111.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	70.79	33.93	34.14	74.28	34.24	25.98	64.72	23.55	23.58	58.76	37.13	15.49
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	B
d_A, Approach Delay [s/veh]	40.29			36.81			32.68			37.66		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	36.79											
Intersection LOS	D											
Intersection V/C	0.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.653	2.709	2.773	2.930
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	517	867	883
d_b, Bicycle Delay [s]	34.50	33.00	19.27	18.70
l_b,int, Bicycle LOS Score for Intersection	1.853	2.347	2.107	2.932
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.688

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	937	55	409	1110	522	407	220	42	53	258	351
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	17	0	0	26	6	4	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	1010	58	434	1203	559	435	233	45	56	273	372
Peak Hour Factor	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	281	16	121	335	156	121	65	13	16	76	104
Total Analysis Volume [veh/h]	33	1125	65	483	1340	622	484	259	50	62	304	414
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	33	0	22	42	42	22	56	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	52	52	18	67	89	18	30	30	4	16	38
g / C, Green / Cycle	0.03	0.43	0.43	0.15	0.55	0.74	0.15	0.25	0.25	0.04	0.13	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.23	0.23	0.15	0.27	0.41	0.15	0.09	0.09	0.02	0.09	0.27
s, saturation flow rate [veh/h]	1714	3427	1750	3329	4903	1530	3329	1800	1700	3329	3427	1530
c, Capacity [veh/h]	49	1482	757	499	2716	1128	499	446	421	121	460	486
d1, Uniform Delay [s]	57.74	25.10	25.11	50.71	16.44	6.98	50.72	37.23	37.24	56.76	49.34	38.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.34
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.96	1.37	2.67	12.46	0.64	1.94	12.76	0.48	0.51	3.29	1.63	12.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.53	0.53	0.97	0.49	0.55	0.97	0.36	0.36	0.51	0.66	0.85
d, Delay for Lane Group [s/veh]	72.69	26.47	27.77	63.16	17.08	8.93	63.49	37.71	37.75	60.05	50.97	50.45
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.20	8.48	8.94	8.05	7.52	6.76	8.09	3.92	3.72	0.98	4.44	12.91
50th-Percentile Queue Length [ft/ln]	29.90	212.0	223.5	201.3	188.0	168.9	202.2	98.07	92.90	24.47	110.9	322.8
95th-Percentile Queue Length [veh/ln]	2.15	13.26	13.85	12.71	12.02	11.02	12.76	7.06	6.69	1.76	7.89	18.80
95th-Percentile Queue Length [ft/ln]	53.83	331.4	346.1	317.6	300.5	275.4	318.9	176.5	167.2	44.05	197.2	470.1

Movement, Approach, & Intersection Results

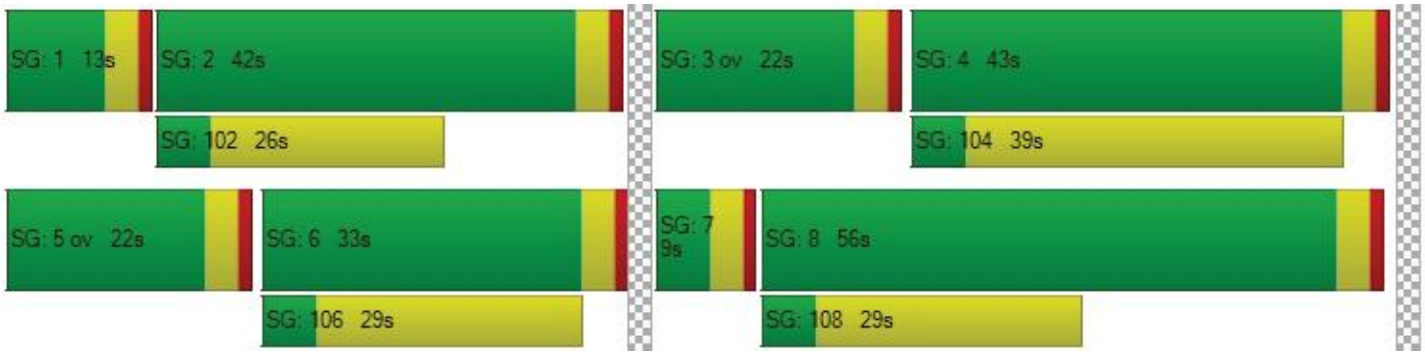
d_M, Delay for Movement [s/veh]	72.69	26.86	27.77	63.16	17.08	8.93	63.49	37.73	37.75	60.05	50.97	50.45
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	28.15			24.11			53.45			51.41		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.55											
Intersection LOS	C											
Intersection V/C	0.688											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.067	3.417	2.753	2.830
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	633	867	650
d_b, Bicycle Delay [s]	34.50	28.02	19.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.232	2.904	2.214	2.203
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	657.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	39.736

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	762	11	114	720	331	245	39	80	9	21	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	14	6	6	4	0	0	0	0	9
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	812	12	135	769	357	264	41	85	10	22	79
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	222	3	37	211	98	72	11	23	3	6	22
Total Analysis Volume [veh/h]	42	889	13	148	842	391	289	45	93	11	24	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	12	12	5	13	13	91	91	91	91
g / C, Green / Cycle	0.03	0.10	0.10	0.04	0.11	0.11	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.02	0.17	0.17	0.09	0.25	0.26	39.46	0.06	0.40	0.06
s, saturation flow rate [veh/h]	1714	3427	1787	1714	3427	1530	8	1530	88	1530
c, Capacity [veh/h]	54	346	180	71	381	170	62	1159	106	1159
d1, Uniform Delay [s]	57.71	53.95	53.95	57.50	53.33	53.33	53.20	3.76	34.80	3.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.16	333.3	344.4	492.7	552.9	602.6	1994.68	0.03	2.01	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	1.71	1.72	2.07	2.21	2.30	5.36	0.08	0.33	0.08
d, Delay for Lane Group [s/veh]	78.87	387.3	398.3	550.2	606.3	655.9	2047.88	3.79	36.80	3.77
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.58	21.22	22.68	11.94	35.00	33.59	36.46	0.52	0.90	0.49
50th-Percentile Queue Length [ft/ln]	39.56	530.5	567.0	298.5	874.9	839.8	911.42	13.07	22.52	12.18
95th-Percentile Queue Length [veh/ln]	2.85	33.88	35.95	20.10	55.12	53.26	65.62	0.94	1.62	0.88
95th-Percentile Queue Length [ft/ln]	71.20	847.0	898.8	502.6	1377.	1331.	1640.56	23.53	40.53	21.92

Movement, Approach, & Intersection Results

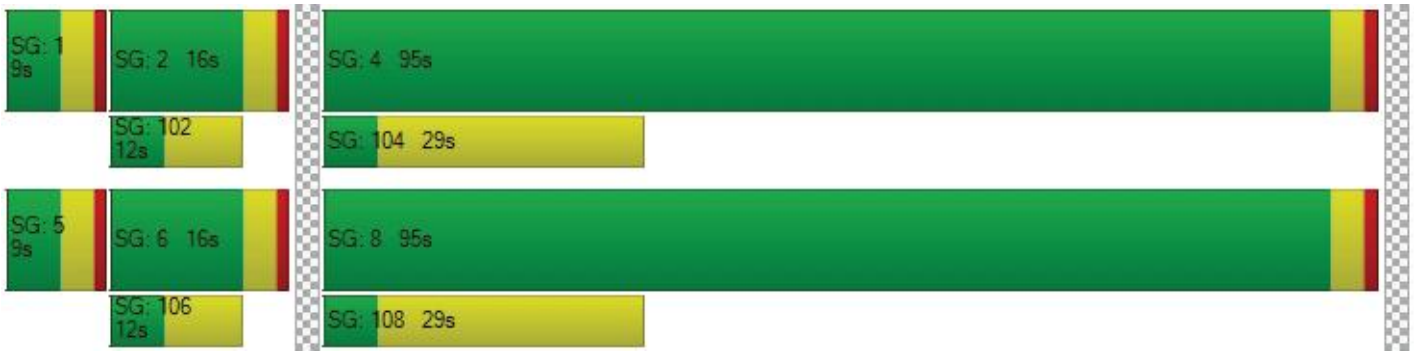
d_M, Delay for Movement [s/veh]	78.87	391.0	398.3	550.2	606.3	655.9	2047.	2047.	3.79	36.80	36.80	3.77
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	377.22			614.35			1602.68			13.25		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	657.78											
Intersection LOS	F											
Intersection V/C	39.736											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.888	3.389	2.243	2.062
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.079	2.319	2.264	1.761
Bicycle LOS	B	B	B	A

Sequence

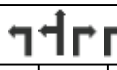
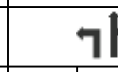
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1772	2665	1687	1772
c, Capacity [veh/h]	1	2920	1533	1	2919	1405	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

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Report File: K:\...\3 OY 2024 CUM PM.pdf

Scenario 3 OY 2024 CUM PM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.551	28.8	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.639	26.3	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.434	16.6	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.569	23.3	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.711	29.9	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.473	14.4	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.384	34.7	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.676	39.1	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	EB Left	0.822	46.1	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.453	40.3	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.341	15.0	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.473	34.4	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.668	38.7	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.465	43.3	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.527	39.6	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.518	35.4	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.526	43.6	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.876	20.7	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.552	21.9	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.668	42.8	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.643	43.5	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	3.418	1,539.5	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.792	51.4	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.721	42.4	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.690	39.9	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.825	53.7	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.565	25.2	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.704	42.3	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.557	36.3	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.755	26.8	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.828	46.5	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.462	38.8	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.613	27.3	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.729	26.2	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	EB Thru	0.967	40.9	E
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.559	30.3	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	EB Left	0.614	42.5	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.466	23.1	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.664	33.4	C
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	0.834	25.7	D
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	0.807	28.8	D
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.490	27.7	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.587	30.8	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Right	0.864	51.3	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.604	34.8	C
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.532	36.9	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	WB Left	0.818	49.8	D
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.205	10.8	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.776	44.4	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.489	35.2	D
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	NB Thru	0.470	27.7	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.509	31.0	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.720	39.7	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	EB Thru	0.335	9.8	A
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.590	34.1	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	NB Right	0.883	51.8	D
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.917	44.8	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.479	15.1	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Left	1.125	243.3	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.737	45.2	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.893	51.6	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.511	19.1	B
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.748	26.3	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.521	18.7	B
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.587	18.6	B
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	NB Right	0.785	35.3	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.712	30.6	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	1.016	50.3	D
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.751	39.7	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.704	39.1	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.661	35.7	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	30.924	372.4	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.551

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	302	571	0	0	461	146	0	0	0	287	0	135
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	15	5	0	0	8	0	0	0	0	26	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	610	0	0	497	155	0	0	0	330	0	143
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	88	161	0	0	131	41	0	0	0	87	0	38
Total Analysis Volume [veh/h]	353	642	0	0	523	163	0	0	0	347	0	151
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	56	68	0	0	12	0	0	0	0	0	52	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	27	85	54	54		27	27
g / C, Green / Cycle	0.22	0.71	0.45	0.45		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.21	0.19	0.13	0.14		0.20	0.10
s, saturation flow rate [veh/h]	1714	3427	3427	1599		1714	1530
c, Capacity [veh/h]	386	2430	1543	720		385	343
d1, Uniform Delay [s]	45.35	6.25	20.92	21.15		45.26	40.05
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	8.74	0.27	0.49	1.16		7.90	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.26	0.30	0.32		0.90	0.44
d, Delay for Lane Group [s/veh]	54.09	6.52	21.41	22.31		53.16	40.93
Lane Group LOS	D	A	C	C		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	11.14	2.78	4.17	4.35		10.84	3.93
50th-Percentile Queue Length [ft/ln]	278.52	69.46	104.32	108.63		271.05	98.36
95th-Percentile Queue Length [veh/ln]	16.61	5.00	7.51	7.76		16.24	7.08
95th-Percentile Queue Length [ft/ln]	415.37	125.03	187.78	194.09		406.05	177.05

Movement, Approach, & Intersection Results

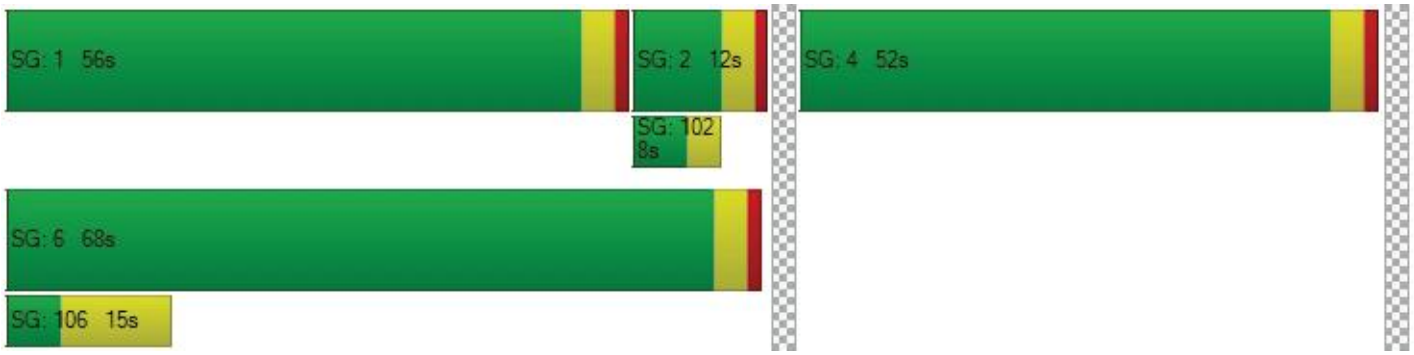
d_M, Delay for Movement [s/veh]	54.09	6.52	0.00	0.00	21.52	22.31	0.00	0.00	0.00	53.16	53.16	40.93
Movement LOS	D	A			C	C				D	D	D
d_A, Approach Delay [s/veh]	23.40			21.71			0.00			49.45		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	28.82											
Intersection LOS	C											
Intersection V/C	0.551											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.942	2.117
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	133	0	800
d_b, Bicycle Delay [s]	13.07	52.27	60.00	21.60
l_b,int, Bicycle LOS Score for Intersection	2.380	1.937	4.132	2.381
Bicycle LOS	B	A	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	323	1038	0	0	732	395	0	0	0	341	0	332
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	7	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	342	1105	0	0	784	419	0	0	0	368	0	352
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	90	291	0	0	206	110	0	0	0	97	0	93
Total Analysis Volume [veh/h]	360	1163	0	0	825	441	0	0	0	387	0	371
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	59	0	0	38	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	80	61	61		32	32	32
g / C, Green / Cycle	0.13	0.67	0.51	0.51		0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.34	0.24	0.29		0.11	0.11	0.24
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1714	1530
c, Capacity [veh/h]	417	2277	1734	774		461	461	411
d1, Uniform Delay [s]	51.47	10.22	19.29	20.58		36.16	36.16	42.34
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.40	0.82	0.94	3.03		0.61	0.61	7.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.51	0.48	0.57		0.42	0.42	0.90
d, Delay for Lane Group [s/veh]	56.88	11.04	20.23	23.61		36.77	36.77	49.79
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.62	7.55	7.59	9.05		4.77	4.77	11.38
50th-Percentile Queue Length [ft/ln]	140.41	188.66	189.83	226.35		119.2	119.2	284.6
95th-Percentile Queue Length [veh/ln]	9.50	12.05	12.11	13.99		8.35	8.35	16.92
95th-Percentile Queue Length [ft/ln]	237.58	301.29	302.81	349.71		208.7	208.7	422.9

Movement, Approach, & Intersection Results

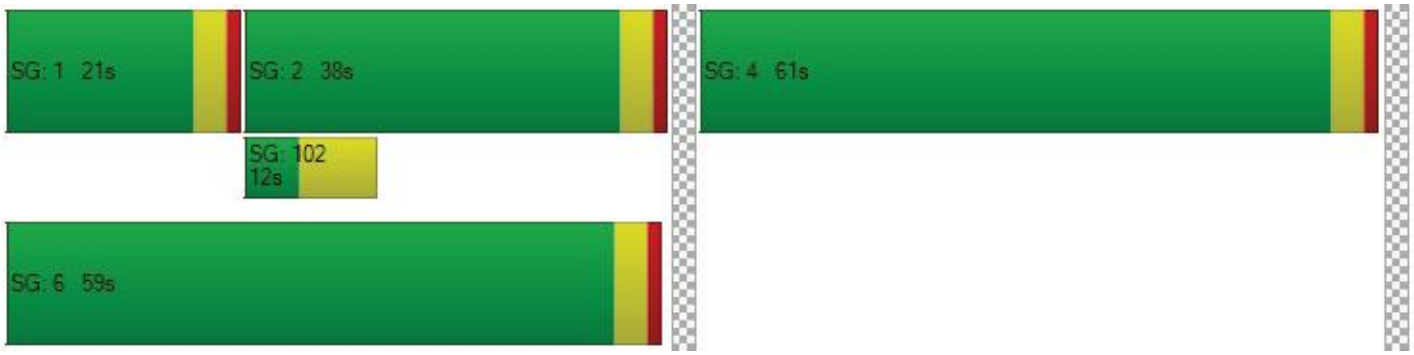
d_M, Delay for Movement [s/veh]	56.88	11.04	0.00	0.00	20.23	23.61	0.00	0.00	0.00	36.77	36.77	49.79
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	21.88			21.41			0.00			43.14		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.26											
Intersection LOS	C											
Intersection V/C	0.639											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.121	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	567	0	950
d_b, Bicycle Delay [s]	17.60	30.82	60.00	16.54
l_b,int, Bicycle LOS Score for Intersection	2.816	2.604	4.132	2.810
Bicycle LOS	C	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1132	0	0	1172	0	0	0	0	297	0	400
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	4	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1205	0	0	1250	0	0	0	0	319	0	424
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	317	0	0	329	0	0	0	0	84	0	112
Total Analysis Volume [veh/h]	0	1268	0	0	1316	0	0	0	0	336	0	446
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	53	0	0	53	0	0	0	0	0	67	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	89	89		23	23	23
g / C, Green / Cycle	0.74	0.74		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.26	0.27		0.16	0.16	0.17
s, saturation flow rate [veh/h]	4903	4903		1714	1572	1530
c, Capacity [veh/h]	3619	3619		335	307	299
d1, Uniform Delay [s]	5.55	5.63		46.19	46.46	46.54
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	0.28		4.78	6.05	6.52
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.36		0.81	0.84	0.85
d, Delay for Lane Group [s/veh]	5.82	5.91		50.98	52.51	53.06
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.41	3.58		8.20	7.89	7.79
50th-Percentile Queue Length [ft/ln]	85.17	89.60		204.9	197.1	194.8
95th-Percentile Queue Length [veh/ln]	6.13	6.45		12.90	12.49	12.37
95th-Percentile Queue Length [ft/ln]	153.31	161.28		322.3	312.3	309.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.82	0.00	0.00	5.91	0.00	0.00	0.00	0.00	51.31	52.51	52.83
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	5.82			5.91			0.00			52.16		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.62											
Intersection LOS	B											
Intersection V/C	0.434											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	817	0	1050
d_b, Bicycle Delay [s]	21.00	21.00	60.00	13.54
l_b,int, Bicycle LOS Score for Intersection	2.257	2.283	4.132	2.850
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	687	307	72	673	0	193	2	359	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	34	0	0	0	16	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	748	347	76	747	0	205	2	397	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	197	91	20	197	0	54	1	104	0	0	0
Total Analysis Volume [veh/h]	0	787	365	80	786	0	216	2	418	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	31	0	13	44	0	0	76	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	65	65	7	76	36	36	
g / C, Green / Cycle	0.54	0.54	0.06	0.64	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.25	0.05	0.23	0.13	0.27	
s, saturation flow rate [veh/h]	3427	1541	1714	3427	1715	1530	
c, Capacity [veh/h]	1864	839	101	2181	510	455	
d1, Uniform Delay [s]	16.08	16.62	55.74	10.30	33.96	40.79	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.67	1.80	12.88	0.46	0.57	8.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.41	0.46	0.79	0.36	0.43	0.92	
d, Delay for Lane Group [s/veh]	16.75	18.42	68.62	10.77	34.53	48.80	
Lane Group LOS	B	B	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	6.26	6.70	2.75	4.84	5.22	12.84	
50th-Percentile Queue Length [ft/ln]	156.41	167.59	68.81	121.07	130.43	321.00	
95th-Percentile Queue Length [veh/ln]	10.36	10.95	4.95	8.45	8.96	18.72	
95th-Percentile Queue Length [ft/ln]	258.96	273.75	123.86	211.29	224.07	467.92	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.80	18.42	68.62	10.77	0.00	34.53	34.53	48.80	0.00	0.00	0.00
Movement LOS		B	B	E	B		C	C	D			
d_A, Approach Delay [s/veh]	17.31			16.11			43.91			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	23.29											
Intersection LOS	C											
Intersection V/C	0.569											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.162	1.874
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	667	1200	0
d_b, Bicycle Delay [s]	36.04	26.67	9.60	60.00
l_b,int, Bicycle LOS Score for Intersection	2.193	2.274	2.609	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1043	269	204	682	0	496	3	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	7	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1111	292	216	738	0	526	3	365	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	292	77	57	194	0	138	1	96	0	0	0
Total Analysis Volume [veh/h]	0	1169	307	227	777	0	554	3	384	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	67	0	14	81	0	0	39	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	70	70	10	84	28	28	28	
g / C, Green / Cycle	0.59	0.59	0.08	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.41	0.44	0.07	0.23	0.18	0.19	0.20	
s, saturation flow rate [veh/h]	1800	1677	3329	3427	1714	1668	1530	
c, Capacity [veh/h]	1054	982	277	2407	396	385	353	
d1, Uniform Delay [s]	17.45	18.39	54.11	6.87	43.50	43.74	44.53	
k, delay calibration	0.50	0.50	0.11	0.50	0.18	0.20	0.23	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.87	5.29	5.89	0.36	6.18	7.46	13.78	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.70	0.75	0.82	0.32	0.80	0.82	0.88	
d, Delay for Lane Group [s/veh]	21.32	23.68	59.99	7.23	49.68	51.19	58.32	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	14.76	15.81	3.60	3.64	9.49	9.63	10.24	
50th-Percentile Queue Length [ft/ln]	369.10	395.14	89.93	90.99	237.3	240.7	255.8	
95th-Percentile Queue Length [veh/ln]	21.07	22.33	6.48	6.55	14.55	14.72	15.48	
95th-Percentile Queue Length [ft/ln]	526.64	558.14	161.88	163.79	363.7	367.9	387.0	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	22.19	23.68	59.99	7.23	0.00	50.33	51.19	57.00	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	22.50			19.16			53.04			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	29.92											
Intersection LOS	C											
Intersection V/C	0.711											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.376	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1283	583	0
d_b, Bicycle Delay [s]	13.54	7.70	30.10	60.00
l_b,int, Bicycle LOS Score for Intersection	2.777	2.388	3.112	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1417	643	0	1189	41	193	0	409	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1507	682	0	1272	41	205	0	434	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	397	179	0	335	11	54	0	114	0	0	0
Total Analysis Volume [veh/h]	0	1586	718	0	1339	43	216	0	457	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	81	0	0	81	0	0	39	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	91	91	21	21	21	
g / C, Green / Cycle	0.76	0.76	0.18	0.18	0.18	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.27	0.13	0.15	0.15	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3710	3710	303	270	270	
d1, Uniform Delay [s]	5.26	4.89	46.52	47.80	47.80	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.36	0.27	3.11	7.10	7.10	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.36	0.71	0.84	0.84	
d, Delay for Lane Group [s/veh]	5.62	5.17	49.63	54.90	54.90	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	Yes	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	4.19	3.29	6.34	7.14	7.14	
50th-Percentile Queue Length [ft/ln]	104.75	82.22	158.4	178.4	178.4	
95th-Percentile Queue Length [veh/ln]	7.54	5.92	10.47	11.52	11.52	
95th-Percentile Queue Length [ft/ln]	188.56	148.00	261.6	287.9	287.9	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.62	0.00	0.00	5.17	0.00	49.63	54.90	54.90	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	5.62			5.17			53.21			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	14.35											
Intersection LOS	B											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.310	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1283	1283	583	0
d_b, Bicycle Delay [s]	7.70	7.70	30.10	60.00
l_b,int, Bicycle LOS Score for Intersection	2.432	2.296	2.670	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	384	87	100	386	54	65	324	60	68	185	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	407	92	106	409	57	69	343	64	72	196	87
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	107	24	28	108	15	18	90	17	19	52	23
Total Analysis Volume [veh/h]	29	428	97	112	431	60	73	361	67	76	206	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	14	29	0	43	65	0	11	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	70	70	9	77	77	7	17	17	7	17	17
g / C, Green / Cycle	0.03	0.59	0.59	0.08	0.64	0.64	0.06	0.15	0.15	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.07	0.14	0.14	0.04	0.12	0.12	0.04	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1687	1714	1800	1724	1714	1800	1704	1714	1800	1618
c, Capacity [veh/h]	45	1055	989	136	1150	1102	96	262	248	95	261	235
d1, Uniform Delay [s]	57.86	12.09	12.11	54.43	9.08	9.09	55.82	49.84	49.93	55.99	47.95	48.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.22	0.58	0.63	11.78	0.43	0.46	11.43	6.79	7.64	13.82	2.11	2.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.26	0.26	0.83	0.22	0.22	0.76	0.83	0.84	0.80	0.59	0.61
d, Delay for Lane Group [s/veh]	72.08	12.67	12.75	66.21	9.52	9.55	67.25	56.63	57.56	69.81	50.06	50.71
Lane Group LOS	E	B	B	E	A	A	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.05	3.62	3.45	3.78	2.79	2.70	2.49	6.86	6.64	2.64	4.47	4.21
50th-Percentile Queue Length [ft/ln]	26.27	90.58	86.35	94.41	69.69	67.39	62.17	171.6	166.0	66.01	111.6	105.3
95th-Percentile Queue Length [veh/ln]	1.89	6.52	6.22	6.80	5.02	4.85	4.48	11.16	10.87	4.75	7.93	7.58
95th-Percentile Queue Length [ft/ln]	47.29	163.0	155.4	169.9	125.4	121.2	111.9	279.0	271.7	118.8	198.3	189.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.08	12.70	12.75	66.21	9.53	9.55	67.25	57.00	57.56	69.81	50.22	50.71
Movement LOS	E	B	B	E	A	A	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	15.82			20.06			58.57			54.32		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	34.70											
Intersection LOS	C											
Intersection V/C	0.384											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.535	2.548	2.470	2.622
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	417	1017	483
d_b, Bicycle Delay [s]	36.82	37.60	14.50	34.50
l_b,int, Bicycle LOS Score for Intersection	2.017	2.057	1.973	1.868
Bicycle LOS	B	B	A	A

Sequence

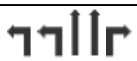
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.676

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	750	75	294	625	106	192	300	54	124	296	363
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	12	0	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	807	80	312	678	112	204	318	57	131	314	385
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	212	21	82	178	29	54	84	15	34	83	101
Total Analysis Volume [veh/h]	69	849	84	328	714	118	215	335	60	138	331	405
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	26	0	20	36	0	15	43	0	31	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	46	14	54	54	10	33	33	12	35	35
g / C, Green / Cycle	0.05	0.38	0.38	0.12	0.45	0.45	0.08	0.27	0.27	0.10	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.05	0.10	0.21	0.08	0.06	0.10	0.04	0.08	0.18	0.26
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	86	1306	583	385	1531	683	269	933	416	168	520	442
d1, Uniform Delay [s]	56.42	30.55	24.32	52.06	23.21	19.91	54.19	35.23	33.09	53.10	37.15	41.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.86	2.52	0.52	5.40	1.02	0.55	5.40	0.23	0.16	9.58	1.30	10.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.65	0.14	0.85	0.47	0.17	0.80	0.36	0.14	0.82	0.64	0.92
d, Delay for Lane Group [s/veh]	72.28	33.07	24.84	57.47	24.23	20.46	59.59	35.47	33.24	62.69	38.45	51.24
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.45	10.47	1.66	5.13	7.23	2.09	3.39	4.00	1.35	4.53	8.63	12.70
50th-Percentile Queue Length [ft/ln]	61.17	261.6	41.51	128.2	180.7	52.32	84.79	99.91	33.81	113.2	215.7	317.3
95th-Percentile Queue Length [veh/ln]	4.40	15.77	2.99	8.84	11.64	3.77	6.11	7.19	2.43	8.02	13.45	18.54
95th-Percentile Queue Length [ft/ln]	110.1	394.2	74.72	221.0	291.0	94.18	152.6	179.8	60.85	200.5	336.1	463.4

Movement, Approach, & Intersection Results

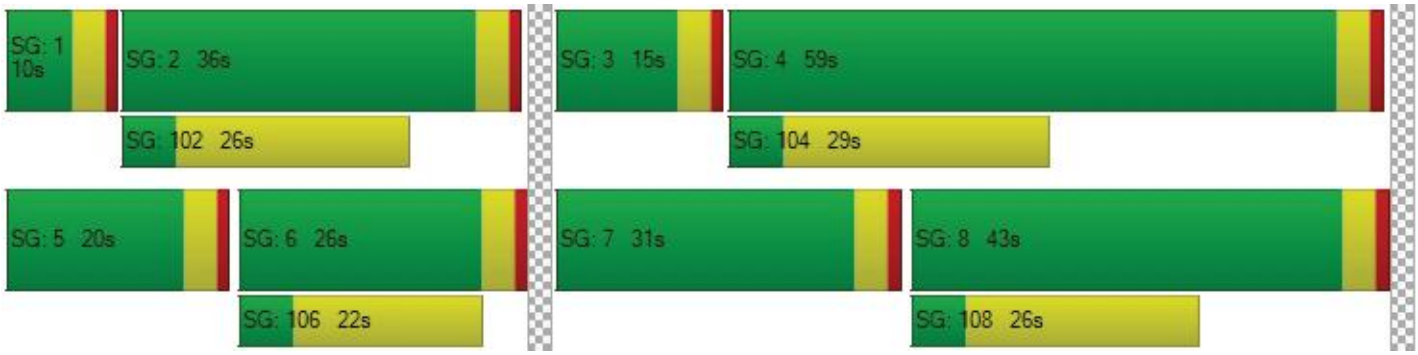
d_M, Delay for Movement [s/veh]	72.28	33.07	24.84	57.47	24.23	20.46	59.59	35.47	33.24	62.69	38.45	51.24
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	35.08			33.24			43.75			48.20		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.09											
Intersection LOS	D											
Intersection V/C	0.676											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.779	2.975	2.766	2.732
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	533	650	917
d_b, Bicycle Delay [s]	40.02	32.27	27.34	17.60
I_b,int, Bicycle LOS Score for Intersection	2.386	2.517	2.063	3.002
Bicycle LOS	B	B	B	C

Sequence

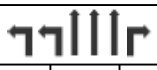
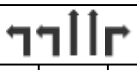
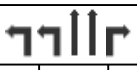
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	46.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.822

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1316	65	357	973	241	426	251	51	69	171	354
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	8	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	1403	69	378	1043	255	452	266	54	73	181	375
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	369	18	99	274	67	119	70	14	19	48	99
Total Analysis Volume [veh/h]	66	1477	73	398	1098	268	476	280	57	77	191	395
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	21	40	0	21	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	39	39	15	50	50	17	45	45	5	33	33
g / C, Green / Cycle	0.04	0.33	0.33	0.13	0.41	0.41	0.14	0.38	0.38	0.04	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.02	0.30	0.05	0.12	0.22	0.18	0.14	0.08	0.04	0.02	0.06	0.26
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	126	1595	498	416	2022	631	472	1292	577	131	942	420
d1, Uniform Delay [s]	56.67	39.09	28.68	52.18	26.69	25.11	51.50	25.35	24.18	56.69	33.42	42.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.36
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.34	10.70	0.62	12.52	1.05	2.09	21.55	0.08	0.07	4.17	0.11	24.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.93	0.15	0.96	0.54	0.42	1.01	0.22	0.10	0.59	0.20	0.94
d, Delay for Lane Group [s/veh]	60.00	49.79	29.30	64.69	27.75	27.20	73.05	25.43	24.25	60.86	33.53	67.34
Lane Group LOS	E	D	C	E	C	C	F	C	C	E	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	15.39	1.59	6.66	8.07	5.79	8.48	2.74	1.07	1.22	2.17	14.23
50th-Percentile Queue Length [ft/ln]	26.04	384.8	39.72	166.5	201.6	144.7	211.9	68.47	26.74	30.62	54.18	355.7
95th-Percentile Queue Length [veh/ln]	1.87	21.83	2.86	10.90	12.73	9.73	13.31	4.93	1.93	2.20	3.90	20.42
95th-Percentile Queue Length [ft/ln]	46.87	545.7	71.49	272.4	318.1	243.3	332.7	123.2	48.13	55.11	97.52	510.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.00	49.79	29.30	64.69	27.75	27.20	73.05	25.43	24.25	60.86	33.53	67.34
Movement LOS	E	D	C	E	C	C	F	C	C	E	C	E
d_A, Approach Delay [s/veh]	49.28			36.00			53.23			56.85		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	46.15											
Intersection LOS	D											
Intersection V/C	0.822											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.173	3.310	2.796	2.806
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	567	600	600
d_b, Bicycle Delay [s]	29.40	30.82	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.448	2.530	2.230	2.107
Bicycle LOS	B	B	B	B

Sequence

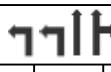
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	40.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.453

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	163	206	49	94	61	74	991	115	128	620	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	5	5	0	0	8	0	0	0	8	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	113	178	218	52	108	65	78	1050	130	136	657	49
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	47	57	14	28	17	21	276	34	36	173	13
Total Analysis Volume [veh/h]	119	187	229	55	114	68	82	1105	137	143	692	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	36	36	11	31	0	14	60	0	13	59	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	57	70	5	55	55	7	33	33	9	35	35
g / C, Green / Cycle	0.05	0.47	0.58	0.04	0.46	0.46	0.06	0.28	0.28	0.08	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.04	0.10	0.15	0.03	0.05	0.06	0.05	0.24	0.24	0.04	0.21	0.21
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1585	1714	3427	1700	3329	1800	1756
c, Capacity [veh/h]	175	852	890	70	832	732	103	950	471	250	526	513
d1, Uniform Delay [s]	55.87	18.57	12.34	57.01	18.32	18.39	55.65	41.36	41.36	53.64	38.03	38.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.63	0.59	0.70	16.98	0.27	0.34	12.79	2.70	5.28	2.07	1.84	1.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.22	0.26	0.78	0.11	0.12	0.79	0.87	0.87	0.57	0.72	0.72
d, Delay for Lane Group [s/veh]	60.50	19.16	13.04	73.99	18.59	18.73	68.45	44.05	46.64	55.71	39.87	39.92
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.88	3.20	3.15	1.98	1.55	1.48	2.82	11.97	12.23	2.16	10.13	9.90
50th-Percentile Queue Length [ft/ln]	47.10	79.98	78.70	49.61	38.68	36.91	70.41	299.3	305.6	53.99	253.3	247.3
95th-Percentile Queue Length [veh/ln]	3.39	5.76	5.67	3.57	2.78	2.66	5.07	17.65	17.96	3.89	15.35	15.05
95th-Percentile Queue Length [ft/ln]	84.77	143.9	141.6	89.29	69.62	66.45	126.7	441.2	449.0	97.19	383.8	376.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.50	19.16	13.04	73.99	18.62	18.73	68.45	44.70	46.64	55.71	39.89	39.92
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	25.74			31.50			46.37			42.44		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.32											
Intersection LOS	D											
Intersection V/C	0.453											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.619	2.424	2.826	3.018
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	450	933	917
d_b, Bicycle Delay [s]	32.27	36.04	17.07	17.60
l_b,int, Bicycle LOS Score for Intersection	2.442	1.755	2.288	2.291
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.341

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	258	0	250	0	1047	169	0	558	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	273	0	265	0	1110	179	0	591	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	72	0	70	0	292	47	0	156	0
Total Analysis Volume [veh/h]	0	0	0	287	0	279	0	1168	188	0	622	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	43	0	0	0	77	0	0	77	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		16	16	96	96
g / C, Green / Cycle		0.13	0.13	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate		0.09	0.10	0.24	0.13
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		437	355	3933	3933
d1, Uniform Delay [s]		49.57	50.50	3.08	2.69
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.69	3.86	0.19	0.09
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.66	0.79	0.30	0.16
d, Delay for Lane Group [s/veh]		51.26	54.36	3.27	2.77
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		4.20	4.25	1.95	0.91
50th-Percentile Queue Length [ft/ln]		105.05	106.26	48.80	22.64
95th-Percentile Queue Length [veh/ln]		7.56	7.63	3.51	1.63
95th-Percentile Queue Length [ft/ln]		189.10	190.79	87.83	40.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	51.26	0.00	54.36	0.00	3.27	0.00	0.00	2.77	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			52.79			3.27			2.77		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	15.04											
Intersection LOS	B											
Intersection V/C	0.341											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.425	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	1217	1217
d_b, Bicycle Delay [s]	60.00	27.34	9.20	9.20
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.202	1.902
Bicycle LOS	D	A	B	A

Sequence

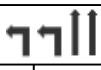
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	276	0	514	0	0	0	439	912	0	0	798	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	293	0	545	0	0	0	465	967	0	0	846	172
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	0	143	0	0	0	122	254	0	0	223	45
Total Analysis Volume [veh/h]	308	0	574	0	0	0	489	1018	0	0	891	181
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	35	0	0	0	0	58	85	0	0	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	67	67	67		21	45	21
g / C, Green / Cycle	0.56	0.56	0.56		0.17	0.38	0.17
(v / s)_i Volume / Saturation Flow Rate	0.18	0.19	0.19		0.15	0.21	0.14
s, saturation flow rate [veh/h]	1714	1533	1530		3329	4903	6538
c, Capacity [veh/h]	952	851	849		576	1854	1123
d1, Uniform Delay [s]	14.41	14.64	14.65		48.10	29.28	47.64
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.88	1.09	1.09		3.61	0.25	1.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.34	0.34		0.85	0.55	0.79
d, Delay for Lane Group [s/veh]	15.29	15.73	15.74		51.71	29.53	48.95
Lane Group LOS	B	B	B		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.60	4.52	4.52		7.37	7.70	6.48
50th-Percentile Queue Length [ft/ln]	115.0	113.0	112.9		184.26	192.42	161.94
95th-Percentile Queue Length [veh/ln]	8.12	8.01	8.01		11.82	12.25	10.65
95th-Percentile Queue Length [ft/ln]	202.9	200.1	200.1		295.57	306.17	266.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.31	15.73	15.74	0.00	0.00	0.00	51.71	29.53	0.00	0.00	48.95	0.00
Movement LOS	B	B	B				D	C			D	
d_A, Approach Delay [s/veh]	15.58			0.00			36.73			48.95		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	34.36											
Intersection LOS	C											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.361	1.968	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	0	1350	383
d_b, Bicycle Delay [s]	33.00	60.00	6.34	39.20
l_b,int, Bicycle LOS Score for Intersection	3.015	4.132	2.388	1.927
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	38.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	154	926	338	107	435	86	305	1060	81	292	590	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	42	39	0	50	0	0	0	0	63	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	163	1024	397	113	511	91	323	1124	86	373	625	65
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	43	269	104	30	134	24	85	296	23	98	164	17
Total Analysis Volume [veh/h]	172	1078	418	119	538	96	340	1183	91	393	658	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	43	0	9	40	0	28	44	0	24	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	49	49	5	46	46	15	34	34	16	35	35
g / C, Green / Cycle	0.07	0.41	0.41	0.04	0.38	0.38	0.12	0.28	0.28	0.14	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.27	0.04	0.11	0.06	0.10	0.24	0.06	0.12	0.13	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	222	1998	624	139	1876	585	412	1376	429	456	1440	449
d1, Uniform Delay [s]	55.11	27.00	28.98	57.15	25.70	24.41	51.30	40.93	33.01	50.68	34.58	31.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.71	1.05	5.66	13.90	0.39	0.60	4.22	1.69	0.24	4.96	0.23	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.54	0.67	0.86	0.29	0.16	0.82	0.86	0.21	0.86	0.46	0.15
d, Delay for Lane Group [s/veh]	60.83	28.05	34.63	71.05	26.08	25.01	55.52	42.61	33.26	55.65	34.80	31.48
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.74	7.96	10.67	2.06	3.63	1.91	5.23	11.18	2.07	6.08	5.26	1.49
50th-Percentile Queue Length [ft/ln]	68.40	198.9	266.8	51.53	90.74	47.74	130.7	279.5	51.76	152.0	131.5	37.22
95th-Percentile Queue Length [veh/ln]	4.92	12.58	16.03	3.71	6.53	3.44	8.98	16.66	3.73	10.13	9.02	2.68
95th-Percentile Queue Length [ft/ln]	123.1	314.5	400.7	92.75	163.3	85.93	224.5	416.6	93.17	253.2	225.5	66.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.83	28.05	34.63	71.05	26.08	25.01	55.52	42.61	33.26	55.65	34.80	31.48
Movement LOS	E	C	C	E	C	C	E	D	C	E	C	C
d_A, Approach Delay [s/veh]	33.08			33.05			44.80			41.92		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.67											
Intersection LOS	D											
Intersection V/C	0.668											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.156	3.107	3.318	3.258
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	600	667	600
d_b, Bicycle Delay [s]	27.34	29.40	26.67	29.40
l_b,int, Bicycle LOS Score for Intersection	2.477	1.974	2.447	2.175
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	43.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	94	250	24	131	191	90	211	979	73	65	552	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	33	0	0	54	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	100	265	25	139	202	95	224	1071	77	69	639	128
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	70	7	37	53	25	59	282	20	18	168	34
Total Analysis Volume [veh/h]	105	279	26	146	213	100	236	1127	81	73	673	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	37	0	16	40	0	37	57	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	51	51	12	54	54	19	35	35	6	23	23
g / C, Green / Cycle	0.07	0.42	0.42	0.10	0.45	0.45	0.16	0.29	0.29	0.05	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.02	0.09	0.09	0.09	0.14	0.23	0.05	0.04	0.16	0.16
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1585	1714	4903	1506	1687	3427	1652
c, Capacity [veh/h]	128	1451	648	171	794	711	267	1440	442	84	643	310
d1, Uniform Delay [s]	54.72	21.72	20.30	53.16	20.11	20.17	49.57	38.87	31.64	56.60	47.04	47.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.03	0.30	0.12	11.36	0.58	0.68	9.32	0.96	0.20	21.79	3.13	6.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.19	0.04	0.85	0.21	0.21	0.88	0.78	0.18	0.87	0.84	0.85
d, Delay for Lane Group [s/veh]	66.75	22.02	20.42	64.52	20.70	20.85	58.89	39.83	31.83	78.39	50.16	53.85
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.56	2.54	0.45	4.87	2.91	2.70	7.61	10.21	1.79	2.71	8.08	8.22
50th-Percentile Queue Length [ft/ln]	88.88	63.47	11.32	121.7	72.68	67.58	190.1	255.3	44.85	67.67	202.0	205.3
95th-Percentile Queue Length [veh/ln]	6.40	4.57	0.81	8.49	5.23	4.87	12.13	15.45	3.23	4.87	12.75	12.92
95th-Percentile Queue Length [ft/ln]	159.9	114.2	20.37	212.1	130.8	121.6	303.2	386.3	80.73	121.8	318.6	322.9

Movement, Approach, & Intersection Results

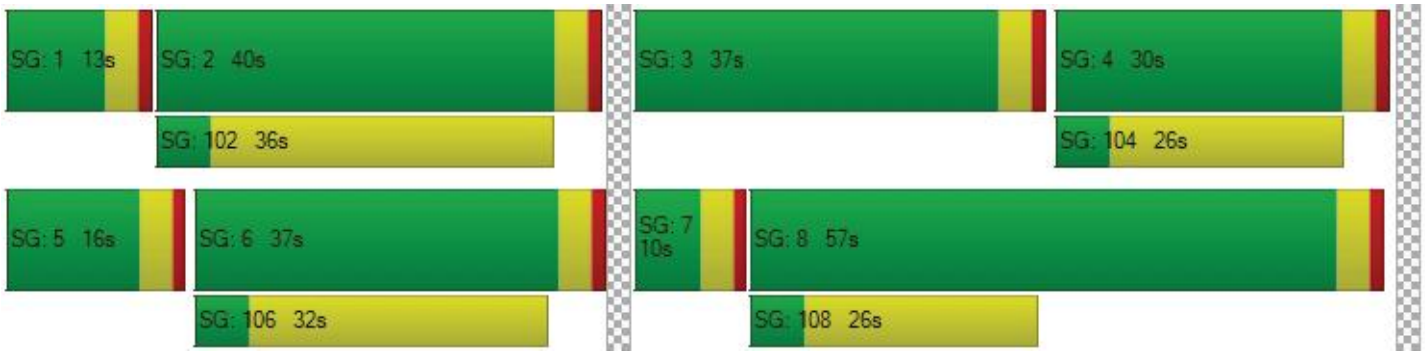
d_M, Delay for Movement [s/veh]	66.75	22.02	20.42	64.52	20.73	20.85	58.89	39.83	31.83	78.39	50.88	53.85
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	33.37			34.69			42.50			53.61		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	43.27											
Intersection LOS	D											
Intersection V/C	0.465											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.594	2.648	3.116	3.006
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	600	883	433
d_b, Bicycle Delay [s]	31.54	29.40	18.70	36.82
l_b,int, Bicycle LOS Score for Intersection	1.898	1.938	2.354	2.044
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	607	69	127	443	106	299	720	115	160	526	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	2	0	0	15	10	18	0	1	30	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	645	75	135	470	127	327	781	122	171	588	61
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	170	20	36	124	33	86	206	32	45	155	16
Total Analysis Volume [veh/h]	106	679	79	142	495	134	344	822	128	180	619	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	19	40	0	22	43	0	28	46	0	12	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	59	59	12	61	61	15	25	25	8	19	34
g / C, Green / Cycle	0.08	0.49	0.49	0.10	0.51	0.51	0.12	0.21	0.21	0.07	0.15	0.29
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.21	0.08	0.14	0.09	0.10	0.17	0.08	0.05	0.13	0.04
s, saturation flow rate [veh/h]	1714	1800	1735	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	131	879	847	171	1752	782	414	1041	325	222	759	440
d1, Uniform Delay [s]	54.54	20.02	20.02	53.03	16.76	15.71	51.32	44.73	40.63	55.25	49.07	31.78
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.09	1.59	1.66	9.94	0.40	0.48	4.38	1.38	0.78	6.95	2.22	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.44	0.44	0.83	0.28	0.17	0.83	0.79	0.39	0.81	0.82	0.15
d, Delay for Lane Group [s/veh]	65.63	21.61	21.67	62.97	17.16	16.19	55.70	46.11	41.40	62.21	51.28	31.93
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.56	7.34	7.09	4.67	3.97	2.07	5.30	7.83	3.34	2.90	6.13	1.41
50th-Percentile Queue Length [ft/ln]	88.93	183.5	177.3	116.8	99.25	51.72	132.5	195.8	83.43	72.50	153.2	35.32
95th-Percentile Queue Length [veh/ln]	6.40	11.79	11.46	8.22	7.15	3.72	9.08	12.42	6.01	5.22	10.19	2.54
95th-Percentile Queue Length [ft/ln]	160.0	294.6	286.5	205.4	178.6	93.09	226.9	310.5	150.1	130.5	254.7	63.57

Movement, Approach, & Intersection Results

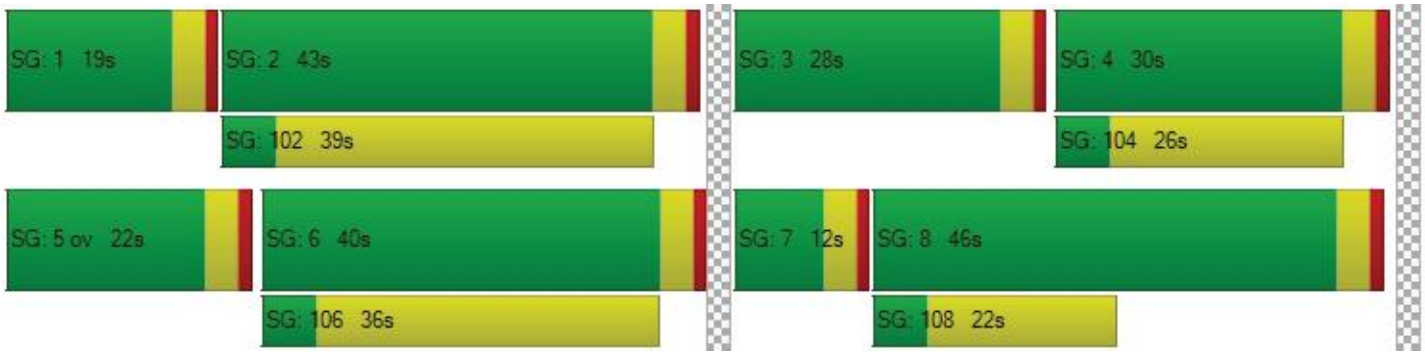
d_M, Delay for Movement [s/veh]	65.63	21.64	21.67	62.97	17.16	16.19	55.70	46.11	41.40	62.21	51.28	31.93
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	27.04			25.43			48.19			52.12		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.64											
Intersection LOS	D											
Intersection V/C	0.527											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.640	2.770	3.098	3.168
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	700	433
d_b, Bicycle Delay [s]	29.40	27.34	25.35	36.82
l_b,int, Bicycle LOS Score for Intersection	2.272	2.196	2.271	2.034
Bicycle LOS	B	B	B	B

Sequence

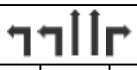
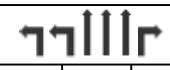
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.518

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	104	974	61	226	510	55	136	597	90	92	640	235
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	6	14	9	5	0	0	8	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	1036	65	240	547	72	153	638	95	98	686	249
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	273	17	63	144	19	40	168	25	26	181	66
Total Analysis Volume [veh/h]	116	1091	68	253	576	76	161	672	100	103	722	262
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	16	43	0	12	55	0	9	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	61	61	11	66	66	8	27	27	5	25	25
g / C, Green / Cycle	0.05	0.50	0.50	0.09	0.55	0.55	0.06	0.23	0.23	0.04	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.04	0.08	0.17	0.05	0.05	0.14	0.07	0.03	0.15	0.17
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	169	2471	771	307	1869	834	213	1122	350	139	1012	316
d1, Uniform Delay [s]	56.02	18.98	15.44	53.53	14.90	13.05	55.23	41.35	38.17	56.86	44.31	45.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.89	0.57	0.23	5.60	0.43	0.22	5.36	0.52	0.44	7.59	0.95	5.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.44	0.09	0.83	0.31	0.09	0.75	0.60	0.29	0.74	0.71	0.83
d, Delay for Lane Group [s/veh]	60.91	19.56	15.67	59.12	15.33	13.26	60.59	41.86	38.62	64.45	45.25	51.17
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.84	6.51	1.02	3.99	4.35	1.03	2.55	5.98	2.49	1.69	6.74	7.94
50th-Percentile Queue Length [ft/ln]	46.08	162.6	25.46	99.67	108.7	25.74	63.85	149.5	62.16	42.26	168.6	198.6
95th-Percentile Queue Length [veh/ln]	3.32	10.69	1.83	7.18	7.77	1.85	4.60	9.99	4.48	3.04	11.00	12.57
95th-Percentile Queue Length [ft/ln]	82.94	267.2	45.82	179.4	194.3	46.33	114.9	249.8	111.8	76.08	275.0	314.1

Movement, Approach, & Intersection Results

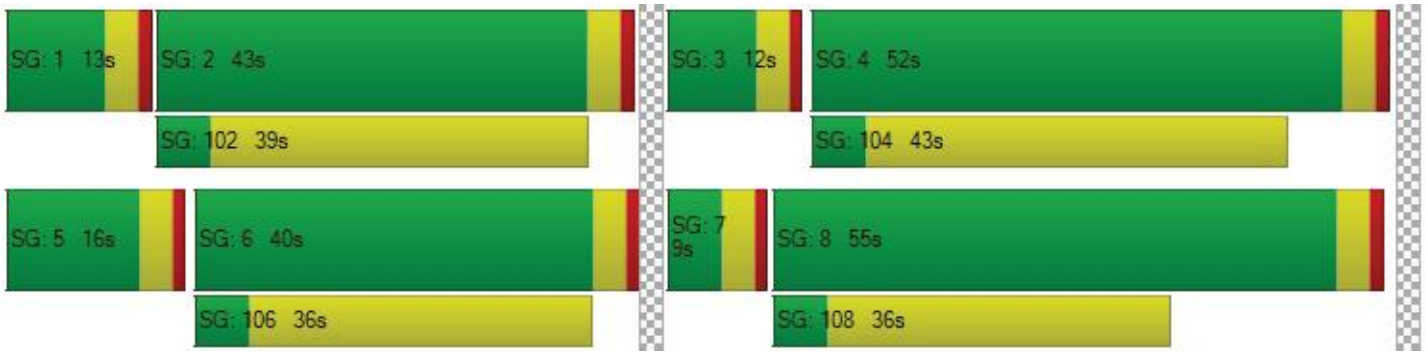
d_M, Delay for Movement [s/veh]	60.91	19.56	15.67	59.12	15.33	13.26	60.59	41.86	38.62	64.45	45.25	51.17
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.11			27.40			44.74			48.50		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.41											
Intersection LOS	D											
Intersection V/C	0.518											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.087	3.308	3.162	3.090
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	850	800
d_b, Bicycle Delay [s]	29.40	27.34	19.84	21.60
l_b,int, Bicycle LOS Score for Intersection	2.261	2.306	2.073	2.157
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	43.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.526

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	256	98	23	224	93	137	439	167	42	256	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	10	0	0	16	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	281	104	24	253	99	145	465	177	46	271	32
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	74	27	6	67	26	38	122	47	12	71	8
Total Analysis Volume [veh/h]	148	296	109	25	266	104	153	489	186	48	285	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	27	0	12	23	23	0	51	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	52	52	3	43	43	33	33	16	16
g / C, Green / Cycle	0.10	0.43	0.43	0.02	0.36	0.36	0.28	0.28	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.09	0.12	0.12	0.01	0.08	0.07	0.25	0.25	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1638	1714	3427	1530	1770	1508	1778	1583
c, Capacity [veh/h]	171	781	711	42	1227	548	493	420	231	206
d1, Uniform Delay [s]	53.19	21.77	21.82	57.97	26.80	26.52	41.77	41.79	50.96	51.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.99	0.85	0.95	13.18	0.41	0.77	7.05	8.22	7.80	9.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.27	0.27	0.60	0.22	0.19	0.91	0.91	0.84	0.84
d, Delay for Lane Group [s/veh]	65.18	22.62	22.77	71.15	27.21	27.29	48.82	50.01	58.76	60.05
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.96	3.98	3.71	0.90	2.74	2.18	13.61	11.76	6.17	5.61
50th-Percentile Queue Length [ft/ln]	124.0	99.62	92.85	22.61	68.40	54.52	340.36	293.98	154.24	140.31
95th-Percentile Queue Length [veh/ln]	8.62	7.17	6.69	1.63	4.93	3.93	19.67	17.38	10.24	9.50
95th-Percentile Queue Length [ft/ln]	215.4	179.3	167.1	40.70	123.1	98.14	491.64	434.58	256.08	237.43

Movement, Approach, & Intersection Results

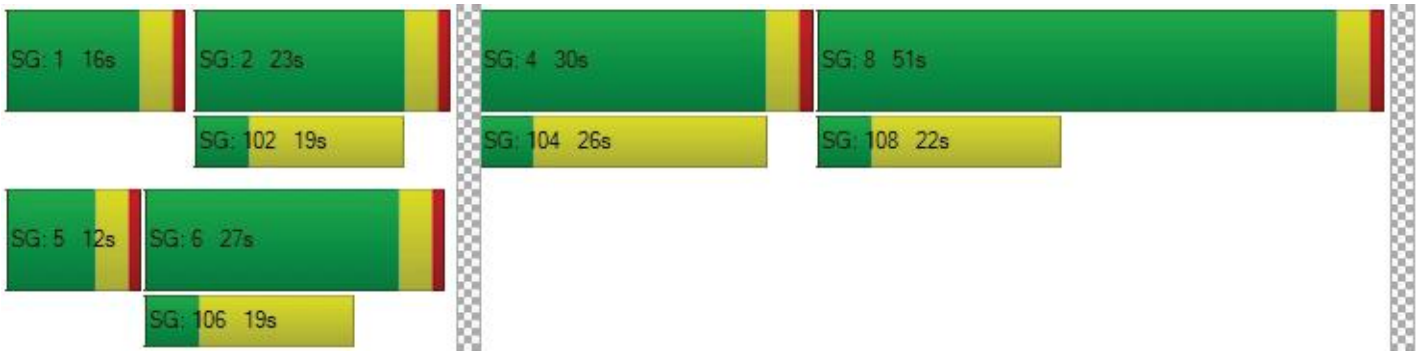
d_M, Delay for Movement [s/veh]	65.18	22.66	22.77	71.15	27.21	27.29	48.82	49.30	50.01	58.76	59.39	60.05
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	34.07			30.01			49.37			59.37		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	43.56											
Intersection LOS	D											
Intersection V/C	0.526											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.520	2.611	2.479	2.388
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	317	783	433
d_b, Bicycle Delay [s]	39.20	42.50	22.20	36.82
l_b,int, Bicycle LOS Score for Intersection	2.016	1.885	2.243	1.862
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	167	0	536	0	1898	934	0	1348	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	42	0	0	0	16	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	219	0	568	0	2028	990	0	1445	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	58	0	149	0	534	261	0	380	0
Total Analysis Volume [veh/h]	0	0	0	231	0	598	0	2135	1042	0	1521	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	29	0	0	0	91	0	0	91	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		25	25	25	87	87	87
g / C, Green / Cycle		0.21	0.21	0.21	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate		0.13	0.20	0.20	0.44	0.68	0.31
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		357	319	319	3555	1109	3555
d1, Uniform Delay [s]		43.46	46.74	46.74	8.04	14.23	6.58
k, delay calibration		0.11	0.29	0.29	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.04	25.80	25.80	0.76	15.89	0.38
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.65	0.94	0.94	0.60	0.94	0.43
d, Delay for Lane Group [s/veh]		45.51	72.54	72.54	8.80	30.12	6.96
Lane Group LOS		D	E	E	A	C	A
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		6.48	11.02	11.02	8.17	25.42	4.74
50th-Percentile Queue Length [ft/ln]		161.9	275.4	275.4	204.22	635.51	118.55
95th-Percentile Queue Length [veh/ln]		10.65	16.46	16.46	12.86	33.69	8.31
95th-Percentile Queue Length [ft/ln]		266.3	411.5	411.5	321.41	842.22	207.84

Movement, Approach, & Intersection Results

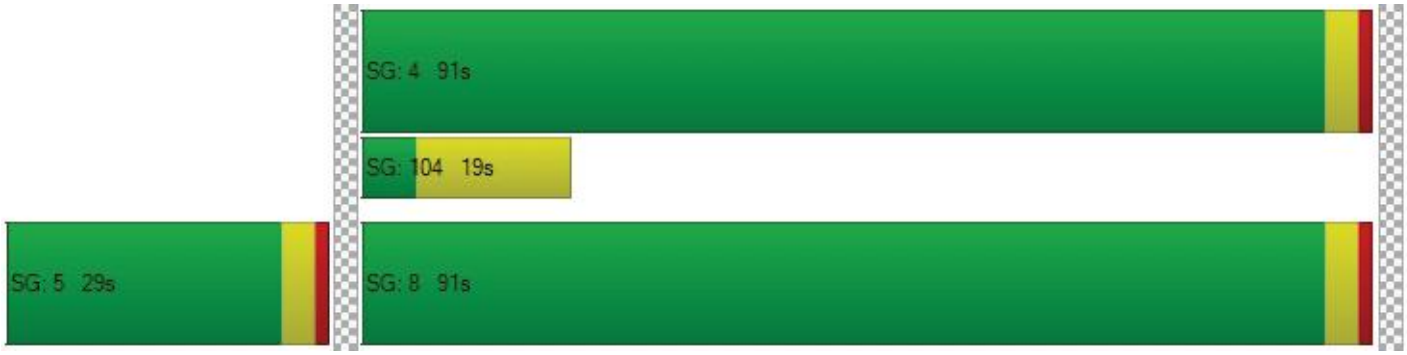
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.51	0.00	72.54	0.00	8.80	30.12	0.00	6.96	0.00
Movement LOS				D		E		A	C		A	
d_A, Approach Delay [s/veh]	0.00			65.01			15.79			6.96		
Approach LOS	A			E			B			A		
d_I, Intersection Delay [s/veh]	20.74											
Intersection LOS	C											
Intersection V/C	0.876											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.348	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	417	1450	1450
d_b, Bicycle Delay [s]	60.00	37.60	4.54	4.54
l_b,int, Bicycle LOS Score for Intersection	4.132	2.927	3.307	2.396
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	731	0	465	0	0	0	0	1092	0	0	1114	292
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	58	0	0	16	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	775	0	493	0	0	0	0	1216	0	0	1197	345
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	204	0	130	0	0	0	0	320	0	0	315	91
Total Analysis Volume [veh/h]	816	0	519	0	0	0	0	1280	0	0	1260	363
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	97	0	0	0	0	0	0	23	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39		73	73	73
g / C, Green / Cycle	0.33	0.33	0.33		0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.29		0.26	0.26	0.24
s, saturation flow rate [veh/h]	1714	1681	1530		4903	4903	1530
c, Capacity [veh/h]	562	550	501		2970	2970	927
d1, Uniform Delay [s]	36.64	36.90	38.26		12.62	12.55	12.22
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.57	2.88	5.54		0.46	0.45	1.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.81	0.89		0.43	0.42	0.39
d, Delay for Lane Group [s/veh]	39.22	39.79	43.80		13.08	12.99	13.47
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.15	12.28	13.04		6.03	5.91	5.19
50th-Percentile Queue Length [ft/ln]	303.8	306.9	326.0		150.86	147.67	129.76
95th-Percentile Queue Length [veh/ln]	17.87	18.02	18.96		10.06	9.89	8.93
95th-Percentile Queue Length [ft/ln]	446.7	450.5	474.1		251.58	247.31	223.17

Movement, Approach, & Intersection Results

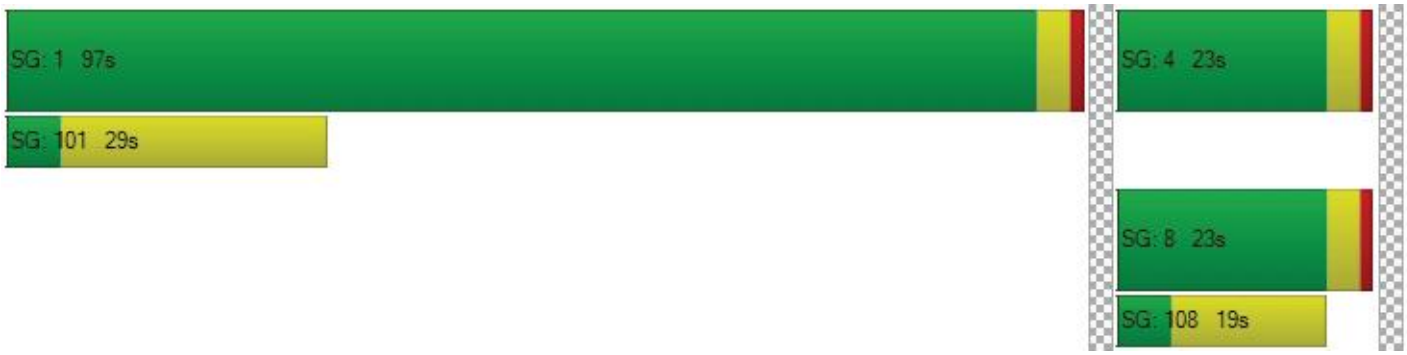
d_M, Delay for Movement [s/veh]	39.48	0.00	43.23	0.00	0.00	0.00	0.00	13.08	0.00	0.00	12.99	13.47
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	40.93			0.00			13.08			13.10		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	21.86											
Intersection LOS	C											
Intersection V/C	0.552											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.472	0.000	0.000	3.086
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1550	0	317	317
d_b, Bicycle Delay [s]	3.04	60.00	42.50	42.50
l_b,int, Bicycle LOS Score for Intersection	3.762	4.132	2.264	2.452
Bicycle LOS	D	D	B	B

Sequence

Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	260	348	189	62	209	155	236	931	176	104	748	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	51	10	0	0	17	0	0	0	58	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	327	379	200	66	239	164	250	987	245	111	793	50
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	86	100	53	17	63	43	66	260	64	29	209	13
Total Analysis Volume [veh/h]	344	399	211	69	252	173	263	1039	258	117	835	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	30	56	0	10	36	0	15	45	45	9	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	54	54	6	34	34	11	39	69	5	33	33
g / C, Green / Cycle	0.21	0.45	0.45	0.05	0.29	0.29	0.09	0.33	0.57	0.04	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.20	0.22	0.14	0.04	0.12	0.13	0.08	0.30	0.17	0.04	0.24	0.03
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1563	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	368	809	688	86	513	445	305	1116	877	139	944	422
d1, Uniform Delay [s]	46.29	23.36	21.09	56.42	35.05	35.22	53.75	39.17	13.13	57.11	41.64	32.62
k, delay calibration	0.31	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.21	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.73	2.14	1.15	15.86	2.70	3.28	7.13	4.17	0.36	12.79	2.98	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.49	0.31	0.81	0.44	0.45	0.86	0.93	0.29	0.84	0.88	0.13
d, Delay for Lane Group [s/veh]	70.02	25.51	22.25	72.28	37.75	38.50	60.88	43.34	13.49	69.90	44.62	32.76
Lane Group LOS	E	C	C	E	D	D	E	D	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.45	8.40	4.00	2.45	5.74	5.23	4.21	15.27	3.61	2.01	12.14	1.18
50th-Percentile Queue Length [ft/ln]	311.2	210.0	100.0	61.17	143.5	130.8	105.3	381.7	90.27	50.21	303.4	29.60
95th-Percentile Queue Length [veh/ln]	18.24	13.16	7.20	4.40	9.67	8.99	7.58	21.68	6.50	3.61	17.85	2.13
95th-Percentile Queue Length [ft/ln]	455.9	328.8	180.0	110.1	241.7	224.6	189.5	541.9	162.4	90.37	446.2	53.28

Movement, Approach, & Intersection Results

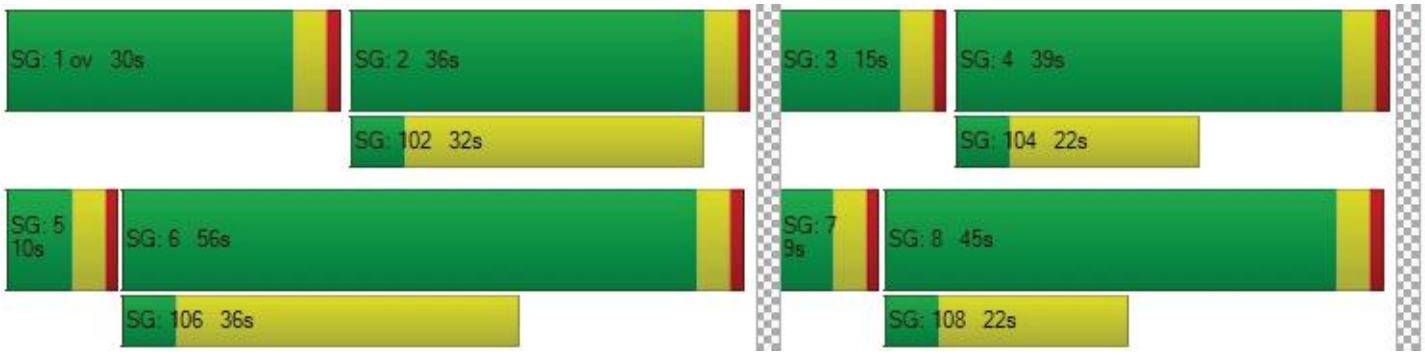
d_M, Delay for Movement [s/veh]	70.02	25.51	22.25	72.28	37.83	38.50	60.88	43.34	13.49	69.90	44.62	32.76
Movement LOS	E	C	C	E	D	D	E	D	B	E	D	C
d_A, Approach Delay [s/veh]	40.84			42.88			41.36			46.93		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.82											
Intersection LOS	D											
Intersection V/C	0.668											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.623	2.551	3.096	3.116
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	533	683	583
d_b, Bicycle Delay [s]	19.27	32.27	26.00	30.10
l_b,int, Bicycle LOS Score for Intersection	3.134	1.967	2.847	2.389
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	276	828	230	281	634	195	247	860	100	135	567	123
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	87	26	0	120	1	0	0	0	36	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	293	965	270	298	792	208	262	912	106	179	601	130
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	254	71	78	208	55	69	240	28	47	158	34
Total Analysis Volume [veh/h]	308	1016	284	314	834	219	276	960	112	188	633	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	26	40	0	26	40	40	14	42	0	12	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	22	46	46	22	46	60	10	28	28	8	26	52
g / C, Green / Cycle	0.18	0.39	0.39	0.18	0.39	0.50	0.08	0.23	0.23	0.07	0.21	0.43
(v / s)_i Volume / Saturation Flow Rate	0.18	0.21	0.19	0.18	0.17	0.14	0.08	0.20	0.07	0.06	0.13	0.09
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	314	1892	590	314	1892	769	277	1131	353	222	1050	659
d1, Uniform Delay [s]	48.78	28.54	27.78	48.99	27.26	17.32	54.97	44.15	38.31	55.39	42.55	21.36
k, delay calibration	0.24	0.50	0.50	0.25	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.91	1.10	2.79	36.00	0.75	0.93	23.92	1.87	0.51	8.62	0.56	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.54	0.48	1.00	0.44	0.28	0.99	0.85	0.32	0.85	0.60	0.21
d, Delay for Lane Group [s/veh]	79.69	29.64	30.57	84.99	28.01	18.25	78.89	46.02	38.82	64.02	43.12	21.51
Lane Group LOS	E	C	C	F	C	B	E	D	D	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.84	7.70	6.58	12.50	6.02	3.70	5.09	9.26	2.80	3.08	5.71	2.45
50th-Percentile Queue Length [ft/ln]	295.9	192.4	164.6	312.4	150.4	92.38	127.1	231.4	70.05	76.95	142.6	61.30
95th-Percentile Queue Length [veh/ln]	17.48	12.25	10.79	18.30	10.04	6.65	8.78	14.25	5.04	5.54	9.62	4.41
95th-Percentile Queue Length [ft/ln]	436.9	306.1	269.8	457.4	250.9	166.2	219.6	356.2	126.1	138.5	240.6	110.3

Movement, Approach, & Intersection Results

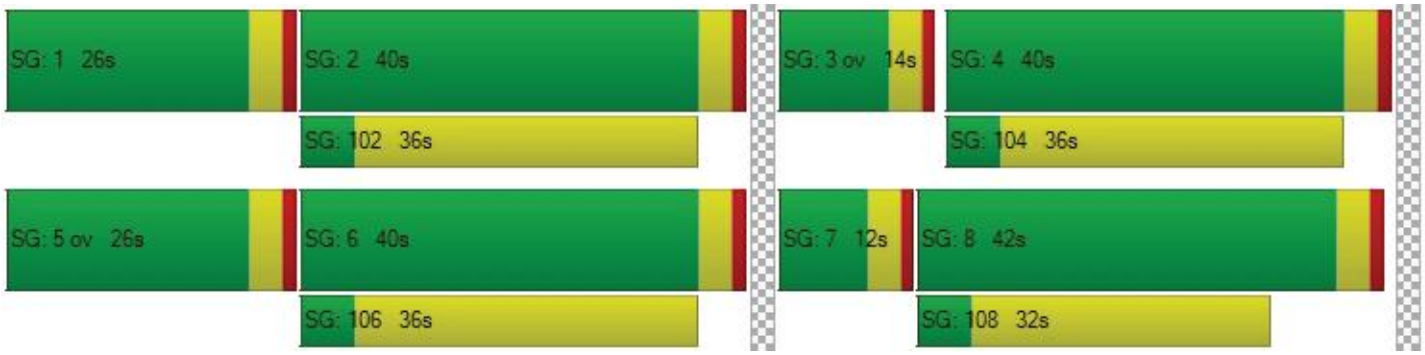
d_M, Delay for Movement [s/veh]	79.69	29.64	30.57	84.99	28.01	18.25	78.89	46.02	38.82	64.02	43.12	21.51
Movement LOS	E	C	C	F	C	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	39.39			39.54			52.16			44.13		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.55											
Intersection LOS	D											
Intersection V/C	0.643											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.075	3.167	3.136	3.137
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	633	600
d_b, Bicycle Delay [s]	29.40	29.40	28.02	29.40
l_b,int, Bicycle LOS Score for Intersection	2.444	2.311	2.301	2.087
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	1,539.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.418

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	60	0	118	0	0	0	0	1326	54	104	760	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	1	0	0	0	0	26	0	1	36	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	0	126	0	0	0	0	1432	57	111	842	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	0	33	0	0	0	0	377	15	29	222	0
Total Analysis Volume [veh/h]	67	0	133	0	0	0	0	1507	60	117	886	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	3.42	0.00	0.39	0.00	0.00	0.00	0.00	0.02	0.00	0.27	0.01	0.00
d_M, Delay for Movement [s/veh]	1539.	1570.	1366.	171.1	229.2	11.34	9.66	0.00	0.00	16.59	0.00	0.00
Movement LOS	F	F	F	F	F	B	A	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	21.87	21.87	21.87	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.00
95th-Percentile Queue Length [ft/ln]	546.6	546.6	546.6	0.00	0.00	0.00	0.00	0.00	0.00	27.54	0.00	0.00
d_A, Approach Delay [s/veh]	1424.43			137.23			0.00			1.93		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	103.55											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	51.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.792

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	673	87	131	551	71	256	837	177	287	553	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	1	0	0	21	0	0	28	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	717	92	139	585	75	271	908	188	304	614	126
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	38	189	24	37	154	20	71	239	49	80	162	33
Total Analysis Volume [veh/h]	154	755	97	146	616	79	285	956	198	320	646	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	37	0	15	36	0	26	40	0	28	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	34	34	11	33	33	22	35	35	24	38	38
g / C, Green / Cycle	0.10	0.28	0.28	0.09	0.27	0.27	0.18	0.29	0.29	0.20	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.09	0.24	0.24	0.09	0.20	0.20	0.17	0.28	0.13	0.19	0.19	0.09
s, saturation flow rate [veh/h]	1714	1800	1729	1714	1800	1729	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	171	503	484	157	488	469	310	1012	452	343	1078	481
d1, Uniform Delay [s]	53.40	41.04	41.04	54.11	39.66	39.67	48.29	41.32	34.22	47.21	34.75	30.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.20	0.11	0.11	0.26	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.08	17.55	18.14	19.95	9.07	9.44	18.08	5.38	0.67	22.32	0.54	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.86	0.86	0.93	0.73	0.73	0.92	0.94	0.44	0.93	0.60	0.28
d, Delay for Lane Group [s/veh]	68.47	58.59	59.18	74.06	48.74	49.11	66.36	46.70	34.89	69.53	35.29	31.19
Lane Group LOS	E	E	E	E	D	D	E	D	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.31	14.55	14.05	5.24	10.67	10.30	9.91	14.43	4.77	11.48	8.03	2.95
50th-Percentile Queue Length [ft/ln]	132.6	363.6	351.3	131.0	266.6	257.5	247.7	360.6	119.3	287.0	200.7	73.77
95th-Percentile Queue Length [veh/ln]	9.08	20.80	20.20	9.00	16.02	15.57	15.07	20.66	8.36	17.04	12.68	5.31
95th-Percentile Queue Length [ft/ln]	227.0	520.0	505.0	224.9	400.5	389.2	376.7	516.4	208.9	426.0	316.9	132.7

Movement, Approach, & Intersection Results

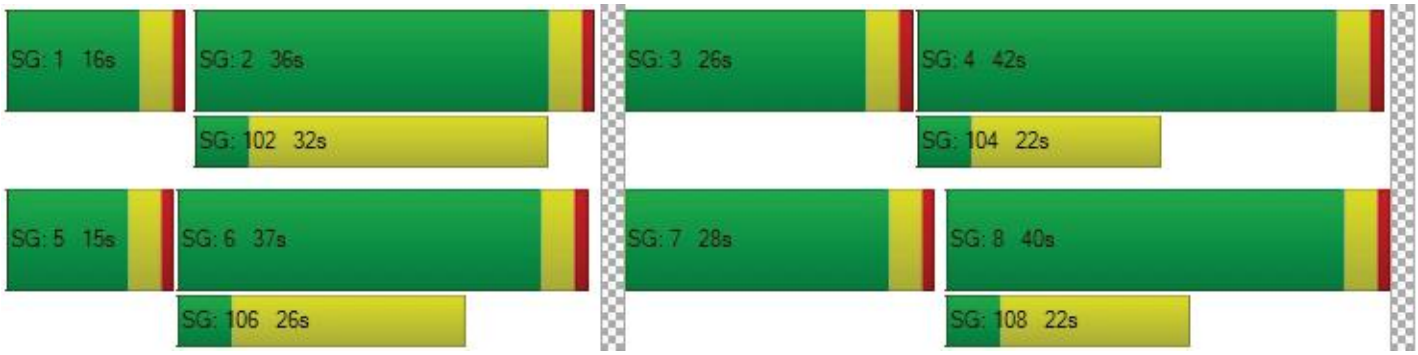
d_M, Delay for Movement [s/veh]	68.47	58.84	59.18	74.06	48.90	49.11	66.36	46.70	34.89	69.53	35.29	31.19
Movement LOS	E	E	E	E	D	D	E	D	C	E	D	C
d_A, Approach Delay [s/veh]	60.35			53.29			48.97			44.76		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	51.36											
Intersection LOS	D											
Intersection V/C	0.792											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.732	2.708	2.845	2.842
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	533	600	633
d_b, Bicycle Delay [s]	31.54	32.27	29.40	28.02
l_b,int, Bicycle LOS Score for Intersection	2.390	2.253	2.747	2.466
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	798	135	153	488	119	200	689	134	200	501	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	7	3	0	10	5	3	13	0	1	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	853	146	162	527	131	215	743	142	213	546	172
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	224	38	43	139	34	57	196	37	56	144	45
Total Analysis Volume [veh/h]	115	898	154	171	555	138	226	782	149	224	575	181
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	39	0	18	33	0	27	41	0	22	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	42	42	14	46	46	18	30	30	17	30	30
g / C, Green / Cycle	0.08	0.35	0.35	0.11	0.39	0.39	0.15	0.25	0.25	0.15	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.07	0.26	0.10	0.10	0.16	0.09	0.13	0.23	0.10	0.13	0.17	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	142	1211	540	196	1319	589	254	869	388	249	859	384
d1, Uniform Delay [s]	54.09	34.01	27.91	52.26	27.10	24.96	50.14	43.31	37.03	50.41	40.48	38.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.35	4.13	1.32	11.23	0.99	0.93	10.19	3.71	0.62	11.15	0.91	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.74	0.28	0.87	0.42	0.23	0.89	0.90	0.38	0.90	0.67	0.47
d, Delay for Lane Group [s/veh]	64.45	38.14	29.23	63.49	28.08	25.89	60.33	47.02	37.66	61.56	41.39	39.11
Lane Group LOS	E	D	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.82	12.05	3.40	5.67	6.01	2.82	7.36	11.59	3.70	7.37	7.74	4.63
50th-Percentile Queue Length [ft/ln]	95.59	301.3	84.89	141.7	150.2	70.57	184.0	289.7	92.46	184.2	193.5	115.7
95th-Percentile Queue Length [veh/ln]	6.88	17.75	6.11	9.58	10.03	5.08	11.81	17.18	6.66	11.82	12.30	8.16
95th-Percentile Queue Length [ft/ln]	172.0	443.7	152.8	239.4	250.7	127.0	295.2	429.3	166.4	295.5	307.5	204.0

Movement, Approach, & Intersection Results

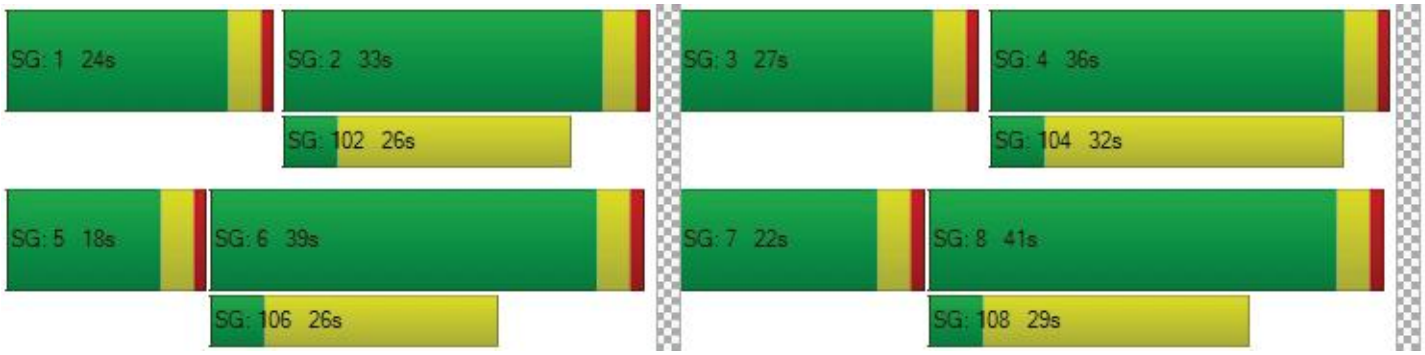
d_M, Delay for Movement [s/veh]	64.45	38.14	29.23	63.49	28.08	25.89	60.33	47.02	37.66	61.56	41.39	39.11
Movement LOS	E	D	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	39.56			34.74			48.41			45.58		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	42.43											
Intersection LOS	D											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.901	3.005	2.791	2.807
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	483	617	533
d_b, Bicycle Delay [s]	30.10	34.50	28.70	32.27
l_b,int, Bicycle LOS Score for Intersection	2.522	2.272	2.514	2.368
Bicycle LOS	B	B	B	B

Sequence

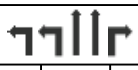
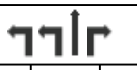
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	163	520	116	127	235	114	349	622	387	100	360	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	15	61	0	0	76	0	0	0	24	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	612	123	135	325	121	370	659	434	106	382	153
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	161	32	36	86	32	97	173	114	28	101	40
Total Analysis Volume [veh/h]	198	644	129	142	342	127	389	694	457	112	402	161
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	15	30	30	15	30	30	21	66	66	9	54	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	39	48	11	39	59	16	49	64	5	38	38
g / C, Green / Cycle	0.09	0.32	0.40	0.09	0.32	0.49	0.13	0.41	0.54	0.04	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.08	0.08	0.10	0.08	0.12	0.39	0.30	0.03	0.16	0.17
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1628
c, Capacity [veh/h]	305	1099	606	157	1099	747	446	743	822	139	576	521
d1, Uniform Delay [s]	52.63	34.08	23.92	53.98	30.75	17.14	50.94	33.70	18.30	57.02	33.16	33.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.28	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.32	2.29	0.80	16.74	0.74	0.49	5.39	13.44	2.70	10.49	0.70	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.59	0.21	0.90	0.31	0.17	0.87	0.93	0.56	0.81	0.51	0.52
d, Delay for Lane Group [s/veh]	54.95	36.37	24.72	70.72	31.49	17.63	56.33	47.14	21.00	67.51	33.86	34.01
Lane Group LOS	D	D	C	E	C	B	E	D	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.98	8.17	2.56	4.97	3.86	2.06	6.06	21.66	8.80	1.89	7.08	6.48
50th-Percentile Queue Length [ft/ln]	74.55	204.3	64.07	124.3	96.53	51.61	151.4	541.4	219.9	47.15	176.9	162.0
95th-Percentile Queue Length [veh/ln]	5.37	12.86	4.61	8.63	6.95	3.72	10.10	29.29	13.66	3.39	11.44	10.66
95th-Percentile Queue Length [ft/ln]	134.1	321.5	115.3	215.7	173.7	92.89	252.3	732.2	341.5	84.87	285.9	266.3

Movement, Approach, & Intersection Results

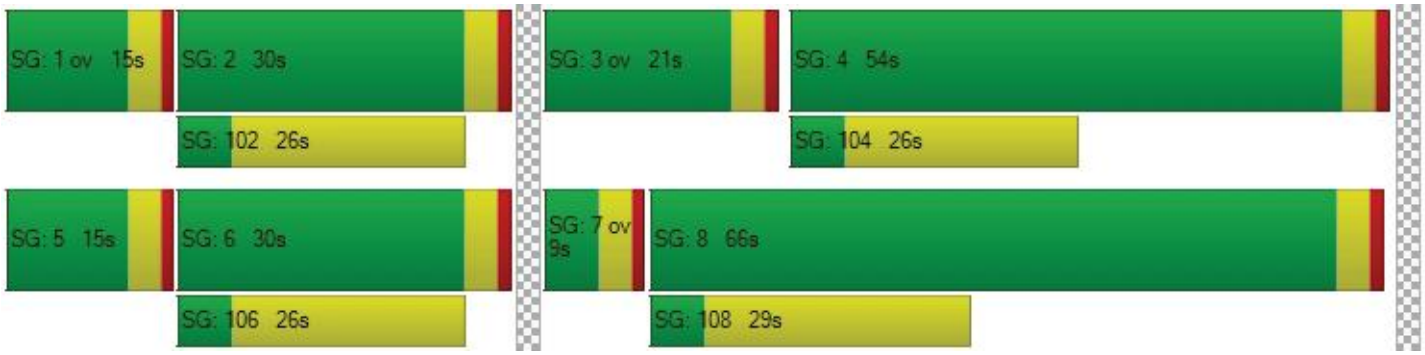
d_M, Delay for Movement [s/veh]	54.95	36.37	24.72	70.72	31.49	17.63	56.33	47.14	21.00	67.51	33.90	34.01
Movement LOS	D	D	C	E	C	B	E	D	C	E	C	C
d_A, Approach Delay [s/veh]	38.61			37.72			41.71			39.50		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	39.88											
Intersection LOS	D											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.871	2.761	2.925	2.735
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1033	833
d_b, Bicycle Delay [s]	36.82	36.82	14.02	20.42
l_b,int, Bicycle LOS Score for Intersection	2.361	2.064	4.101	2.116
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	53.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.825

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	1069	219	69	777	93	84	606	98	116	542	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	113	18	0	156	0	0	0	0	30	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	1246	250	73	980	99	89	642	104	153	575	63
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	38	328	66	19	258	26	23	169	27	40	151	17
Total Analysis Volume [veh/h]	154	1312	263	77	1032	104	94	676	109	161	605	66
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	43	0	10	37	0	21	51	0	16	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	40	40	6	34	34	8	46	46	12	50	50
g / C, Green / Cycle	0.10	0.33	0.33	0.05	0.28	0.28	0.07	0.39	0.39	0.10	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.09	0.31	0.31	0.04	0.22	0.22	0.05	0.38	0.07	0.09	0.34	0.04
s, saturation flow rate [veh/h]	1714	3427	1651	1714	3427	1717	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	171	1129	544	86	958	480	119	697	592	171	752	640
d1, Uniform Delay [s]	53.40	39.09	39.14	56.70	39.98	39.99	55.00	36.08	24.26	53.64	30.61	21.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.44	0.11	0.11	0.32	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.08	15.85	26.84	25.68	6.61	12.53	11.18	25.33	0.15	20.17	5.84	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.94	0.94	0.90	0.79	0.79	0.79	0.97	0.18	0.94	0.80	0.10
d, Delay for Lane Group [s/veh]	68.47	54.95	65.98	82.38	46.58	52.52	66.17	61.41	24.41	73.80	36.45	21.31
Lane Group LOS	E	D	E	F	D	D	E	E	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.31	17.47	18.54	2.93	11.14	11.97	3.17	23.89	2.08	5.78	16.26	1.15
50th-Percentile Queue Length [ft/ln]	132.6	436.6	463.5	73.30	278.4	299.1	79.21	597.3	52.08	144.4	406.4	28.76
95th-Percentile Queue Length [veh/ln]	9.08	24.32	25.61	5.28	16.61	17.64	5.70	31.91	3.75	9.72	22.87	2.07
95th-Percentile Queue Length [ft/ln]	227.0	607.9	640.1	131.9	415.2	440.9	142.5	797.7	93.74	243.0	571.7	51.78

Movement, Approach, & Intersection Results

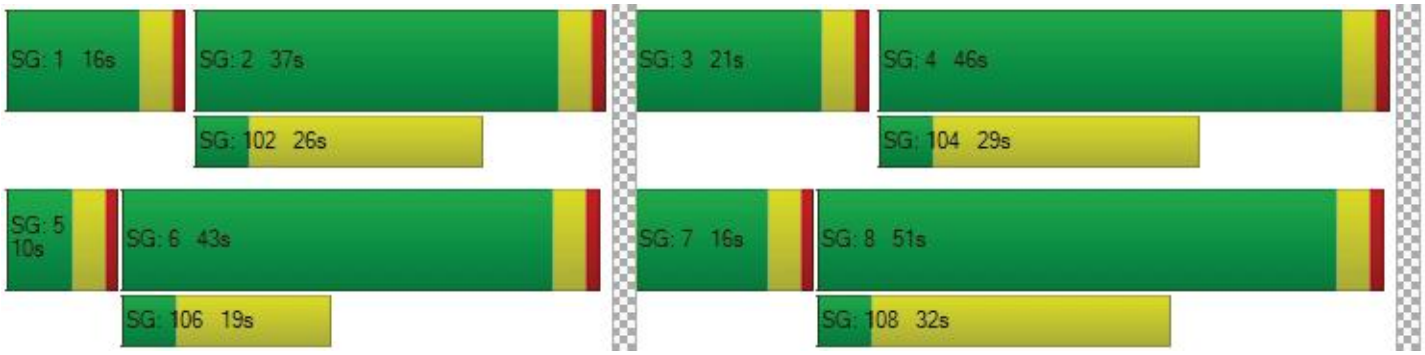
d_M, Delay for Movement [s/veh]	68.47	57.05	65.98	82.38	48.17	52.52	66.17	61.41	24.41	73.80	36.45	21.31
Movement LOS	E	E	E	F	D	D	E	E	C	E	D	C
d_A, Approach Delay [s/veh]	59.43			50.71			57.33			42.48		
Approach LOS	E			D			E			D		
d_I, Intersection Delay [s/veh]	53.73											
Intersection LOS	D											
Intersection V/C	0.825											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.110	2.983	2.751	2.597
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	550	783	700
d_b, Bicycle Delay [s]	27.34	31.54	22.20	25.35
l_b,int, Bicycle LOS Score for Intersection	2.511	2.227	3.010	2.932
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	96	151	218	18	141	22	31	636	65	90	429	27
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	1	2	0	1	0	0	18	0	3	30	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	161	233	19	150	23	33	692	69	98	485	29
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	42	61	5	39	6	9	182	18	26	128	8
Total Analysis Volume [veh/h]	107	169	245	20	158	24	35	728	73	103	511	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	84	0	0	84	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	51	51	51	51	51	51	61	61	61	61	61	61
g / C, Green / Cycle	0.42	0.42	0.42	0.42	0.42	0.42	0.51	0.51	0.51	0.51	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.16	0.02	0.09	0.02	0.04	0.40	0.05	0.15	0.28	0.02
s, saturation flow rate [veh/h]	1221	1800	1530	988	1800	1530	878	1800	1530	690	1800	1530
c, Capacity [veh/h]	478	761	647	394	761	647	334	919	781	183	919	781
d1, Uniform Delay [s]	28.44	22.06	23.80	26.84	21.91	20.31	29.56	24.14	15.10	47.69	20.07	14.67
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.18	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	0.67	1.69	0.24	0.62	0.11	0.14	2.62	0.05	2.72	0.53	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.22	0.38	0.05	0.21	0.04	0.10	0.79	0.09	0.56	0.56	0.04
d, Delay for Lane Group [s/veh]	29.52	22.73	25.49	27.08	22.53	20.41	29.70	26.75	15.15	50.41	20.60	14.69
Lane Group LOS	C	C	C	C	C	C	C	C	B	D	C	B
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.38	3.19	5.07	0.42	2.96	0.42	0.74	17.09	1.04	3.11	9.72	0.43
50th-Percentile Queue Length [ft/ln]	59.39	79.80	126.8	10.46	74.07	10.45	18.59	427.3	26.03	77.70	243.0	10.74
95th-Percentile Queue Length [veh/ln]	4.28	5.75	8.77	0.75	5.33	0.75	1.34	23.87	1.87	5.59	14.84	0.77
95th-Percentile Queue Length [ft/ln]	106.9	143.6	219.1	18.82	133.3	18.81	33.46	596.8	46.85	139.8	370.9	19.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.52	22.73	25.49	27.08	22.53	20.41	29.70	26.75	15.15	50.41	20.60	14.69
Movement LOS	C	C	C	C	C	C	C	C	B	D	C	B
d_A, Approach Delay [s/veh]	25.42			22.73			25.86			25.08		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.24											
Intersection LOS	C											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.501	2.303	2.659	2.663
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	1333	1333
d_b, Bicycle Delay [s]	32.27	32.27	6.67	6.67
l_b,int, Bicycle LOS Score for Intersection	2.419	1.893	2.939	2.624
Bicycle LOS	B	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	175	861	169	138	729	67	78	565	168	144	309	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	2	0	1	0	0	10	0	3	17	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	917	181	146	774	71	83	609	178	156	345	98
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	241	48	38	204	19	22	160	47	41	91	26
Total Analysis Volume [veh/h]	196	965	191	154	815	75	87	641	187	164	363	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	28	50	0	17	39	0	12	36	0	17	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	53	53	13	50	50	8	25	25	13	31	31
g / C, Green / Cycle	0.13	0.44	0.44	0.10	0.42	0.42	0.06	0.21	0.21	0.11	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.33	0.33	0.09	0.25	0.25	0.05	0.19	0.12	0.10	0.20	0.07
s, saturation flow rate [veh/h]	1714	1800	1698	1714	1800	1747	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	225	796	751	179	748	726	108	724	323	186	462	393
d1, Uniform Delay [s]	51.11	27.80	27.92	52.86	27.36	27.36	55.48	45.90	42.51	52.75	41.54	35.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.20	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.89	6.23	6.78	11.24	3.59	3.70	12.86	3.84	1.63	12.73	5.35	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.74	0.75	0.86	0.60	0.60	0.80	0.88	0.58	0.88	0.79	0.26
d, Delay for Lane Group [s/veh]	61.00	34.03	34.71	64.09	30.95	31.06	68.34	49.75	44.15	65.48	46.89	35.91
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.39	15.23	14.66	5.12	10.74	10.45	2.98	9.61	5.13	5.52	10.64	2.46
50th-Percentile Queue Length [ft/ln]	159.7	380.8	366.5	128.0	268.5	261.3	74.61	240.3	128.3	138.1	266.1	61.42
95th-Percentile Queue Length [veh/ln]	10.54	21.64	20.94	8.83	16.12	15.75	5.37	14.70	8.85	9.38	16.00	4.42
95th-Percentile Queue Length [ft/ln]	263.3	540.8	523.5	220.8	402.9	393.8	134.3	367.5	221.2	234.4	399.8	110.5

Movement, Approach, & Intersection Results

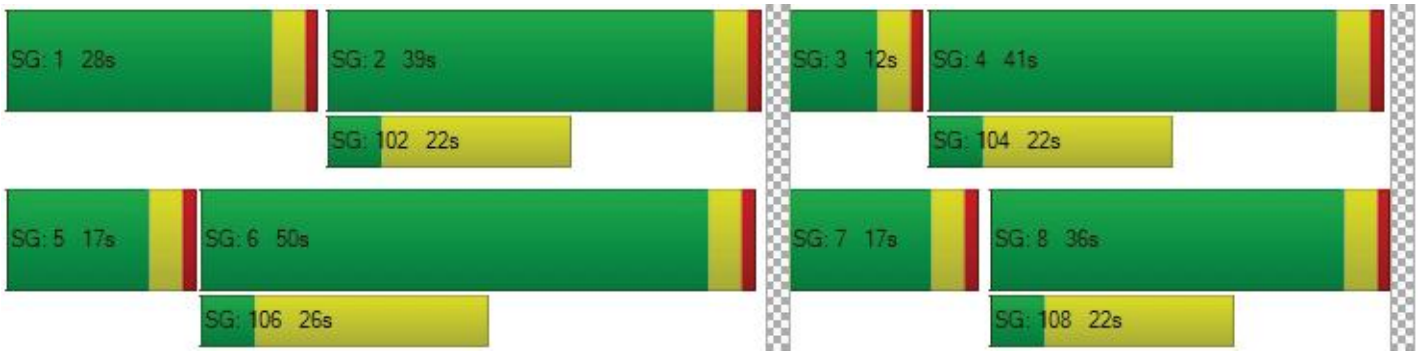
d_M, Delay for Movement [s/veh]	61.00	34.29	34.71	64.09	31.00	31.06	68.34	49.75	44.15	65.48	46.89	35.91
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	38.22			35.88			50.37			49.94		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.30											
Intersection LOS	D											
Intersection V/C	0.704											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.806	2.744	2.617	2.731
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	583	533	617
d_b, Bicycle Delay [s]	22.82	30.10	32.27	28.70
l_b,int, Bicycle LOS Score for Intersection	2.675	2.421	2.314	2.599
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	85	770	56	108	507	77	101	475	89	64	311	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	10	2	0	11	0	0	3	0	3	5	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	826	61	114	548	82	107	507	94	71	335	56
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	217	16	30	144	22	28	133	25	19	88	15
Total Analysis Volume [veh/h]	95	869	64	120	577	86	113	534	99	75	353	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	42	0	15	37	0	32	52	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	63	63	10	64	64	10	25	25	7	21	21
g / C, Green / Cycle	0.07	0.52	0.52	0.08	0.54	0.54	0.08	0.21	0.21	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.26	0.07	0.19	0.19	0.07	0.18	0.18	0.04	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1757	1714	1800	1720	1714	1800	1703	1714	1800	1712
c, Capacity [veh/h]	119	940	917	144	966	923	142	370	350	94	320	304
d1, Uniform Delay [s]	54.98	18.59	18.59	54.10	15.88	15.88	54.04	46.22	46.25	56.03	45.93	46.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.26	1.92	1.97	11.50	1.00	1.05	9.71	6.75	7.24	13.90	2.29	2.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.50	0.50	0.83	0.35	0.35	0.80	0.88	0.88	0.80	0.66	0.66
d, Delay for Lane Group [s/veh]	66.24	20.50	20.55	65.61	16.88	16.94	63.75	52.97	53.49	69.93	48.21	48.49
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.20	8.84	8.64	4.03	5.50	5.28	3.74	10.05	9.59	2.61	6.03	5.83
50th-Percentile Queue Length [ft/ln]	80.09	221.0	216.0	100.7	137.5	131.9	93.39	251.2	239.7	65.22	150.7	145.6
95th-Percentile Queue Length [veh/ln]	5.77	13.72	13.47	7.25	9.35	9.05	6.72	15.25	14.67	4.70	10.05	9.79
95th-Percentile Queue Length [ft/ln]	144.1	342.9	336.6	181.2	233.7	226.1	168.1	381.2	366.7	117.3	251.3	244.6

Movement, Approach, & Intersection Results

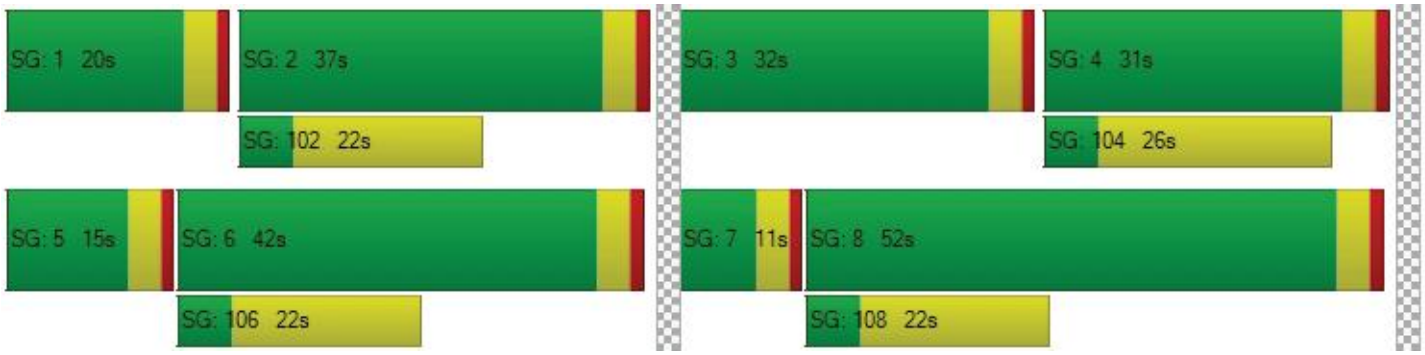
d_M, Delay for Movement [s/veh]	66.24	20.53	20.55	65.61	16.90	16.94	63.75	53.17	53.49	69.93	48.33	48.49
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.75			24.37			54.82			51.67		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.33											
Intersection LOS	D											
Intersection V/C	0.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.662	2.765	2.565	2.550
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	550	800	450
d_b, Bicycle Delay [s]	28.02	31.54	21.60	36.04
l_b,int, Bicycle LOS Score for Intersection	2.408	2.206	2.175	1.961
Bicycle LOS	B	B	B	A

Sequence

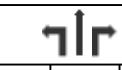
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.755

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	664	283	196	515	0	0	0	0	201	0	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	76	0	0	100	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	780	300	208	646	0	0	0	0	213	0	93
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	205	79	55	170	0	0	0	0	56	0	24
Total Analysis Volume [veh/h]	0	821	316	219	680	0	0	0	0	224	0	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	30	46	0	48	64	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	68	68	18	86	86	22	22	22	22
g / C, Green / Cycle	0.00	0.57	0.57	0.15	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.46	0.21	0.13	0.38	0.00	0.00	0.00	0.17	0.06
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1638	1530	1309	1530
c, Capacity [veh/h]	1	1027	873	250	1288	1095	330	281	300	281
d1, Uniform Delay [s]	0.00	20.33	13.94	50.17	7.79	0.00	0.00	0.00	49.34	42.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.22	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	6.51	1.16	9.33	1.55	0.00	0.00	0.00	7.29	0.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.80	0.36	0.88	0.53	0.00	0.00	0.00	0.75	0.35
d, Delay for Lane Group [s/veh]	0.00	26.84	15.10	59.50	9.34	0.00	0.00	0.00	56.63	43.50
Lane Group LOS	A	C	B	E	A	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	19.10	4.83	7.07	7.74	0.00	0.00	0.00	7.21	2.61
50th-Percentile Queue Length [ft/ln]	0.00	477.4	120.7	176.8	193.4	0.00	0.00	0.00	180.27	65.16
95th-Percentile Queue Length [veh/ln]	0.00	26.27	8.44	11.43	12.30	0.00	0.00	0.00	11.61	4.69
95th-Percentile Queue Length [ft/ln]	0.00	656.6	210.9	285.8	307.5	0.00	0.00	0.00	290.36	117.28

Movement, Approach, & Intersection Results

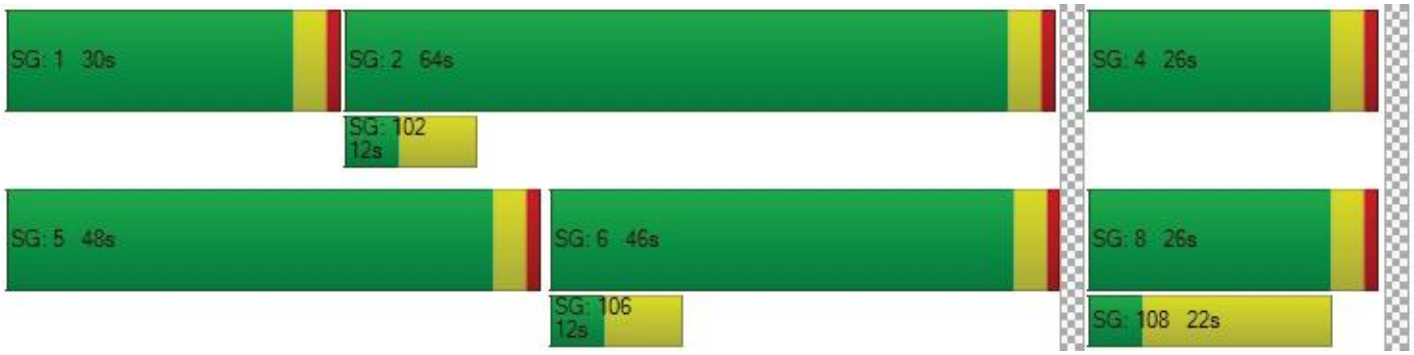
d_M, Delay for Movement [s/veh]	0.00	26.84	15.10	59.50	9.34	0.00	0.00	0.00	0.00	56.63	56.63	43.50
Movement LOS	A	C	B	E	A	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	23.58			21.56			0.00			52.63		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.78											
Intersection LOS	C											
Intersection V/C	0.755											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.032	0.000	1.955	2.234
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	1000	367	367
d_b, Bicycle Delay [s]	25.35	15.00	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	3.436	3.043	1.560	2.091
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	46.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.828

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	1366	112	38	688	56	87	141	294	122	67	73
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	131	0	0	186	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	152	1579	119	40	915	59	92	149	312	131	71	77
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	40	416	31	11	241	16	24	39	82	34	19	20
Total Analysis Volume [veh/h]	160	1662	125	42	963	62	97	157	328	138	75	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	37	65	0	10	38	0	12	31	0	14	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	63	63	4	54	54	8	27	27	10	29
g / C, Green / Cycle	0.11	0.53	0.53	0.03	0.45	0.45	0.07	0.23	0.23	0.08	0.24
(v / s)_i Volume / Saturation Flow Rate	0.09	0.50	0.51	0.02	0.28	0.04	0.06	0.09	0.21	0.08	0.09
s, saturation flow rate [veh/h]	1714	1800	1757	1714	3427	1530	1714	1800	1530	1714	1649
c, Capacity [veh/h]	191	948	925	54	1531	683	114	405	344	143	398
d1, Uniform Delay [s]	52.22	26.69	27.36	57.67	25.55	19.15	55.40	39.48	45.87	54.83	38.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.35	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.19	18.26	22.39	20.36	1.97	0.26	15.55	0.61	30.19	27.59	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.94	0.97	0.77	0.63	0.09	0.85	0.39	0.95	0.97	0.39
d, Delay for Lane Group [s/veh]	61.41	44.95	49.75	78.03	27.52	19.41	70.95	40.09	76.06	82.42	38.74
Lane Group LOS	E	D	D	E	C	B	E	D	E	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.21	27.68	29.19	1.57	10.82	1.05	3.40	4.02	12.47	5.25	3.93
50th-Percentile Queue Length [ft/ln]	130.2	691.8	729.7	39.32	270.5	26.34	84.89	100.3	311.7	131.20	98.19
95th-Percentile Queue Length [veh/ln]	8.95	36.30	38.05	2.83	16.22	1.90	6.11	7.23	18.26	9.00	7.07
95th-Percentile Queue Length [ft/ln]	223.8	907.5	951.3	70.78	405.4	47.42	152.8	180.7	456.4	225.12	176.75

Movement, Approach, & Intersection Results

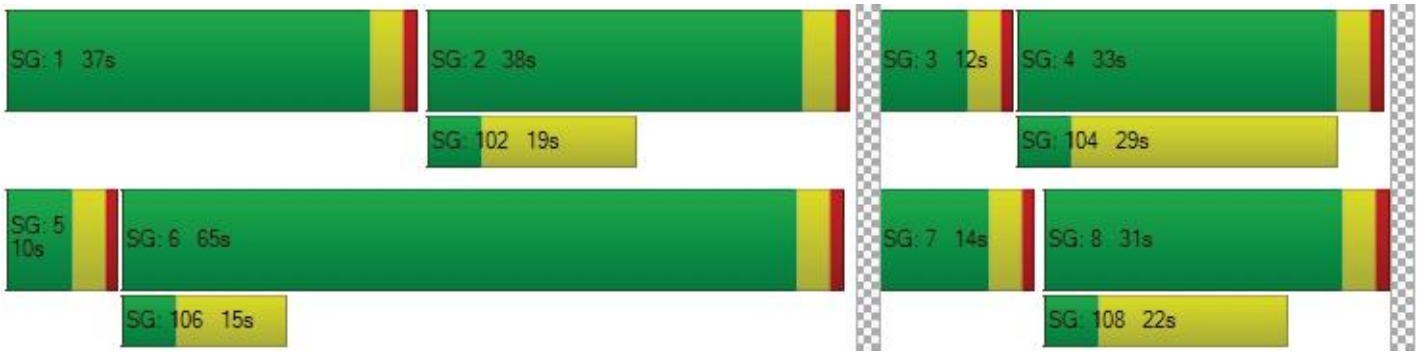
d_M, Delay for Movement [s/veh]	61.41	47.17	49.75	78.03	27.52	19.41	70.95	40.09	76.06	82.42	38.74	38.74
Movement LOS	E	D	D	E	C	B	E	D	E	F	D	D
d_A, Approach Delay [s/veh]	48.50			29.04			65.50			59.24		
Approach LOS	D			C			E			E		
d_I, Intersection Delay [s/veh]	46.52											
Intersection LOS	D											
Intersection V/C	0.828											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.017	3.014	2.361	2.156
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	567	450	483
d_b, Bicycle Delay [s]	14.50	30.82	36.04	34.50
l_b,int, Bicycle LOS Score for Intersection	3.166	2.440	2.520	2.045
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	38.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.462

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	88	400	0	0	314	39	80	0	165	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.060	1.000	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	3	0	0	2	2	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	427	0	0	335	43	85	0	175	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	112	0	0	88	11	22	0	46	0	0	0
Total Analysis Volume [veh/h]	98	449	0	0	353	45	89	0	184	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.27	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.35	0.00	0.00	0.00	0.00	0.00	38.81	0.00	12.31	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.00	0.00	2.20	0.00	1.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.83	6.83	0.00	0.00	0.00	0.00	55.07	0.00	27.59	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.50			0.00			20.95			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	5.37											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.613

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	907	60	95	571	0	5	0	30	191	0	49
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	88	100	0	0	0	0	0	9	0	76
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	961	152	201	605	0	5	0	32	211	0	128
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	253	40	53	159	0	1	0	8	56	0	34
Total Analysis Volume [veh/h]	0	1012	160	212	637	0	5	0	34	222	0	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	53	9	0	74	30	0	0	9	0	0	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	65	65	17	82	82	4	4	18	18
g / C, Green / Cycle	0.00	0.54	0.54	0.14	0.69	0.69	0.03	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.33	0.12	0.18	0.18	0.00	0.02	0.13	0.09
s, saturation flow rate [veh/h]	1714	1800	1715	1714	1800	1800	1714	1392	1687	1530
c, Capacity [veh/h]	1	980	934	243	1234	1234	52	42	253	229
d1, Uniform Delay [s]	0.00	18.67	18.69	50.40	7.20	7.20	56.58	57.83	49.93	47.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.85	3.00	9.29	0.51	0.51	0.79	28.66	9.44	2.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.61	0.61	0.87	0.26	0.26	0.10	0.81	0.88	0.59
d, Delay for Lane Group [s/veh]	0.00	21.52	21.69	59.69	7.71	7.71	57.37	86.49	59.37	49.95
Lane Group LOS	A	C	C	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	11.83	11.34	6.85	3.11	3.11	0.16	1.36	7.17	3.92
50th-Percentile Queue Length [ft/ln]	0.00	295.7	283.5	171.2	77.67	77.67	3.98	34.06	179.24	98.04
95th-Percentile Queue Length [veh/ln]	0.00	17.47	16.87	11.14	5.59	5.59	0.29	2.45	11.56	7.06
95th-Percentile Queue Length [ft/ln]	0.00	436.7	421.6	278.5	139.8	139.8	7.16	61.30	289.02	176.46

Movement, Approach, & Intersection Results

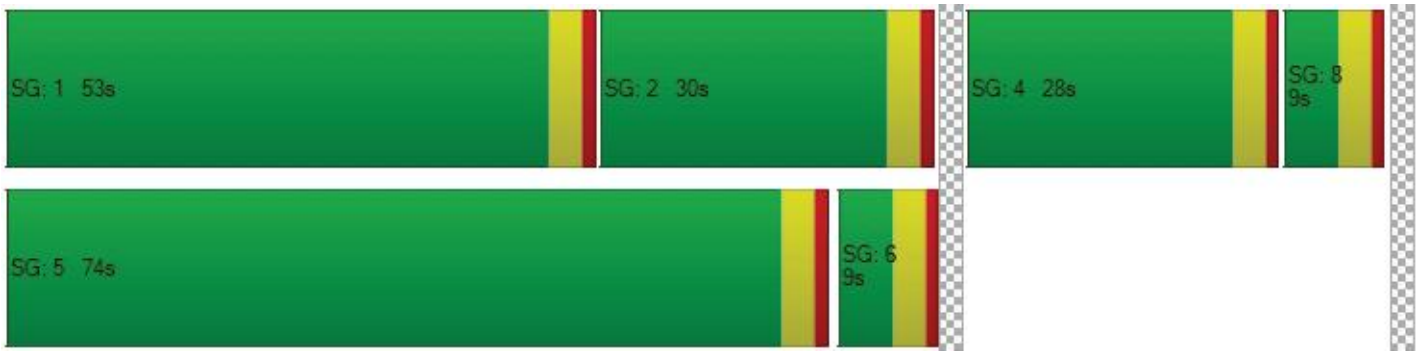
d_M, Delay for Movement [s/veh]	0.00	21.59	21.69	59.69	7.71	7.71	57.37	71.93	86.49	59.37	59.37	49.95
Movement LOS	A	C	C	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	21.60			20.69			82.76			55.81		
Approach LOS	C			C			F			E		
d_I, Intersection Delay [s/veh]	27.32											
Intersection LOS	C											
Intersection V/C	0.613											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	433	83	400
d_b, Bicycle Delay [s]	55.10	36.82	55.10	38.40
l_b,int, Bicycle LOS Score for Intersection	2.527	2.260	1.592	2.149
Bicycle LOS	B	B	A	B

Sequence

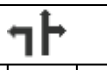
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	199	841	1	0	1	0	107	0	206
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1458	200	211	841	1	0	1	0	107	0	218
Peak Hour Factor	0.946	0.946	0.946	0.950	0.946	0.950	0.950	0.950	0.946	0.946	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	385	53	56	222	0	0	0	0	28	0	57
Total Analysis Volume [veh/h]	1	1541	211	222	889	1	0	1	0	113	0	229
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	53	0	21	52	0	9	30	0	16	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	67	67	17	84	84	0	11	10	20
g / C, Green / Cycle	0.00	0.56	0.56	0.14	0.70	0.70	0.00	0.09	0.08	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.45	0.14	0.13	0.26	0.00	0.00	0.00	0.07	0.15
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	3	1909	852	243	2388	1066	0	158	137	257
d1, Uniform Delay [s]	59.80	21.39	13.66	50.78	7.45	5.52	0.00	49.94	54.36	48.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	43.79	3.78	0.69	12.80	0.45	0.00	0.00	0.02	11.52	10.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.81	0.25	0.91	0.37	0.00	0.00	0.01	0.82	0.89
d, Delay for Lane Group [s/veh]	103.5	25.17	14.35	63.58	7.90	5.52	0.00	49.96	65.88	59.18
Lane Group LOS	F	C	B	E	A	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.07	17.63	3.07	7.42	4.48	0.01	0.00	0.03	3.80	7.43
50th-Percentile Queue Length [ft/ln]	1.77	440.7	76.78	185.6	111.8	0.19	0.00	0.71	95.00	185.75
95th-Percentile Queue Length [veh/ln]	0.13	24.52	5.53	11.89	7.94	0.01	0.00	0.05	6.84	11.90
95th-Percentile Queue Length [ft/ln]	3.19	612.9	138.2	297.3	198.6	0.35	0.00	1.27	171.01	297.50

Movement, Approach, & Intersection Results

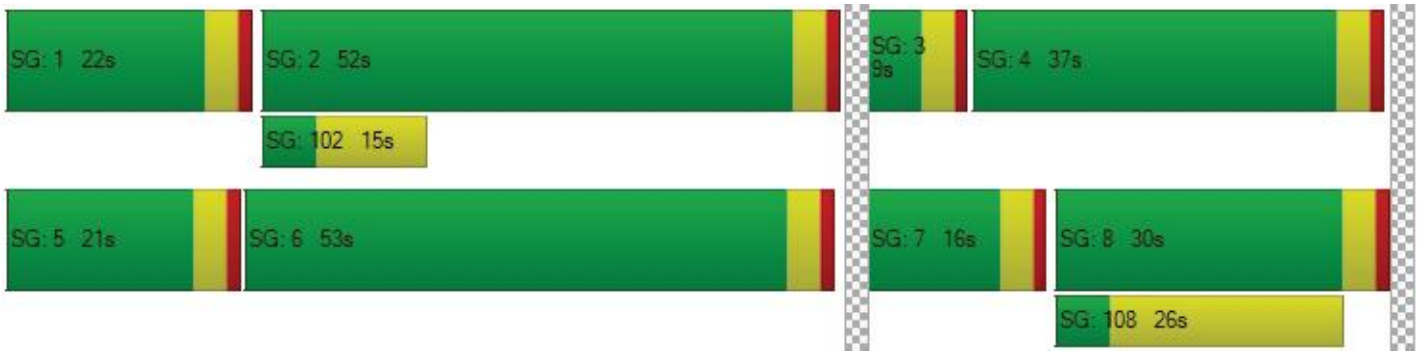
d_M, Delay for Movement [s/veh]	103.5	25.17	14.35	63.58	7.90	5.52	0.00	49.96	49.96	65.88	59.18	59.18
Movement LOS	F	C	B	E	A	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	23.92			19.01			49.96			61.40		
Approach LOS	C			B			D			E		
d_I, Intersection Delay [s/veh]	26.22											
Intersection LOS	C											
Intersection V/C	0.729											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.993	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	800	433	550
d_b, Bicycle Delay [s]	21.00	21.60	36.82	31.54
l_b,int, Bicycle LOS Score for Intersection	3.006	2.477	1.561	2.124
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.967

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	215	48	118	172	40	129	224	33	32	148	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	3	0	0	2	0	0	10	0	0	17	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	231	51	125	184	42	137	247	35	34	174	137
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	61	13	33	48	11	36	65	9	9	46	36
Total Analysis Volume [veh/h]	34	243	54	132	194	44	144	260	37	36	183	144
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	402	441	415	418	467	397	437
Degree of Utilization, x	0.69	0.12	0.89	0.97	0.08	0.55	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.02	0.41	9.27	11.48	0.26	3.22	1.42
95th-Percentile Queue Length [ft]	125.52	10.37	231.83	287.10	6.42	80.39	35.46
Approach Delay [s/veh]	26.41		50.89	61.07		19.38	
Approach LOS	D		F	F		C	
Intersection Delay [s/veh]	40.89						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.559

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	922	34	78	735	100	139	250	53	29	195	136
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	6	1	0	4	0	0	10	0	1	17	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	983	37	83	783	106	147	275	56	32	224	144
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	259	10	22	206	28	39	72	15	8	59	38
Total Analysis Volume [veh/h]	51	1035	39	87	824	112	155	289	59	34	236	152
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	46	0	12	42	0	28	30	0	32	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	67	67	8	70	70	13	26	26	3	17	17
g / C, Green / Cycle	0.04	0.56	0.56	0.06	0.58	0.58	0.11	0.22	0.22	0.03	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.30	0.30	0.05	0.27	0.27	0.09	0.08	0.04	0.02	0.11	0.12
s, saturation flow rate [veh/h]	1714	1800	1777	1714	1800	1726	1714	3427	1530	1714	1800	1572
c, Capacity [veh/h]	66	1003	990	108	1047	1004	184	742	331	51	251	219
d1, Uniform Delay [s]	57.19	16.82	16.82	55.48	14.28	14.28	52.59	40.21	38.30	57.61	50.10	50.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.47	2.08	2.10	12.88	1.43	1.50	10.02	0.33	0.25	13.78	6.16	8.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.54	0.54	0.80	0.46	0.46	0.84	0.39	0.18	0.66	0.81	0.84
d, Delay for Lane Group [s/veh]	74.66	18.90	18.93	68.37	15.72	15.78	62.61	40.55	38.55	71.40	56.26	58.94
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.85	9.74	9.63	2.99	7.60	7.30	5.09	3.70	1.45	1.22	6.34	5.93
50th-Percentile Queue Length [ft/ln]	46.32	243.5	240.7	74.63	189.8	182.4	127.3	92.45	36.20	30.46	158.4	148.2
95th-Percentile Queue Length [veh/ln]	3.33	14.86	14.72	5.37	12.12	11.73	8.79	6.66	2.61	2.19	10.47	9.92
95th-Percentile Queue Length [ft/ln]	83.37	371.5	367.9	134.3	302.8	293.2	219.8	166.4	65.16	54.84	261.6	248.0

Movement, Approach, & Intersection Results

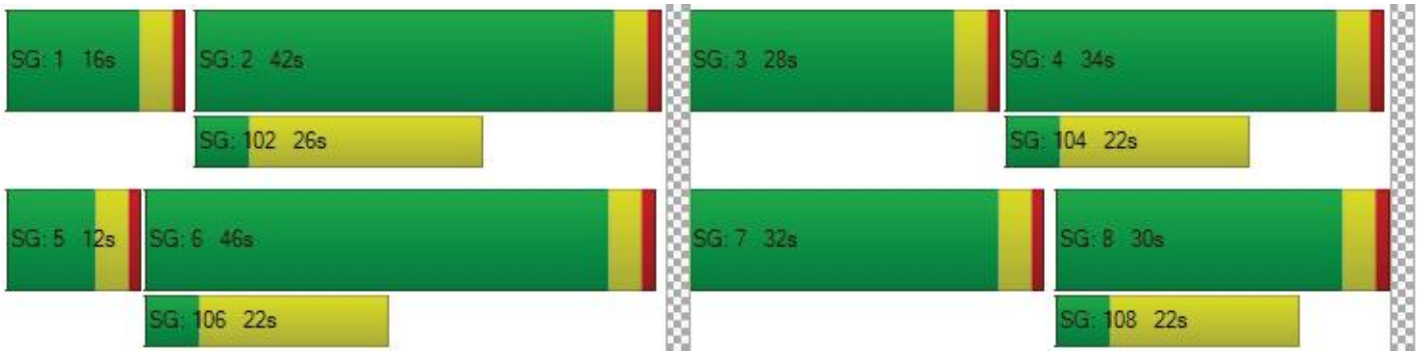
d_M, Delay for Movement [s/veh]	74.66	18.91	18.93	68.37	15.74	15.78	62.61	40.55	38.55	71.40	56.63	58.94
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	21.44			20.22			47.11			58.65		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.35											
Intersection LOS	C											
Intersection V/C	0.559											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.713	2.852	2.615	2.604
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	633	433	500
d_b, Bicycle Delay [s]	25.35	28.02	36.82	33.75
l_b,int, Bicycle LOS Score for Intersection	2.488	2.404	1.975	1.908
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	42.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	833	164	64	696	56	75	453	101	111	270	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	4	5	0	0	5	17	12	5	2	0	8	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	888	174	68	743	76	92	485	109	118	294	49
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	234	46	18	196	20	24	128	29	31	77	13
Total Analysis Volume [veh/h]	131	935	183	72	782	80	97	511	115	124	309	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	65	0	11	61	0	12	30	0	14	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	42	42	6	37	37	8	46	46	10	48	48
g / C, Green / Cycle	0.09	0.35	0.35	0.05	0.31	0.31	0.07	0.38	0.38	0.08	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.08	0.32	0.32	0.04	0.24	0.24	0.06	0.18	0.18	0.07	0.10	0.10
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1742	1714	1800	1687	1714	1800	1711
c, Capacity [veh/h]	156	629	593	91	561	543	114	686	643	143	716	680
d1, Uniform Delay [s]	53.71	37.30	37.37	56.14	37.57	37.57	55.40	28.02	28.05	54.35	24.26	24.29
k, delay calibration	0.11	0.19	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.46	9.12	10.02	13.94	2.41	2.49	15.55	2.31	2.48	14.41	0.87	0.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.91	0.92	0.79	0.78	0.78	0.85	0.47	0.47	0.87	0.26	0.26
d, Delay for Lane Group [s/veh]	65.16	46.42	47.39	70.08	39.98	40.05	70.95	30.33	30.53	68.75	25.13	25.22
Lane Group LOS	E	D	D	E	D	D	E	C	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.39	17.45	16.72	2.51	12.00	11.63	3.40	7.41	7.00	4.27	3.69	3.57
50th-Percentile Queue Length [ft/ln]	109.6	436.3	418.0	62.72	300.0	290.7	84.89	185.1	175.1	106.7	92.27	89.18
95th-Percentile Queue Length [veh/ln]	7.82	24.30	23.43	4.52	17.68	17.22	6.11	11.87	11.35	7.66	6.64	6.42
95th-Percentile Queue Length [ft/ln]	195.4	607.6	585.7	112.8	442.0	430.5	152.8	296.7	283.6	191.4	166.0	160.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.16	46.80	47.39	70.08	40.01	40.05	70.95	30.40	30.53	68.75	25.16	25.22
Movement LOS	E	D	D	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	48.81			42.33			35.86			36.32		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.48											
Intersection LOS	D											
Intersection V/C	0.614											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.837	2.796	2.557	2.559
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	950	433	467
d_b, Bicycle Delay [s]	14.50	16.54	36.82	35.27
l_b,int, Bicycle LOS Score for Intersection	2.590	2.330	2.156	1.960
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	868	69	34	681	106	136	178	9	42	83	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	0	0	4	1	5	9	0	10	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	922	73	36	726	113	149	198	10	55	90	21
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	243	19	9	191	30	39	52	3	14	24	6
Total Analysis Volume [veh/h]	20	971	77	38	764	119	157	208	11	58	95	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	48	0	13	52	0	26	47	0	12	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	79	79	4	80	80	13	16	16	5	8	8
g / C, Green / Cycle	0.02	0.66	0.66	0.03	0.67	0.67	0.11	0.13	0.13	0.04	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.01	0.29	0.29	0.02	0.25	0.25	0.09	0.12	0.01	0.03	0.05	0.01
s, saturation flow rate [veh/h]	1714	1800	1754	1714	1800	1716	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	35	1185	1155	52	1203	1147	185	243	206	74	126	107
d1, Uniform Delay [s]	58.25	9.93	9.93	57.70	8.82	8.82	52.55	50.77	45.23	56.86	54.79	52.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.77	1.23	1.26	17.84	0.90	0.94	10.16	8.47	0.11	16.33	8.78	0.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.45	0.45	0.73	0.38	0.38	0.85	0.86	0.05	0.78	0.75	0.21
d, Delay for Lane Group [s/veh]	72.03	11.16	11.19	75.54	9.72	9.76	62.71	59.25	45.34	73.19	63.57	53.59
Lane Group LOS	E	B	B	E	A	A	E	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.74	6.78	6.62	1.40	5.22	4.99	5.16	6.68	0.29	2.08	3.13	0.66
50th-Percentile Queue Length [ft/ln]	18.41	169.5	165.5	35.04	130.4	124.8	129.0	166.9	7.35	51.93	78.22	16.40
95th-Percentile Queue Length [veh/ln]	1.33	11.05	10.84	2.52	8.97	8.66	8.89	10.92	0.53	3.74	5.63	1.18
95th-Percentile Queue Length [ft/ln]	33.14	276.3	271.0	63.07	224.1	216.4	222.2	272.9	13.22	93.48	140.8	29.51

Movement, Approach, & Intersection Results

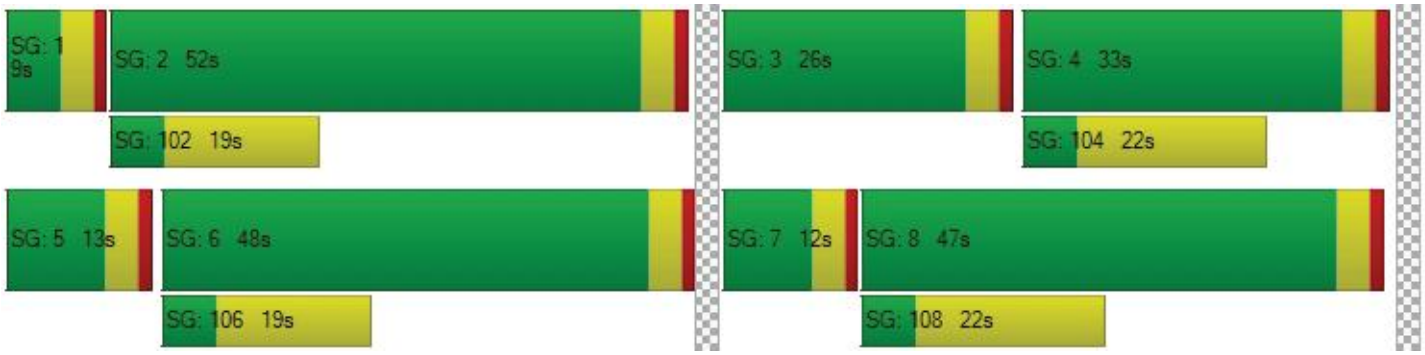
d_M, Delay for Movement [s/veh]	72.03	11.17	11.19	75.54	9.74	9.76	62.71	59.25	45.34	73.19	63.57	53.59
Movement LOS	E	B	B	E	A	A	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	12.31			12.45			60.28			65.51		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	23.13											
Intersection LOS	C											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.686	2.719	2.295	2.268
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	800	717	483
d_b, Bicycle Delay [s]	24.07	21.60	24.70	34.50
l_b,int, Bicycle LOS Score for Intersection	2.441	2.319	2.180	1.848
Bicycle LOS	B	B	B	A

Sequence

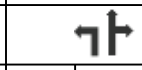
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	16	1461	163	160	882	2	5	2	5	165	0	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060	1.060	1.000
In-Process Volume [veh/h]	144	0	0	0	0	0	0	106	93	0	116	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	1461	173	160	882	2	5	108	98	175	116	124
Peak Hour Factor	0.950	0.972	0.950	0.972	0.972	0.972	0.972	0.950	0.950	0.950	0.950	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	376	46	41	227	1	1	28	26	46	31	32
Total Analysis Volume [veh/h]	169	1503	182	165	907	2	5	114	103	184	122	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	39	49	0	21	31	0	9	33	0	17	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	60	60	13	59	59	1	18	13	30
g / C, Green / Cycle	0.12	0.50	0.50	0.11	0.49	0.49	0.01	0.15	0.11	0.25
(v / s)_i Volume / Saturation Flow Rate	0.10	0.33	0.33	0.10	0.18	0.00	0.00	0.13	0.11	0.15
s, saturation flow rate [veh/h]	1714	3427	1702	1714	4903	1530	1714	1661	1714	1651
c, Capacity [veh/h]	200	1708	849	192	2421	756	11	246	186	412
d1, Uniform Delay [s]	51.97	22.47	22.51	52.37	18.86	15.39	59.38	50.09	53.44	39.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.47	2.00	4.03	10.69	0.44	0.01	24.11	9.98	28.55	1.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.66	0.66	0.86	0.37	0.00	0.44	0.88	0.99	0.61
d, Delay for Lane Group [s/veh]	61.44	24.47	26.54	63.06	19.31	15.40	83.49	60.07	81.99	41.24
Lane Group LOS	E	C	C	E	B	B	F	E	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.51	12.04	12.51	5.45	5.28	0.03	0.23	7.05	7.00	6.68
50th-Percentile Queue Length [ft/ln]	137.7	301.1	312.7	136.2	132.0	0.73	5.71	176.28	175.12	167.08
95th-Percentile Queue Length [veh/ln]	9.36	17.74	18.31	9.28	9.05	0.05	0.41	11.41	11.35	10.92
95th-Percentile Queue Length [ft/ln]	233.9	443.4	457.8	231.9	226.3	1.32	10.27	285.15	283.63	273.08

Movement, Approach, & Intersection Results

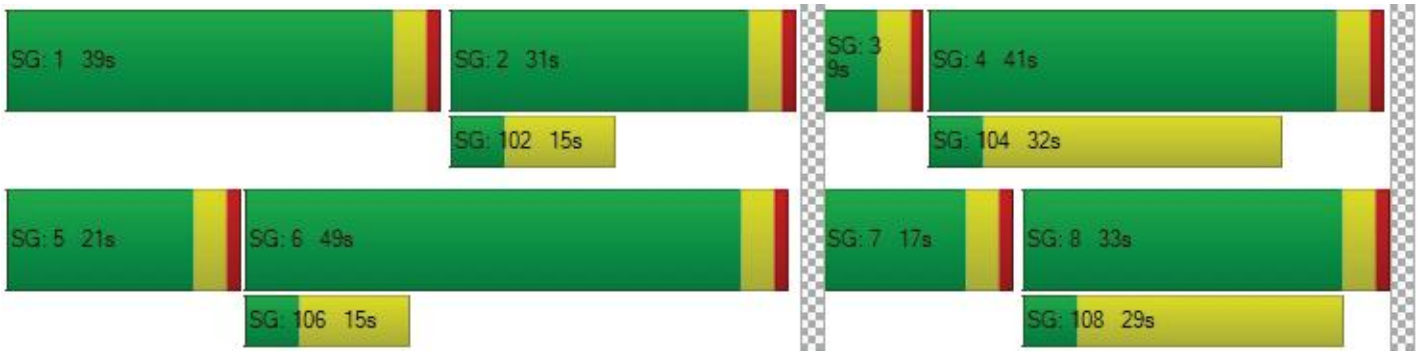
d_M, Delay for Movement [s/veh]	61.44	24.99	26.54	63.06	19.31	15.40	83.49	60.07	60.07	81.99	41.24	41.24
Movement LOS	E	C	C	E	B	B	F	E	E	F	D	D
d_A, Approach Delay [s/veh]	28.46			26.02			60.60			58.52		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	33.36											
Intersection LOS	C											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.034	3.246	2.123	2.246
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	450	483	617
d_b, Bicycle Delay [s]	23.44	36.04	34.50	28.70
l_b,int, Bicycle LOS Score for Intersection	2.579	2.150	1.926	2.276
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	25.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	213	12	34	162	31	62	171	22	10	113	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	8	0	0	0	0	2	3	135	6	0	144	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	226	13	36	172	35	69	316	29	11	264	45
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	59	3	9	45	9	18	83	8	3	69	12
Total Analysis Volume [veh/h]	25	238	14	38	181	37	73	333	31	12	278	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	482	479	524	509
Degree of Utilization, x	0.57	0.53	0.83	0.66

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.56	3.09	8.48	4.81
95th-Percentile Queue Length [ft]	88.96	77.27	212.06	120.35
Approach Delay [s/veh]	20.07	18.76	35.62	22.91
Approach LOS	C	C	E	C
Intersection Delay [s/veh]	25.75			
Intersection LOS	D			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.807

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	33	51	48	20	4	12	42	7	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	35	54	51	21	4	13	45	7	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	14	13	6	1	3	12	2	0
Total Analysis Volume [veh/h]	0	37	57	54	22	4	14	47	7	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	466	438
Degree of Utilization, x	0.36	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.65	0.59
95th-Percentile Queue Length [ft]	41.18	14.83
Approach Delay [s/veh]	15.08	12.87
Approach LOS	C	B
Intersection Delay [s/veh]	28.76	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	39	2	143	22	4	12	39	142	7	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	13	115	0	0	0	0	132	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	15	267	23	4	13	41	283	7	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	4	70	6	1	3	11	74	2	1
Total Analysis Volume [veh/h]	43	16	281	24	4	14	43	298	7	5
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	456	455
Degree of Utilization, x	0.81	0.81

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.46	7.46
95th-Percentile Queue Length [ft]	186.54	186.56
Approach Delay [s/veh]	36.34	36.47
Approach LOS	E	E
Intersection Delay [s/veh]	28.76	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	16	240	40	0	5	39	95	31	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	17	254	42	0	5	41	101	36	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	67	11	0	1	11	27	9	2
Total Analysis Volume [veh/h]	3	18	267	44	0	5	43	106	38	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	451	407	452
Degree of Utilization, x	0.74	0.38	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.98	1.73	0.33
95th-Percentile Queue Length [ft]	149.52	43.27	8.24
Approach Delay [s/veh]	30.21	15.63	
Approach LOS	D	C	
Intersection Delay [s/veh]	28.76		
Intersection LOS	D		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	874	82	66	634	13	20	165	39	57	148	63
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	49	0	0	0	0	14	2	54	60	0	69	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	926	87	70	672	28	23	229	101	60	226	67
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	244	23	18	177	7	6	60	27	16	59	18
Total Analysis Volume [veh/h]	107	975	92	74	707	29	24	241	106	63	238	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	58	0	15	55	0	9	26	0	21	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	76	76	7	74	74	3	15	15	6	18	18
g / C, Green / Cycle	0.08	0.64	0.64	0.05	0.62	0.62	0.02	0.13	0.13	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.06	0.30	0.30	0.04	0.21	0.21	0.01	0.07	0.07	0.04	0.13	0.05
s, saturation flow rate [veh/h]	1714	1800	1746	1714	1800	1775	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	132	1145	1111	94	1106	1091	40	436	195	83	274	233
d1, Uniform Delay [s]	54.53	11.35	11.36	56.00	11.24	11.24	58.06	49.16	49.11	56.43	49.70	45.23
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.20	1.40	1.45	13.24	0.82	0.83	13.74	1.10	2.36	13.44	8.26	0.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.47	0.47	0.78	0.34	0.34	0.60	0.55	0.54	0.76	0.87	0.30
d, Delay for Lane Group [s/veh]	65.73	12.75	12.80	69.24	12.05	12.07	71.80	50.26	51.47	69.87	57.96	45.96
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.59	7.58	7.38	2.56	4.89	4.83	0.87	3.46	3.11	2.20	7.59	1.94
50th-Percentile Queue Length [ft/ln]	89.84	189.4	184.4	64.01	122.2	120.7	21.86	86.58	77.81	54.90	189.8	48.45
95th-Percentile Queue Length [veh/ln]	6.47	12.09	11.83	4.61	8.52	8.43	1.57	6.23	5.60	3.95	12.11	3.49
95th-Percentile Queue Length [ft/ln]	161.7	302.2	295.7	115.2	212.9	210.8	39.35	155.8	140.0	98.83	302.7	87.20

Movement, Approach, & Intersection Results

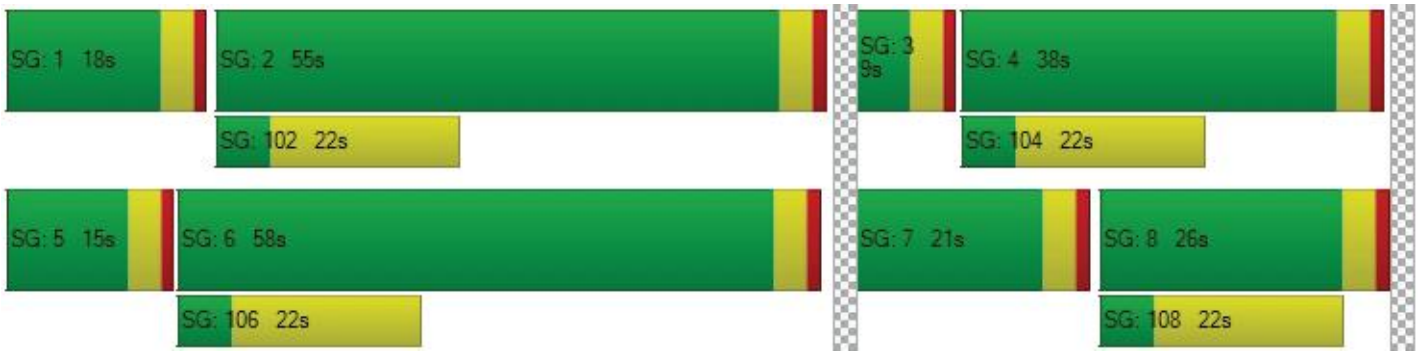
d_M, Delay for Movement [s/veh]	65.73	12.77	12.80	69.24	12.06	12.07	71.80	50.26	51.47	69.87	57.96	45.96
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	D
d_A, Approach Delay [s/veh]	17.60			17.29			52.00			57.69		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	27.66											
Intersection LOS	C											
Intersection V/C	0.490											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.715	2.682	2.460	2.595
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	850	367	567
d_b, Bicycle Delay [s]	18.15	19.84	40.02	30.82
l_b,int, Bicycle LOS Score for Intersection	2.528	2.228	1.866	2.173
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	1025	112	64	785	62	76	231	66	117	164	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	35	0	0	0	0	9	8	5	30	0	8	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	1087	119	68	832	75	89	250	100	124	182	61
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	286	31	18	219	20	23	66	26	33	48	16
Total Analysis Volume [veh/h]	113	1144	125	72	876	79	94	263	105	131	192	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	57	0	11	44	0	22	34	0	18	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	71	71	6	68	68	8	16	16	11	18	18
g / C, Green / Cycle	0.08	0.59	0.59	0.05	0.56	0.56	0.07	0.13	0.13	0.09	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.36	0.36	0.04	0.27	0.27	0.05	0.11	0.11	0.08	0.07	0.08
s, saturation flow rate [veh/h]	1714	1800	1739	1714	1800	1748	1714	1800	1630	1714	1800	1650
c, Capacity [veh/h]	139	1066	1030	91	1016	986	118	234	212	157	274	251
d1, Uniform Delay [s]	54.23	15.51	15.56	56.17	15.59	15.59	55.04	50.81	50.97	53.64	46.51	46.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.70	2.53	2.66	14.26	1.61	1.65	11.44	6.80	8.48	11.05	1.30	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.60	0.61	0.79	0.48	0.48	0.80	0.82	0.84	0.84	0.48	0.49
d, Delay for Lane Group [s/veh]	64.93	18.04	18.22	70.43	17.20	17.24	66.48	57.60	59.44	64.69	47.81	48.13
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.77	11.46	11.20	2.52	8.16	7.94	3.18	6.01	5.70	4.37	3.70	3.52
50th-Percentile Queue Length [ft/ln]	94.27	286.5	280.1	62.88	203.9	198.4	79.40	150.3	142.3	109.2	92.53	87.96
95th-Percentile Queue Length [veh/ln]	6.79	17.01	16.69	4.53	12.84	12.56	5.72	10.04	9.61	7.80	6.66	6.33
95th-Percentile Queue Length [ft/ln]	169.6	425.2	417.3	113.1	321.0	313.9	142.9	250.9	240.2	194.8	166.5	158.3

Movement, Approach, & Intersection Results

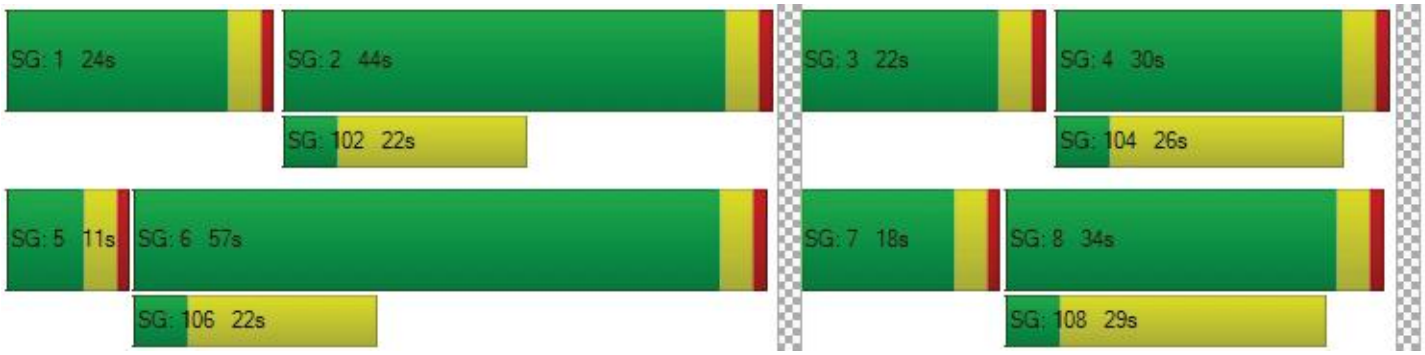
d_M, Delay for Movement [s/veh]	64.93	18.12	18.22	70.43	17.22	17.24	66.48	58.11	59.44	64.69	47.91	48.13
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	21.96			20.95			60.11			53.62		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	30.81											
Intersection LOS	C											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.957	2.847	2.480	2.480
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	667	500	433
d_b, Bicycle Delay [s]	18.70	26.67	33.75	36.82
l_b,int, Bicycle LOS Score for Intersection	2.700	2.407	1.941	1.879
Bicycle LOS	B	B	A	A

Sequence

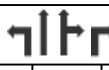
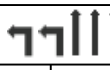
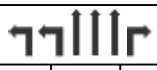
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	51.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.864

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	119	208	360	107	282	534	817	1020	94	152	605	306
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	8	0	0	5	51
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	220	382	113	299	566	866	1089	100	161	646	375
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	58	101	30	79	149	228	287	26	42	170	99
Total Analysis Volume [veh/h]	133	232	402	119	315	596	912	1146	105	169	680	395
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	35	0	13	28	0	37	60	0	12	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	31	31	9	29	29	29	33	56	56	8	31	31
g / C, Green / Cycle	0.09	0.26	0.26	0.08	0.24	0.24	0.24	0.28	0.47	0.47	0.07	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.26	0.07	0.18	0.19	0.19	0.27	0.23	0.07	0.05	0.14	0.26
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	160	885	395	129	432	367	367	916	2290	714	221	1267	395
d1, Uniform Delay [s]	53.45	35.40	44.50	55.1	42.0	43.0	43.0	43.44	22.25	18.30	55.10	38.32	44.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.45
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.38	0.72	49.66	22.5	10.3	17.5	17.5	12.96	0.17	0.09	5.45	0.36	42.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.26	1.02	0.93	0.73	0.81	0.81	1.00	0.50	0.15	0.76	0.54	1.00
d, Delay for Lane Group [s/veh]	63.83	36.12	94.16	77.6	52.4	60.6	60.6	56.40	22.42	18.40	60.54	38.67	87.38
Lane Group LOS	E	D	F	E	D	E	E	E	C	B	E	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.41	2.81	17.09	4.38	9.81	10.1	10.1	15.01	7.46	1.70	2.68	5.79	16.34
50th-Percentile Queue Length [ft/ln]	110.1	70.14	427.2	109.	245.	252.	252.	375.3	186.3	42.41	67.02	144.7	408.4
95th-Percentile Queue Length [veh/ln]	7.85	5.05	24.12	7.81	14.9	15.3	15.3	21.37	11.93	3.05	4.83	9.73	22.97
95th-Percentile Queue Length [ft/ln]	196.1	126.2	602.9	195.	373.	382.	382.	534.2	298.3	76.34	120.6	243.3	574.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.83	36.12	94.16	77.67	52.41	60.64	56.40	22.42	18.40	60.54	38.67	87.38
Movement LOS	E	D	F	E	D	E	E	C	B	E	D	F
d_A, Approach Delay [s/veh]	71.34			60.09			36.55			57.11		
Approach LOS	E			E			D			E		
d_I, Intersection Delay [s/veh]	51.25											
Intersection LOS	D											
Intersection V/C	0.864											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.688	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	400	933	517
d_b, Bicycle Delay [s]	33.00	38.40	17.07	33.00
l_b,int, Bicycle LOS Score for Intersection	2.192	2.409	2.749	2.244
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	48	43	114	42	359	674	752	63	37	631	140
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	51	0	0	0	8	0	0	56	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	51	46	172	45	381	714	805	67	39	725	148
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	21	13	12	45	12	100	188	212	18	10	191	39
Total Analysis Volume [veh/h]	82	54	48	181	47	401	752	847	71	41	763	156
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	29	0	28	23	0	35	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	20	20	20	30	72	72	4	45	45
g / C, Green / Cycle	0.07	0.07	0.07	0.17	0.17	0.17	0.25	0.60	0.60	0.03	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.07	0.07	0.15	0.23	0.17	0.05	0.02	0.18	0.18
s, saturation flow rate [veh/h]	1714	1800	1537	1714	1748	2708	3329	4903	1530	1714	3427	1649
c, Capacity [veh/h]	115	121	103	290	296	458	844	2934	916	55	1291	621
d1, Uniform Delay [s]	54.83	53.78	53.95	44.34	44.33	48.61	43.17	11.70	10.15	57.61	28.45	28.51
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.88	2.44	3.43	0.85	0.83	5.43	3.50	0.25	0.17	18.25	1.28	2.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.43	0.48	0.39	0.39	0.88	0.89	0.29	0.08	0.75	0.48	0.48
d, Delay for Lane Group [s/veh]	62.72	56.22	57.38	45.19	45.17	54.04	46.67	11.95	10.31	75.86	29.72	31.20
Lane Group LOS	E	E	E	D	D	D	D	B	B	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.68	1.61	1.54	3.07	3.12	6.18	11.09	3.64	0.82	1.51	6.98	7.04
50th-Percentile Queue Length [ft/ln]	67.06	40.16	38.58	76.73	78.08	154.6	277.2	91.10	20.56	37.81	174.4	175.9
95th-Percentile Queue Length [veh/ln]	4.83	2.89	2.78	5.52	5.62	10.26	16.55	6.56	1.48	2.72	11.31	11.39
95th-Percentile Queue Length [ft/ln]	120.7	72.29	69.44	138.1	140.5	256.5	413.8	163.9	37.00	68.06	282.7	284.7

Movement, Approach, & Intersection Results

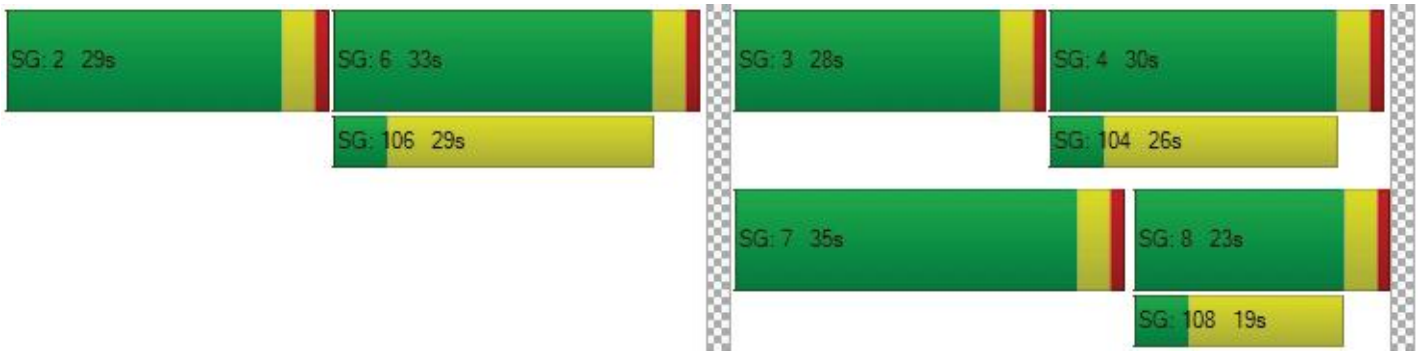
d_M, Delay for Movement [s/veh]	62.72	56.25	57.38	45.18	45.17	54.04	46.67	11.95	10.31	75.86	30.00	31.20
Movement LOS	E	E	E	D	D	D	D	B	B	E	C	C
d_A, Approach Delay [s/veh]	59.43			50.83			27.51			32.15		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	34.77											
Intersection LOS	C											
Intersection V/C	0.604											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.230	2.727	0.000	2.893
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	417	317	433
d_b, Bicycle Delay [s]	34.50	37.60	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.711	2.597	2.478	2.088
Bicycle LOS	A	B	B	B

Sequence

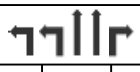
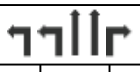
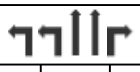
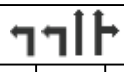
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	754	90	148	608	171	182	575	229	108	268	65
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	10	6	0	2	2	35	24	0	9	54	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	167	809	101	157	646	183	228	634	243	123	338	104
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	213	27	41	170	48	60	167	64	32	89	27
Total Analysis Volume [veh/h]	176	852	106	165	680	193	240	667	256	129	356	109
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	37	0	11	36	0	24	62	0	10	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	64	7	63	63	11	27	27	6	22	22
g / C, Green / Cycle	0.07	0.53	0.06	0.53	0.53	0.09	0.22	0.22	0.05	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.05	0.20	0.13	0.07	0.19	0.17	0.04	0.13	0.14
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1658
c, Capacity [veh/h]	222	1827	194	1799	803	305	772	345	166	330	304
d1, Uniform Delay [s]	55.18	17.40	55.98	16.90	15.50	53.34	44.73	43.26	56.33	46.18	46.27
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.29	0.86	9.87	0.61	0.71	4.46	3.06	3.18	7.49	3.09	3.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.47	0.85	0.38	0.24	0.79	0.86	0.74	0.77	0.73	0.74
d, Delay for Lane Group [s/veh]	61.47	18.26	65.85	17.51	16.21	57.80	47.78	46.44	63.82	49.27	49.76
Lane Group LOS	E	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.82	7.40	2.74	5.64	3.02	3.73	9.83	7.36	2.10	7.04	6.61
50th-Percentile Queue Length [ft/ln]	70.41	184.90	68.52	141.0	75.39	93.33	245.8	184.0	52.61	176.1	165.2
95th-Percentile Queue Length [veh/ln]	5.07	11.86	4.93	9.53	5.43	6.72	14.98	11.81	3.79	11.40	10.83
95th-Percentile Queue Length [ft/ln]	126.74	296.40	123.3	238.3	135.7	168.0	374.4	295.3	94.70	284.9	270.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.47	18.26	0.00	65.85	17.51	16.21	57.80	47.78	46.44	63.82	49.43	49.76
Movement LOS	E	B		E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	25.66			24.95			49.55			52.62		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.92											
Intersection LOS	D											
Intersection V/C	0.532											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.996	2.921	2.971	2.700
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	533	967	733
d_b, Bicycle Delay [s]	31.54	32.27	16.02	24.07
l_b,int, Bicycle LOS Score for Intersection	2.408	2.416	2.519	2.050
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	49.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.818

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	492	3	0	1	0	791	45	140	261	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	35	0	61	0	0	0	0	29	0	90	64	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	3	583	3	0	1	0	867	48	238	341	2
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	1	153	1	0	0	0	228	13	63	90	1
Total Analysis Volume [veh/h]	88	3	614	3	0	1	0	913	51	251	359	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	39	57	0	16	34	0	9	38	0	9	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	55	55	51	55	0	34	34	19	53	53
g / C, Green / Cycle	0.46	0.46	0.42	0.46	0.00	0.28	0.28	0.15	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.40	0.00	0.00	0.27	0.03	0.15	0.10	0.10
s, saturation flow rate [veh/h]	1439	1488	1530	871	1714	3427	1530	1714	1800	1796
c, Capacity [veh/h]	704	803	645	492	0	976	436	264	790	788
d1, Uniform Delay [s]	17.97	17.92	33.50	17.50	0.00	41.85	31.76	50.30	21.01	21.01
k, delay calibration	0.11	0.11	0.29	0.11	0.11	0.50	0.50	0.15	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.03	17.38	0.01	0.00	16.94	0.55	20.12	0.67	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.06	0.95	0.01	0.00	0.94	0.12	0.95	0.23	0.23
d, Delay for Lane Group [s/veh]	18.01	17.95	50.88	17.51	0.00	58.79	32.31	70.42	21.68	21.69
Lane Group LOS	B	B	D	B	A	E	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.67	0.76	19.92	0.06	0.00	15.35	1.17	8.91	3.33	3.32
50th-Percentile Queue Length [ft/ln]	16.69	18.99	498.0	1.53	0.00	383.8	29.33	222.8	83.14	83.01
95th-Percentile Queue Length [veh/ln]	1.20	1.37	27.24	0.11	0.00	21.78	2.11	13.81	5.99	5.98
95th-Percentile Queue Length [ft/ln]	30.04	34.19	681.1	2.76	0.00	544.4	52.79	345.2	149.6	149.4

Movement, Approach, & Intersection Results

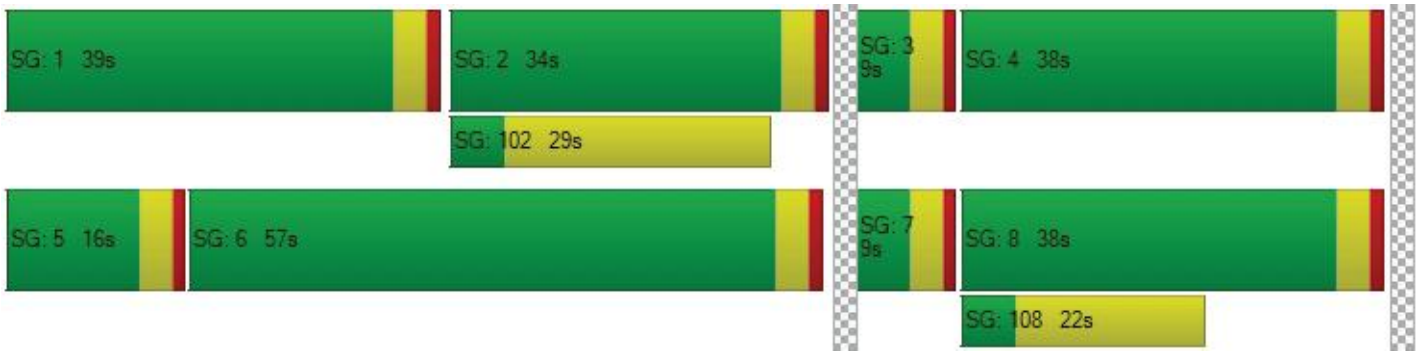
d_M, Delay for Movement [s/veh]	18.01	17.95	50.88	17.51	17.51	17.51	0.00	58.79	32.31	70.42	21.68	21.69
Movement LOS	B	B	D	B	B	B	A	E	C	E	C	C
d_A, Approach Delay [s/veh]	46.64			17.51			57.39			41.67		
Approach LOS	D			B			E			D		
d_I, Intersection Delay [s/veh]	49.79											
Intersection LOS	D											
Intersection V/C	0.818											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.511	0.000	2.935	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1150	1150	567	567
d_b, Bicycle Delay [s]	10.84	10.84	30.82	30.82
l_b,int, Bicycle LOS Score for Intersection	2.723	1.566	2.355	2.065
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.205

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1295	400	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0000	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	153	0	82	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	153	0	1455	425	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	383	112	0
Total Analysis Volume [veh/h]	0	161	0	1532	447	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.20	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	26.50	10.76	8.24	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.77	0.77	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	19.13	19.13	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.76		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.81					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.776

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	1021	140	76	775	225	468	667	302	75	184	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	130	0	10	159	1	82	0	0	0	0	18
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	1212	148	91	981	240	578	707	320	80	195	79
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	319	39	24	258	63	152	186	84	21	51	21
Total Analysis Volume [veh/h]	73	1276	156	96	1033	253	608	744	337	84	205	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	28	0	11	30	30	45	40	0	41	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	43	43	7	45	90	41	46	8	13	13
g / C, Green / Cycle	0.04	0.36	0.36	0.06	0.38	0.75	0.34	0.38	0.06	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.04	0.28	0.28	0.06	0.21	0.17	0.35	0.22	0.05	0.08	0.09
s, saturation flow rate [veh/h]	1714	3427	1701	1714	4903	1530	1714	3427	1714	1800	1629
c, Capacity [veh/h]	71	1236	613	100	1849	1151	586	1317	109	191	173
d1, Uniform Delay [s]	57.50	34.04	34.04	56.36	29.49	4.41	39.50	29.06	55.32	52.25	52.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.49	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	55.23	4.78	9.24	32.97	1.22	0.44	47.11	0.38	10.80	6.66	8.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.77	0.77	0.96	0.56	0.22	1.04	0.57	0.77	0.78	0.81
d, Delay for Lane Group [s/veh]	112.7	38.82	43.28	89.33	30.71	4.86	86.61	29.45	66.11	58.91	60.97
Lane Group LOS	F	D	D	F	C	A	F	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.26	13.05	13.72	3.81	8.00	1.77	24.62	8.45	2.83	4.71	4.52
50th-Percentile Queue Length [ft/ln]	81.55	326.1	342.8	95.36	200.0	44.17	615.55	211.19	70.79	117.8	112.9
95th-Percentile Queue Length [veh/ln]	5.87	18.97	19.79	6.87	12.64	3.18	33.62	13.21	5.10	8.27	8.00
95th-Percentile Queue Length [ft/ln]	146.7	474.2	494.7	171.6	316.0	79.51	840.38	330.35	127.4	206.8	200.0

Movement, Approach, & Intersection Results

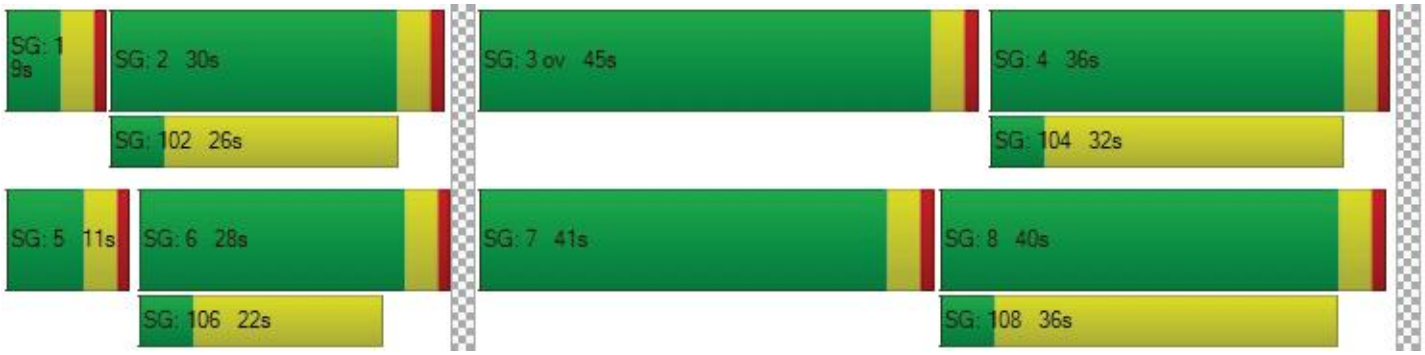
d_M, Delay for Movement [s/veh]	112.7	39.94	43.28	89.33	30.71	4.86	86.61	29.45	0.00	66.11	59.48	60.97
Movement LOS	F	D	D	F	C	A	F	C		E	E	E
d_A, Approach Delay [s/veh]	43.81			30.05			55.15			61.31		
Approach LOS	D			C			E			E		
d_I, Intersection Delay [s/veh]	44.42											
Intersection LOS	D											
Intersection V/C	0.776											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.149	3.149	2.774	2.582
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	433	600	533
d_b, Bicycle Delay [s]	38.40	36.82	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	2.387	2.320	2.675	1.867
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	17	158	25	39	100	35	68	546	12	13	227	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	1	0	0	0	5	0	0	10	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	167	27	42	106	37	72	584	13	14	251	37
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	44	7	11	28	10	19	154	3	4	66	10
Total Analysis Volume [veh/h]	19	176	28	44	112	39	76	615	14	15	264	39
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	79	88	0	9	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	62	62	7	44	2	40	40
g / C, Green / Cycle	0.51	0.51	0.06	0.37	0.02	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.04	0.35	0.01	0.15	0.03
s, saturation flow rate [veh/h]	1720	1598	1714	1793	1714	1800	1530
c, Capacity [veh/h]	915	857	100	664	28	591	503
d1, Uniform Delay [s]	16.29	16.02	55.65	36.63	58.55	31.71	27.77
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.63	0.62	11.03	7.86	14.54	0.53	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.23	0.76	0.95	0.53	0.45	0.08
d, Delay for Lane Group [s/veh]	16.92	16.64	66.68	44.49	73.09	32.24	27.83
Lane Group LOS	B	B	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.57	3.08	2.58	18.99	0.57	6.11	0.79
50th-Percentile Queue Length [ft/ln]	89.21	76.96	64.39	474.72	14.17	152.8	19.71
95th-Percentile Queue Length [veh/ln]	6.42	5.54	4.64	26.14	1.02	10.17	1.42
95th-Percentile Queue Length [ft/ln]	160.58	138.52	115.91	653.39	25.50	254.1	35.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.92	16.92	16.92	16.64	16.64	16.64	66.68	44.49	44.49	73.09	32.24	27.83
Movement LOS	B	B	B	B	B	B	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	16.92			16.64			46.89			33.62		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	35.23											
Intersection LOS	D											
Intersection V/C	0.489											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.908	1.967	2.424	0.000
Crosswalk LOS	A	A	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	233
d_b, Bicycle Delay [s]	42.50	42.50	5.40	46.82
l_b,int, Bicycle LOS Score for Intersection	1.928	1.881	2.723	2.084
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	5	19	54	26	3	0	14	23	8	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	9	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	29	57	28	3	0	15	24	8	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	15	7	1	0	4	6	2	3
Total Analysis Volume [veh/h]	5	31	60	29	3	0	16	25	8	14
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	11	11
g / C, Green / Cycle	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.08	0.04
s, saturation flow rate [veh/h]	1682	1611
c, Capacity [veh/h]	191	184
d1, Uniform Delay [s]	53.57	51.53
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	4.03	1.10
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.34
d, Delay for Lane Group [s/veh]	57.60	52.63
Lane Group LOS	E	D
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	4.01	1.85
50th-Percentile Queue Length [ft/ln]	100.23	46.29
95th-Percentile Queue Length [veh/ln]	7.22	3.33
95th-Percentile Queue Length [ft/ln]	180.41	83.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.60	57.60	57.60	57.60	57.60	52.63	52.63	52.63	52.63	52.63
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	57.60					52.63				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	27.67									
Intersection LOS	C									
Intersection V/C	0.470									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.859	1.979
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.715	1.614
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	8	128	402	18	1	6	12	184	18	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	6	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	136	426	25	1	6	13	196	19	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	36	112	7	0	2	3	52	5	3
Total Analysis Volume [veh/h]	8	143	448	26	1	6	14	206	20	11
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	57	0	0	9	0	57	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	80	74	80	70	70
g / C, Green / Cycle	0.67	0.62	0.67	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.12	0.27	0.02	0.11	0.02
s, saturation flow rate [veh/h]	1216	1782	977	1800	1530
c, Capacity [veh/h]	831	1096	600	1055	896
d1, Uniform Delay [s]	7.48	12.14	8.08	11.62	10.50
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	1.25	0.02	0.41	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.43	0.03	0.20	0.03
d, Delay for Lane Group [s/veh]	7.96	13.39	8.10	12.04	10.58
Lane Group LOS	A	B	A	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.46	6.81	0.17	2.66	0.36
50th-Percentile Queue Length [ft/ln]	36.48	170.37	4.21	66.40	9.07
95th-Percentile Queue Length [veh/ln]	2.63	11.10	0.30	4.78	0.65
95th-Percentile Queue Length [ft/ln]	65.66	277.40	7.58	119.52	16.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.96	7.96	13.39	13.39	13.39	8.10	8.10	12.04	10.58	10.58
Movement LOS	A	A	B	B	B	A	A	B	B	B
d_A, Approach Delay [s/veh]	12.08					11.55				
Approach LOS	B					B				
d_I, Intersection Delay [s/veh]	27.67									
Intersection LOS	C									
Intersection V/C	0.470									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.352	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	883
d_b, Bicycle Delay [s]	18.70	18.70
l_b,int, Bicycle LOS Score for Intersection	2.355	1.942
Bicycle LOS	B	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	7	16	152	12	4	4	7	52	62	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	17	161	13	4	4	7	55	66	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	42	3	1	1	2	14	17	1
Total Analysis Volume [veh/h]	7	18	169	14	4	4	7	58	69	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	35	0	0	0	0	35	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	17
g / C, Green / Cycle	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.12	0.04	0.05
s, saturation flow rate [veh/h]	1718	1681	1530
c, Capacity [veh/h]	275	271	215
d1, Uniform Delay [s]	50.46	46.07	46.46
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	4.55	0.49	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.25	0.33
d, Delay for Lane Group [s/veh]	55.00	46.56	47.35
Lane Group LOS	E	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.58	1.89	1.97
50th-Percentile Queue Length [ft/ln]	164.39	47.14	49.29
95th-Percentile Queue Length [veh/ln]	10.78	3.39	3.55
95th-Percentile Queue Length [ft/ln]	269.53	84.85	88.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.00	55.00	55.00	55.00	55.00	46.56	46.56	46.56	47.35	47.35
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	55.00					46.96				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	27.67									
Intersection LOS	C									
Intersection V/C	0.470									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.945	2.268
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	517
d_b, Bicycle Delay [s]	33.00	33.00
l_b,int, Bicycle LOS Score for Intersection	1.857	1.781
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	956	47	48	575	25	53	305	64	44	212	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	37	0	10	50	0	0	0	0	0	1	12
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	1050	50	61	660	27	56	323	68	47	226	87
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	276	13	16	174	7	15	85	18	12	59	23
Total Analysis Volume [veh/h]	193	1105	53	64	695	28	59	340	72	49	238	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	57	62	0	21	26	0	11	28	0	9	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	77	77	6	67	67	5	17	17	4	16	16
g / C, Green / Cycle	0.13	0.64	0.64	0.05	0.56	0.56	0.04	0.14	0.14	0.04	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.11	0.32	0.32	0.04	0.20	0.20	0.03	0.12	0.12	0.03	0.09	0.10
s, saturation flow rate [veh/h]	1714	1800	1771	1714	1800	1776	1714	1800	1693	1714	1800	1634
c, Capacity [veh/h]	225	1158	1140	83	1008	995	75	250	235	62	236	214
d1, Uniform Delay [s]	51.01	11.29	11.30	56.45	14.54	14.54	56.82	50.40	50.51	57.37	50.01	50.20
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.06	1.56	1.60	14.08	1.00	1.02	16.28	7.57	8.73	19.34	4.10	5.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.50	0.50	0.77	0.36	0.36	0.79	0.84	0.86	0.79	0.72	0.75
d, Delay for Lane Group [s/veh]	60.07	12.85	12.90	70.53	15.55	15.56	73.10	57.98	59.24	76.71	54.11	55.29
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.24	8.25	8.16	2.24	5.64	5.57	2.11	6.69	6.47	1.81	5.17	4.93
50th-Percentile Queue Length [ft/ln]	156.0	206.3	204.0	56.04	141.0	139.3	52.77	167.1	161.7	45.22	129.1	123.1
95th-Percentile Queue Length [veh/ln]	10.34	12.97	12.85	4.04	9.54	9.44	3.80	10.93	10.64	3.26	8.90	8.57
95th-Percentile Queue Length [ft/ln]	258.4	324.1	321.1	100.8	238.4	236.0	94.99	273.2	266.0	81.40	222.3	214.1

Movement, Approach, & Intersection Results

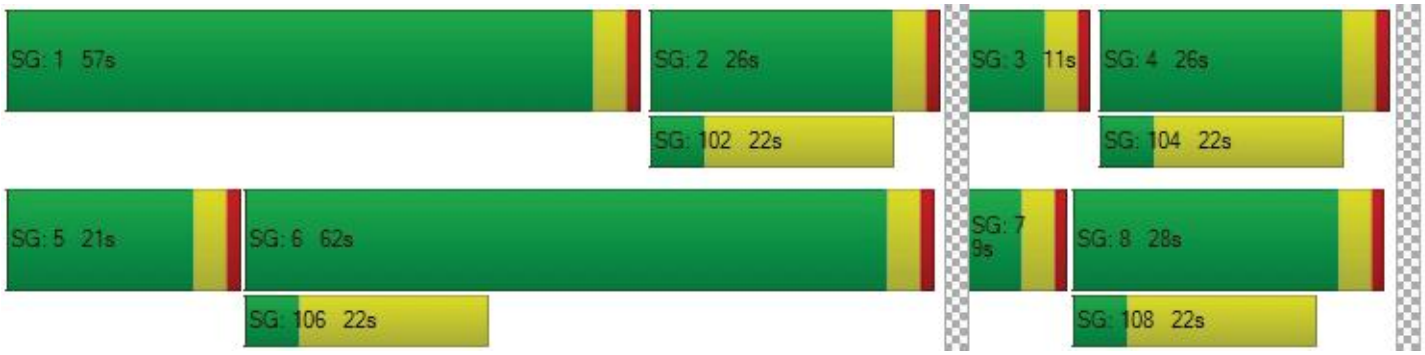
d_M, Delay for Movement [s/veh]	60.07	12.87	12.90	70.53	15.55	15.56	73.10	58.46	59.24	76.71	54.45	55.29
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	E
d_A, Approach Delay [s/veh]	19.62			20.03			60.41			57.53		
Approach LOS	B			C			E			E		
d_I, Intersection Delay [s/veh]	30.96											
Intersection LOS	C											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.738	2.713	2.496	2.604
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	367	400	367
d_b, Bicycle Delay [s]	16.02	40.02	38.40	40.02
l_b,int, Bicycle LOS Score for Intersection	2.674	2.209	1.948	1.872
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.720

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	182	958	368	67	880	54	92	340	135	232	281	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	2	21	0	4	21	0	0	1	3	0	2	6
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	1036	390	75	954	57	98	361	146	246	300	86
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	273	103	20	251	15	26	95	38	65	79	23
Total Analysis Volume [veh/h]	205	1091	411	79	1004	60	103	380	154	259	316	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	41	0	11	31	0	21	45	0	23	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	56	56	7	47	47	9	22	22	19	32	32
g / C, Green / Cycle	0.13	0.47	0.47	0.06	0.39	0.39	0.07	0.18	0.18	0.16	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.12	0.32	0.27	0.05	0.29	0.04	0.06	0.15	0.16	0.15	0.12	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1627	1714	1800	1664
c, Capacity [veh/h]	231	1612	720	99	1349	602	128	325	293	271	475	439
d1, Uniform Delay [s]	51.05	24.70	23.02	55.85	31.21	22.97	54.63	47.71	47.81	50.07	36.84	36.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.07	2.30	3.28	13.53	3.76	0.33	10.91	6.64	7.80	21.61	0.65	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.68	0.57	0.80	0.74	0.10	0.80	0.86	0.87	0.95	0.44	0.45
d, Delay for Lane Group [s/veh]	62.12	27.00	26.29	69.38	34.97	23.30	65.53	54.35	55.62	71.68	37.50	37.60
Lane Group LOS	E	C	C	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.76	12.32	8.95	2.73	13.00	1.14	3.45	8.67	8.03	9.31	5.26	4.91
50th-Percentile Queue Length [ft/ln]	168.8	308.1	223.6	68.36	324.9	28.42	86.34	216.7	200.8	232.7	131.4	122.6
95th-Percentile Queue Length [veh/ln]	11.02	18.08	13.85	4.92	18.91	2.05	6.22	13.50	12.68	14.31	9.02	8.54
95th-Percentile Queue Length [ft/ln]	275.4	452.0	346.3	123.0	472.7	51.15	155.4	337.5	317.0	357.8	225.4	213.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.12	27.00	26.29	69.38	34.97	23.30	65.53	54.69	55.62	71.68	37.53	37.60
Movement LOS	E	C	C	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	31.05			36.74			56.66			50.82		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	39.71											
Intersection LOS	D											
Intersection V/C	0.720											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.121	2.863	2.553	2.615
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	450	683	717
d_b, Bicycle Delay [s]	28.70	36.04	26.00	24.70
l_b,int, Bicycle LOS Score for Intersection	2.968	2.503	2.085	2.109
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.335

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	164	64	4	101	23	42	130	1	7	77	12
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	174	68	4	107	24	45	138	1	7	82	13
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	46	18	1	28	6	12	36	0	2	22	3
Total Analysis Volume [veh/h]	0	183	72	4	113	25	47	145	1	7	86	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	761	727	691	624	716
Degree of Utilization, x	0.34	0.20	0.28	0.15	0.02

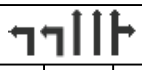
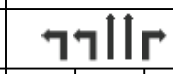
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.48	0.72	1.14	0.52	0.06
95th-Percentile Queue Length [ft]	36.96	18.02	28.54	13.04	1.49
Approach Delay [s/veh]	10.10	9.15	10.22	9.26	
Approach LOS	B	A	B	A	
Intersection Delay [s/veh]	9.81				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.590

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	937	121	64	940	30	75	256	340	136	91	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	16	0	0	11	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	272	1009	128	68	1007	32	80	271	360	144	96	93
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	72	266	34	18	265	8	21	71	95	38	25	24
Total Analysis Volume [veh/h]	286	1062	135	72	1060	34	84	285	379	152	101	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	37	0	11	32	0	19	61	0	11	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	58	58	6	52	52	7	33	33	7	32	32
g / C, Green / Cycle	0.10	0.48	0.48	0.05	0.44	0.44	0.06	0.27	0.27	0.06	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.09	0.23	0.23	0.04	0.21	0.21	0.05	0.08	0.25	0.05	0.03	0.06
s, saturation flow rate [veh/h]	3329	3427	1698	1714	3427	1771	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	333	1657	821	91	1496	773	108	931	416	194	915	408
d1, Uniform Delay [s]	53.17	20.88	20.88	56.16	24.12	24.13	55.37	34.71	42.30	55.75	33.22	34.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.46	1.01	2.03	14.13	1.11	2.15	11.19	0.18	8.21	6.75	0.05	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.48	0.48	0.79	0.48	0.48	0.78	0.31	0.91	0.78	0.11	0.24
d, Delay for Lane Group [s/veh]	59.63	21.89	22.91	70.29	25.24	26.27	66.56	34.89	50.51	62.50	33.27	34.75
Lane Group LOS	E	C	C	E	C	C	E	C	D	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.54	7.70	7.87	2.51	7.48	7.96	2.84	3.35	11.73	2.45	1.13	2.29
50th-Percentile Queue Length [ft/ln]	113.5	192.6	196.6	62.81	187.0	199.0	71.06	83.79	293.3	61.30	28.19	57.25
95th-Percentile Queue Length [veh/ln]	8.04	12.26	12.47	4.52	11.97	12.59	5.12	6.03	17.35	4.41	2.03	4.12
95th-Percentile Queue Length [ft/ln]	200.8	306.4	311.6	113.0	299.1	314.7	127.9	150.8	433.8	110.3	50.75	103.0

Movement, Approach, & Intersection Results

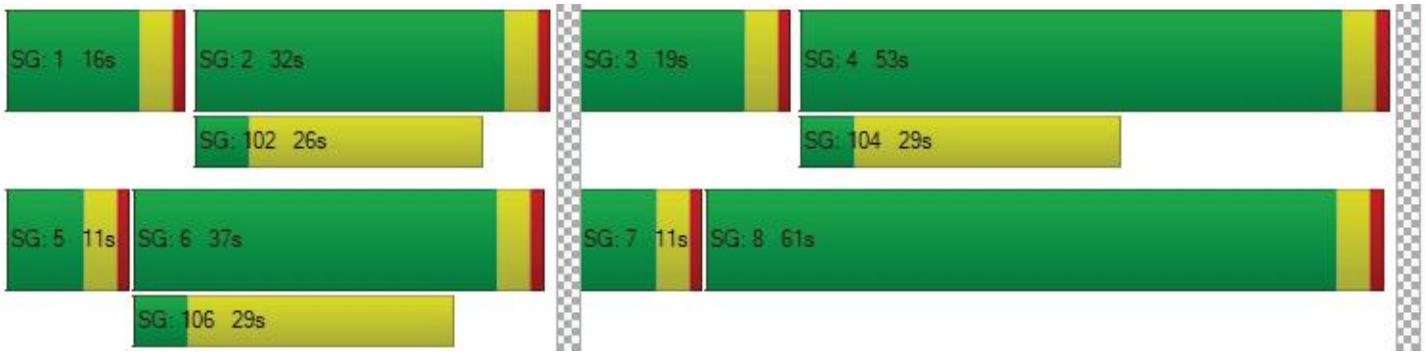
d_M, Delay for Movement [s/veh]	59.63	22.14	22.91	70.29	25.57	26.27	66.56	34.89	50.51	62.50	33.27	34.75
Movement LOS	E	C	C	E	C	C	E	C	D	E	C	C
d_A, Approach Delay [s/veh]	29.44			28.35			46.36			46.34		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.06											
Intersection LOS	C											
Intersection V/C	0.590											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.945	2.658	2.727
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	467	950	817
d_b, Bicycle Delay [s]	31.54	35.27	16.54	21.00
l_b,int, Bicycle LOS Score for Intersection	2.375	2.201	2.177	1.849
Bicycle LOS	B	B	B	A

Sequence

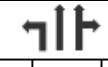
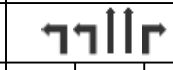
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	51.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	371	673	11	254	25	40	443	23	718	443	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	96	0	0	90	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	489	713	12	359	27	42	470	24	761	470	75
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	129	188	3	94	7	11	124	6	200	124	20
Total Analysis Volume [veh/h]	36	515	751	13	378	28	44	495	25	801	495	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	56	0	9	56	0	32	22	0	33	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	55	55	2	54	54	4	18	18	29	43	43
g / C, Green / Cycle	0.03	0.46	0.46	0.01	0.45	0.45	0.03	0.15	0.15	0.24	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.01	0.29	0.49	0.01	0.11	0.11	0.03	0.14	0.02	0.24	0.14	0.05
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1757	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	97	828	704	25	802	783	59	514	230	805	1225	547
d1, Uniform Delay [s]	57.16	24.50	32.39	58.67	20.79	20.81	57.44	50.67	44.07	45.44	28.95	26.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.33	3.50	53.14	14.89	0.77	0.79	17.26	11.59	0.21	13.76	0.22	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.62	1.07	0.51	0.26	0.26	0.75	0.96	0.11	1.00	0.40	0.14
d, Delay for Lane Group [s/veh]	59.49	28.00	85.53	73.57	21.56	21.61	74.70	62.26	44.28	59.19	29.17	26.24
Lane Group LOS	E	C	F	E	C	C	E	E	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.57	11.70	30.09	0.50	3.77	3.72	1.61	8.19	0.66	13.35	5.39	1.56
50th-Percentile Queue Length [ft/ln]	14.20	292.6	752.3	12.45	94.26	92.93	40.15	204.7	16.50	333.6	134.7	39.00
95th-Percentile Queue Length [veh/ln]	1.02	17.31	41.06	0.90	6.79	6.69	2.89	12.88	1.19	19.34	9.20	2.81
95th-Percentile Queue Length [ft/ln]	25.55	432.8	1026.	22.40	169.6	167.2	72.26	322.0	29.70	483.4	229.9	70.21

Movement, Approach, & Intersection Results

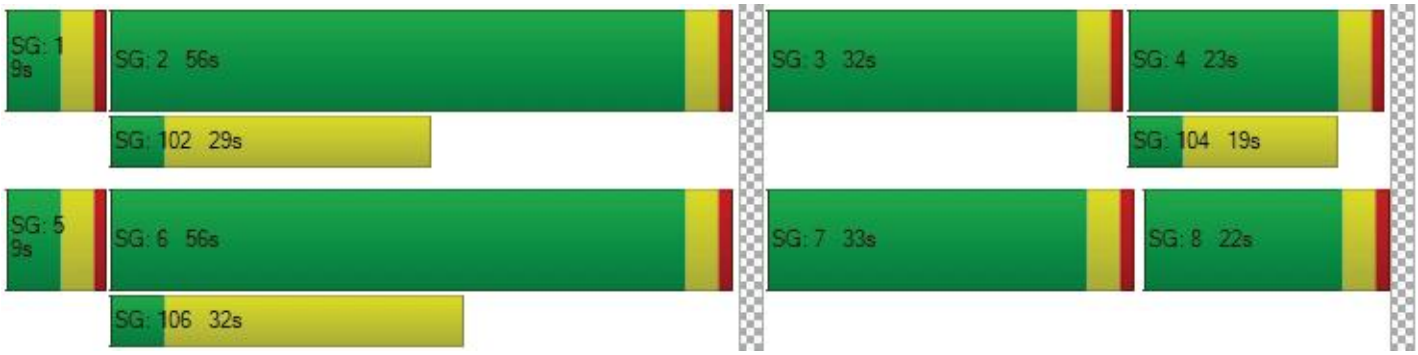
d_M, Delay for Movement [s/veh]	59.49	28.00	85.53	73.57	21.58	21.61	74.70	62.26	44.28	59.19	29.17	26.24
Movement LOS	E	C	F	E	C	C	E	E	D	E	C	C
d_A, Approach Delay [s/veh]	62.05			23.20			62.43			46.49		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	51.82											
Intersection LOS	D											
Intersection V/C	0.883											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.404	2.766	3.062
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	300	317
d_b, Bicycle Delay [s]	19.27	19.27	43.35	42.50
l_b,int, Bicycle LOS Score for Intersection	3.708	1.905	2.025	2.694
Bicycle LOS	D	A	B	B

Sequence

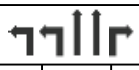
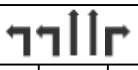
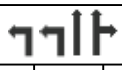
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	247	951	696	98	948	67	178	452	354	395	240	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	129	0	2	157	0	0	0	0	0	0	1
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	262	1137	738	106	1162	71	189	479	375	419	254	88
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	69	299	194	28	306	19	50	126	99	110	67	23
Total Analysis Volume [veh/h]	276	1197	777	112	1223	75	199	504	395	441	267	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	20	48	0	12	40	0	24	40	40	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	59	59	8	51	51	9	21	41	16	28	28
g / C, Green / Cycle	0.13	0.49	0.49	0.07	0.42	0.42	0.08	0.18	0.34	0.13	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.35	0.51	0.07	0.25	0.05	0.06	0.15	0.26	0.13	0.10	0.10
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1643
c, Capacity [veh/h]	444	1676	748	114	2070	646	264	609	527	444	417	381
d1, Uniform Delay [s]	49.14	24.08	30.66	55.92	26.68	21.06	54.10	47.56	34.76	51.95	39.54	39.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.48	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.43	2.63	43.36	34.50	1.25	0.37	4.34	2.95	9.00	18.38	0.76	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.71	1.04	0.98	0.59	0.12	0.75	0.83	0.75	0.99	0.45	0.45
d, Delay for Lane Group [s/veh]	50.57	26.72	74.02	90.42	27.93	21.43	58.44	50.51	43.76	70.33	40.30	40.39
Lane Group LOS	D	C	F	F	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.00	13.62	29.70	4.48	9.13	1.36	3.10	7.50	11.42	7.74	4.86	4.45
50th-Percentile Queue Length [ft/ln]	100.0	340.4	742.6	111.9	228.1	33.90	77.59	187.4	285.5	193.5	121.4	111.3
95th-Percentile Queue Length [veh/ln]	7.20	19.67	39.82	7.95	14.08	2.44	5.59	11.99	16.97	12.31	8.47	7.92
95th-Percentile Queue Length [ft/ln]	180.0	491.7	995.6	198.7	352.0	61.02	139.6	299.7	424.1	307.6	211.7	197.9

Movement, Approach, & Intersection Results

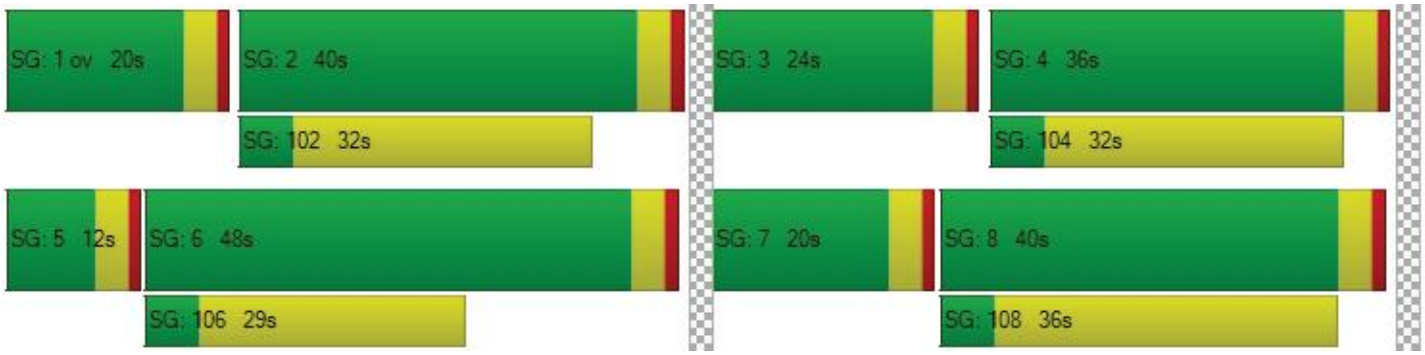
d_M, Delay for Movement [s/veh]	50.57	26.72	74.02	90.42	27.93	21.43	58.44	50.51	43.76	70.33	40.32	40.39
Movement LOS	D	C	F	F	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	45.98			32.55			49.52			56.85		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	44.84											
Intersection LOS	D											
Intersection V/C	0.917											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.331	3.094	2.950	2.915
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	600	600	533
d_b, Bicycle Delay [s]	24.07	29.40	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	3.416	2.335	2.465	2.220
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	15.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	5	4	23	3	46	4	21	43	157	1081	15
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	5	4	24	3	49	4	22	46	166	1148	16
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	1	1	6	1	13	1	6	12	44	302	4
Total Analysis Volume [veh/h]	17	5	4	25	3	52	4	23	48	175	1208	17
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	69	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	89	83	83
g / C, Green / Cycle	0.07	0.07	0.74	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.25	0.34	0.34
s, saturation flow rate [veh/h]	1670	1513	901	1800	1791
c, Capacity [veh/h]	148	148	687	1251	1245
d1, Uniform Delay [s]	54.18	55.44	5.19	8.46	8.47
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	3.22	1.25	1.38	1.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.55	0.32	0.49	0.49
d, Delay for Lane Group [s/veh]	55.56	58.66	6.44	9.84	9.86
Lane Group LOS	E	E	A	A	A
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.54	2.58	1.69	7.24	7.22
50th-Percentile Queue Length [ft/ln]	38.62	64.55	42.35	180.92	180.41
95th-Percentile Queue Length [veh/ln]	2.78	4.65	3.05	11.65	11.62
95th-Percentile Queue Length [ft/ln]	69.51	116.19	76.24	291.21	290.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.56	55.56	55.56	55.56	58.66	58.66	58.66	58.66	6.44	6.44	9.85	9.86
Movement LOS	E	E	E	E	E	E	E	E	A	A	A	A
d_A, Approach Delay [s/veh]	55.56				58.66				9.32			
Approach LOS	E				E				A			
d_I, Intersection Delay [s/veh]	15.07											
Intersection LOS	B											
Intersection V/C	0.479											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.774	0.000	2.840
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1083
d_b, Bicycle Delay [s]	45.94	45.94	12.60
l_b,int, Bicycle LOS Score for Intersection	1.603	1.609	2.610
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	10	487	53	23	5	6	94	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	517	56	24	5	6	100	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	136	15	6	1	2	26	1
Total Analysis Volume [veh/h]	12	544	59	25	5	6	105	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	69	0	0	0	23	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	78	78	78	11
g / C, Green / Cycle	0.01	0.65	0.65	0.65	0.09
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.18	0.05	0.08
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1549
c, Capacity [veh/h]	25	1174	1174	998	143
d1, Uniform Delay [s]	58.67	8.26	8.86	7.68	53.50
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.51	0.35	0.59	0.17	11.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.19	0.28	0.08	0.82
d, Delay for Lane Group [s/veh]	72.18	8.62	9.44	7.84	64.68
Lane Group LOS	E	A	A	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.46	2.28	3.64	0.82	3.94
50th-Percentile Queue Length [ft/ln]	11.41	57.12	90.94	20.47	98.59
95th-Percentile Queue Length [veh/ln]	0.82	4.11	6.55	1.47	7.10
95th-Percentile Queue Length [ft/ln]	20.53	102.82	163.68	36.85	177.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.18	9.11	9.44	7.84	64.68	64.68	64.68	64.68
Movement LOS	E	A	A	A	E	E	E	E
d_A, Approach Delay [s/veh]	10.12				64.68			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	15.07							
Intersection LOS	B							
Intersection V/C	0.479							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.179
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317
d_b, Bicycle Delay [s]	12.60	42.50
l_b,int, Bicycle LOS Score for Intersection	2.067	1.751
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	243.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.125

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	2	18	74	0	20	117	1003	7	7	509	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	2	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	2	19	78	0	21	124	1065	7	7	541	133
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	1	5	21	0	6	33	280	2	2	142	35
Total Analysis Volume [veh/h]	4	2	20	82	0	22	131	1121	7	7	569	140
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

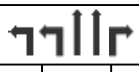
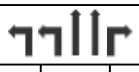
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.05	0.04	1.13	0.00	0.03	0.15	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	77.04	91.71	16.95	243.2	268.6	10.75	9.68	0.00	0.00	10.81	0.00	0.00
Movement LOS	F	F	C	F	F	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.57	0.57	0.57	6.15	6.15	0.11	0.51	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	14.14	14.14	14.14	153.6	153.6	2.63	12.72	0.00	0.00	0.85	0.00	0.00
d_A, Approach Delay [s/veh]	31.95			194.09			1.01			0.11		
Approach LOS	D			F			A			A		
d_I, Intersection Delay [s/veh]	10.62											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	45.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	553	970	285	96	540	41	70	663	405	158	753	183
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	34	0	0	50	0	0	2	0	0	1	3
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	586	1062	302	102	622	43	74	705	429	167	799	197
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	154	279	79	27	164	11	19	186	113	44	210	52
Total Analysis Volume [veh/h]	617	1118	318	107	655	45	78	742	452	176	841	207
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	49	0	13	33	0	9	47	0	11	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	50	50	9	34	34	5	38	38	7	41	41
g / C, Green / Cycle	0.20	0.41	0.41	0.08	0.29	0.29	0.04	0.32	0.32	0.06	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.19	0.33	0.21	0.06	0.20	0.20	0.02	0.22	0.30	0.05	0.30	0.30
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1760	3329	3427	1530	3329	1800	1679
c, Capacity [veh/h]	670	1414	631	129	516	504	129	1099	491	194	612	571
d1, Uniform Delay [s]	47.00	30.71	26.13	54.76	38.02	38.02	56.77	35.34	39.30	56.17	37.35	37.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.33	0.11	0.31	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.83	4.58	2.86	12.83	7.26	7.43	4.49	0.73	18.75	14.43	11.47	12.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.79	0.50	0.83	0.69	0.69	0.60	0.68	0.92	0.91	0.88	0.89
d, Delay for Lane Group [s/veh]	52.83	35.29	28.98	67.58	45.27	45.45	61.26	36.08	58.06	70.60	48.82	50.01
Lane Group LOS	D	D	C	E	D	D	E	D	E	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.54	14.74	7.20	3.65	10.24	10.04	1.25	9.47	15.24	3.04	16.74	15.88
50th-Percentile Queue Length [ft/ln]	238.3	368.4	179.9	91.19	255.9	250.9	31.13	236.8	380.9	75.94	418.4	397.0
95th-Percentile Queue Length [veh/ln]	14.60	21.04	11.60	6.57	15.49	15.24	2.24	14.52	21.64	5.47	23.45	22.42
95th-Percentile Queue Length [ft/ln]	364.9	525.9	289.9	164.1	387.1	380.9	56.03	363.0	541.0	136.6	586.2	560.4

Movement, Approach, & Intersection Results

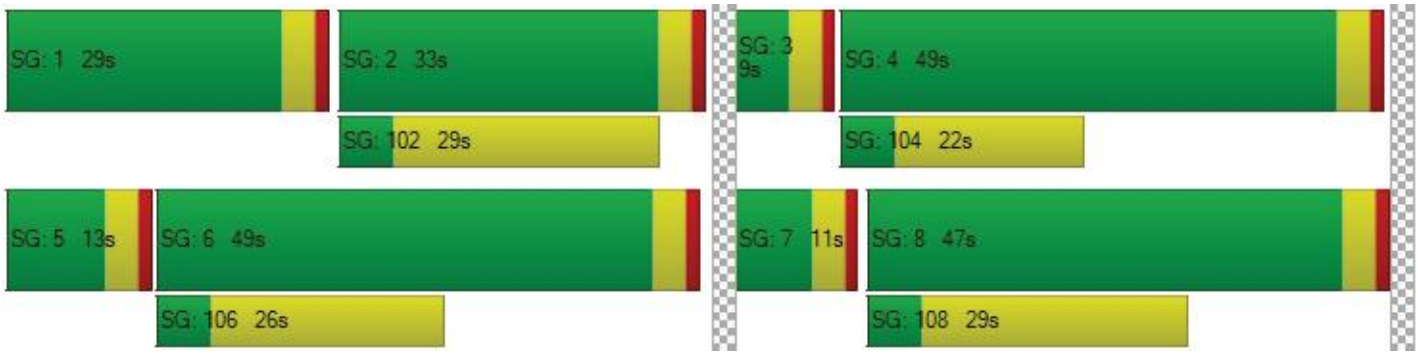
d_M, Delay for Movement [s/veh]	52.83	35.29	28.98	67.58	45.35	45.45	61.26	36.08	58.06	70.60	49.24	50.01
Movement LOS	D	D	C	E	D	D	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	39.59			48.31			45.43			52.45		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.23											
Intersection LOS	D											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.074	2.746	2.996	3.032
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	483	717	750
d_b, Bicycle Delay [s]	23.44	34.50	24.70	23.44
l_b,int, Bicycle LOS Score for Intersection	3.253	2.225	2.609	2.569
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	51.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	236	1176	727	154	1201	87	267	863	219	633	638	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	4	15	0	5	18	0	0	0	2	0	0	8
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	1262	771	168	1291	92	283	915	234	671	676	120
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	67	332	203	44	340	24	74	241	62	177	178	32
Total Analysis Volume [veh/h]	267	1328	812	177	1359	97	298	963	246	706	712	126
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	40	40	10	36	0	21	43	0	27	49	49
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	43	70	6	39	39	13	32	32	23	42	52
g / C, Green / Cycle	0.08	0.36	0.58	0.05	0.32	0.32	0.11	0.27	0.27	0.19	0.35	0.44
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.53	0.05	0.28	0.28	0.09	0.24	0.24	0.21	0.21	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1739	3329	3427	1619	3329	3427	2708
c, Capacity [veh/h]	277	1741	888	166	1103	560	362	925	437	638	1209	1181
d1, Uniform Delay [s]	54.81	34.22	22.54	57.00	38.43	38.44	52.33	42.06	42.06	48.50	31.73	20.02
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.27	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.59	3.23	15.51	50.60	9.79	17.35	4.68	3.13	13.64	53.56	0.46	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.76	0.91	1.06	0.88	0.88	0.82	0.89	0.89	1.11	0.59	0.11
d, Delay for Lane Group [s/veh]	72.41	37.45	38.06	107.6	48.21	55.78	57.01	45.19	55.70	102.0	32.19	20.06
Lane Group LOS	E	D	D	F	D	E	E	D	E	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.69	11.81	23.02	3.69	14.74	16.15	4.63	12.00	12.61	14.24	8.47	1.06
50th-Percentile Queue Length [ft/ln]	117.3	295.1	575.4	92.28	368.6	403.7	115.7	299.8	315.2	356.0	211.8	26.44
95th-Percentile Queue Length [veh/ln]	8.25	17.44	30.89	6.64	21.04	22.74	8.16	17.68	18.43	21.50	13.25	1.90
95th-Percentile Queue Length [ft/ln]	206.1	436.0	772.1	166.1	526.0	568.5	203.9	441.8	460.8	537.5	331.2	47.59

Movement, Approach, & Intersection Results

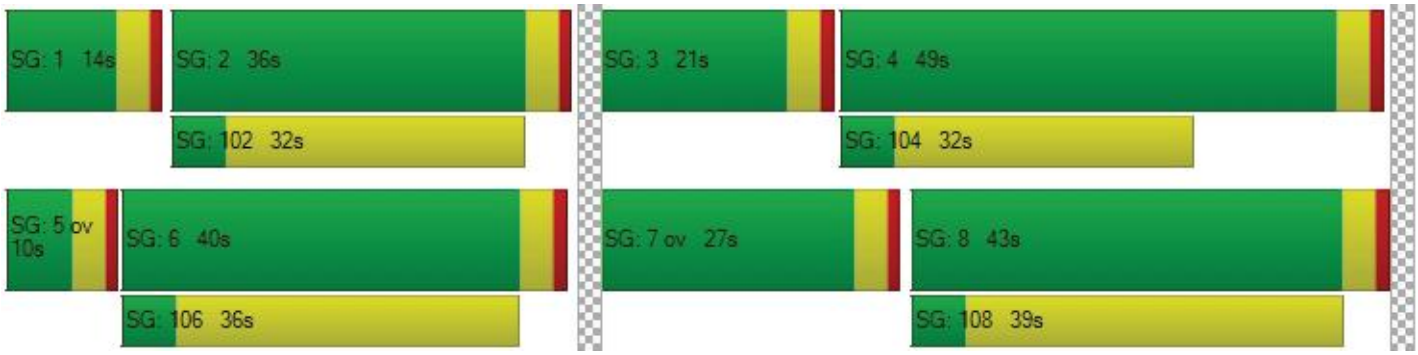
d_M, Delay for Movement [s/veh]	72.41	37.45	38.06	107.6	50.40	55.78	57.01	46.74	55.70	102.0	32.19	20.06
Movement LOS	E	D	D	F	D	E	E	D	E	F	C	C
d_A, Approach Delay [s/veh]	41.53			56.92			50.23			63.15		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	51.63											
Intersection LOS	D											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.442	3.153	3.055	3.243
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	750
d_b, Bicycle Delay [s]	29.40	32.27	27.34	23.44
l_b,int, Bicycle LOS Score for Intersection	2.883	2.458	2.388	2.833
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.511

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	986	622	0	1033	422	0	0	0	347	0	432
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	16	0	0	5	6	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1061	622	0	1100	453	0	0	0	368	0	458
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	279	164	0	289	119	0	0	0	97	0	121
Total Analysis Volume [veh/h]	0	1117	655	0	1158	477	0	0	0	387	0	482
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	72	0	0	72	0	0	0	0	48	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	86	86		26	26	26
g / C, Green / Cycle	0.72	0.72		0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.33	0.24		0.17	0.18	0.19
s, saturation flow rate [veh/h]	3427	4903		1714	1583	1530
c, Capacity [veh/h]	2458	3517		370	342	331
d1, Uniform Delay [s]	7.12	6.28		44.61	45.07	45.27
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.61	0.25		4.08	5.60	6.48
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.33		0.80	0.84	0.86
d, Delay for Lane Group [s/veh]	7.73	6.53		48.68	50.66	51.74
Lane Group LOS	A	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.60	3.37		8.79	8.72	8.70
50th-Percentile Queue Length [ft/ln]	140.12	84.34		219.7	218.0	217.6
95th-Percentile Queue Length [veh/ln]	9.49	6.07		13.65	13.56	13.54
95th-Percentile Queue Length [ft/ln]	237.19	151.81		341.3	339.1	338.5

Movement, Approach, & Intersection Results

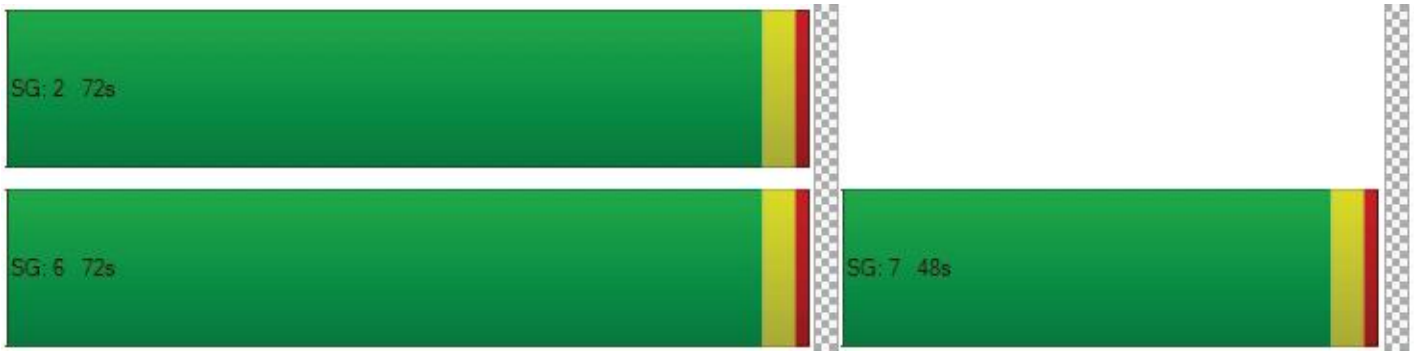
d_M, Delay for Movement [s/veh]	0.00	7.73	0.00	0.00	6.53	0.00	0.00	0.00	0.00	49.17	0.00	51.31
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	7.73			6.53			0.00			50.34		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.06											
Intersection LOS	B											
Intersection V/C	0.511											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	0	733
d_b, Bicycle Delay [s]	11.27	11.27	60.00	24.07
l_b,int, Bicycle LOS Score for Intersection	2.481	2.197	4.132	2.993
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1339	389	0	1805	0	0	0	0	518	0	492
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	47	0	0	150	0	0	0	0	0	0	82
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1466	412	0	2063	0	0	0	0	549	0	604
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	386	108	0	543	0	0	0	0	144	0	159
Total Analysis Volume [veh/h]	0	1543	434	0	2172	0	0	0	0	578	0	636
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	0	24	0	0	0	0	96	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	58	58		54	54
g / C, Green / Cycle	0.49	0.49		0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.31	0.33		0.17	0.42
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	2384	3179		1488	684
d1, Uniform Delay [s]	23.11	23.72		22.20	31.39
k, delay calibration	0.50	0.50		0.11	0.13
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.37	1.21		0.17	7.45
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.68		0.39	0.93
d, Delay for Lane Group [s/veh]	24.48	24.93		22.36	38.84
Lane Group LOS	C	C		C	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	10.97	11.83		5.48	18.37
50th-Percentile Queue Length [ft/ln]	274.26	295.63		137.02	459.16
95th-Percentile Queue Length [veh/ln]	16.40	17.46		9.32	25.39
95th-Percentile Queue Length [ft/ln]	410.06	436.62		233.00	634.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	24.48	0.00	0.00	24.93	0.00	0.00	0.00	0.00	22.36	0.00	38.84
Movement LOS		C			C					C		D
d_A, Approach Delay [s/veh]	24.48			24.93			0.00			30.99		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	26.28											
Intersection LOS	C											
Intersection V/C	0.748											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	0	1533
d_b, Bicycle Delay [s]	41.67	41.67	60.00	3.27
l_b,int, Bicycle LOS Score for Intersection	2.408	2.456	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	18.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1075	256	0	892	474	0	0	0	240	0	498
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	8	0	0	50	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1148	256	0	996	474	0	0	0	254	0	554
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	302	67	0	262	125	0	0	0	67	0	146
Total Analysis Volume [veh/h]	0	1208	269	0	1048	499	0	0	0	267	0	583
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	62	0	0	62	0	0	0	0	58	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	83	83		29	29
g / C, Green / Cycle	0.69	0.69		0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.25	0.31		0.16	0.22
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3371	2356		421	666
d1, Uniform Delay [s]	7.77	8.44		40.42	43.49
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.30	0.61		1.58	3.85
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.44		0.63	0.88
d, Delay for Lane Group [s/veh]	8.07	9.05		42.01	47.35
Lane Group LOS	A	A		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	4.10	5.86		7.23	8.63
50th-Percentile Queue Length [ft/ln]	102.56	146.59		180.81	215.85
95th-Percentile Queue Length [veh/ln]	7.38	9.84		11.64	13.45
95th-Percentile Queue Length [ft/ln]	184.60	245.88		291.07	336.32

Movement, Approach, & Intersection Results

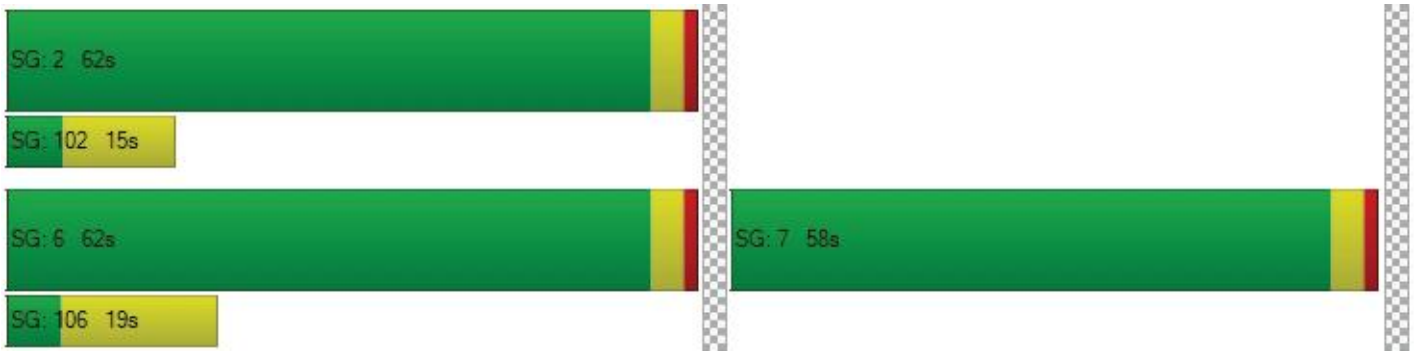
d_M, Delay for Movement [s/veh]	0.00	8.07	0.00	0.00	9.05	0.00	0.00	0.00	0.00	42.01	0.00	47.35
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	8.07			9.05			0.00			45.67		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	18.69											
Intersection LOS	B											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.354
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	0	900
d_b, Bicycle Delay [s]	16.02	16.02	60.00	18.15
l_b,int, Bicycle LOS Score for Intersection	2.224	2.424	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1287	562	0	969	394	298	0	392	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	0	5	0	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1372	562	0	1032	394	306	0	392	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	361	148	0	272	104	81	0	103	0	0	0
Total Analysis Volume [veh/h]	0	1444	592	0	1086	415	322	0	413	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	34	0	0	34	0	86	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	76	76	36	36	
g / C, Green / Cycle	0.64	0.64	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.32	0.10	0.27	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	3120	2181	989	454	
d1, Uniform Delay [s]	11.25	11.62	32.83	40.61	
k, delay calibration	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.50	0.82	0.19	7.25	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.50	0.33	0.91	
d, Delay for Lane Group [s/veh]	11.74	12.43	33.02	47.86	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	6.43	7.57	3.69	12.55	
50th-Percentile Queue Length [ft/ln]	160.69	189.22	92.34	313.87	
95th-Percentile Queue Length [veh/ln]	10.59	12.08	6.65	18.37	
95th-Percentile Queue Length [ft/ln]	264.64	302.02	166.21	459.15	

Movement, Approach, & Intersection Results

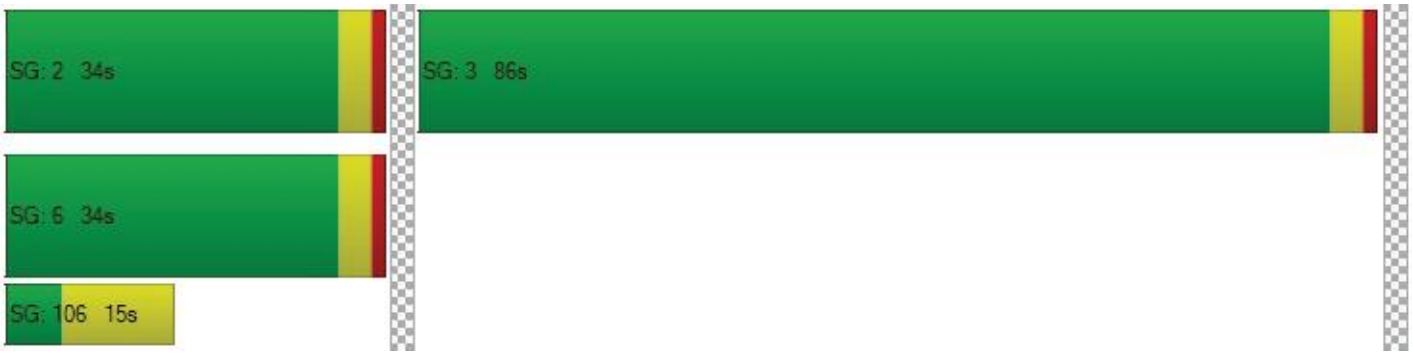
d_M, Delay for Movement [s/veh]	0.00	11.74	0.00	0.00	12.43	0.00	33.02	0.00	47.86	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	11.74			12.43			41.36			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	18.64											
Intersection LOS	B											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	1367	0
d_b, Bicycle Delay [s]	33.75	33.75	6.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.354	2.456	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	35.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1236	419	513	1182	0	509	43	548	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	39	0	123	28	0	7	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1349	444	667	1281	0	547	46	581	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	355	117	176	337	0	144	12	153	0	0	0
Total Analysis Volume [veh/h]	0	1420	467	702	1348	0	576	48	612	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	15	0	45	60	0	0	60	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	43	43	28	76	36	36	36	
g / C, Green / Cycle	0.36	0.36	0.24	0.63	0.30	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.31	0.21	0.27	0.24	0.25	0.27	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1628	1530	
c, Capacity [veh/h]	1758	549	791	3087	521	495	465	
d1, Uniform Delay [s]	34.75	35.53	44.18	11.35	38.29	38.94	39.81	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.13	0.15	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.11	15.29	3.60	0.45	2.75	4.35	8.00	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.81	0.85	0.89	0.44	0.79	0.83	0.89	
d, Delay for Lane Group [s/veh]	38.86	50.82	47.79	11.80	41.04	43.29	47.81	
Lane Group LOS	D	D	D	B	D	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	12.97	14.74	10.42	5.99	11.43	11.81	12.50	
50th-Percentile Queue Length [ft/ln]	324.36	368.60	260.56	149.63	285.6	295.3	312.4	
95th-Percentile Queue Length [veh/ln]	18.88	21.04	15.72	10.00	16.97	17.45	18.30	
95th-Percentile Queue Length [ft/ln]	472.04	526.03	392.92	249.94	424.2	436.2	457.4	

Movement, Approach, & Intersection Results

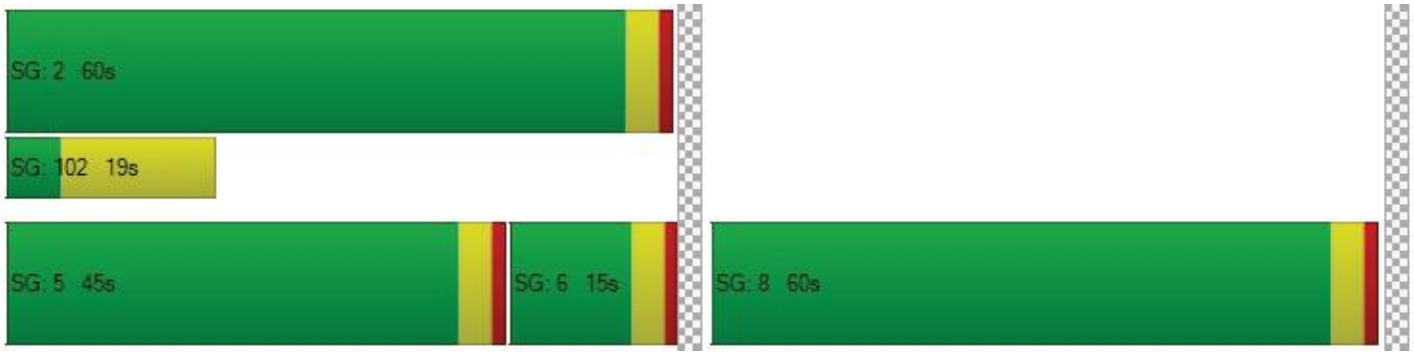
d_M, Delay for Movement [s/veh]	0.00	38.86	50.82	47.79	11.80	0.00	41.68	43.29	46.33	0.00	0.00	0.00
Movement LOS		D	D	D	B		D	D	D			
d_A, Approach Delay [s/veh]	41.82			24.13			44.04			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	35.34											
Intersection LOS	D											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.448	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	183	933	933	0
d_b, Bicycle Delay [s]	49.50	17.07	17.07	60.00
l_b,int, Bicycle LOS Score for Intersection	2.597	2.687	3.599	4.132
Bicycle LOS	B	B	D	D

Sequence

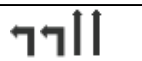
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	893	509	501	647	0	451	7	212	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	45	5	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	955	540	576	691	0	478	7	225	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	251	142	152	182	0	126	2	59	0	0	0
Total Analysis Volume [veh/h]	0	1005	568	606	727	0	503	7	237	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	51	0	34	85	0	0	35	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	61	61	24	90	22	22	
g / C, Green / Cycle	0.51	0.51	0.20	0.75	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.37	0.18	0.21	0.15	0.16	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1537	
c, Capacity [veh/h]	1747	780	680	2560	620	286	
d1, Uniform Delay [s]	20.42	22.95	46.46	4.87	46.80	47.23	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.39	5.91	4.33	0.28	2.61	10.58	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.58	0.73	0.89	0.28	0.81	0.85	
d, Delay for Lane Group [s/veh]	21.80	28.86	50.79	5.15	49.41	57.80	
Lane Group LOS	C	C	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.89	13.42	9.17	2.65	7.41	7.88	
50th-Percentile Queue Length [ft/ln]	247.23	335.43	229.28	66.26	185.29	196.92	
95th-Percentile Queue Length [veh/ln]	15.05	19.42	14.14	4.77	11.88	12.48	
95th-Percentile Queue Length [ft/ln]	376.16	485.61	353.44	119.27	296.90	311.99	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	21.80	28.86	50.79	5.15	0.00	49.41	57.80	57.80	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	E	E			
d_A, Approach Delay [s/veh]	24.35			25.90			52.15			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	30.60											
Intersection LOS	C											
Intersection V/C	0.712											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	1350	517	0
d_b, Bicycle Delay [s]	22.20	6.34	33.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.425	2.659	2.792	4.132
Bicycle LOS	B	B	C	D

Sequence

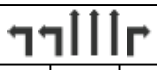
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	50.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.016

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	512	1223	467	480	861	796	914	0	457	463	0	566
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	8	0	16	5	0	0	0	0	0	0	11
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	543	1304	495	525	918	844	969	0	484	491	0	611
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	143	343	130	138	242	222	255	0	127	129	0	161
Total Analysis Volume [veh/h]	572	1373	521	553	966	888	1020	0	509	517	0	643
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	84	0	0	84	0	36	0	0	36	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	80	80	80	80	32	32
g / C, Green / Cycle	0.67	0.67	0.67	0.67	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.50	0.28	0.71	0.20	0.31	0.16
s, saturation flow rate [veh/h]	1148	4903	780	4903	3329	3329
c, Capacity [veh/h]	713	3269	467	3269	888	888
d1, Uniform Delay [s]	22.19	9.26	32.68	8.30	44.00	38.20
k, delay calibration	0.50	0.50	0.50	0.50	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.25	0.40	102.51	0.23	71.15	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.42	1.18	0.30	1.15	0.58
d, Delay for Lane Group [s/veh]	31.44	9.66	135.19	8.53	115.15	38.81
Lane Group LOS	C	A	F	A	F	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.46	5.35	13.77	3.37	21.82	6.67
50th-Percentile Queue Length [ft/ln]	186.44	133.75	344.21	84.22	545.58	166.83
95th-Percentile Queue Length [veh/ln]	11.94	9.14	22.35	6.06	31.94	10.91
95th-Percentile Queue Length [ft/ln]	298.41	228.59	558.79	151.60	798.50	272.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.44	9.66	0.00	135.1	8.53	0.00	115.1	0.00	0.00	38.81	0.00	0.00
Movement LOS	C	A		F	A		F			D		
d_A, Approach Delay [s/veh]	16.06			54.64			115.15			38.81		
Approach LOS	B			D			F			D		
d_I, Intersection Delay [s/veh]	50.34											
Intersection LOS	D											
Intersection V/C	1.016											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.439	3.310
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1333	533	533
d_b, Bicycle Delay [s]	6.67	6.67	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.629	2.395	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	174	1468	329	62	520	118	237	979	186	107	541	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	8	8	0	0	0	8	0	5	5	5
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	184	1556	357	74	551	125	251	1046	197	118	578	113
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	409	94	19	145	33	66	275	52	31	152	30
Total Analysis Volume [veh/h]	194	1638	376	78	580	132	264	1101	207	124	608	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	36	46	0	9	19	0	39	51	0	14	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	47	47	5	43	43	21	42	42	10	31	31
g / C, Green / Cycle	0.08	0.40	0.40	0.04	0.36	0.36	0.17	0.35	0.35	0.08	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.06	0.33	0.25	0.02	0.12	0.09	0.15	0.32	0.14	0.07	0.18	0.08
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	262	1938	605	128	1741	543	295	1198	535	143	894	399
d1, Uniform Delay [s]	54.07	32.96	29.10	56.79	28.31	27.32	48.62	37.40	29.35	54.35	39.85	35.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.08	4.75	4.76	4.56	0.52	1.06	9.40	3.37	0.46	14.41	0.92	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.85	0.62	0.61	0.33	0.24	0.90	0.92	0.39	0.87	0.68	0.30
d, Delay for Lane Group [s/veh]	58.16	37.72	33.87	61.35	28.82	28.38	58.02	40.77	29.81	68.75	40.76	35.95
Lane Group LOS	E	D	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.02	15.02	9.41	1.25	4.16	2.85	8.48	15.81	4.57	4.27	8.15	2.85
50th-Percentile Queue Length [ft/ln]	75.41	375.4	235.3	31.15	104.0	71.17	212.1	395.1	114.2	106.7	203.7	71.30
95th-Percentile Queue Length [veh/ln]	5.43	21.37	14.44	2.24	7.49	5.12	13.26	22.33	8.07	7.66	12.83	5.13
95th-Percentile Queue Length [ft/ln]	135.7	534.3	361.1	56.07	187.2	128.1	331.5	558.1	201.8	191.4	320.8	128.3

Movement, Approach, & Intersection Results

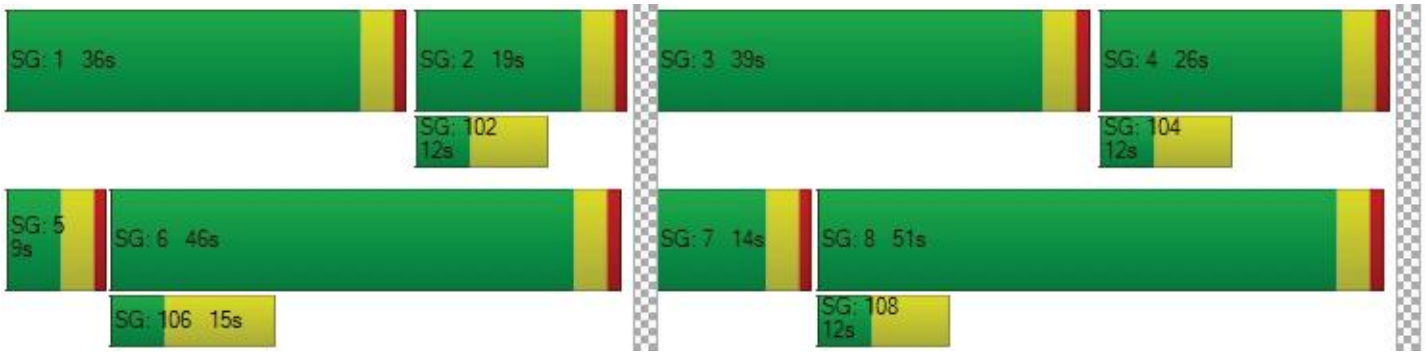
d_M, Delay for Movement [s/veh]	58.16	37.72	33.87	61.35	28.82	28.38	58.02	40.77	29.81	68.75	40.76	35.95
Movement LOS	E	D	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	38.86			31.96			42.22			44.17		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.66											
Intersection LOS	D											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.202	3.169	2.875	2.859
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	250	783	367
d_b, Bicycle Delay [s]	25.35	45.94	22.20	40.02
l_b,int, Bicycle LOS Score for Intersection	2.774	1.994	2.857	2.262
Bicycle LOS	C	A	C	B

Sequence

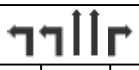
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	791	257	87	219	179	347	879	21	68	490	173
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	24	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	838	272	92	232	190	368	956	22	72	534	183
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	221	72	24	61	50	97	252	6	19	141	48
Total Analysis Volume [veh/h]	61	882	286	97	244	200	387	1006	23	76	562	193
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	22	36	0	12	26	26	42	63	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	44	44	8	46	80	30	48	48	5	23	35
g / C, Green / Cycle	0.05	0.36	0.36	0.07	0.38	0.66	0.25	0.40	0.40	0.04	0.19	0.29
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.19	0.06	0.07	0.13	0.23	0.29	0.29	0.02	0.16	0.13
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1786	3329	3427	1530
c, Capacity [veh/h]	80	1247	557	114	1315	1015	423	716	710	128	650	443
d1, Uniform Delay [s]	56.52	32.68	29.85	55.40	24.53	7.81	44.00	30.52	30.54	56.78	47.14	34.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.25	0.16	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.54	3.40	3.36	15.55	0.31	0.43	16.08	1.99	2.03	4.35	3.63	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.71	0.51	0.85	0.19	0.20	0.92	0.72	0.72	0.59	0.87	0.44
d, Delay for Lane Group [s/veh]	70.06	36.08	33.21	70.95	24.84	8.25	60.08	32.52	32.57	61.13	50.77	35.33
Lane Group LOS	E	D	C	E	C	A	E	C	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.13	11.46	6.96	3.40	2.37	2.03	13.00	12.84	12.78	1.21	8.44	4.68
50th-Percentile Queue Length [ft/ln]	53.27	286.5	174.0	84.89	59.32	50.84	325.0	321.0	319.3	30.29	210.9	116.9
95th-Percentile Queue Length [veh/ln]	3.84	17.01	11.29	6.11	4.27	3.66	18.92	18.72	18.64	2.18	13.20	8.22
95th-Percentile Queue Length [ft/ln]	95.89	425.3	282.2	152.8	106.7	91.51	472.8	467.9	465.9	54.52	330.0	205.5

Movement, Approach, & Intersection Results

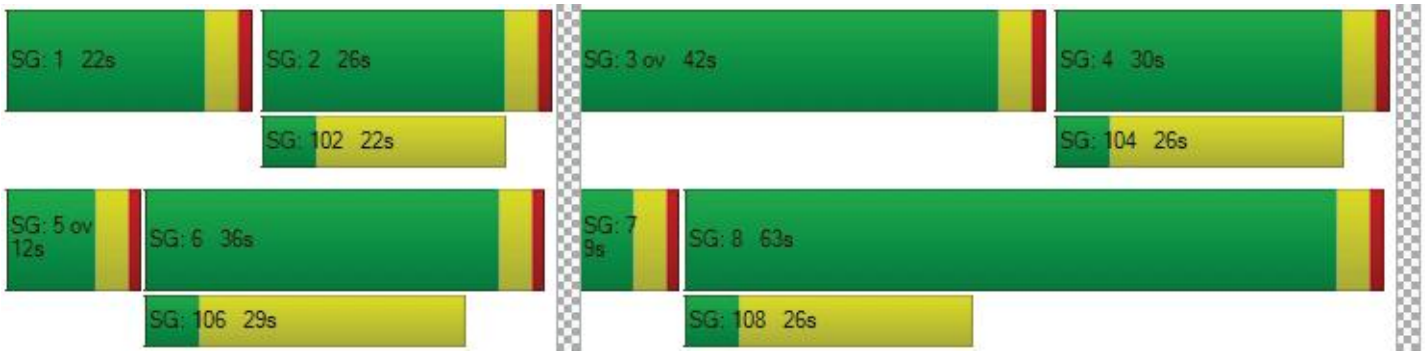
d_M, Delay for Movement [s/veh]	70.06	36.08	33.21	70.95	24.84	8.25	60.08	32.54	32.57	61.13	50.77	35.33
Movement LOS	E	D	C	E	C	A	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	37.10			26.97			40.07			48.13		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.06											
Intersection LOS	D											
Intersection V/C	0.704											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.724	2.794	2.752	2.918
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	367	983	433
d_b, Bicycle Delay [s]	32.27	40.02	15.50	36.82
l_b,int, Bicycle LOS Score for Intersection	2.574	2.006	2.728	2.245
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	35	857	66	377	983	405	440	672	84	60	177	364
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	31	0	0	23	5	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	939	70	400	1065	434	474	712	89	64	188	386
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	247	18	105	280	114	125	187	23	17	49	102
Total Analysis Volume [veh/h]	39	988	74	421	1121	457	499	749	94	67	198	406
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	33	0	21	45	45	23	57	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	51	51	17	64	87	19	32	32	4	17	38
g / C, Green / Cycle	0.03	0.42	0.42	0.14	0.53	0.73	0.16	0.27	0.27	0.04	0.14	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.13	0.23	0.30	0.15	0.24	0.24	0.02	0.06	0.27
s, saturation flow rate [veh/h]	1714	3427	1737	3329	4903	1530	3329	1800	1731	3329	3427	1530
c, Capacity [veh/h]	53	1445	732	472	2612	1108	527	479	460	124	497	490
d1, Uniform Delay [s]	57.69	25.26	25.27	50.60	16.99	6.50	50.00	42.43	42.50	56.74	46.55	37.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.12	0.11	0.11	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.36	1.18	2.32	6.09	0.52	1.13	9.41	6.73	7.38	3.59	0.52	10.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.49	0.49	0.89	0.43	0.41	0.95	0.90	0.90	0.54	0.40	0.83
d, Delay for Lane Group [s/veh]	76.05	26.44	27.60	56.69	17.50	7.64	59.41	49.16	49.89	60.34	47.07	48.01
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.44	7.49	7.85	6.60	6.26	4.44	8.08	13.05	12.71	1.06	2.73	12.34
50th-Percentile Queue Length [ft/ln]	36.07	187.3	196.1	164.9	156.5	111.0	201.9	326.1	317.8	26.51	68.24	308.4
95th-Percentile Queue Length [veh/ln]	2.60	11.98	12.44	10.81	10.36	7.90	12.74	18.97	18.56	1.91	4.91	18.10
95th-Percentile Queue Length [ft/ln]	64.92	299.5	311.0	270.2	259.1	197.3	318.4	474.2	464.0	47.73	122.8	452.4

Movement, Approach, & Intersection Results

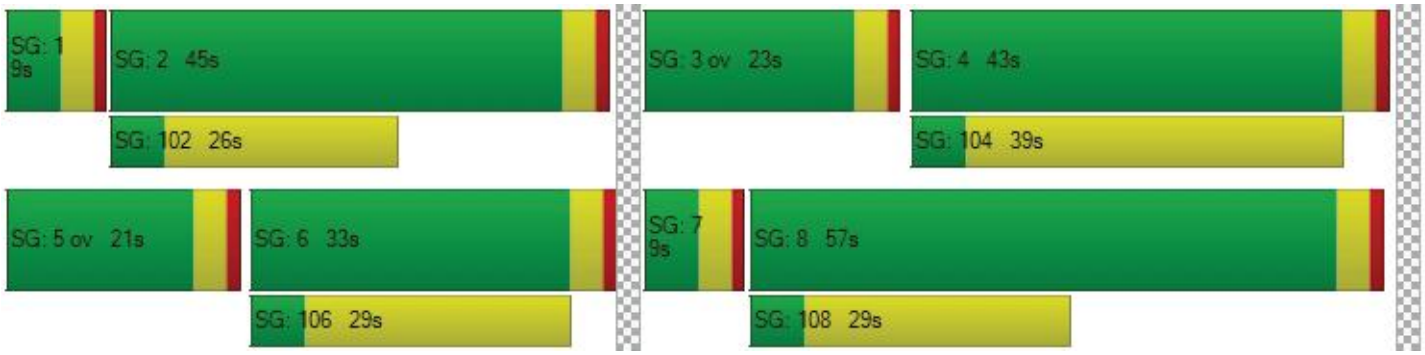
d_M, Delay for Movement [s/veh]	76.05	26.77	27.60	56.69	17.50	7.64	59.41	49.47	49.89	60.34	47.07	48.01
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	28.57			23.50			53.19			48.96		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.73											
Intersection LOS	D											
Intersection V/C	0.661											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.031	3.361	2.799	2.876
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	683	883	650
d_b, Bicycle Delay [s]	34.50	26.00	18.70	27.34
l_b,int, Bicycle LOS Score for Intersection	2.165	2.659	2.667	2.113
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	372.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	30.924

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	601	29	67	890	130	243	49	30	13	21	83
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	8	0	13	5	5	8	0	0	0	0	15
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	645	31	84	948	143	266	52	32	14	22	103
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	170	8	22	249	38	70	14	8	4	6	27
Total Analysis Volume [veh/h]	8	679	33	88	998	151	280	55	34	15	23	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	22	0	10	23	0	0	88	0	0	88	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	18	18	6	23	23	84	84	84	84
g / C, Green / Cycle	0.01	0.15	0.15	0.05	0.19	0.19	0.70	0.70	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.00	0.14	0.14	0.05	0.22	0.23	30.69	0.02	0.57	0.07
s, saturation flow rate [veh/h]	1714	3427	1758	1714	3427	1682	11	1530	67	1530
c, Capacity [veh/h]	17	517	265	86	655	322	63	1069	89	1069
d1, Uniform Delay [s]	59.11	50.12	50.17	57.00	48.53	48.53	52.13	5.56	32.76	5.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.34	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.69	22.26	36.75	52.18	94.37	107.4	1988.86	0.01	9.81	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.91	0.91	1.03	1.18	1.18	5.34	0.03	0.43	0.10
d, Delay for Lane Group [s/veh]	78.80	72.38	86.92	109.1	142.9	155.9	2040.99	5.57	42.57	5.89
Lane Group LOS	E	E	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.33	8.52	9.86	3.84	18.35	19.17	36.55	0.25	1.10	0.84
50th-Percentile Queue Length [ft/ln]	8.34	213.0	246.4	95.98	458.7	479.3	913.77	6.29	27.39	21.02
95th-Percentile Queue Length [veh/ln]	0.60	13.31	15.01	6.91	27.50	28.59	65.79	0.45	1.97	1.51
95th-Percentile Queue Length [ft/ln]	15.01	332.7	375.1	172.7	687.5	714.8	1644.78	11.32	49.30	37.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	78.80	76.86	86.92	109.1	145.8	155.9	2040.	2040.	5.57	42.57	42.57	5.89
Movement LOS	E	E	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	77.35			144.49			1853.45			15.44		
Approach LOS	E			F			F			B		
d_I, Intersection Delay [s/veh]	372.41											
Intersection LOS	F											
Intersection V/C	30.924											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.877	3.328	2.135	2.060
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	300	317	1400	1400
d_b, Bicycle Delay [s]	43.35	42.50	5.40	5.40
l_b,int, Bicycle LOS Score for Intersection	1.956	2.240	2.168	1.801
Bicycle LOS	A	B	B	A

Sequence

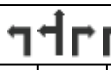
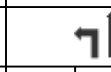
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1772	2665	1687	1772
c, Capacity [veh/h]	1	2920	1533	1	2919	1405	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-3

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024 PLUS PHASE 1

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Scenario 4 OY 2024 CUM Plus Phase 1 AM
Report File: K:\...\4 OY 2024 CUM Plus Phase 1 AM.pdf
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.661	34.3	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.589	25.9	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.485	19.6	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.697	28.2	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.713	29.1	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.497	17.5	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.427	31.7	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.636	36.6	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.597	32.0	C
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	WB Right	0.785	55.6	E
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.470	21.7	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.525	30.2	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.741	39.3	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.504	39.9	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.879	48.8	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.584	33.6	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.622	47.3	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.896	32.7	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.664	25.4	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.778	43.1	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.735	41.2	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	2.026	921.8	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.776	47.7	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.702	42.1	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.748	42.6	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.809	47.8	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.514	26.9	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.751	45.7	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	SB Left	0.596	37.2	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.647	24.6	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.892	54.3	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.371	36.7	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.460	19.5	B
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.710	25.5	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	0.882	31.4	D
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.548	29.8	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	NB Left	0.595	40.0	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.464	20.8	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.966	75.8	E
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	WB Thru	1.313	101.3	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	1.001	38.1	E
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.575	34.1	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.580	29.5	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.775	45.9	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	SB Right	0.693	50.9	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.564	36.7	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.586	34.4	C
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.340	16.3	C
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.803	46.0	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.518	33.0	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SWB Thru	0.333	32.1	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.653	38.6	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	SB Left	0.680	30.7	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Thru	0.323	9.9	A
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.483	26.6	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.447	29.2	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.817	44.2	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.531	27.6	C
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	0.021	77.9	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Right	0.847	55.0	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.729	34.2	C
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.515	23.6	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	SB Thru	0.972	53.6	D
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.567	21.4	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.797	30.0	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.894	44.0	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.742	33.6	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	EB Left	0.720	25.8	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.698	38.3	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.692	36.7	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.697	33.9	C
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	35.119	659.5	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition	NB Left	0.470	37.2	D
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	303	0	0	712	200	0	0	0	360	4	252
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	14	6	0	0	4	0	0	0	0	17	0	0
Site-Generated Trips [veh/h]	73	0	0	0	7	0	0	0	0	66	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	263	327	0	0	766	212	0	0	0	465	4	267
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	69	86	0	0	202	56	0	0	0	122	1	70
Total Analysis Volume [veh/h]	277	344	0	0	806	223	0	0	0	489	4	281
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	33	49	0	0	16	0	0	0	0	0	71	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	21	75	49	49		37	37
g / C, Green / Cycle	0.18	0.62	0.41	0.41		0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10	0.20	0.21		0.29	0.18
s, saturation flow rate [veh/h]	1714	3427	3427	1615		1715	1530
c, Capacity [veh/h]	307	2127	1399	659		536	478
d1, Uniform Delay [s]	48.22	9.59	26.26	26.67		39.79	34.73
k, delay calibration	0.19	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	15.30	0.16	1.23	2.92		6.97	1.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.16	0.49	0.52		0.92	0.59
d, Delay for Lane Group [s/veh]	63.52	9.75	27.50	29.59		46.76	35.88
Lane Group LOS	E	A	C	C		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	9.40	1.91	7.45	7.86		14.91	7.05
50th-Percentile Queue Length [ft/ln]	234.92	47.78	186.22	196.42		372.65	176.31
95th-Percentile Queue Length [veh/ln]	14.42	3.44	11.92	12.45		21.24	11.41
95th-Percentile Queue Length [ft/ln]	360.60	86.00	298.12	311.34		530.94	285.19

Movement, Approach, & Intersection Results

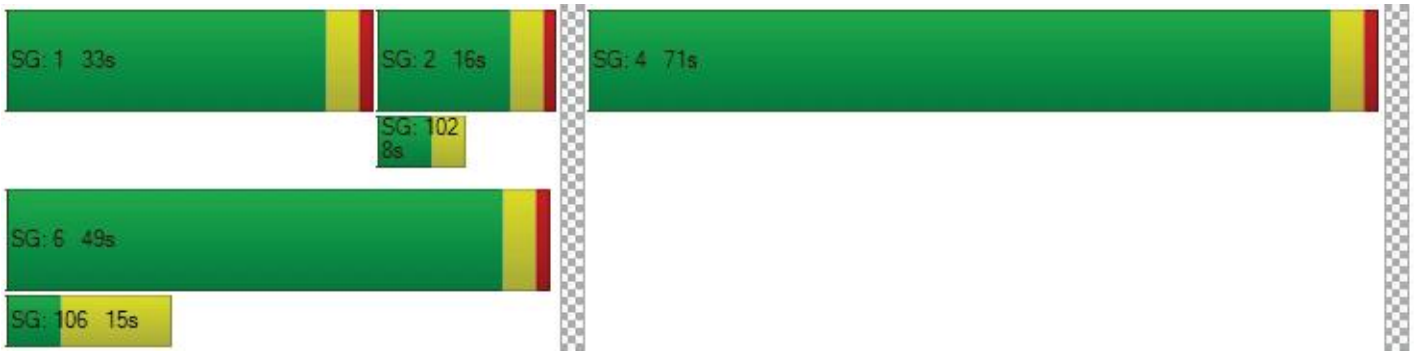
d_M, Delay for Movement [s/veh]	63.52	9.75	0.00	0.00	27.81	29.59	0.00	0.00	0.00	46.76	46.76	35.88
Movement LOS	E	A			C	C				D	D	D
d_A, Approach Delay [s/veh]	33.74			28.20			0.00			42.81		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	34.28											
Intersection LOS	C											
Intersection V/C	0.661											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.930	2.207
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	200	0	1117
d_b, Bicycle Delay [s]	23.44	48.60	60.00	11.70
l_b,int, Bicycle LOS Score for Intersection	2.072	2.126	4.132	2.837
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	302	906	0	0	822	355	0	0	0	421	1	309
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	5	0	0
Site-Generated Trips [veh/h]	0	0	0	0	7	0	0	0	0	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	320	966	0	0	882	376	0	0	0	459	1	328
Peak Hour Factor	0.964	0.964	1.000	1.000	0.964	0.964	1.000	1.000	1.000	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	83	251	0	0	229	98	0	0	0	119	0	85
Total Analysis Volume [veh/h]	332	1002	0	0	915	390	0	0	0	476	1	340
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	20	66	0	0	46	0	0	0	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	82	64	64		30	30	30
g / C, Green / Cycle	0.12	0.68	0.53	0.53		0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.10	0.29	0.27	0.25		0.14	0.14	0.22
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1715	1530
c, Capacity [veh/h]	389	2342	1827	816		429	429	382
d1, Uniform Delay [s]	51.98	8.50	17.84	17.55		39.21	39.21	43.40
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.39	0.57	0.98	2.00		1.13	1.13	7.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.43	0.50	0.48		0.56	0.56	0.89
d, Delay for Lane Group [s/veh]	57.37	9.07	18.82	19.55		40.34	40.34	51.11
Lane Group LOS	E	A	B	B		D	D	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.19	5.60	8.14	7.07		6.27	6.27	10.50
50th-Percentile Queue Length [ft/ln]	129.71	140.05	203.61	176.87		156.6	156.7	262.4
95th-Percentile Queue Length [veh/ln]	8.92	9.48	12.82	11.44		10.37	10.37	15.81
95th-Percentile Queue Length [ft/ln]	223.10	237.09	320.61	285.92		259.3	259.3	395.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.37	9.07	0.00	0.00	18.82	19.55	0.00	0.00	0.00	40.34	40.34	51.11
Movement LOS	E	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	21.09			19.04			0.00			44.82		
Approach LOS	C			B			A			D		
d_I, Intersection Delay [s/veh]	25.93											
Intersection LOS	C											
Intersection V/C	0.589											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.083	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	700	0	833
d_b, Bicycle Delay [s]	14.02	25.35	60.00	20.42
l_b,int, Bicycle LOS Score for Intersection	2.660	2.636	4.132	2.908
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.485

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	792	0	0	1079	0	0	0	0	510	0	291
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	0	0	0	7	0	0	0	0	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	846	0	0	1155	0	0	0	0	547	0	308
Peak Hour Factor	1.000	0.869	1.000	1.000	0.869	1.000	1.000	1.000	1.000	0.869	0.869	0.869
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	243	0	0	332	0	0	0	0	157	0	89
Total Analysis Volume [veh/h]	0	974	0	0	1329	0	0	0	0	629	0	354
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	63	0	0	63	0	0	0	0	0	57	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83		29	29	29
g / C, Green / Cycle	0.69	0.69		0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.20	0.27		0.19	0.19	0.21
s, saturation flow rate [veh/h]	4903	4903		1714	1698	1530
c, Capacity [veh/h]	3371	3371		422	417	376
d1, Uniform Delay [s]	7.31	8.04		42.18	42.28	43.42
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	0.35		3.12	3.29	6.30
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.39		0.78	0.78	0.87
d, Delay for Lane Group [s/veh]	7.53	8.39		45.31	45.57	49.72
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.11	4.67		9.39	9.43	9.95
50th-Percentile Queue Length [ft/ln]	77.73	116.77		234.7	235.6	248.7
95th-Percentile Queue Length [veh/ln]	5.60	8.21		14.42	14.46	15.12
95th-Percentile Queue Length [ft/ln]	139.91	205.37		360.4	361.5	378.0

Movement, Approach, & Intersection Results

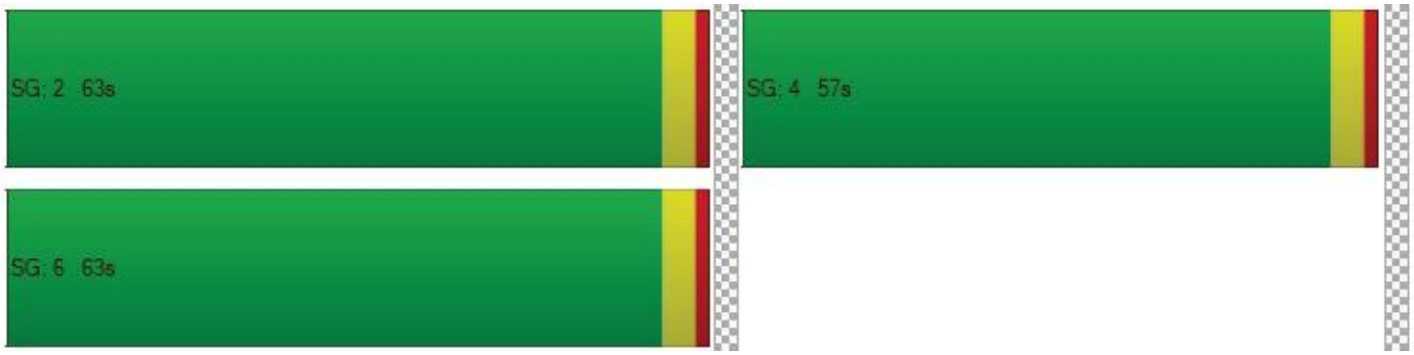
d_M, Delay for Movement [s/veh]	0.00	7.53	0.00	0.00	8.39	0.00	0.00	0.00	0.00	45.43	45.57	49.41
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	7.53			8.39			0.00			46.86		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.64											
Intersection LOS	B											
Intersection V/C	0.485											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	0	883
d_b, Bicycle Delay [s]	15.50	15.50	60.00	18.70
l_b,int, Bicycle LOS Score for Intersection	2.095	2.291	4.132	3.182
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.697

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	427	319	160	805	0	153	5	296	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	21	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	73	70	0	73	0	0	0	107	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	546	430	170	947	0	162	5	433	0	0	0
Peak Hour Factor	1.000	0.952	0.952	0.952	0.952	1.000	0.952	0.952	0.952	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	143	113	45	249	0	43	1	114	0	0	0
Total Analysis Volume [veh/h]	0	574	452	179	995	0	170	5	455	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	18	59	0	0	61	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	56	56	14	74	38	38	
g / C, Green / Cycle	0.46	0.46	0.12	0.61	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.30	0.10	0.29	0.10	0.30	
s, saturation flow rate [veh/h]	3427	1530	1714	3427	1717	1530	
c, Capacity [veh/h]	1587	708	200	2101	550	490	
d1, Uniform Delay [s]	20.79	24.56	52.28	12.67	30.86	39.44	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.19	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.64	4.36	13.00	0.77	0.33	12.91	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.36	0.64	0.90	0.47	0.32	0.93	
d, Delay for Lane Group [s/veh]	21.43	28.93	65.27	13.43	31.19	52.35	
Lane Group LOS	C	C	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.31	10.48	6.03	7.23	3.91	14.58	
50th-Percentile Queue Length [ft/ln]	132.73	261.89	150.77	180.71	97.70	364.43	
95th-Percentile Queue Length [veh/ln]	9.09	15.78	10.06	11.64	7.03	20.84	
95th-Percentile Queue Length [ft/ln]	227.21	394.60	251.45	290.94	175.86	520.97	

Movement, Approach, & Intersection Results

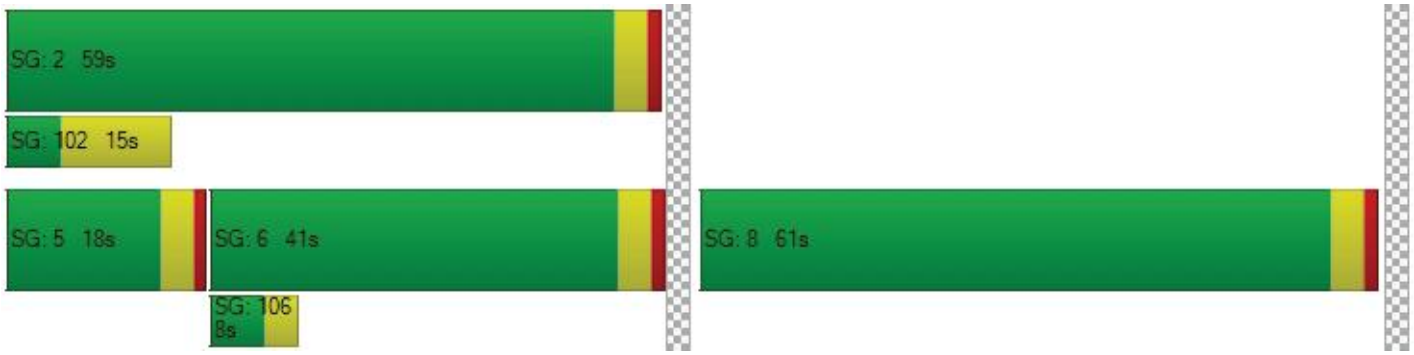
d_M, Delay for Movement [s/veh]	0.00	21.43	28.93	65.27	13.43	0.00	31.19	31.19	52.35	0.00	0.00	0.00
Movement LOS		C	C	E	B		C	C	D			
d_A, Approach Delay [s/veh]	24.73			21.34			46.47			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.16											
Intersection LOS	C											
Intersection V/C	0.697											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.160	2.059
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	917	950	0
d_b, Bicycle Delay [s]	28.70	17.60	16.54	60.00
l_b,int, Bicycle LOS Score for Intersection	2.124	2.528	2.599	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	817	408	302	931	0	411	3	402	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	7	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	2	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	872	441	320	1011	0	436	3	426	0	0	0
Peak Hour Factor	1.000	0.966	0.966	0.966	0.966	1.000	0.966	0.966	0.966	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	226	114	83	262	0	113	1	110	0	0	0
Total Analysis Volume [veh/h]	0	903	457	331	1047	0	451	3	441	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	60	0	18	78	0	0	42	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	68	68	14	86	26	26	26	
g / C, Green / Cycle	0.57	0.57	0.11	0.71	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.38	0.42	0.10	0.31	0.18	0.18	0.19	
s, saturation flow rate [veh/h]	1800	1609	3329	3427	1714	1618	1530	
c, Capacity [veh/h]	1017	909	382	2443	378	357	337	
d1, Uniform Delay [s]	18.26	19.68	52.22	7.12	44.31	44.70	45.09	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.15	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.49	5.61	6.02	0.55	4.90	7.03	10.02	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.67	0.75	0.87	0.43	0.80	0.84	0.87	
d, Delay for Lane Group [s/veh]	21.76	25.29	58.23	7.67	49.21	51.73	55.12	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.67	15.08	5.21	5.21	9.05	9.15	9.32	
50th-Percentile Queue Length [ft/ln]	341.72	377.03	130.31	130.37	226.1	228.7	232.8	
95th-Percentile Queue Length [veh/ln]	19.73	21.45	8.96	8.96	13.98	14.11	14.32	
95th-Percentile Queue Length [ft/ln]	493.30	536.26	223.91	224.00	349.5	352.8	358.0	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	22.63	25.29	58.23	7.67	0.00	50.05	51.73	54.01	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	23.52			19.82			51.98			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	29.13											
Intersection LOS	C											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.364	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	1233	633	0
d_b, Bicycle Delay [s]	17.07	8.82	28.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.682	2.696	3.036	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	946	463	0	1265	26	160	0	553	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	0	11	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1009	492	0	1358	26	170	0	586	0	0	0
Peak Hour Factor	1.000	0.942	0.942	1.000	0.942	1.000	0.942	0.942	0.942	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	268	131	0	360	7	45	0	156	0	0	0
Total Analysis Volume [veh/h]	0	1071	522	0	1442	26	180	0	622	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	67	0	0	67	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	84	84	28	28	28	
g / C, Green / Cycle	0.70	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.29	0.11	0.20	0.20	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3436	3436	399	356	356	
d1, Uniform Delay [s]	6.88	7.62	39.47	44.34	44.34	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.24	0.38	0.80	6.75	6.75	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.31	0.42	0.45	0.87	0.87	
d, Delay for Lane Group [s/veh]	7.12	7.99	40.27	51.09	51.09	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.30	4.93	4.66	9.54	9.54	
50th-Percentile Queue Length [ft/ln]	82.58	123.30	116.4	238.4	238.4	
95th-Percentile Queue Length [veh/ln]	5.95	8.57	8.20	14.60	14.60	
95th-Percentile Queue Length [ft/ln]	148.65	214.36	204.9	365.0	365.0	

Movement, Approach, & Intersection Results

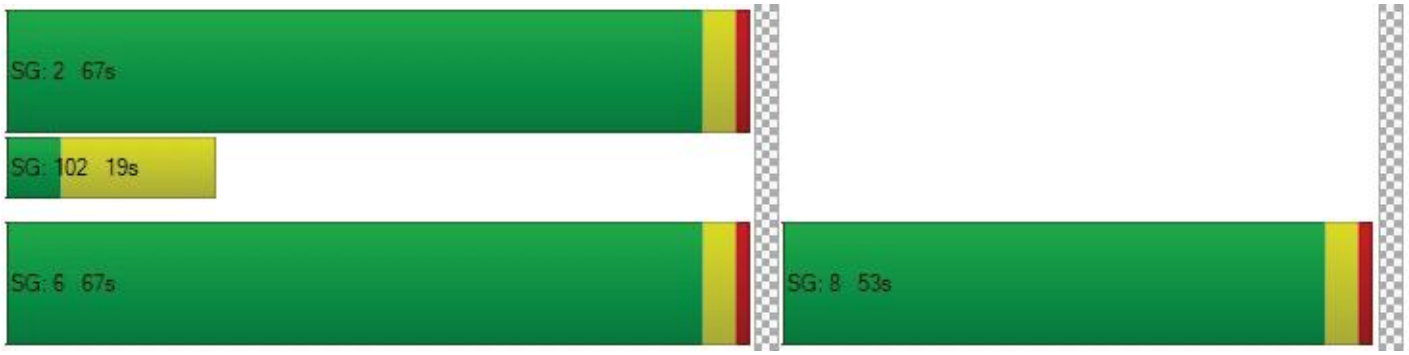
d_M, Delay for Movement [s/veh]	0.00	7.12	0.00	0.00	7.99	0.00	40.27	51.09	51.09	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	7.12			7.99			48.67			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.55											
Intersection LOS	B											
Intersection V/C	0.497											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.342	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1050	817	0
d_b, Bicycle Delay [s]	13.54	13.54	21.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.149	2.353	2.883	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.427

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	570	67	55	502	93	117	199	75	90	208	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	604	71	58	532	99	124	211	80	95	220	65
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	169	20	16	149	28	35	59	22	27	62	18
Total Analysis Volume [veh/h]	44	678	80	65	597	111	139	237	90	107	247	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	0	10	35	0	48	29	0	45	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	73	73	6	75	75	12	16	16	9	14	14
g / C, Green / Cycle	0.03	0.61	0.61	0.05	0.62	0.62	0.10	0.13	0.13	0.08	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.03	0.21	0.21	0.04	0.20	0.20	0.08	0.09	0.10	0.06	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1734	1714	1800	1703	1714	1800	1635	1714	1800	1662
c, Capacity [veh/h]	56	1090	1050	82	1117	1057	170	242	220	135	206	190
d1, Uniform Delay [s]	57.62	11.90	11.90	56.52	10.82	10.82	53.02	49.62	49.75	54.29	51.78	51.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.96	0.90	0.94	15.31	0.77	0.82	9.35	3.65	4.34	9.83	6.93	8.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.35	0.35	0.79	0.33	0.33	0.82	0.70	0.72	0.79	0.80	0.82
d, Delay for Lane Group [s/veh]	78.58	12.80	12.84	71.83	11.59	11.65	62.36	53.26	54.09	64.12	58.72	60.24
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.65	5.31	5.13	2.30	4.67	4.45	4.55	5.10	4.80	3.55	5.22	5.01
50th-Percentile Queue Length [ft/ln]	41.30	132.6	128.2	57.48	116.8	111.1	113.7	127.4	119.9	88.67	130.4	125.3
95th-Percentile Queue Length [veh/ln]	2.97	9.08	8.84	4.14	8.22	7.90	8.05	8.80	8.39	6.38	8.96	8.68
95th-Percentile Queue Length [ft/ln]	74.34	227.0	221.0	103.4	205.4	197.6	201.2	220.0	209.7	159.6	224.0	217.1

Movement, Approach, & Intersection Results

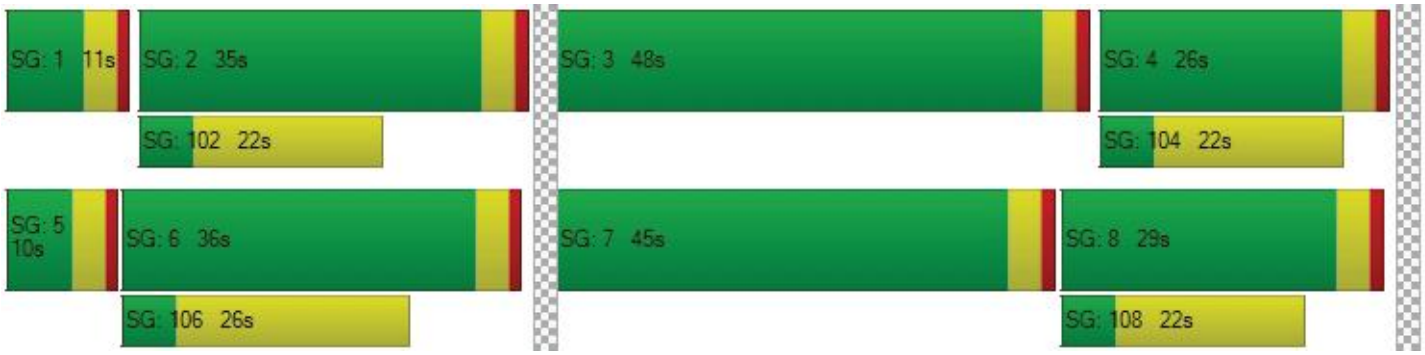
d_M, Delay for Movement [s/veh]	78.58	12.82	12.84	71.83	11.61	11.65	62.36	53.50	54.09	64.12	59.23	60.24
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	16.43			16.68			56.26			60.63		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	31.68											
Intersection LOS	C											
Intersection V/C	0.427											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.626	2.639	2.484	2.600
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	517	417	367
d_b, Bicycle Delay [s]	32.27	33.00	37.60	40.02
l_b,int, Bicycle LOS Score for Intersection	2.221	2.197	1.944	1.912
Bicycle LOS	B	B	A	A

Sequence

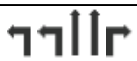
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.636

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	725	72	337	942	150	215	192	53	91	197	246
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	13	0	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	784	76	357	1023	159	228	204	56	96	209	261
Peak Hour Factor	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	214	21	97	279	43	62	56	15	26	57	71
Total Analysis Volume [veh/h]	87	854	83	389	1114	173	248	222	61	105	228	284
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	39	0	20	48	0	15	40	0	21	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	52	52	16	61	61	11	27	27	9	25	25
g / C, Green / Cycle	0.06	0.44	0.44	0.13	0.51	0.51	0.09	0.22	0.22	0.08	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.05	0.12	0.33	0.11	0.07	0.06	0.04	0.06	0.13	0.19
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	100	1494	667	439	1746	779	300	761	340	132	376	320
d1, Uniform Delay [s]	56.05	25.43	20.19	51.21	21.39	16.28	53.68	38.84	37.83	54.45	43.00	46.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.52	1.59	0.38	6.17	1.80	0.66	5.78	0.21	0.25	10.31	1.58	8.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.57	0.12	0.89	0.64	0.22	0.83	0.29	0.18	0.80	0.61	0.89
d, Delay for Lane Group [s/veh]	75.56	27.02	20.57	57.37	23.19	16.94	59.46	39.05	38.08	64.76	44.58	54.67
Lane Group LOS	E	C	C	E	C	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.15	9.37	1.47	6.11	11.53	2.76	3.92	2.76	1.49	3.50	6.30	8.96
50th-Percentile Queue Length [ft/ln]	78.87	234.2	36.64	152.8	288.2	69.11	97.95	68.95	37.20	87.49	157.5	223.9
95th-Percentile Queue Length [veh/ln]	5.68	14.39	2.64	10.17	17.10	4.98	7.05	4.96	2.68	6.30	10.42	13.87
95th-Percentile Queue Length [ft/ln]	141.9	359.7	65.96	254.2	427.4	124.4	176.3	124.1	66.97	157.4	260.5	346.6

Movement, Approach, & Intersection Results

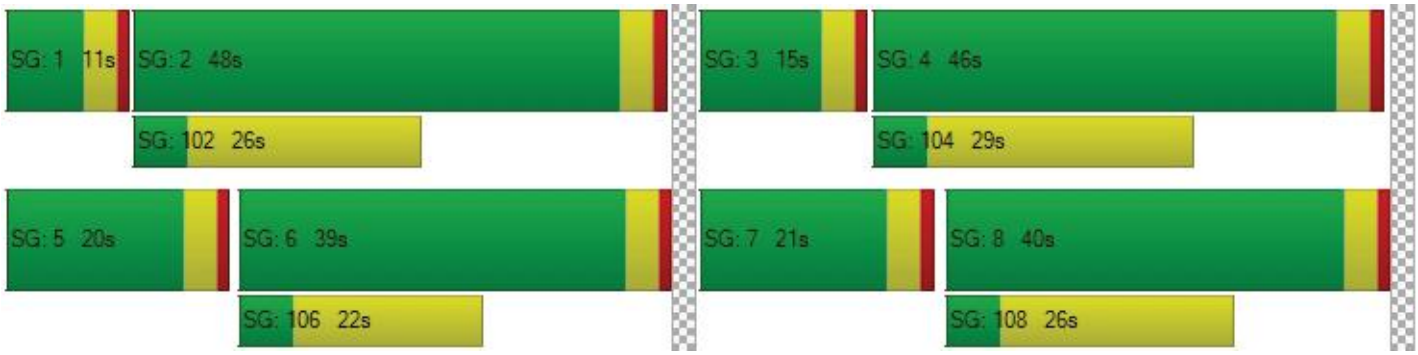
d_M, Delay for Movement [s/veh]	75.56	27.02	20.57	57.37	23.19	16.94	59.46	39.05	38.08	64.76	44.58	54.67
Movement LOS	E	C	C	E	C	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	30.62			30.48			48.47			52.66		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.56											
Intersection LOS	D											
Intersection V/C	0.636											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.843	3.036	2.751	2.681
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	733	600	700
d_b, Bicycle Delay [s]	30.10	24.07	29.40	25.35
l_b,int, Bicycle LOS Score for Intersection	2.404	2.942	1.998	2.578
Bicycle LOS	B	C	A	B

Sequence

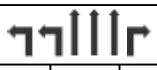
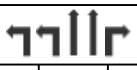
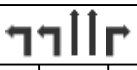
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	919	38	219	1191	403	291	252	173	16	252	199
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	9	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	11	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	170	984	40	232	1279	427	308	267	183	17	267	211
Peak Hour Factor	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	262	11	62	341	114	82	71	49	5	71	56
Total Analysis Volume [veh/h]	181	1049	43	247	1364	455	328	285	195	18	285	225
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	23	47	0	19	52	0	9	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	59	59	11	62	62	14	32	32	2	20	20
g / C, Green / Cycle	0.07	0.49	0.49	0.09	0.52	0.52	0.11	0.27	0.27	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.21	0.03	0.07	0.28	0.30	0.10	0.08	0.13	0.01	0.08	0.15
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	222	2393	747	311	2525	788	382	911	407	64	584	261
d1, Uniform Delay [s]	55.27	20.01	16.18	53.25	19.56	20.09	52.16	35.27	37.06	58.04	45.05	48.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.13	0.59	0.15	4.56	0.83	3.07	5.66	0.19	0.88	2.38	0.63	8.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.44	0.06	0.79	0.54	0.58	0.86	0.31	0.48	0.28	0.49	0.86
d, Delay for Lane Group [s/veh]	62.41	20.59	16.33	57.81	20.39	23.17	57.82	35.46	37.93	60.42	45.69	56.76
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.92	6.43	0.66	3.84	8.55	9.26	5.14	3.38	4.93	0.29	3.90	7.14
50th-Percentile Queue Length [ft/ln]	73.03	160.6	16.42	96.12	213.8	231.6	128.6	84.53	123.1	7.27	97.60	178.5
95th-Percentile Queue Length [veh/ln]	5.26	10.58	1.18	6.92	13.35	14.26	8.86	6.09	8.57	0.52	7.03	11.52
95th-Percentile Queue Length [ft/ln]	131.4	264.5	29.55	173.0	333.7	356.4	221.6	152.1	214.1	13.09	175.6	288.1

Movement, Approach, & Intersection Results

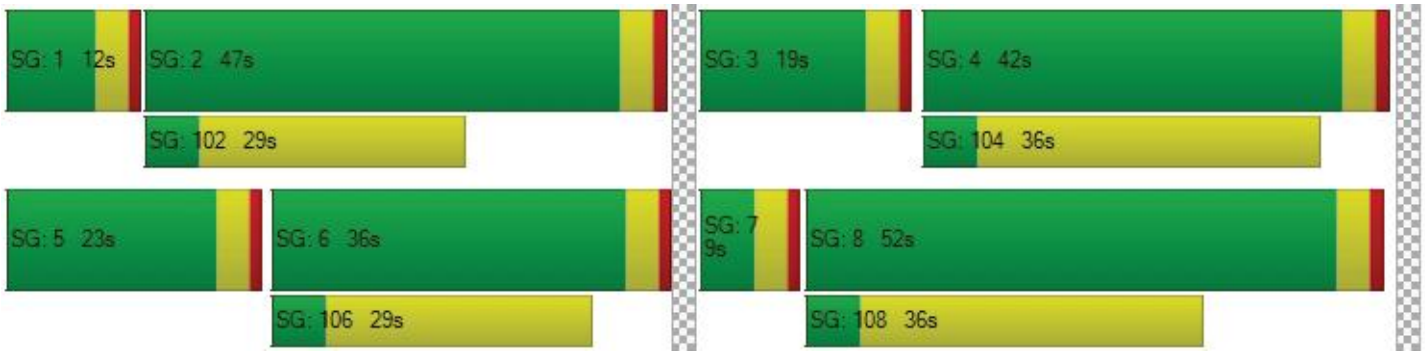
d_M, Delay for Movement [s/veh]	62.41	20.59	16.33	57.81	20.39	23.17	57.82	35.46	37.93	60.42	45.69	56.76
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	26.39			25.48			45.13			50.91		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.00											
Intersection LOS	C											
Intersection V/C	0.597											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.173	3.262	2.850	2.763
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	717	800	633
d_b, Bicycle Delay [s]	32.27	24.70	21.60	28.02
l_b,int, Bicycle LOS Score for Intersection	2.260	2.696	2.226	1.995
Bicycle LOS	B	B	B	A

Sequence

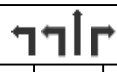
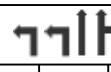
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	55.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	268	102	147	286	257	107	507	78	172	1112	236
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	6	6	0	0	4	0	0	0	4	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	7	0	0	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	290	108	156	314	272	113	537	94	182	1179	250
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	77	29	42	84	73	30	143	25	49	315	67
Total Analysis Volume [veh/h]	135	310	115	167	335	291	121	574	100	194	1260	267
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	16	41	0	13	51	0	17	55	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	45	12	37	37	9	51	51	9	51	51
g / C, Green / Cycle	0.06	0.27	0.38	0.10	0.31	0.31	0.08	0.42	0.42	0.08	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.08	0.10	0.19	0.19	0.07	0.13	0.13	0.06	0.43	0.44
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1530	1714	3427	1668	3329	1800	1694
c, Capacity [veh/h]	187	480	579	171	559	475	129	1446	704	260	765	720
d1, Uniform Delay [s]	55.71	38.98	25.09	53.85	35.04	35.22	55.24	23.10	23.15	54.14	34.50	34.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.48	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.21	6.57	0.77	26.25	4.69	5.79	24.92	0.12	0.26	4.22	34.48	46.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.65	0.20	0.97	0.60	0.61	0.94	0.31	0.32	0.75	1.01	1.05
d, Delay for Lane Group [s/veh]	60.92	45.55	25.86	80.10	39.74	41.01	80.15	23.22	23.41	58.37	68.98	81.00
Lane Group LOS	E	D	C	F	D	D	F	C	C	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.15	8.95	2.35	6.27	9.00	7.99	4.53	4.27	4.26	3.02	28.99	29.69
50th-Percentile Queue Length [ft/ln]	53.65	223.7	58.65	156.6	225.0	199.6	113.2	106.8	106.4	75.59	724.7	742.2
95th-Percentile Queue Length [veh/ln]	3.86	13.86	4.22	10.37	13.92	12.62	8.02	7.66	7.64	5.44	38.13	39.98
95th-Percentile Queue Length [ft/ln]	96.56	346.4	105.5	259.3	348.0	315.5	200.4	191.6	191.1	136.0	953.2	999.5

Movement, Approach, & Intersection Results

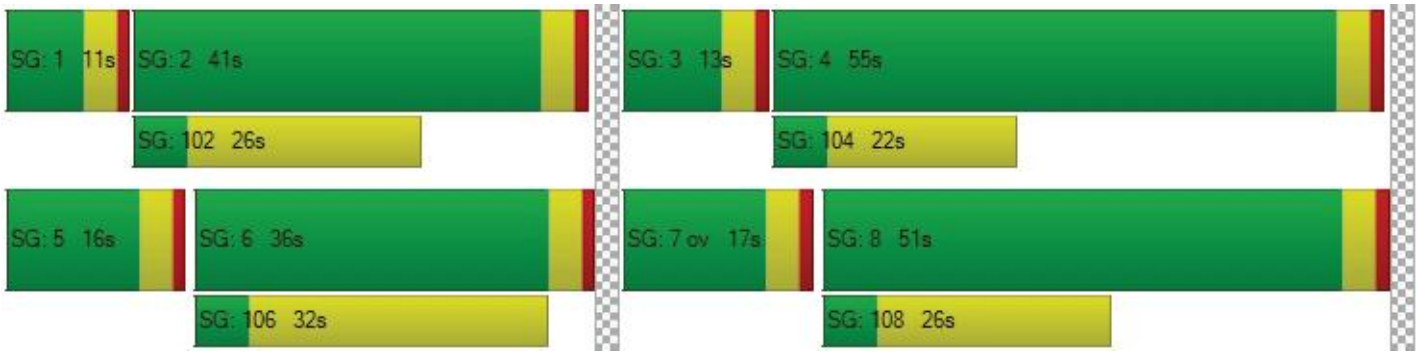
d_M, Delay for Movement [s/veh]	60.92	45.55	25.86	80.10	39.74	41.01	80.15	23.26	23.41	58.37	73.62	81.00
Movement LOS	E	D	C	F	D	D	F	C	C	E	E	F
d_A, Approach Delay [s/veh]	45.21			48.70			31.94			73.05		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	55.58											
Intersection LOS	E											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.661	2.606	2.871	3.055
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	617	783	850
d_b, Bicycle Delay [s]	32.27	28.70	22.20	19.84
l_b,int, Bicycle LOS Score for Intersection	2.484	2.214	1.997	2.979
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	367	0	567	0	537	236	0	946	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	23	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	412	0	601	0	569	250	0	1003	0
Peak Hour Factor	1.000	1.000	1.000	0.908	1.000	0.908	1.000	0.908	0.908	1.000	0.908	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	113	0	165	0	157	69	0	276	0
Total Analysis Volume [veh/h]	0	0	0	454	0	662	0	627	275	0	1105	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	71	0	0	0	49	0	0	49	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		34	34	78	78
g / C, Green / Cycle		0.28	0.28	0.65	0.65
(v / s)_i Volume / Saturation Flow Rate		0.14	0.24	0.13	0.23
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		938	763	3194	3194
d1, Uniform Delay [s]		35.83	40.96	8.36	9.41
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.39	3.16	0.14	0.30
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.48	0.87	0.20	0.35
d, Delay for Lane Group [s/veh]		36.22	44.12	8.49	9.71
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]		5.59	9.57	2.13	4.23
50th-Percentile Queue Length [ft/ln]		139.79	239.28	53.17	105.69
95th-Percentile Queue Length [veh/ln]		9.47	14.64	3.83	7.60
95th-Percentile Queue Length [ft/ln]		236.75	366.12	95.71	189.98

Movement, Approach, & Intersection Results

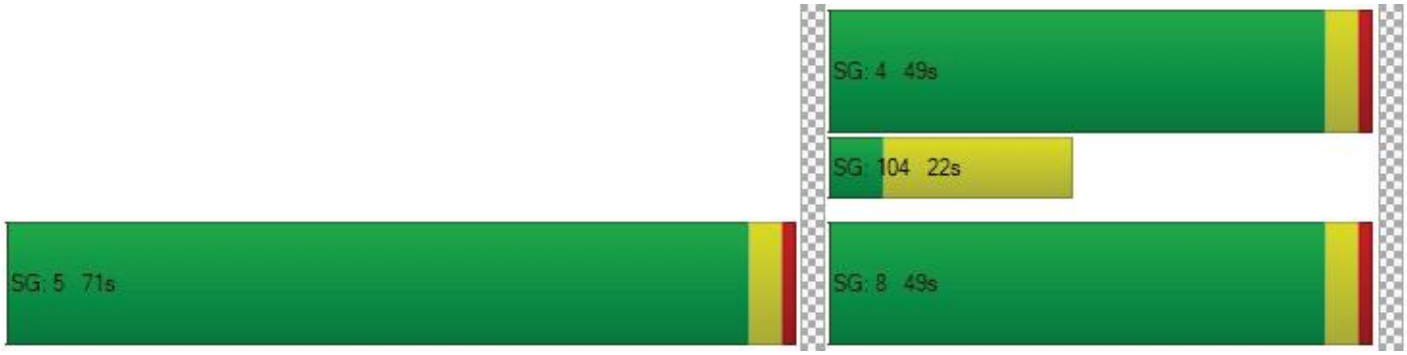
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	36.22	0.00	44.12	0.00	8.49	0.00	0.00	9.71	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			40.91			8.49			9.71		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	21.66											
Intersection LOS	C											
Intersection V/C	0.470											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.533	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1117	750	750
d_b, Bicycle Delay [s]	60.00	11.70	23.44	23.44
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	1.904	2.167
Bicycle LOS	D	A	A	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	30.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	278	2	306	0	0	0	354	565	0	0	1595	179
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	23	0	0	0	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	295	2	324	0	0	0	375	622	0	0	1691	238
Peak Hour Factor	0.952	0.952	0.952	1.000	1.000	1.000	0.952	0.952	1.000	1.000	0.952	0.952
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	1	85	0	0	0	98	163	0	0	444	63
Total Analysis Volume [veh/h]	310	2	340	0	0	0	394	653	0	0	1776	250
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	28	0	0	0	0	32	92	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45		17	67	46
g / C, Green / Cycle	0.37	0.37	0.37		0.14	0.56	0.38
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.14		0.12	0.13	0.27
s, saturation flow rate [veh/h]	1714	1596	1530		3329	4903	6538
c, Capacity [veh/h]	642	598	573		471	2741	2512
d1, Uniform Delay [s]	27.11	27.14	27.16		50.17	13.47	31.24
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.55	1.69	1.77		4.02	0.04	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.36	0.36		0.84	0.24	0.71
d, Delay for Lane Group [s/veh]	28.66	28.83	28.93		54.19	13.51	31.61
Lane Group LOS	C	C	C		D	B	C
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.03	4.75	4.59		6.02	2.98	10.81
50th-Percentile Queue Length [ft/ln]	125.8	118.6	114.6		150.49	74.58	270.34
95th-Percentile Queue Length [veh/ln]	8.71	8.32	8.10		10.04	5.37	16.21
95th-Percentile Queue Length [ft/ln]	217.7	208.0	202.4		251.09	134.25	405.17

Movement, Approach, & Intersection Results

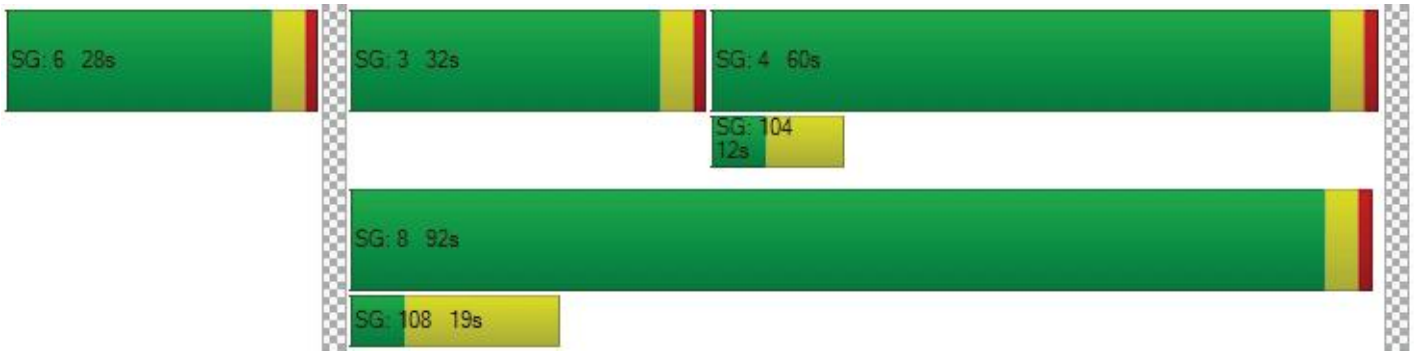
d_M, Delay for Movement [s/veh]	28.71	28.83	28.89	0.00	0.00	0.00	54.19	13.51	0.00	0.00	31.61	0.00
Movement LOS	C	C	C				D	B			C	
d_A, Approach Delay [s/veh]	28.80			0.00			28.82			31.61		
Approach LOS	C			A			C			C		
d_I, Intersection Delay [s/veh]	30.24											
Intersection LOS	C											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.305	1.923	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	0	1467	933
d_b, Bicycle Delay [s]	38.40	60.00	4.27	17.07
l_b,int, Bicycle LOS Score for Intersection	2.635	4.132	2.135	2.292
Bicycle LOS	B	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.741

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	63	529	155	69	828	410	232	502	139	414	1336	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	42	45	0	32	0	0	0	0	33	0	0
Site-Generated Trips [veh/h]	48	143	2	0	180	0	0	0	23	57	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	746	211	73	1090	435	246	532	170	529	1416	70
Peak Hour Factor	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	31	203	57	20	296	118	67	145	46	144	385	19
Total Analysis Volume [veh/h]	125	811	229	79	1185	473	267	578	185	575	1539	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	15	40	0	28	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	45	45	5	45	45	11	32	32	23	43	43
g / C, Green / Cycle	0.04	0.38	0.38	0.04	0.37	0.37	0.09	0.26	0.26	0.19	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.15	0.02	0.24	0.31	0.08	0.12	0.12	0.17	0.31	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	139	1839	574	129	1825	569	305	1291	403	631	1771	553
d1, Uniform Delay [s]	57.25	28.08	27.56	56.77	31.19	34.23	53.82	36.91	37.04	47.65	35.69	25.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.15	0.77	2.07	4.59	1.81	13.21	7.83	0.24	0.82	5.58	1.42	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.44	0.40	0.61	0.65	0.83	0.87	0.45	0.46	0.91	0.87	0.14
d, Delay for Lane Group [s/veh]	75.40	28.85	29.63	61.37	32.99	47.45	61.65	37.15	37.85	53.23	37.11	25.88
Lane Group LOS	E	C	C	E	C	D	E	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.24	5.94	5.16	1.26	9.70	14.43	4.31	4.76	4.65	8.88	14.01	1.49
50th-Percentile Queue Length [ft/ln]	55.92	148.4	128.9	31.56	242.4	360.8	107.6	119.1	116.3	221.9	350.2	37.27
95th-Percentile Queue Length [veh/ln]	4.03	9.94	8.88	2.27	14.80	20.66	7.71	8.34	8.19	13.76	20.15	2.68
95th-Percentile Queue Length [ft/ln]	100.6	248.4	222.1	56.80	370.0	516.6	192.7	208.5	204.7	344.1	503.7	67.08

Movement, Approach, & Intersection Results

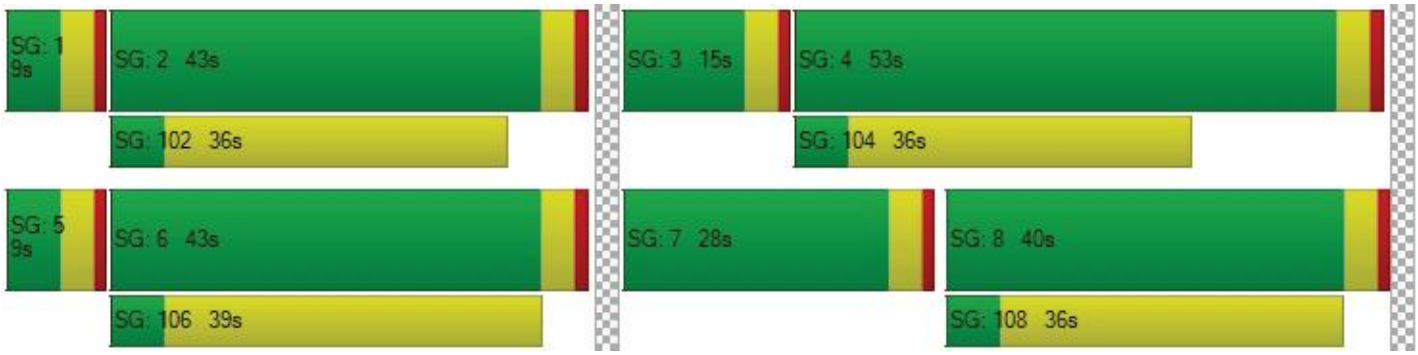
d_M, Delay for Movement [s/veh]	75.40	28.85	29.63	61.37	32.99	47.45	61.65	37.15	37.85	53.23	37.11	25.88
Movement LOS	E	C	C	E	C	D	E	D	D	D	D	C
d_A, Approach Delay [s/veh]	34.00			38.22			43.63			40.95		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	39.30											
Intersection LOS	D											
Intersection V/C	0.741											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.201	3.178	3.374	3.282
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	600	817
d_b, Bicycle Delay [s]	27.34	27.34	29.40	21.00
l_b,int, Bicycle LOS Score for Intersection	2.200	2.515	2.126	2.764
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.504

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	239	13	94	239	197	132	419	37	45	589	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	27	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	2	0	0	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	253	14	100	253	209	140	484	39	48	701	87
Peak Hour Factor	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	21	76	4	30	76	63	42	146	12	14	212	26
Total Analysis Volume [veh/h]	83	306	17	121	306	252	169	585	47	58	847	105
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	16	40	0	23	44	0	24	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	54	10	57	57	14	34	34	5	26	26
g / C, Green / Cycle	0.06	0.45	0.45	0.08	0.48	0.48	0.11	0.29	0.29	0.04	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.01	0.07	0.17	0.17	0.10	0.12	0.03	0.03	0.19	0.19
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1512	1714	4903	1506	1687	3427	1701
c, Capacity [veh/h]	104	1545	690	146	842	718	197	1400	430	77	741	368
d1, Uniform Delay [s]	55.65	19.88	18.31	54.04	19.88	19.94	52.16	34.78	31.62	56.62	45.25	45.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.10	0.29	0.07	11.32	1.17	1.40	10.35	0.20	0.11	13.99	3.02	6.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.20	0.02	0.83	0.36	0.36	0.86	0.42	0.11	0.76	0.86	0.86
d, Delay for Lane Group [s/veh]	68.75	20.17	18.37	65.36	21.05	21.34	62.50	34.98	31.73	70.60	48.27	51.33
Lane Group LOS	E	C	B	E	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.86	2.65	0.28	4.05	5.53	4.84	5.56	4.66	1.03	2.04	9.38	9.67
50th-Percentile Queue Length [ft/ln]	71.44	66.26	6.94	101.3	138.2	120.9	138.9	116.4	25.70	50.94	234.3	241.7
95th-Percentile Queue Length [veh/ln]	5.14	4.77	0.50	7.30	9.38	8.44	9.42	8.20	1.85	3.67	14.40	14.77
95th-Percentile Queue Length [ft/ln]	128.5	119.2	12.49	182.4	234.5	211.0	235.6	204.9	46.27	91.68	359.9	369.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.75	20.17	18.37	65.36	21.06	21.34	62.50	34.98	31.73	70.60	49.03	51.33
Movement LOS	E	C	B	E	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	30.02			29.06			40.60			50.51		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.87											
Intersection LOS	D											
Intersection V/C	0.504											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.601	2.673	3.079	2.952
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	667	683
d_b, Bicycle Delay [s]	32.27	29.40	26.67	26.00
l_b,int, Bicycle LOS Score for Intersection	1.895	2.120	2.000	2.115
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	48.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.879

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	571	733	124	771	237	274	346	109	156	659	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	2	0	0	9	11	21	0	2	14	0
Site-Generated Trips [veh/h]	0	0	0	0	0	15	2	1	0	0	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	127	607	779	131	817	275	303	389	116	167	741	108
Peak Hour Factor	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	161	207	35	217	73	80	103	31	44	197	29
Total Analysis Volume [veh/h]	135	644	827	139	867	292	322	413	123	177	787	115
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	20	61	0	14	55	0	15	26	0	19	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	61	61	10	59	59	11	25	25	9	22	36
g / C, Green / Cycle	0.09	0.51	0.51	0.08	0.50	0.50	0.09	0.21	0.21	0.07	0.19	0.30
(v / s)_i Volume / Saturation Flow Rate	0.08	0.36	0.54	0.08	0.25	0.19	0.10	0.08	0.08	0.05	0.16	0.08
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	162	911	774	143	1695	757	305	1007	314	239	910	462
d1, Uniform Delay [s]	53.38	22.79	29.63	54.87	20.51	18.93	54.50	41.38	41.21	54.58	47.41	31.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.39	4.61	52.07	28.98	1.11	1.49	39.96	0.27	0.79	4.43	2.62	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.71	1.07	0.97	0.51	0.39	1.06	0.41	0.39	0.74	0.86	0.25
d, Delay for Lane Group [s/veh]	63.76	27.40	81.70	83.85	21.61	20.42	94.46	41.65	42.00	59.01	50.03	31.86
Lane Group LOS	E	C	F	F	C	C	F	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.47	14.77	32.48	5.34	8.35	5.34	6.30	3.57	3.22	2.77	7.81	2.57
50th-Percentile Queue Length [ft/ln]	111.7	369.3	811.8	133.3	208.6	133.5	157.3	89.29	80.62	69.29	195.1	64.26
95th-Percentile Queue Length [veh/ln]	7.94	21.08	44.05	9.12	13.09	9.13	10.61	6.43	5.80	4.99	12.39	4.63
95th-Percentile Queue Length [ft/ln]	198.4	526.9	1101.	228.1	327.1	228.3	265.3	160.7	145.1	124.7	309.6	115.6

Movement, Approach, & Intersection Results

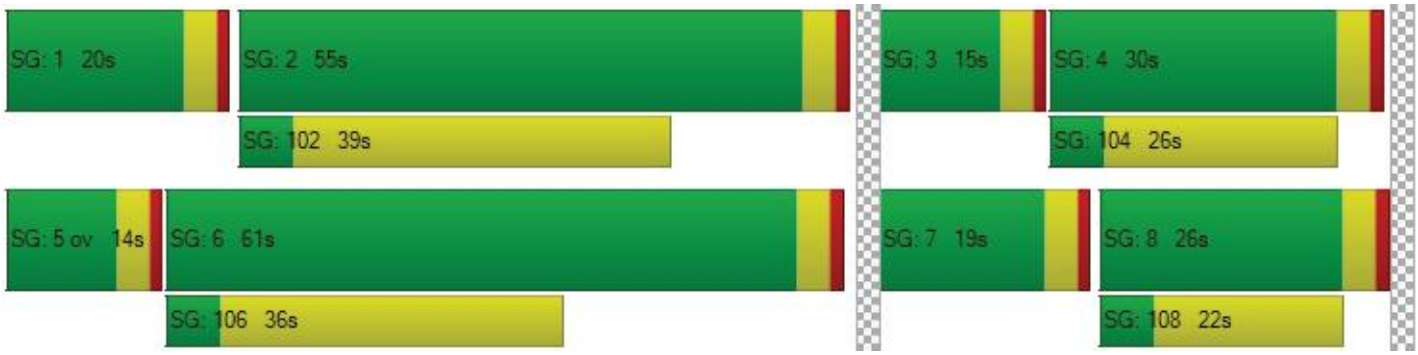
d_M, Delay for Movement [s/veh]	63.76	27.40	81.70	83.85	21.61	20.42	94.46	41.65	42.00	59.01	50.03	31.86
Movement LOS	E	C	F	F	C	C	F	D	D	E	D	C
d_A, Approach Delay [s/veh]	58.42			28.01			61.52			49.57		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	48.84											
Intersection LOS	D											
Intersection V/C	0.879											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.856	2.855	3.089	3.221
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	850	367	433
d_b, Bicycle Delay [s]	16.54	19.84	40.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.885	2.630	2.032	2.153
Bicycle LOS	C	B	B	B

Sequence

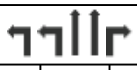
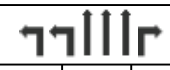
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	157	629	56	220	1054	104	94	405	109	90	492	139
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	5	0	0	4	6	10	6	0	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	4	14	1	0	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	672	59	233	1125	130	111	435	116	95	533	147
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	189	17	65	316	36	31	122	33	27	150	41
Total Analysis Volume [veh/h]	186	754	66	262	1263	146	125	488	130	107	598	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	23	50	0	10	47	0	10	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	68	68	12	71	71	6	19	19	6	18	18
g / C, Green / Cycle	0.07	0.57	0.57	0.10	0.59	0.59	0.05	0.16	0.16	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.06	0.15	0.04	0.08	0.37	0.10	0.04	0.10	0.08	0.03	0.12	0.11
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	239	2774	866	325	2028	906	166	766	239	156	751	234
d1, Uniform Delay [s]	54.77	13.37	11.82	53.02	15.83	11.05	56.26	47.44	46.69	56.30	49.00	48.23
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.47	0.24	0.17	4.69	1.45	0.38	6.65	0.89	1.92	5.19	1.98	3.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.27	0.08	0.81	0.62	0.16	0.75	0.64	0.54	0.68	0.80	0.70
d, Delay for Lane Group [s/veh]	60.24	13.61	12.00	57.71	17.28	11.43	62.91	48.33	48.61	61.49	50.98	52.06
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.95	3.50	0.84	4.08	11.12	1.82	2.02	4.62	3.72	1.71	5.89	4.94
50th-Percentile Queue Length [ft/ln]	73.63	87.50	20.99	101.9	277.9	45.62	50.57	115.6	92.89	42.73	147.3	123.4
95th-Percentile Queue Length [veh/ln]	5.30	6.30	1.51	7.34	16.59	3.28	3.64	8.15	6.69	3.08	9.87	8.58
95th-Percentile Queue Length [ft/ln]	132.5	157.5	37.78	183.5	414.7	82.11	91.03	203.8	167.2	76.92	246.8	214.5

Movement, Approach, & Intersection Results

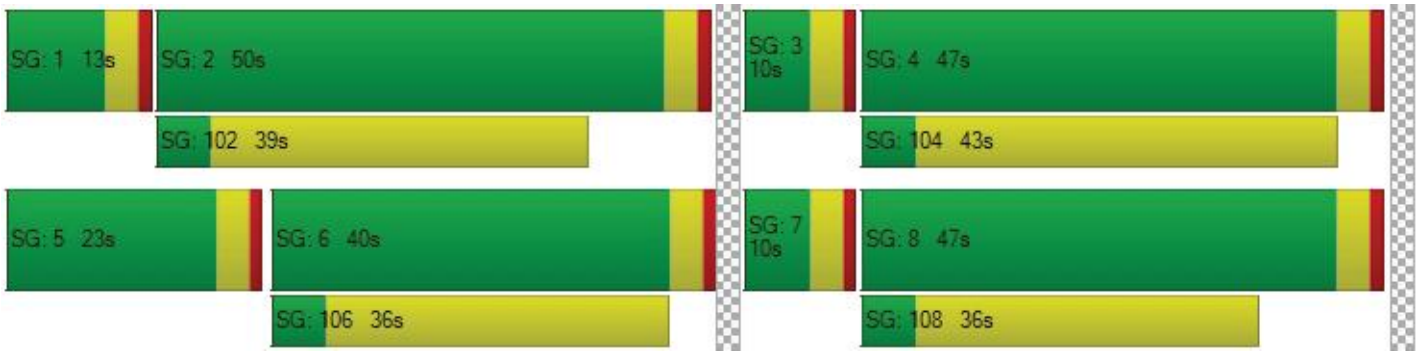
d_M, Delay for Movement [s/veh]	60.24	13.61	12.00	57.71	17.28	11.43	62.91	48.33	48.61	61.49	50.98	52.06
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.13			23.11			50.83			52.48		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.64											
Intersection LOS	C											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.136	3.334	3.145	3.047
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	767	717	717
d_b, Bicycle Delay [s]	29.40	22.82	24.70	24.70
l_b,int, Bicycle LOS Score for Intersection	2.113	2.938	1.968	2.038
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	47.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	239	145	76	282	121	87	249	108	94	464	69
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	12	1	0	8	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	14	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	265	155	81	321	128	92	264	114	100	492	73
Peak Hour Factor	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	79	46	24	95	38	27	78	34	30	146	22
Total Analysis Volume [veh/h]	177	314	184	96	381	152	109	313	135	119	584	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	29	0	12	23	23	0	28	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	41	41	8	35	35	23	23	31	31
g / C, Green / Cycle	0.12	0.35	0.35	0.07	0.30	0.30	0.19	0.19	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.10	0.15	0.15	0.06	0.11	0.10	0.17	0.17	0.24	0.24
s, saturation flow rate [veh/h]	1714	1800	1581	1714	3427	1530	1768	1499	1775	1573
c, Capacity [veh/h]	200	620	545	114	1010	451	343	291	464	411
d1, Uniform Delay [s]	52.21	30.19	30.25	55.37	33.59	33.15	46.92	47.04	42.85	42.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.17	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.12	2.13	2.47	14.82	1.08	2.02	6.97	8.74	9.93	11.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.43	0.43	0.84	0.38	0.34	0.87	0.88	0.90	0.90
d, Delay for Lane Group [s/veh]	64.33	32.32	32.72	70.18	34.66	35.16	53.89	55.78	52.78	53.94
Lane Group LOS	E	C	C	E	C	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.92	6.22	5.59	3.34	4.57	3.73	9.32	8.15	13.20	11.84
50th-Percentile Queue Length [ft/ln]	147.9	155.5	139.6	83.52	114.2	93.30	232.91	203.85	329.94	296.02
95th-Percentile Queue Length [veh/ln]	9.90	10.31	9.46	6.01	8.08	6.72	14.32	12.84	19.16	17.48
95th-Percentile Queue Length [ft/ln]	247.6	257.8	236.5	150.3	201.8	167.9	358.06	320.93	478.89	437.10

Movement, Approach, & Intersection Results

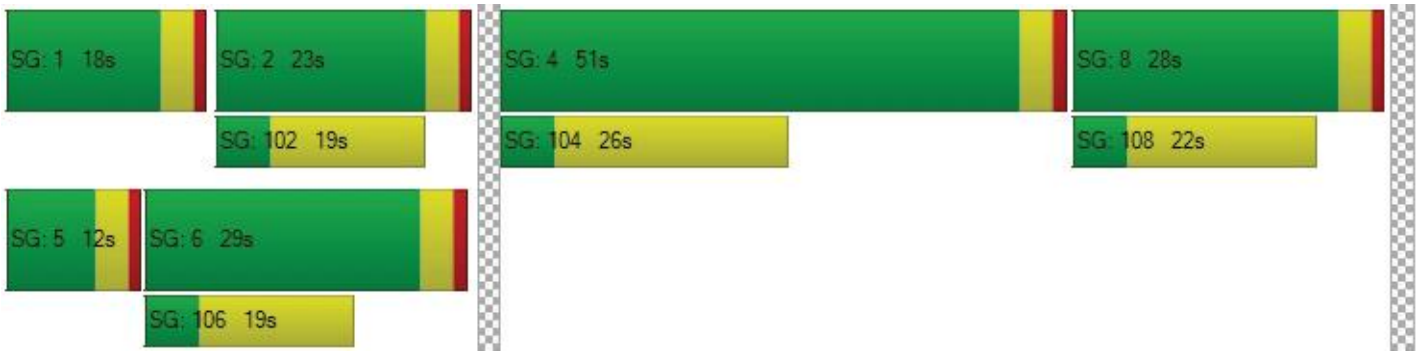
d_M, Delay for Movement [s/veh]	64.33	32.39	32.72	70.18	34.66	35.16	53.89	54.63	55.78	52.78	53.35	53.94
Movement LOS	E	C	C	E	C	D	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	40.85			40.20			54.76			53.33		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	47.34											
Intersection LOS	D											
Intersection V/C	0.622											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.571	2.653	2.505	2.483
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	317	400	783
d_b, Bicycle Delay [s]	37.60	42.50	38.40	22.20
l_b,int, Bicycle LOS Score for Intersection	2.116	2.079	2.019	2.211
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.896

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	0	849	0	520	798	0	1435	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	26	0	0	0	12	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	15	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	185	0	900	0	578	846	0	1542	0
Peak Hour Factor	1.000	1.000	1.000	0.945	1.000	0.945	1.000	0.945	0.945	1.000	0.945	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	49	0	238	0	153	224	0	408	0
Total Analysis Volume [veh/h]	0	0	0	196	0	952	0	612	895	0	1632	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	43	0	0	0	77	0	0	77	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		39	39	39	73	73	73
g / C, Green / Cycle		0.32	0.32	0.32	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.11	0.31	0.31	0.12	0.58	0.33
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		555	495	495	2989	933	2989
d1, Uniform Delay [s]		30.98	39.83	39.83	10.45	22.04	13.71
k, delay calibration		0.11	0.43	0.43	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.38	28.98	28.98	0.16	21.19	0.72
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.35	0.96	0.96	0.20	0.96	0.55
d, Delay for Lane Group [s/veh]		31.36	68.81	68.81	10.61	43.23	14.43
Lane Group LOS		C	E	E	B	D	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		4.41	17.57	17.57	2.40	27.33	8.46
50th-Percentile Queue Length [ft/ln]		110.2	439.3	439.3	60.08	683.18	211.43
95th-Percentile Queue Length [veh/ln]		7.85	24.45	24.45	4.33	35.90	13.23
95th-Percentile Queue Length [ft/ln]		196.3	611.2	611.2	108.15	897.51	330.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	31.36	0.00	68.81	0.00	10.61	43.23	0.00	14.43	0.00
Movement LOS				C		E		B	D		B	
d_A, Approach Delay [s/veh]	0.00			62.42			29.98			14.43		
Approach LOS	A			E			C			B		
d_I, Intersection Delay [s/veh]	32.75											
Intersection LOS	C											
Intersection V/C	0.896											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.426	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	1217	1217
d_b, Bicycle Delay [s]	60.00	27.34	9.20	9.20
l_b,int, Bicycle LOS Score for Intersection	4.132	3.454	2.388	2.457
Bicycle LOS	D	C	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	873	0	494	0	0	0	0	441	0	0	1219	197
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	16	36
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	15	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	925	0	524	0	0	0	0	520	0	0	1313	245
Peak Hour Factor	0.879	1.000	0.879	1.000	1.000	1.000	1.000	0.879	1.000	1.000	0.879	0.879
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	263	0	149	0	0	0	0	148	0	0	373	70
Total Analysis Volume [veh/h]	1052	0	596	0	0	0	0	592	0	0	1494	279
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	97	0	0	0	0	0	0	23	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	48	48	48		64	64	64
g / C, Green / Cycle	0.40	0.40	0.40		0.53	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.32	0.32	0.36		0.12	0.30	0.18
s, saturation flow rate [veh/h]	1714	1697	1530		4903	4903	1530
c, Capacity [veh/h]	686	679	612		2615	2615	816
d1, Uniform Delay [s]	31.79	31.94	33.70		14.86	18.79	15.98
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.23	2.37	5.03		0.20	0.91	1.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.81	0.90		0.23	0.57	0.34
d, Delay for Lane Group [s/veh]	34.02	34.31	38.73		15.06	19.70	17.12
Lane Group LOS	C	C	D		B	B	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.28	14.37	15.54		2.89	9.28	4.57
50th-Percentile Queue Length [ft/ln]	357.0	359.2	388.5		72.18	231.99	114.36
95th-Percentile Queue Length [veh/ln]	20.48	20.59	22.01		5.20	14.28	8.08
95th-Percentile Queue Length [ft/ln]	511.9	514.6	550.2		129.93	356.89	202.05

Movement, Approach, & Intersection Results

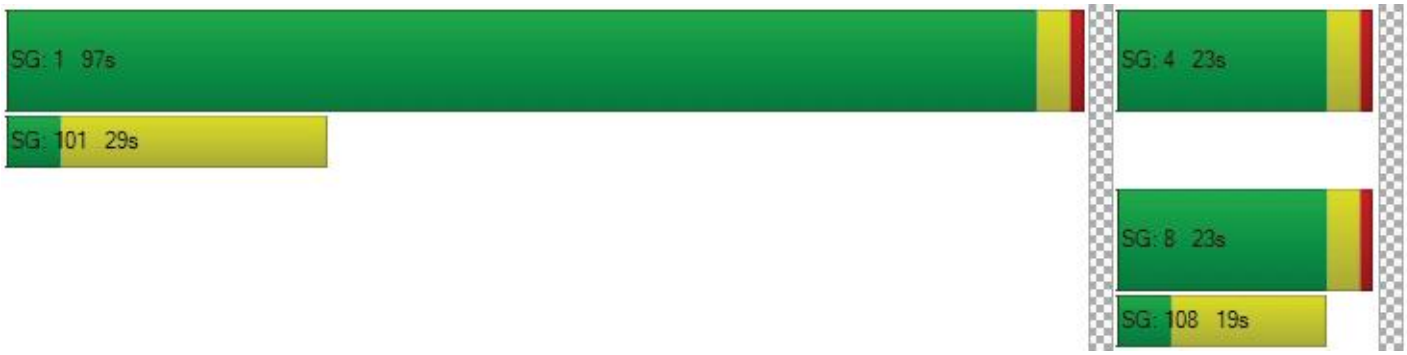
d_M, Delay for Movement [s/veh]	34.16	0.00	38.38	0.00	0.00	0.00	0.00	15.06	0.00	0.00	19.70	17.12
Movement LOS	C		D					B			B	B
d_A, Approach Delay [s/veh]	35.68			0.00			15.06			19.30		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	25.40											
Intersection LOS	C											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.548	0.000	0.000	3.022
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1550	0	317	317
d_b, Bicycle Delay [s]	3.04	60.00	42.50	42.50
l_b,int, Bicycle LOS Score for Intersection	4.279	4.132	1.885	2.535
Bicycle LOS	E	D	A	B

Sequence

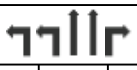
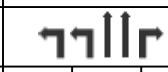
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.778

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	199	67	50	341	230	100	448	210	342	1200	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	52	13	1	0	8	0	0	0	38	0	0	0
Site-Generated Trips [veh/h]	5	0	0	3	11	0	0	2	13	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	219	224	72	56	380	244	106	477	274	363	1272	122
Peak Hour Factor	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	59	61	20	15	103	66	29	129	74	99	345	33
Total Analysis Volume [veh/h]	238	243	78	61	413	265	115	518	298	394	1381	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	47	0	10	36	0	9	42	42	21	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	44	44	5	32	32	5	39	60	16	50	50
g / C, Green / Cycle	0.14	0.36	0.36	0.05	0.27	0.27	0.04	0.32	0.50	0.13	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.05	0.04	0.20	0.20	0.03	0.15	0.19	0.12	0.40	0.09
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1569	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	243	654	556	79	482	420	139	1101	759	452	1423	635
d1, Uniform Delay [s]	51.33	28.11	25.62	56.59	40.22	40.29	57.08	32.55	18.90	50.85	34.35	22.45
k, delay calibration	0.12	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.29	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.35	1.62	0.53	14.37	10.18	11.86	11.79	0.31	0.88	5.39	6.11	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.37	0.14	0.77	0.75	0.75	0.83	0.47	0.39	0.87	0.97	0.21
d, Delay for Lane Group [s/veh]	75.68	29.73	26.15	70.96	50.40	52.15	68.87	32.86	19.78	56.24	40.46	22.61
Lane Group LOS	E	C	C	E	D	D	E	C	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.75	5.44	1.59	2.15	11.08	9.93	1.96	6.06	5.32	6.14	20.42	2.43
50th-Percentile Queue Length [ft/ln]	218.8	135.9	39.66	53.65	276.9	248.2	48.95	151.5	133.0	153.4	510.4	60.69
95th-Percentile Queue Length [veh/ln]	13.60	9.26	2.86	3.86	16.54	15.10	3.52	10.10	9.11	10.20	27.83	4.37
95th-Percentile Queue Length [ft/ln]	340.1	231.5	71.39	96.58	413.4	377.4	88.10	252.5	227.6	255.0	695.6	109.2

Movement, Approach, & Intersection Results

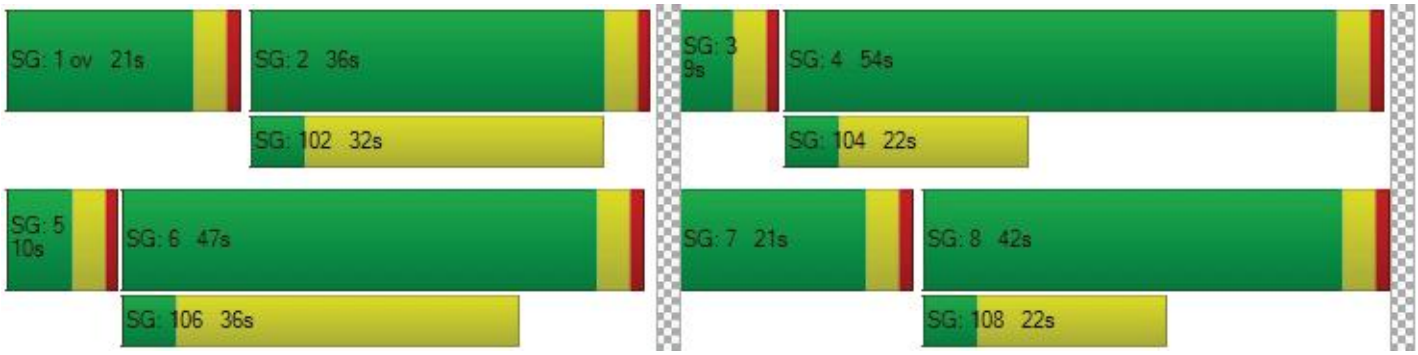
d_M, Delay for Movement [s/veh]	75.68	29.73	26.15	70.96	50.62	52.15	68.87	32.86	19.78	56.24	40.46	22.61
Movement LOS	E	C	C	E	D	D	E	C	B	E	D	C
d_A, Approach Delay [s/veh]	48.79			52.85			33.12			42.48		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	43.08											
Intersection LOS	D											
Intersection V/C	0.778											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.640	2.555	3.084	3.142
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	533	633	833
d_b, Bicycle Delay [s]	24.70	32.27	28.02	20.42
l_b,int, Bicycle LOS Score for Intersection	2.482	2.169	2.328	3.133
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	214	404	115	164	793	203	183	414	153	284	1138	98
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	91	29	0	72	0	1	0	0	19	0	0
Site-Generated Trips [veh/h]	0	193	5	0	267	0	0	0	5	34	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	712	156	174	1180	215	195	439	167	354	1206	104
Peak Hour Factor	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	62	193	42	47	320	58	53	119	45	96	327	28
Total Analysis Volume [veh/h]	246	772	169	189	1280	233	211	476	181	384	1308	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	24	43	0	21	40	40	13	36	0	20	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	19	44	44	15	40	53	9	29	29	16	36	55
g / C, Green / Cycle	0.16	0.37	0.37	0.13	0.33	0.44	0.08	0.24	0.24	0.13	0.30	0.46
(v / s)_i Volume / Saturation Flow Rate	0.14	0.16	0.11	0.11	0.26	0.15	0.06	0.10	0.12	0.12	0.27	0.07
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	272	1795	560	217	1639	677	250	1193	372	435	1465	702
d1, Uniform Delay [s]	49.61	28.61	27.10	51.43	35.98	21.99	54.81	38.06	38.97	51.26	40.23	18.97
k, delay calibration	0.14	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.32	0.75	1.38	10.21	3.77	1.39	7.65	0.22	0.99	6.06	2.11	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.43	0.30	0.87	0.78	0.34	0.85	0.40	0.49	0.88	0.89	0.16
d, Delay for Lane Group [s/veh]	62.93	29.37	28.49	61.63	39.75	23.37	62.47	38.27	39.96	57.32	42.34	19.07
Lane Group LOS	E	C	C	E	D	C	E	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.23	5.69	3.68	6.19	11.71	4.57	3.41	3.95	4.69	6.03	12.48	1.87
50th-Percentile Queue Length [ft/ln]	205.8	142.2	91.93	154.7	292.7	114.2	85.34	98.79	117.2	150.7	311.9	46.81
95th-Percentile Queue Length [veh/ln]	12.94	9.60	6.62	10.27	17.32	8.08	6.14	7.11	8.24	10.06	18.27	3.37
95th-Percentile Queue Length [ft/ln]	323.5	240.0	165.4	256.7	433.0	201.9	153.6	177.8	206.0	251.4	456.7	84.25

Movement, Approach, & Intersection Results

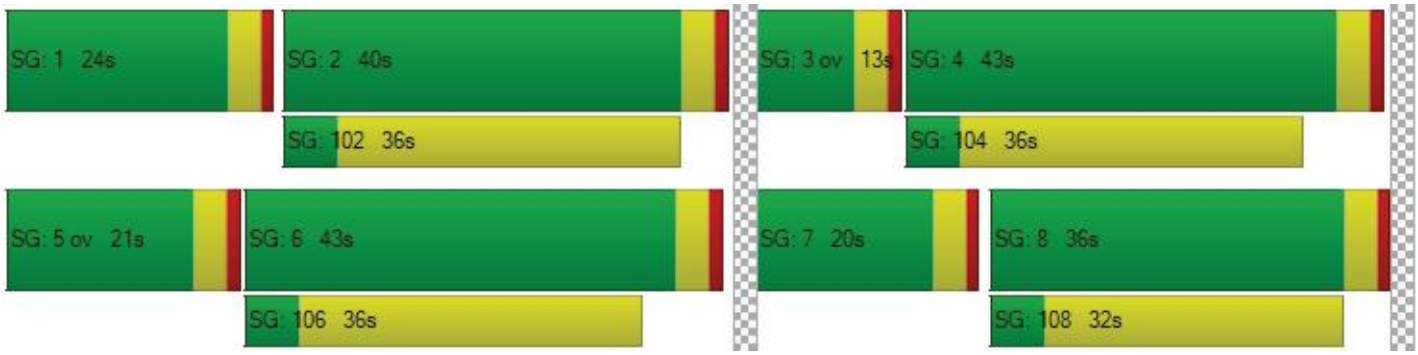
d_M, Delay for Movement [s/veh]	62.93	29.37	28.49	61.63	39.75	23.37	62.47	38.27	39.96	57.32	42.34	19.07
Movement LOS	E	C	C	E	D	C	E	D	D	E	D	B
d_A, Approach Delay [s/veh]	36.20			39.94			44.51			44.07		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.19											
Intersection LOS	D											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.110	3.168	3.152	3.150
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	600	533	650
d_b, Bicycle Delay [s]	27.34	29.40	32.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.212	2.496	2.037	2.552
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	921.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.026

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	102	0	0	0	0	621	36	198	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	1	0	0	0	0	29	0	2	19	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	5	0	0	34	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	0	109	0	0	0	0	692	38	212	1671	0
Peak Hour Factor	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	0	33	0	0	0	0	210	12	64	508	0
Total Analysis Volume [veh/h]	27	0	132	0	0	0	0	841	46	258	2030	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	2.03	0.00	0.23	0.00	0.00	0.00	0.00	0.01	0.00	0.33	0.02	0.00
d_M, Delay for Movement [s/veh]	921.7	1387.	658.0	982.7	767.1	20.03	17.72	0.00	0.00	11.99	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	15.04	15.04	15.04	0.00	0.00	0.00	0.00	0.00	0.00	1.47	0.00	0.00
95th-Percentile Queue Length [ft/ln]	375.9	375.9	375.9	0.00	0.00	0.00	0.00	0.00	0.00	36.81	0.00	0.00
d_A, Approach Delay [s/veh]	702.80			589.97			0.00			1.35		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	34.44											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	47.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.776

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	515	78	132	724	162	149	428	114	235	797	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	2	0	0	23	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	5	0	0	27	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	152	550	83	140	769	172	158	482	121	249	887	83
Peak Hour Factor	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	150	23	38	210	47	43	132	33	68	243	23
Total Analysis Volume [veh/h]	166	602	91	153	841	188	173	527	132	272	970	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	41	0	19	43	0	17	29	0	31	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	42	42	13	42	42	13	28	28	21	36	36
g / C, Green / Cycle	0.11	0.35	0.35	0.10	0.35	0.35	0.11	0.24	0.24	0.18	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.20	0.20	0.09	0.29	0.30	0.10	0.15	0.09	0.16	0.28	0.06
s, saturation flow rate [veh/h]	1714	1800	1718	1714	1800	1688	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	186	628	600	180	623	584	186	808	361	303	1042	465
d1, Uniform Delay [s]	52.82	31.66	31.66	52.74	36.39	36.43	53.06	41.40	38.34	48.36	40.54	30.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.18	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.70	3.64	3.81	10.43	13.75	14.73	17.99	0.90	0.62	14.61	4.41	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.56	0.56	0.85	0.85	0.85	0.93	0.65	0.37	0.90	0.93	0.20
d, Delay for Lane Group [s/veh]	66.52	35.30	35.48	63.17	50.14	51.16	71.05	42.30	38.97	62.97	44.94	31.10
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.64	8.93	8.56	5.05	16.60	15.77	6.09	7.13	3.32	9.18	14.38	1.99
50th-Percentile Queue Length [ft/ln]	140.9	223.2	213.9	126.2	414.9	394.3	152.3	178.1	83.06	229.4	359.6	49.81
95th-Percentile Queue Length [veh/ln]	9.53	13.83	13.36	8.74	23.28	22.29	10.14	11.51	5.98	14.15	20.60	3.59
95th-Percentile Queue Length [ft/ln]	238.3	345.7	333.9	218.4	581.9	557.1	253.5	287.6	149.5	353.6	515.1	89.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.52	35.37	35.48	63.17	50.52	51.16	71.05	42.30	38.97	62.97	44.94	31.10
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	41.40			52.26			47.75			47.67		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	47.70											
Intersection LOS	D											
Intersection V/C	0.776											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.725	2.714	2.818	2.810
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	650	417	650
d_b, Bicycle Delay [s]	28.70	27.34	37.60	27.34
l_b,int, Bicycle LOS Score for Intersection	2.268	2.535	2.246	2.659
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	436	79	192	814	126	211	375	100	151	611	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	9	2	0	8	2	3	14	0	3	9	0
Site-Generated Trips [veh/h]	0	0	0	0	6	5	0	5	0	0	15	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	471	86	204	877	141	227	417	106	163	672	133
Peak Hour Factor	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	131	24	57	243	39	63	116	29	45	186	37
Total Analysis Volume [veh/h]	93	522	95	226	972	156	252	462	118	181	745	147
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	30	0	25	43	0	29	36	0	29	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	38	38	18	47	47	20	34	34	15	29	29
g / C, Green / Cycle	0.07	0.31	0.31	0.15	0.39	0.39	0.16	0.28	0.28	0.12	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.05	0.15	0.06	0.13	0.28	0.10	0.15	0.13	0.08	0.11	0.22	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	114	1070	478	253	1348	602	281	970	433	212	832	372
d1, Uniform Delay [s]	55.26	33.49	30.27	50.18	30.83	24.59	49.18	35.66	33.43	51.51	43.95	38.05
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.89	1.59	0.93	10.40	3.36	1.04	12.96	0.36	0.34	9.35	3.70	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.49	0.20	0.89	0.72	0.26	0.90	0.48	0.27	0.85	0.90	0.40
d, Delay for Lane Group [s/veh]	68.15	35.08	31.20	60.58	34.19	25.63	62.14	36.02	33.76	60.86	47.65	38.74
Lane Group LOS	E	D	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.18	6.40	2.15	7.38	12.38	3.18	8.40	5.66	2.73	5.88	11.07	3.71
50th-Percentile Queue Length [ft/ln]	79.62	160.0	53.81	184.4	309.6	79.61	209.9	141.4	68.14	147.0	276.6	92.65
95th-Percentile Queue Length [veh/ln]	5.73	10.55	3.87	11.83	18.16	5.73	13.15	9.56	4.91	9.86	16.52	6.67
95th-Percentile Queue Length [ft/ln]	143.3	263.8	96.86	295.8	453.9	143.3	328.7	238.9	122.6	246.5	413.0	166.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.15	35.08	31.20	60.58	34.19	25.63	62.14	36.02	33.76	60.86	47.65	38.74
Movement LOS	E	D	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	38.90			37.61			43.61			48.66		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.08											
Intersection LOS	D											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.885	3.018	2.765	2.770
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	650	533	533
d_b, Bicycle Delay [s]	36.82	27.34	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.145	2.677	2.246	2.445
Bicycle LOS	B	B	B	B

Sequence

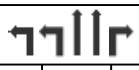
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	325	161	36	120	324	392	93	245	148	141	699	133
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	18	66	0	0	46	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	0	0	24	0	0	0	21	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	363	237	38	151	389	416	99	281	169	149	741	146
Peak Hour Factor	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	105	68	11	44	112	120	29	81	49	43	214	42
Total Analysis Volume [veh/h]	420	274	44	175	450	481	114	325	195	172	857	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	22	30	30	22	30	30	10	52	52	16	58	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	45	58	14	42	52	6	36	57	8	38	38
g / C, Green / Cycle	0.14	0.38	0.48	0.12	0.35	0.44	0.05	0.30	0.48	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.13	0.08	0.03	0.10	0.13	0.31	0.03	0.18	0.13	0.05	0.29	0.29
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1698
c, Capacity [veh/h]	476	1293	735	203	1209	667	166	542	731	232	578	545
d1, Uniform Delay [s]	50.44	25.28	16.68	51.95	28.93	27.83	56.07	35.74	18.77	54.76	39.12	39.17
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.21	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.57	0.37	0.16	10.35	0.88	6.62	4.91	1.07	0.19	4.64	10.63	11.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.21	0.06	0.86	0.37	0.72	0.68	0.60	0.27	0.74	0.91	0.92
d, Delay for Lane Group [s/veh]	56.01	25.65	16.84	62.30	29.81	34.44	60.98	36.81	18.96	59.40	49.75	50.64
Lane Group LOS	E	C	B	E	C	C	E	D	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.54	2.73	0.69	5.75	4.99	12.38	1.81	8.25	3.29	2.70	16.43	15.69
50th-Percentile Queue Length [ft/ln]	163.5	68.13	17.14	143.7	124.6	309.5	45.31	206.2	82.14	67.53	410.8	392.3
95th-Percentile Queue Length [veh/ln]	10.74	4.91	1.23	9.68	8.65	18.15	3.26	12.96	5.91	4.86	23.08	22.19
95th-Percentile Queue Length [ft/ln]	268.3	122.6	30.85	242.0	216.2	453.8	81.55	324.0	147.8	121.5	577.0	554.7

Movement, Approach, & Intersection Results

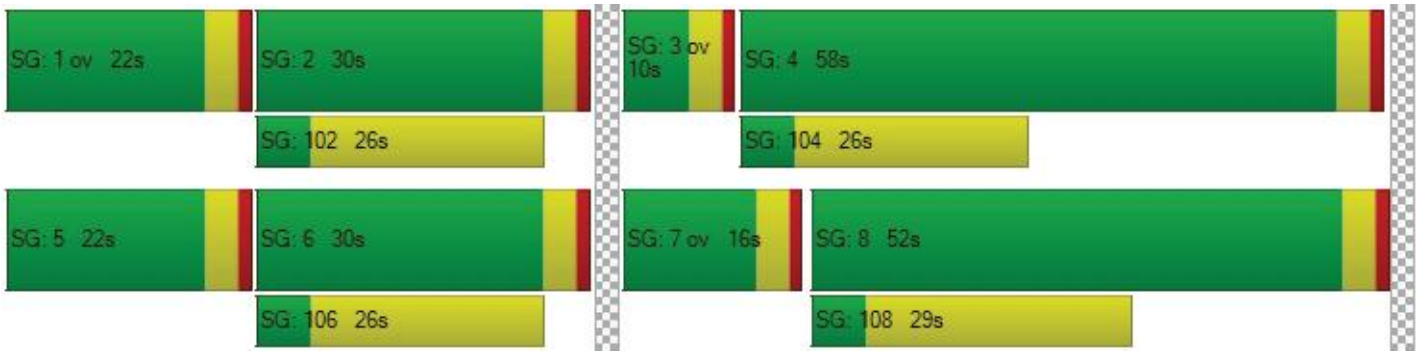
d_M, Delay for Movement [s/veh]	56.01	25.65	16.84	62.30	29.81	34.44	60.98	36.81	18.96	59.40	50.09	50.64
Movement LOS	E	C	B	E	C	C	E	D	B	E	D	D
d_A, Approach Delay [s/veh]	42.40			36.97			35.66			51.50		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.57											
Intersection LOS	D											
Intersection V/C	0.748											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.826	2.738	2.942	2.751
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	800	900
d_b, Bicycle Delay [s]	36.82	36.82	21.60	18.15
l_b,int, Bicycle LOS Score for Intersection	2.168	2.472	2.606	2.548
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	47.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.809

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	671	122	53	1008	95	70	390	93	154	601	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	121	20	0	91	0	0	0	0	13	0	0
Site-Generated Trips [veh/h]	5	198	0	0	306	0	0	0	45	28	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	1030	149	56	1465	101	74	413	144	204	637	63
Peak Hour Factor	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	272	39	15	386	27	20	109	38	54	168	17
Total Analysis Volume [veh/h]	120	1086	157	59	1545	107	78	436	152	215	672	66
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	43	0	11	41	0	10	43	0	23	56	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	5	42	42	6	36	36	17	47	47
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.35	0.35	0.05	0.30	0.30	0.14	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.07	0.24	0.24	0.03	0.32	0.32	0.05	0.24	0.10	0.13	0.37	0.04
s, saturation flow rate [veh/h]	1714	3427	1686	1714	3427	1741	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	129	1308	644	76	1204	611	86	538	458	242	703	597
d1, Uniform Delay [s]	55.20	30.30	30.30	56.73	37.11	37.13	56.73	38.89	32.72	50.59	35.58	23.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.25	0.11	0.11	0.37	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.67	2.38	4.77	15.15	11.70	20.03	27.37	6.52	0.42	10.50	20.23	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.64	0.64	0.77	0.91	0.91	0.91	0.81	0.33	0.89	0.96	0.11
d, Delay for Lane Group [s/veh]	78.87	32.68	35.07	71.88	48.81	57.15	84.11	45.42	33.15	61.08	55.81	23.38
Lane Group LOS	E	C	D	E	D	E	F	D	C	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.45	10.18	10.44	2.09	17.04	18.74	3.00	12.75	3.51	7.04	22.65	1.22
50th-Percentile Queue Length [ft/ln]	111.2	254.4	261.0	52.29	425.8	468.5	75.10	318.8	87.71	175.9	566.2	30.41
95th-Percentile Queue Length [veh/ln]	7.91	15.41	15.74	3.77	23.80	25.84	5.41	18.61	6.31	11.39	30.45	2.19
95th-Percentile Queue Length [ft/ln]	197.8	385.1	393.5	94.13	595.1	646.0	135.1	465.2	157.8	284.6	761.3	54.73

Movement, Approach, & Intersection Results

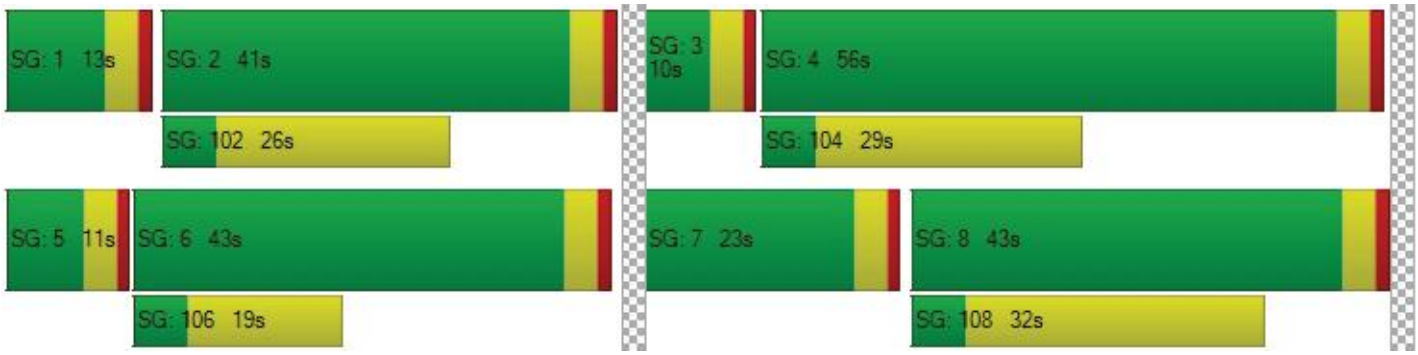
d_M, Delay for Movement [s/veh]	78.87	33.23	35.07	71.88	51.24	57.15	84.11	45.42	33.15	61.08	55.81	23.38
Movement LOS	E	C	D	E	D	E	F	D	C	E	E	C
d_A, Approach Delay [s/veh]	37.46			52.32			47.15			54.75		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	47.77											
Intersection LOS	D											
Intersection V/C	0.809											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.140	3.019	2.722	2.538
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	617	650	867
d_b, Bicycle Delay [s]	27.34	28.70	27.34	19.27
l_b,int, Bicycle LOS Score for Intersection	2.309	2.501	2.659	3.132
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.514

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	127	114	14	154	84	41	337	58	140	598	22
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	1	3	0	2	0	0	20	0	2	13	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	2	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	136	124	15	165	89	43	377	61	152	675	23
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	37	34	4	45	25	12	104	17	42	186	6
Total Analysis Volume [veh/h]	97	150	137	17	182	98	47	416	67	168	744	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	94	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	55	55	55	55	55	55	57	57	57	57	57	57
g / C, Green / Cycle	0.46	0.46	0.46	0.46	0.46	0.46	0.47	0.47	0.47	0.47	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.09	0.08	0.09	0.02	0.10	0.06	0.07	0.23	0.04	0.18	0.41	0.02
s, saturation flow rate [veh/h]	1117	1800	1530	1109	1800	1530	711	1800	1530	927	1800	1530
c, Capacity [veh/h]	483	832	707	494	832	707	127	848	721	341	848	721
d1, Uniform Delay [s]	25.34	18.95	19.08	22.61	19.32	18.56	52.78	21.81	17.53	35.57	28.58	17.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.93	0.48	0.61	0.13	0.61	0.41	1.80	0.44	0.06	1.10	3.91	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.18	0.19	0.03	0.22	0.14	0.37	0.49	0.09	0.49	0.88	0.03
d, Delay for Lane Group [s/veh]	26.27	19.42	19.69	22.74	19.93	18.97	54.58	22.25	17.59	36.67	32.49	17.06
Lane Group LOS	C	B	B	C	B	B	D	C	B	D	C	B
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.02	2.57	2.38	0.32	3.19	1.66	1.44	8.08	1.04	4.28	19.62	0.38
50th-Percentile Queue Length [ft/ln]	50.42	64.28	59.58	7.96	79.63	41.38	35.98	202.0	26.11	106.9	490.6	9.47
95th-Percentile Queue Length [veh/ln]	3.63	4.63	4.29	0.57	5.73	2.98	2.59	12.74	1.88	7.67	26.89	0.68
95th-Percentile Queue Length [ft/ln]	90.75	115.7	107.2	14.33	143.3	74.48	64.77	318.6	47.00	191.8	672.2	17.04

Movement, Approach, & Intersection Results

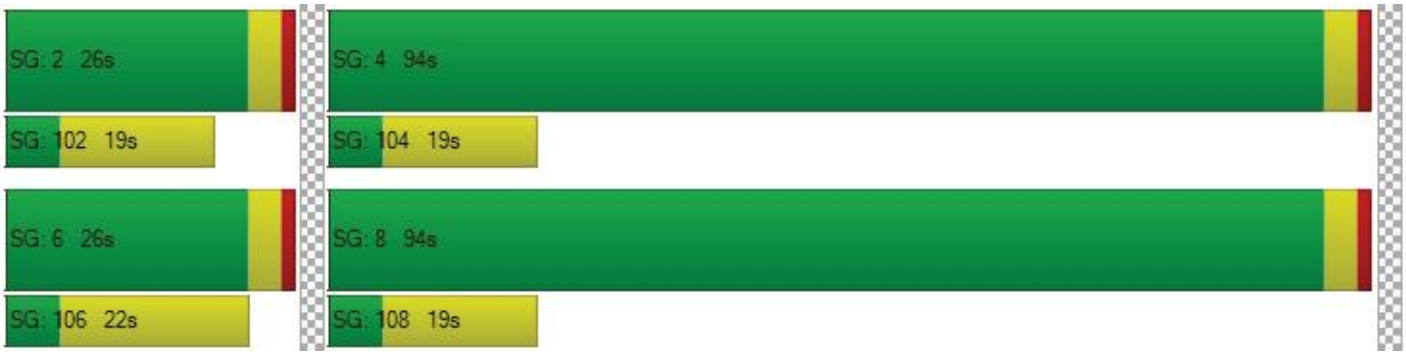
d_M, Delay for Movement [s/veh]	26.27	19.42	19.69	22.74	19.93	18.97	54.58	22.25	17.59	36.67	32.49	17.06
Movement LOS	C	B	B	C	B	B	D	C	B	D	C	B
d_A, Approach Delay [s/veh]	21.25			19.77			24.53			32.83		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	26.91											
Intersection LOS	C											
Intersection V/C	0.514											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.581	2.340	2.642	2.633
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1500	1500
d_b, Bicycle Delay [s]	40.02	40.02	3.75	3.75
l_b,int, Bicycle LOS Score for Intersection	2.193	2.050	2.434	3.106
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	45.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	208	617	205	96	791	141	73	255	105	226	437	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	3	0	2	0	0	11	0	2	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	2	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	220	658	220	102	840	149	77	281	111	244	486	139
Peak Hour Factor	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	170	57	26	217	39	20	73	29	63	126	36
Total Analysis Volume [veh/h]	228	681	228	106	870	154	80	291	115	253	503	144
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	52	0	13	43	0	10	26	0	29	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	53	53	9	45	45	6	22	22	20	36	36
g / C, Green / Cycle	0.15	0.44	0.44	0.08	0.37	0.37	0.05	0.18	0.18	0.16	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.13	0.26	0.26	0.06	0.29	0.29	0.05	0.08	0.08	0.15	0.28	0.09
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1707	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	253	798	731	129	668	633	86	627	280	283	537	456
d1, Uniform Delay [s]	50.28	25.22	25.24	54.72	33.53	33.55	56.80	43.77	43.31	49.06	41.02	32.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.15	0.33	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.19	3.24	3.55	12.29	9.08	9.59	31.16	0.54	0.97	12.65	19.44	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.59	0.60	0.82	0.79	0.79	0.93	0.46	0.41	0.89	0.94	0.32
d, Delay for Lane Group [s/veh]	61.47	28.46	28.80	67.01	42.61	43.13	87.96	44.31	44.27	61.71	60.46	33.02
Lane Group LOS	E	C	C	E	D	D	F	D	D	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.50	10.79	9.97	3.60	15.09	14.42	3.16	3.92	3.10	8.41	17.22	3.31
50th-Percentile Queue Length [ft/ln]	187.5	269.8	249.3	89.92	377.1	360.5	78.93	97.90	77.53	210.1	430.5	82.80
95th-Percentile Queue Length [veh/ln]	11.99	16.18	15.15	6.47	21.46	20.65	5.68	7.05	5.58	13.16	24.03	5.96
95th-Percentile Queue Length [ft/ln]	299.7	404.4	378.7	161.8	536.4	516.2	142.0	176.2	139.5	329.0	600.7	149.0

Movement, Approach, & Intersection Results

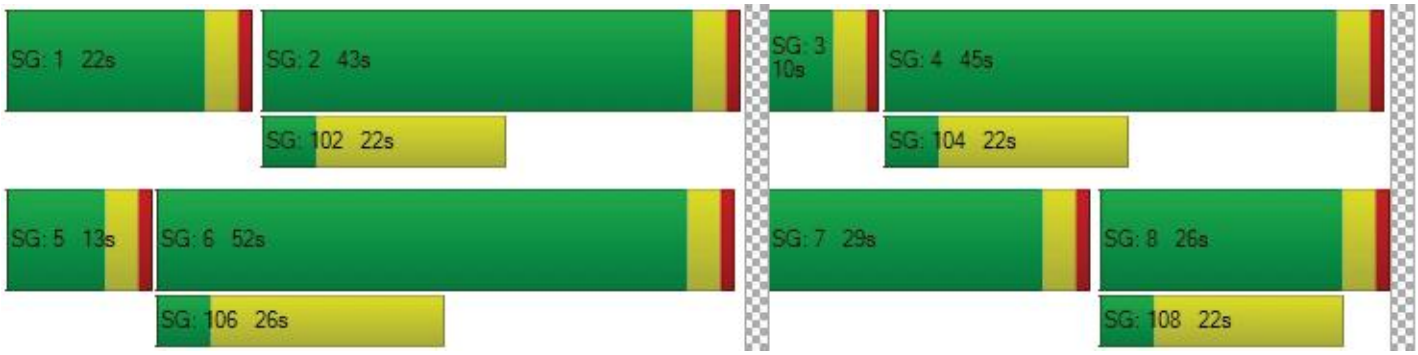
d_M, Delay for Movement [s/veh]	61.47	28.56	28.80	67.01	42.82	43.13	87.96	44.31	44.27	61.71	60.46	33.02
Movement LOS	E	C	C	E	D	D	F	D	D	E	E	C
d_A, Approach Delay [s/veh]	35.21			45.13			51.48			56.42		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	45.67											
Intersection LOS	D											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.778	2.712	2.582	2.716
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	650	367	683
d_b, Bicycle Delay [s]	21.60	27.34	40.02	26.00
l_b,int, Bicycle LOS Score for Intersection	2.498	2.492	1.961	3.045
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	87	511	35	58	717	69	67	402	82	69	527	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	11	3	0	11	0	0	3	0	2	2	0
Site-Generated Trips [veh/h]	0	0	0	0	6	0	0	0	0	2	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	553	40	61	777	73	71	429	87	77	566	58
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	161	12	18	226	21	21	125	25	22	165	17
Total Analysis Volume [veh/h]	107	645	47	71	906	85	83	500	101	90	660	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	45	0	10	42	0	11	53	0	12	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	63	63	6	60	60	7	27	27	8	28	28
g / C, Green / Cycle	0.08	0.53	0.53	0.05	0.50	0.50	0.06	0.22	0.22	0.07	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.19	0.04	0.28	0.28	0.05	0.17	0.17	0.05	0.21	0.21
s, saturation flow rate [veh/h]	1714	1800	1757	1714	1800	1746	1714	1800	1697	1714	1800	1742
c, Capacity [veh/h]	129	948	926	86	903	876	100	405	381	112	417	403
d1, Uniform Delay [s]	54.76	16.68	16.68	56.49	20.67	20.67	55.91	43.52	43.57	55.35	44.59	44.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.83	1.11	1.13	17.79	2.47	2.55	15.75	3.01	3.25	12.68	6.51	6.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.37	0.37	0.83	0.56	0.56	0.83	0.76	0.77	0.81	0.89	0.89
d, Delay for Lane Group [s/veh]	67.58	17.79	17.82	74.28	23.14	23.22	71.66	46.53	46.82	68.02	51.11	51.35
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.65	5.88	5.75	2.56	10.18	9.90	2.92	8.90	8.46	3.08	11.35	11.02
50th-Percentile Queue Length [ft/ln]	91.19	147.0	143.8	63.89	254.4	247.4	73.09	222.4	211.5	76.98	283.7	275.4
95th-Percentile Queue Length [veh/ln]	6.57	9.86	9.69	4.60	15.41	15.06	5.26	13.79	13.23	5.54	16.87	16.46
95th-Percentile Queue Length [ft/ln]	164.1	246.4	242.1	115.0	385.2	376.4	131.5	344.7	330.8	138.5	421.8	411.5

Movement, Approach, & Intersection Results

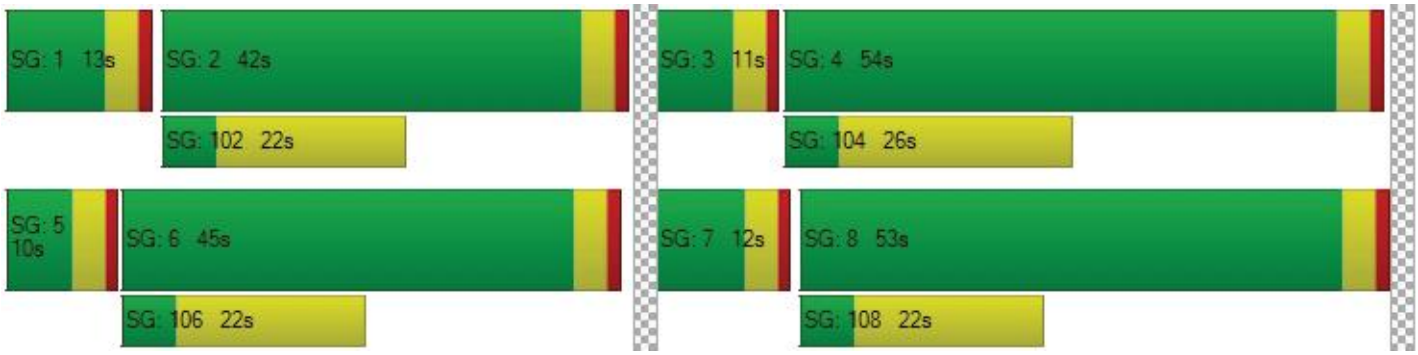
d_M, Delay for Movement [s/veh]	67.58	17.80	17.82	74.28	23.18	23.22	71.66	46.64	46.82	68.02	51.22	51.35
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.47			26.60			49.70			53.08		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.23											
Intersection LOS	D											
Intersection V/C	0.596											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.685	2.770	2.615	2.595
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	633	817	833
d_b, Bicycle Delay [s]	26.00	28.02	21.00	20.42
l_b,int, Bicycle LOS Score for Intersection	2.219	2.436	2.124	2.234
Bicycle LOS	B	B	B	B

Sequence

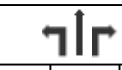
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	418	151	65	572	0	0	0	0	234	0	137
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	84	0	0	58	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	527	160	69	664	0	0	0	0	248	0	145
Peak Hour Factor	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	154	47	20	194	0	0	0	0	72	0	42
Total Analysis Volume [veh/h]	0	615	187	81	775	0	0	0	0	289	0	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	59	0	27	77	0	0	34	0	0	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	73	73	7	80	80	28	28	28	28
g / C, Green / Cycle	0.00	0.61	0.61	0.06	0.67	0.67	0.23	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.00	0.34	0.12	0.05	0.43	0.00	0.00	0.00	0.22	0.11
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1693	1530	1332	1530
c, Capacity [veh/h]	1	1092	928	104	1201	1021	424	356	370	356
d1, Uniform Delay [s]	0.00	14.10	10.57	55.57	11.68	0.00	0.00	0.00	46.23	39.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.35	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.10	0.49	11.79	2.68	0.00	0.00	0.00	11.06	0.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.56	0.20	0.78	0.65	0.00	0.00	0.00	0.78	0.47
d, Delay for Lane Group [s/veh]	0.00	16.20	11.06	67.35	14.36	0.00	0.00	0.00	57.29	40.70
Lane Group LOS	A	B	B	E	B	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	10.20	2.31	2.76	12.10	0.00	0.00	0.00	9.54	4.40
50th-Percentile Queue Length [ft/ln]	0.00	254.9	57.66	68.96	302.4	0.00	0.00	0.00	238.59	110.12
95th-Percentile Queue Length [veh/ln]	0.00	15.44	4.15	4.97	17.80	0.00	0.00	0.00	14.61	7.85
95th-Percentile Queue Length [ft/ln]	0.00	385.8	103.7	124.1	445.0	0.00	0.00	0.00	365.25	196.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.20	11.06	67.35	14.36	0.00	0.00	0.00	0.00	57.29	57.29	40.70
Movement LOS	A	B	B	E	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	15.00			19.38			0.00			51.17		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	24.60											
Intersection LOS	C											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.090	0.000	1.955	2.191
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	1217	500	500
d_b, Bicycle Delay [s]	17.60	9.20	33.75	33.75
l_b,int, Bicycle LOS Score for Intersection	2.883	2.972	1.560	2.315
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	54.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	186	806	132	35	1068	89	30	30	200	150	136	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	140	0	0	104	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	203	0	0	379	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	1197	140	37	1615	94	32	32	212	160	144	72
Peak Hour Factor	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	326	38	10	440	26	9	9	58	44	39	20
Total Analysis Volume [veh/h]	215	1305	153	40	1761	103	35	35	231	174	157	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	68	0	10	60	0	9	26	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	68	68	4	58	58	3	20	20	12	28
g / C, Green / Cycle	0.12	0.57	0.57	0.03	0.48	0.48	0.03	0.17	0.17	0.10	0.24
(v / s)_i Volume / Saturation Flow Rate	0.13	0.41	0.42	0.02	0.51	0.07	0.02	0.02	0.15	0.10	0.14
s, saturation flow rate [veh/h]	1714	1800	1735	1714	3427	1530	1714	1800	1530	1714	1700
c, Capacity [veh/h]	200	1024	987	54	1657	740	50	300	255	171	403
d1, Uniform Delay [s]	53.00	18.86	19.11	57.65	30.99	17.16	57.74	42.51	49.10	54.00	40.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.16	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	51.88	4.33	4.79	18.33	40.91	0.39	16.35	0.17	15.94	35.74	1.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	0.72	0.73	0.75	1.06	0.14	0.70	0.12	0.91	1.02	0.58
d, Delay for Lane Group [s/veh]	104.8	23.19	23.90	75.98	71.90	17.55	74.09	42.68	65.04	89.74	42.00
Lane Group LOS	F	C	C	E	F	B	E	D	E	F	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	8.90	15.50	15.51	1.48	32.40	1.66	1.28	0.90	7.90	6.87	6.34
50th-Percentile Queue Length [ft/ln]	222.4	387.5	387.8	36.95	810.0	41.58	32.00	22.58	197.5	171.67	158.53
95th-Percentile Queue Length [veh/ln]	14.20	21.96	21.97	2.66	43.77	2.99	2.30	1.63	12.51	11.23	10.47
95th-Percentile Queue Length [ft/ln]	354.9	548.9	549.3	66.51	1094.	74.84	57.60	40.64	312.8	280.72	261.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.8	23.50	23.90	75.98	71.90	17.55	74.09	42.68	65.04	89.74	42.00	42.00
Movement LOS	F	C	C	E	F	B	E	D	E	F	D	D
d_A, Approach Delay [s/veh]	33.99			69.05			63.49			62.26		
Approach LOS	C			E			E			E		
d_I, Intersection Delay [s/veh]	54.33											
Intersection LOS	D											
Intersection V/C	0.892											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.092	3.072	2.335	2.163
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	933	367	483
d_b, Bicycle Delay [s]	13.07	17.07	40.02	34.50
l_b,int, Bicycle LOS Score for Intersection	2.940	3.130	2.056	2.236
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.371

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	134	290	0	0	261	111	57	0	66	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.060	1.000	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	3	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	2	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	311	0	0	282	119	60	0	70	0	0	0
Peak Hour Factor	0.913	0.913	1.000	1.000	0.913	0.913	0.913	1.000	0.913	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	85	0	0	77	33	16	0	19	0	0	0
Total Analysis Volume [veh/h]	156	341	0	0	309	130	66	0	77	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

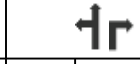
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.69	0.00	0.00	0.00	0.00	0.00	36.67	0.00	11.00	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.48	0.48	0.00	0.00	0.00	0.00	1.59	0.00	0.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	11.95	11.95	0.00	0.00	0.00	0.00	39.68	0.00	9.58	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.73			0.00			22.85			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	4.28											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	551	201	49	753	1	0	0	2	174	0	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	73	58	0	0	0	0	0	9	0	84
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	584	286	110	798	1	0	0	2	193	0	126
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	154	76	29	211	0	0	0	1	51	0	33
Total Analysis Volume [veh/h]	1	617	302	116	844	1	0	0	2	204	0	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	26	9	0	48	31	0	0	9	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	77	77	10	86	86	0	0	17	17
g / C, Green / Cycle	0.00	0.64	0.64	0.08	0.72	0.72	0.00	0.00	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.27	0.27	0.07	0.23	0.23	0.00	0.00	0.12	0.09
s, saturation flow rate [veh/h]	1714	1800	1603	1714	1800	1799	1800	1392	1687	1530
c, Capacity [veh/h]	4	1148	1022	144	1296	1295	5	4	240	217
d1, Uniform Delay [s]	59.79	10.79	10.79	53.99	6.16	6.16	59.66	59.75	50.24	48.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.17	1.15	1.29	10.00	0.67	0.67	0.00	75.25	8.27	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.42	0.42	0.80	0.33	0.33	0.00	0.51	0.85	0.61
d, Delay for Lane Group [s/veh]	97.95	11.93	12.08	63.99	6.83	6.83	59.66	135.00	58.52	51.15
Lane Group LOS	F	B	B	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	6.47	5.81	3.84	3.80	3.80	0.00	0.14	6.52	3.91
50th-Percentile Queue Length [ft/ln]	1.70	161.8	145.1	96.03	94.91	94.88	0.00	3.59	162.99	97.86
95th-Percentile Queue Length [veh/ln]	0.12	10.64	9.76	6.91	6.83	6.83	0.00	0.26	10.71	7.05
95th-Percentile Queue Length [ft/ln]	3.07	266.1	243.9	172.8	170.8	170.7	0.00	6.45	267.68	176.15

Movement, Approach, & Intersection Results

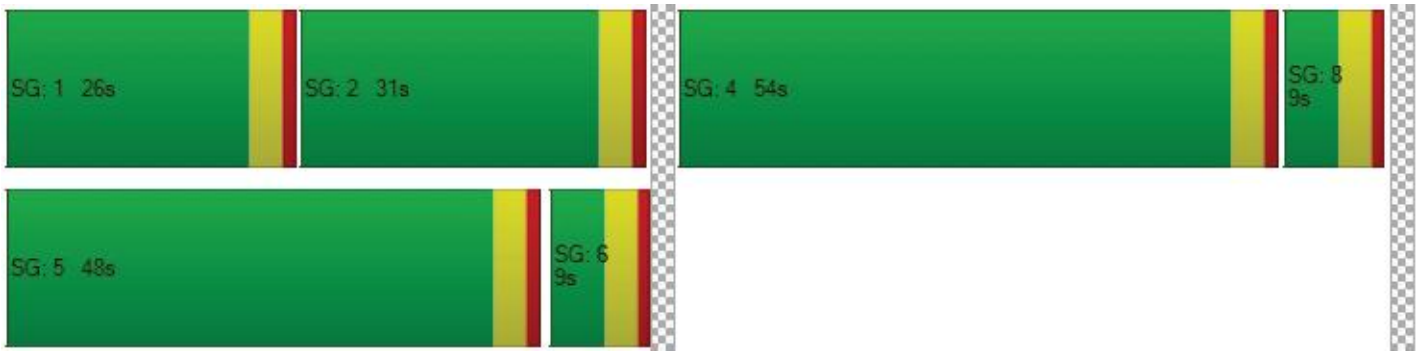
d_M, Delay for Movement [s/veh]	97.95	11.96	12.08	63.99	6.83	6.83	59.66	59.66	135.0	58.52	58.52	51.15
Movement LOS	F	B	B	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	12.09			13.73			135.00			55.61		
Approach LOS	B			B			F			E		
d_I, Intersection Delay [s/veh]	19.52											
Intersection LOS	B											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	450	83	833
d_b, Bicycle Delay [s]	55.10	36.04	55.10	20.42
l_b,int, Bicycle LOS Score for Intersection	2.319	2.352	1.561	2.116
Bicycle LOS	B	B	A	B

Sequence

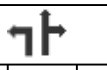
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	130	1237	0	0	0	0	145	0	253
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	203	0	0	379	0	0	0	0	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1016	117	138	1616	0	0	0	0	161	0	268
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	278	32	38	442	0	0	0	0	44	0	73
Total Analysis Volume [veh/h]	3	1113	128	151	1770	0	0	0	0	176	0	294
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	52	0	16	59	0	9	30	0	22	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	67	67	12	78	78	0	11	14	25
g / C, Green / Cycle	0.00	0.56	0.56	0.10	0.65	0.65	0.00	0.09	0.12	0.21
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.08	0.09	0.52	0.00	0.00	0.00	0.10	0.19
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	8	1902	849	171	2229	995	1	168	203	323
d1, Uniform Delay [s]	59.56	17.60	12.97	53.29	15.17	0.00	0.00	0.00	51.95	46.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.21	1.33	0.38	13.41	3.02	0.00	0.00	0.00	10.53	10.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.59	0.15	0.88	0.79	0.00	0.00	0.00	0.87	0.91
d, Delay for Lane Group [s/veh]	87.77	18.93	13.35	66.71	18.19	0.00	0.00	0.00	62.49	56.23
Lane Group LOS	F	B	B	E	B	A	A	A	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.15	10.19	1.76	5.13	16.93	0.00	0.00	0.00	5.79	9.42
50th-Percentile Queue Length [ft/ln]	3.81	254.6	43.89	128.2	423.3	0.00	0.00	0.00	144.82	235.51
95th-Percentile Queue Length [veh/ln]	0.27	15.42	3.16	8.84	23.68	0.00	0.00	0.00	9.74	14.45
95th-Percentile Queue Length [ft/ln]	6.85	385.4	79.01	221.0	592.1	0.00	0.00	0.00	243.50	361.36

Movement, Approach, & Intersection Results

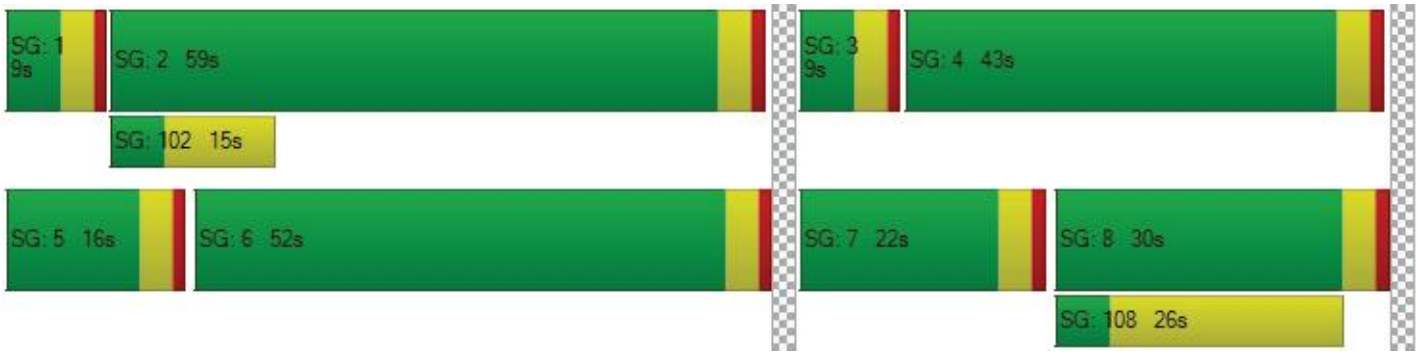
d_M, Delay for Movement [s/veh]	87.77	18.93	13.35	66.71	18.19	0.00	0.00	0.00	0.00	62.49	56.23	56.23
Movement LOS	F	B	B	E	B	A	A	A	A	E	E	E
d_A, Approach Delay [s/veh]	18.52			22.00			0.00			58.57		
Approach LOS	B			C			A			E		
d_I, Intersection Delay [s/veh]	25.54											
Intersection LOS	C											
Intersection V/C	0.710											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.053	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	917	433	650
d_b, Bicycle Delay [s]	21.60	17.60	36.82	27.34
l_b,int, Bicycle LOS Score for Intersection	2.586	3.144	1.560	2.335
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.882

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	162	58	56	145	76	103	129	56	67	230	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	3	0	0	11	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	2	0	0	0	0	0	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	176	61	59	159	81	109	148	59	71	267	162
Peak Hour Factor	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	50	17	17	45	23	31	42	17	20	75	46
Total Analysis Volume [veh/h]	61	199	69	67	179	91	123	167	67	80	301	183
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	409	453	432	410	459	432	479
Degree of Utilization, x	0.64	0.15	0.78	0.71	0.15	0.88	0.38

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.26	0.53	6.80	5.35	0.51	9.19	1.77
95th-Percentile Queue Length [ft]	106.54	13.36	170.10	133.87	12.69	229.66	44.14
Approach Delay [s/veh]	22.81		35.37	26.72		37.11	
Approach LOS	C		E	D		E	
Intersection Delay [s/veh]	31.44						
Intersection LOS	D						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.548

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	676	27	61	902	92	147	156	48	43	206	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	7	1	0	4	0	0	11	0	1	7	0
Site-Generated Trips [veh/h]	0	0	0	0	2	0	0	0	0	1	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	724	30	65	962	98	156	176	51	48	241	109
Peak Hour Factor	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	189	8	17	251	26	41	46	13	13	63	28
Total Analysis Volume [veh/h]	56	754	31	68	1002	102	163	183	53	50	251	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	50	0	10	51	0	34	38	0	22	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	69	69	6	70	70	13	25	25	5	16	16
g / C, Green / Cycle	0.04	0.57	0.57	0.05	0.58	0.58	0.11	0.20	0.20	0.04	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.22	0.04	0.31	0.31	0.10	0.05	0.03	0.03	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1775	1714	1800	1742	1714	3427	1530	1714	1800	1615
c, Capacity [veh/h]	71	1032	1018	86	1048	1014	194	701	313	67	234	210
d1, Uniform Delay [s]	56.99	13.99	13.99	56.39	15.23	15.24	52.15	40.12	39.34	57.10	50.73	50.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.23	1.08	1.09	15.00	1.96	2.03	9.36	0.20	0.25	15.50	6.49	8.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.38	0.38	0.79	0.54	0.54	0.84	0.26	0.17	0.75	0.81	0.84
d, Delay for Lane Group [s/veh]	74.22	15.07	15.08	71.39	17.19	17.27	61.52	40.31	39.59	72.60	57.22	59.40
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.02	6.04	5.96	2.40	9.55	9.28	5.31	2.30	1.32	1.79	5.95	5.64
50th-Percentile Queue Length [ft/ln]	50.57	150.8	148.9	59.88	238.6	231.9	132.8	57.59	32.99	44.74	148.6	141.1
95th-Percentile Queue Length [veh/ln]	3.64	10.06	9.96	4.31	14.61	14.27	9.09	4.15	2.38	3.22	9.94	9.54
95th-Percentile Queue Length [ft/ln]	91.03	251.6	249.0	107.7	365.3	356.7	227.3	103.6	59.39	80.52	248.6	238.5

Movement, Approach, & Intersection Results

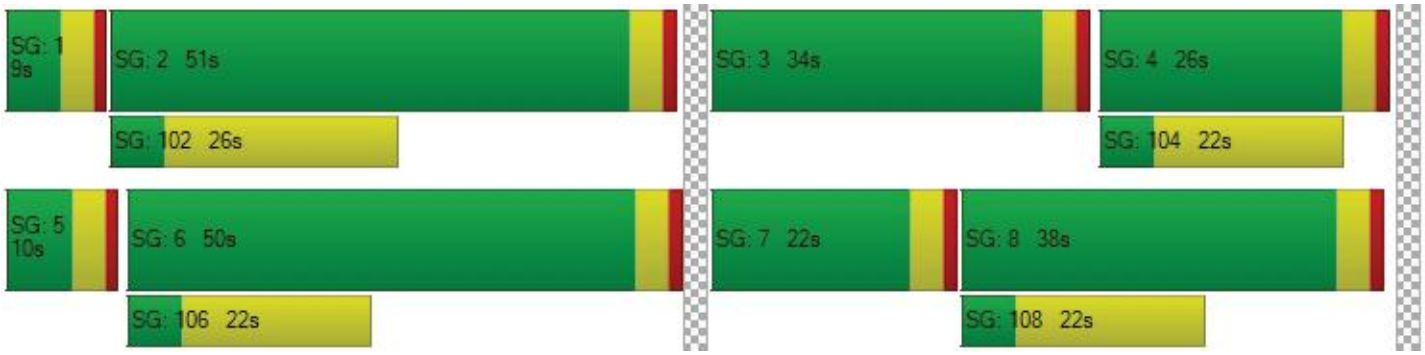
d_M, Delay for Movement [s/veh]	74.22	15.08	15.08	71.39	17.22	17.27	61.52	40.31	39.59	72.60	57.76	59.40
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	19.01			20.37			48.88			60.00		
Approach LOS	B			C			D			E		
d_I, Intersection Delay [s/veh]	29.81											
Intersection LOS	C											
Intersection V/C	0.548											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.695	2.826	2.599	2.581
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	783	567	367
d_b, Bicycle Delay [s]	22.82	22.20	30.82	40.02
l_b,int, Bicycle LOS Score for Intersection	2.253	2.527	1.889	1.902
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	40.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.595

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	568	91	33	877	42	50	340	93	134	370	43
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	1	5	0	0	5	12	15	6	2	0	4	0
Site-Generated Trips [veh/h]	4	0	0	0	5	10	0	0	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	607	96	35	940	67	68	366	101	142	403	46
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	167	26	10	259	18	19	101	28	39	111	13
Total Analysis Volume [veh/h]	72	669	106	39	1036	74	75	404	111	157	444	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	63	0	10	63	0	11	30	0	17	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	43	43	4	41	41	7	44	44	13	51	51
g / C, Green / Cycle	0.05	0.36	0.36	0.03	0.34	0.34	0.06	0.37	0.37	0.11	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.02	0.31	0.31	0.04	0.15	0.15	0.09	0.14	0.14
s, saturation flow rate [veh/h]	1714	1800	1715	1714	1800	1758	1714	1800	1669	1714	1800	1736
c, Capacity [veh/h]	86	647	616	54	613	599	95	665	617	182	757	730
d1, Uniform Delay [s]	56.52	31.60	31.61	57.58	37.89	37.90	56.01	27.98	28.03	52.75	23.40	23.42
k, delay calibration	0.11	0.11	0.11	0.11	0.20	0.20	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.87	0.95	1.00	16.45	9.90	10.17	13.74	1.79	1.96	11.22	1.18	1.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.61	0.61	0.72	0.92	0.92	0.79	0.40	0.40	0.86	0.33	0.33
d, Delay for Lane Group [s/veh]	75.40	32.55	32.60	74.04	47.79	48.07	69.75	29.77	30.00	63.97	24.58	24.65
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.61	9.57	9.14	1.42	17.27	16.94	2.61	5.98	5.64	5.22	5.04	4.89
50th-Percentile Queue Length [ft/ln]	65.31	239.2	228.4	35.53	431.8	423.3	65.13	149.4	141.0	130.4	126.0	122.3
95th-Percentile Queue Length [veh/ln]	4.70	14.65	14.10	2.56	24.09	23.68	4.69	9.99	9.54	8.96	8.73	8.52
95th-Percentile Queue Length [ft/ln]	117.5	366.1	352.3	63.95	602.2	592.1	117.2	249.6	238.4	224.1	218.1	213.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.40	32.57	32.60	74.04	47.92	48.07	69.75	29.85	30.00	63.97	24.61	24.65
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	36.22			48.81			34.95			34.09		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	40.03											
Intersection LOS	D											
Intersection V/C	0.595											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.818	2.784	2.545	2.549
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	433	533
d_b, Bicycle Delay [s]	15.50	15.50	36.82	32.27
l_b,int, Bicycle LOS Score for Intersection	2.258	2.508	2.046	2.098
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.464

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	645	75	23	871	122	103	90	11	74	78	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	0	0	3	2	6	12	0	5	5	0
Site-Generated Trips [veh/h]	0	0	0	0	3	0	0	0	0	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	686	80	24	929	131	115	107	12	88	88	33
Peak Hour Factor	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	185	22	6	251	35	31	29	3	24	24	9
Total Analysis Volume [veh/h]	23	742	86	26	1004	142	124	116	13	95	95	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	49	0	9	49	0	36	26	0	36	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	82	82	3	82	82	11	11	11	8	8	8
g / C, Green / Cycle	0.02	0.68	0.68	0.02	0.69	0.69	0.09	0.09	0.09	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.01	0.23	0.23	0.02	0.33	0.33	0.07	0.06	0.01	0.06	0.05	0.02
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1723	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	39	1229	1185	42	1232	1180	153	160	136	121	127	108
d1, Uniform Delay [s]	58.11	7.88	7.88	58.00	8.84	8.85	53.67	53.23	50.23	54.86	54.73	53.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.91	0.76	0.79	14.32	1.31	1.38	9.86	6.10	0.30	10.53	8.48	1.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.34	0.34	0.62	0.47	0.48	0.81	0.72	0.10	0.78	0.75	0.33
d, Delay for Lane Group [s/veh]	72.03	8.65	8.68	72.32	10.15	10.22	63.53	59.33	50.53	65.39	63.21	54.88
Lane Group LOS	E	A	A	E	B	B	E	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.84	4.48	4.33	0.95	7.04	6.77	4.09	3.68	0.37	3.18	3.12	1.09
50th-Percentile Queue Length [ft/ln]	21.03	111.9	108.2	23.70	175.9	169.3	102.3	91.99	9.30	79.54	77.96	27.25
95th-Percentile Queue Length [veh/ln]	1.51	7.95	7.74	1.71	11.39	11.04	7.37	6.62	0.67	5.73	5.61	1.96
95th-Percentile Queue Length [ft/ln]	37.86	198.6	193.5	42.67	284.6	276.0	184.2	165.5	16.73	143.1	140.3	49.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.03	8.66	8.68	72.32	10.18	10.22	63.53	59.33	50.53	65.39	63.21	54.88
Movement LOS	E	A	A	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	10.37			11.57			60.94			62.80		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	20.78											
Intersection LOS	C											
Intersection V/C	0.464											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.698	2.720	2.271	2.257
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	750	367	367
d_b, Bicycle Delay [s]	23.44	23.44	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.262	2.527	1.977	1.933
Bicycle LOS	B	B	A	A

Sequence

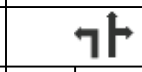
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	75.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	838	104	156	1207	9	0	1	0	214	0	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060	1.060	1.000
In-Process Volume [veh/h]	117	0	0	0	0	0	0	123	96	0	97	0
Site-Generated Trips [veh/h]	230	270	0	0	211	38	15	1	186	0	67	41
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	358	1108	110	156	1418	47	15	125	282	227	164	150
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	98	303	30	43	387	13	4	34	77	62	45	41
Total Analysis Volume [veh/h]	391	1211	120	170	1550	51	16	137	308	248	179	164
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	28	48	0	20	40	0	9	33	0	19	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	46	46	14	36	36	2	29	15	42
g / C, Green / Cycle	0.20	0.39	0.39	0.11	0.30	0.30	0.02	0.24	0.13	0.35
(v / s)_i Volume / Saturation Flow Rate	0.23	0.26	0.26	0.10	0.32	0.03	0.01	0.28	0.14	0.21
s, saturation flow rate [veh/h]	1714	3427	1718	1714	4903	1530	1714	1604	1714	1660
c, Capacity [veh/h]	343	1319	661	197	1471	459	32	388	214	578
d1, Uniform Delay [s]	48.00	30.62	30.64	52.15	42.00	30.41	58.32	45.50	52.50	32.16
k, delay calibration	0.39	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.14	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	87.10	2.74	5.40	10.46	39.04	0.49	11.41	92.50	85.30	1.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.14	0.67	0.67	0.86	1.05	0.11	0.50	1.15	1.16	0.59
d, Delay for Lane Group [s/veh]	135.1	33.37	36.04	62.60	81.04	30.90	69.73	138.00	137.80	33.63
Lane Group LOS	F	C	D	E	F	C	E	F	F	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	18.49	11.02	11.56	5.60	19.64	1.14	0.58	21.41	11.51	8.37
50th-Percentile Queue Length [ft/ln]	462.2	275.6	289.0	139.9	491.0	28.53	14.60	535.20	287.85	209.37
95th-Percentile Queue Length [veh/ln]	27.34	16.47	17.14	9.48	27.82	2.05	1.05	31.31	18.14	13.12
95th-Percentile Queue Length [ft/ln]	683.4	411.7	428.4	236.9	695.4	51.36	26.28	782.87	453.40	328.02

Movement, Approach, & Intersection Results

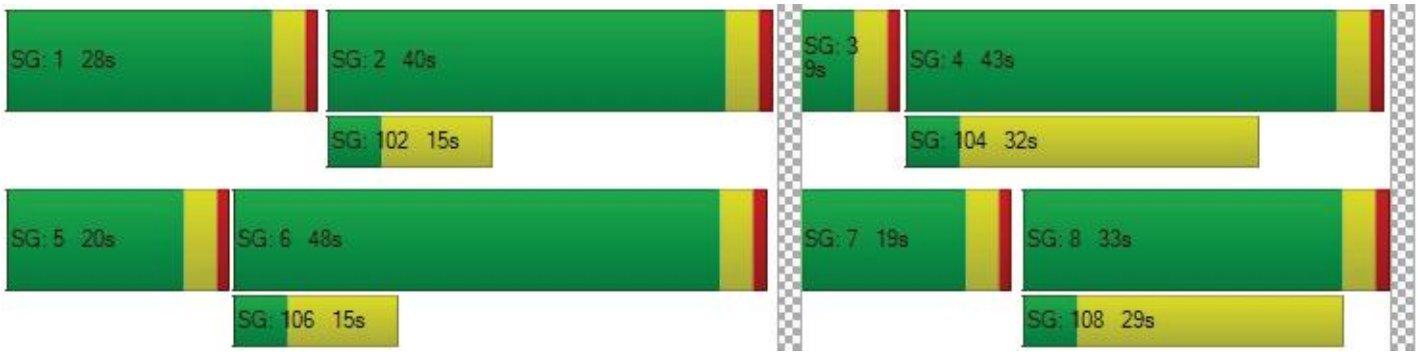
d_M, Delay for Movement [s/veh]	135.1	34.08	36.04	62.60	81.04	30.90	69.73	138.0	138.0	137.8	33.63	33.63
Movement LOS	F	C	D	E	F	C	E	F	F	F	C	C
d_A, Approach Delay [s/veh]	57.16			77.83			135.63			77.34		
Approach LOS	E			E			F			E		
d_I, Intersection Delay [s/veh]	75.80											
Intersection LOS	E											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.142	3.290	2.307	2.286
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	600	483	650
d_b, Bicycle Delay [s]	24.07	29.40	34.50	27.34
l_b,int, Bicycle LOS Score for Intersection	2.507	2.534	2.320	2.535
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	101.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.313

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	193	42	6	194	82	55	115	18	31	173	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	4	0	0	0	0	3	4	129	8	0	102	0
Site-Generated Trips [veh/h]	7	0	0	0	0	2	0	1	0	0	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	205	45	6	206	92	62	252	27	33	370	41
Peak Hour Factor	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	61	13	2	61	27	18	75	8	10	110	12
Total Analysis Volume [veh/h]	35	244	54	7	245	110	74	300	32	39	440	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	389	399	406	528
Degree of Utilization, x	0.86	0.91	1.01	1.31

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.20	9.55	12.68	24.00
95th-Percentile Queue Length [ft]	204.96	238.71	316.88	599.90
Approach Delay [s/veh]	47.68	55.16	79.04	183.74
Approach LOS	E	F	F	F
Intersection Delay [s/veh]	101.26			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	38.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.001

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	43	60	69	61	1	41	86	14	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	46	64	73	65	1	43	91	15	10
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	12	17	19	17	0	11	24	4	3
Total Analysis Volume [veh/h]	4	48	67	77	68	1	45	96	16	11
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	442	412
Degree of Utilization, x	0.60	0.41

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.80	1.96
95th-Percentile Queue Length [ft]	94.96	48.94
Approach Delay [s/veh]	22.50	17.66
Approach LOS	C	C
Intersection Delay [s/veh]	38.07	
Intersection LOS	E	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	46	6	95	57	0	27	55	146	14	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	17	105	0	0	0	0	89	0	0
Site-Generated Trips [veh/h]	0	1	0	0	0	0	0	78	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	24	206	60	0	29	58	322	15	4
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	6	54	16	0	8	15	85	4	1
Total Analysis Volume [veh/h]	51	25	216	63	0	30	61	338	16	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	434	449
Degree of Utilization, x	0.82	1.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.62	12.99
95th-Percentile Queue Length [ft]	190.46	324.86
Approach Delay [s/veh]	39.17	71.28
Approach LOS	E	F
Intersection Delay [s/veh]	38.07	
Intersection LOS	E	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	13	66	23	1	13	45	123	26	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	14	70	24	1	14	48	130	35	6
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	18	6	0	4	13	34	9	2
Total Analysis Volume [veh/h]	2	15	74	25	1	15	50	137	37	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	421	420	469
Degree of Utilization, x	0.28	0.48	0.09

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.12	2.54	0.30
95th-Percentile Queue Length [ft]	28.09	63.48	7.53
Approach Delay [s/veh]	14.83	17.57	
Approach LOS	B	C	
Intersection Delay [s/veh]	38.07		
Intersection LOS	E		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.575

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	591	196	103	849	50	80	110	135	123	108	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	39	0	0	0	0	8	2	60	42	0	42	0
Site-Generated Trips [veh/h]	15	0	0	0	0	8	0	0	0	0	55	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	174	626	208	109	900	69	87	177	185	130	211	71
Peak Hour Factor	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	158	52	27	227	17	22	45	47	33	53	18
Total Analysis Volume [veh/h]	175	631	210	110	907	70	88	178	186	131	213	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	48	0	22	41	0	24	35	0	15	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	67	67	9	62	62	8	17	17	11	20	20
g / C, Green / Cycle	0.12	0.55	0.55	0.08	0.51	0.51	0.07	0.14	0.14	0.09	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.24	0.24	0.06	0.27	0.27	0.05	0.05	0.12	0.08	0.12	0.05
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1755	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	205	997	913	136	925	902	113	488	218	156	301	256
d1, Uniform Delay [s]	51.81	15.79	15.79	54.33	19.54	19.54	55.21	46.54	50.23	53.71	47.17	43.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.73	1.41	1.54	10.64	2.21	2.27	11.07	0.46	9.12	11.48	3.04	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.44	0.44	0.81	0.53	0.53	0.78	0.36	0.85	0.84	0.71	0.28
d, Delay for Lane Group [s/veh]	61.54	17.20	17.33	64.97	21.75	21.81	66.27	47.00	59.35	65.19	50.20	44.23
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.71	7.33	6.75	3.67	9.63	9.41	2.97	2.44	6.00	4.39	6.26	1.92
50th-Percentile Queue Length [ft/ln]	142.8	183.3	168.7	91.80	240.7	235.2	74.24	61.12	149.9	109.6	156.5	48.01
95th-Percentile Queue Length [veh/ln]	9.63	11.77	11.01	6.61	14.72	14.44	5.35	4.40	10.01	7.82	10.36	3.46
95th-Percentile Queue Length [ft/ln]	240.8	294.3	275.2	165.2	367.9	360.9	133.6	110.0	250.3	195.5	259.0	86.42

Movement, Approach, & Intersection Results

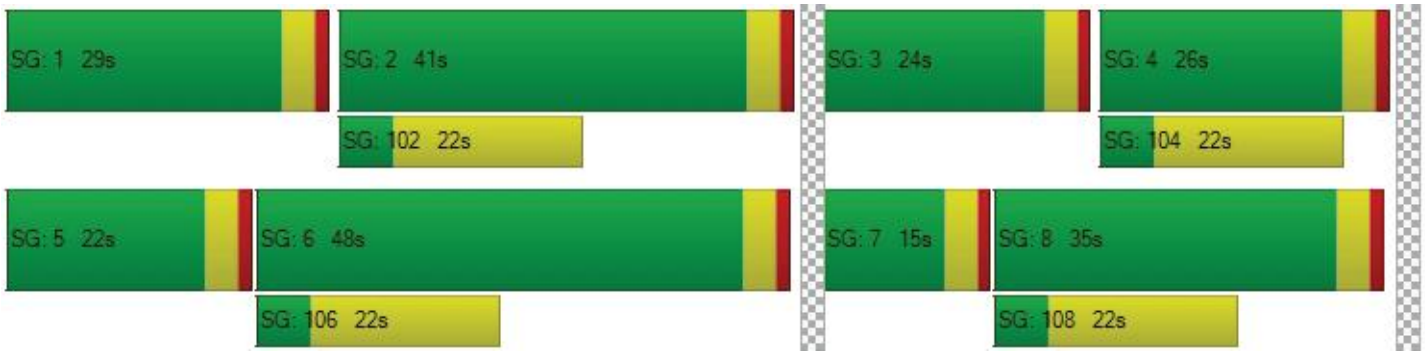
d_M, Delay for Movement [s/veh]	61.54	17.24	17.33	64.97	21.78	21.81	66.27	47.00	59.35	65.19	50.20	44.23
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	24.89			26.15			55.83			53.89		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	34.12											
Intersection LOS	C											
Intersection V/C	0.575											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.752	2.681	2.493	2.617
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	617	517	367
d_b, Bicycle Delay [s]	24.07	28.70	33.00	40.02
l_b,int, Bicycle LOS Score for Intersection	2.398	2.456	1.933	2.246
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	725	49	22	1043	36	57	200	93	134	203	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	20	0	0	0	0	8	9	6	32	0	4	0
Site-Generated Trips [veh/h]	26	0	0	0	0	8	0	0	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	769	52	23	1106	54	69	218	131	142	226	53
Peak Hour Factor	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	20	199	13	6	287	14	18	57	34	37	59	14
Total Analysis Volume [veh/h]	82	798	54	24	1147	56	72	226	136	147	234	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	49	0	9	47	0	20	40	0	22	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	73	73	3	69	69	6	16	16	12	21	21
g / C, Green / Cycle	0.06	0.61	0.61	0.02	0.58	0.58	0.05	0.13	0.13	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.05	0.24	0.24	0.01	0.34	0.34	0.04	0.11	0.11	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1714	1800	1760	1714	1800	1771	1714	1800	1580	1714	1800	1684
c, Capacity [veh/h]	100	1100	1076	40	1037	1020	92	236	207	174	321	301
d1, Uniform Delay [s]	55.88	11.93	11.93	58.07	16.27	16.28	56.07	50.65	50.88	52.98	44.11	44.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.96	1.05	1.07	14.02	2.41	2.46	13.17	6.30	8.51	10.54	1.03	1.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.39	0.39	0.61	0.58	0.59	0.78	0.80	0.83	0.84	0.46	0.47
d, Delay for Lane Group [s/veh]	70.83	12.98	13.00	72.09	18.69	18.74	69.23	56.94	59.39	63.52	45.13	45.32
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.87	6.02	5.89	0.88	10.97	10.82	2.49	5.93	5.55	4.86	4.04	3.87
50th-Percentile Queue Length [ft/ln]	71.76	150.4	147.3	21.92	274.1	270.4	62.30	148.3	138.7	121.5	100.9	96.72
95th-Percentile Queue Length [veh/ln]	5.17	10.04	9.87	1.58	16.40	16.21	4.49	9.93	9.41	8.48	7.27	6.96
95th-Percentile Queue Length [ft/ln]	129.1	251.0	246.8	39.45	409.9	405.2	112.1	248.1	235.2	211.9	181.7	174.1

Movement, Approach, & Intersection Results

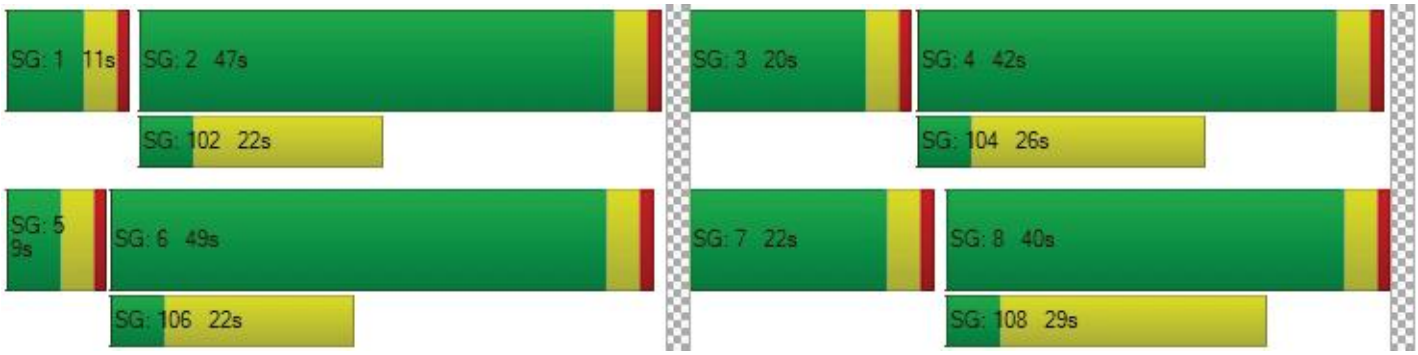
d_M, Delay for Movement [s/veh]	70.83	12.99	13.00	72.09	18.71	18.74	69.23	57.34	59.39	63.52	45.20	45.32
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	18.07			19.76			59.96			51.39		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	29.54											
Intersection LOS	C											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.938	2.818	2.472	2.459
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	717	600	633
d_b, Bicycle Delay [s]	23.44	24.70	29.40	28.02
l_b,int, Bicycle LOS Score for Intersection	2.330	2.572	1.918	1.919
Bicycle LOS	B	B	A	A

Sequence

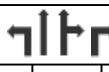
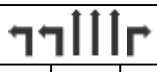
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	45.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	86	48	77	136	246	885	267	400	59	134	1190	220
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	4	0	0	6	47
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	7	0	0	0	94
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	51	82	144	261	938	283	435	63	142	1267	374
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	14	23	40	72	259	78	120	17	39	349	103
Total Analysis Volume [veh/h]	100	56	90	159	288	1034	312	480	69	157	1397	412
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	13	0	49	50	0	17	30	0	28	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	41	41	13	46	46	46	13	42	42	8	37	37
g / C, Green / Cycle	0.07	0.34	0.34	0.11	0.39	0.39	0.39	0.11	0.35	0.35	0.07	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.09	0.16	0.34	0.34	0.09	0.10	0.05	0.05	0.28	0.27
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	114	1175	525	190	697	592	592	361	1699	530	220	1493	466
d1, Uniform Delay [s]	55.50	26.34	27.53	52.2	26.8	34.0	34.0	52.64	28.40	26.83	54.91	40.59	39.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.37
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.04	0.08	0.71	9.24	1.81	16.2	16.2	6.27	0.09	0.11	4.24	3.40	16.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.05	0.17	0.84	0.41	0.87	0.87	0.87	0.28	0.13	0.71	0.94	0.88
d, Delay for Lane Group [s/veh]	73.54	26.41	28.23	61.5	28.6	50.2	50.2	58.90	28.49	26.94	59.15	43.99	56.17
Lane Group LOS	E	C	C	E	C	D	D	E	C	C	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.57	0.55	1.92	5.18	6.36	16.3	16.3	4.93	3.36	1.38	2.46	13.69	13.57
50th-Percentile Queue Length [ft/ln]	89.25	13.83	48.01	129.	159.	409.	409.	123.3	84.08	34.52	61.44	342.2	339.3
95th-Percentile Queue Length [veh/ln]	6.43	1.00	3.46	8.91	10.5	23.0	23.0	8.58	6.05	2.49	4.42	19.76	19.62
95th-Percentile Queue Length [ft/ln]	160.6	24.90	86.41	222.	262.	575.	575.	214.4	151.3	62.13	110.5	493.9	490.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.54	26.41	28.23	61.51	28.63	50.25	58.90	28.49	26.94	59.15	43.99	56.17
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	E
d_A, Approach Delay [s/veh]	46.24			47.26			39.38			47.76		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.93											
Intersection LOS	D											
Intersection V/C	0.775											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.592	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	150	767	433	617
d_b, Bicycle Delay [s]	51.34	22.82	36.82	28.70
l_b,int, Bicycle LOS Score for Intersection	1.763	2.781	2.033	2.641
Bicycle LOS	A	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	50.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.693

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	25	34	338	49	955	255	331	25	30	552	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	45	0	0	0	4	0	0	53	0
Site-Generated Trips [veh/h]	0	0	0	99	0	0	0	7	0	0	94	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	27	36	502	52	1012	270	362	27	32	732	101
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	7	10	135	14	271	72	97	7	9	196	27
Total Analysis Volume [veh/h]	50	29	39	539	56	1086	290	388	29	34	785	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	44	44	44	13	51	51	3	42	42
g / C, Green / Cycle	0.05	0.05	0.05	0.37	0.37	0.37	0.11	0.43	0.43	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.03	0.17	0.17	0.40	0.09	0.08	0.02	0.02	0.17	0.18
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1730	2708	3329	4903	1530	1714	3427	1691
c, Capacity [veh/h]	80	84	71	629	634	993	356	2084	650	49	1188	586
d1, Uniform Delay [s]	56.17	55.43	55.96	29.12	29.07	38.00	52.43	21.54	20.22	57.79	31.02	31.07
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.13	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.77	2.43	6.38	0.55	0.54	46.95	4.57	0.20	0.13	16.51	1.52	3.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.35	0.55	0.47	0.47	1.09	0.82	0.19	0.04	0.70	0.50	0.51
d, Delay for Lane Group [s/veh]	63.95	57.86	62.34	29.67	29.61	84.95	56.99	21.74	20.35	74.30	32.54	34.18
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.66	0.91	1.28	6.66	6.64	20.76	4.49	2.32	0.50	1.25	7.08	7.31
50th-Percentile Queue Length [ft/ln]	41.52	22.71	32.07	166.4	166.1	519.1	112.3	58.10	12.61	31.17	176.9	182.7
95th-Percentile Queue Length [veh/ln]	2.99	1.64	2.31	10.89	10.87	29.96	7.97	4.18	0.91	2.24	11.44	11.74
95th-Percentile Queue Length [ft/ln]	74.74	40.88	57.73	272.2	271.7	748.9	199.2	104.5	22.70	56.10	285.9	293.5

Movement, Approach, & Intersection Results

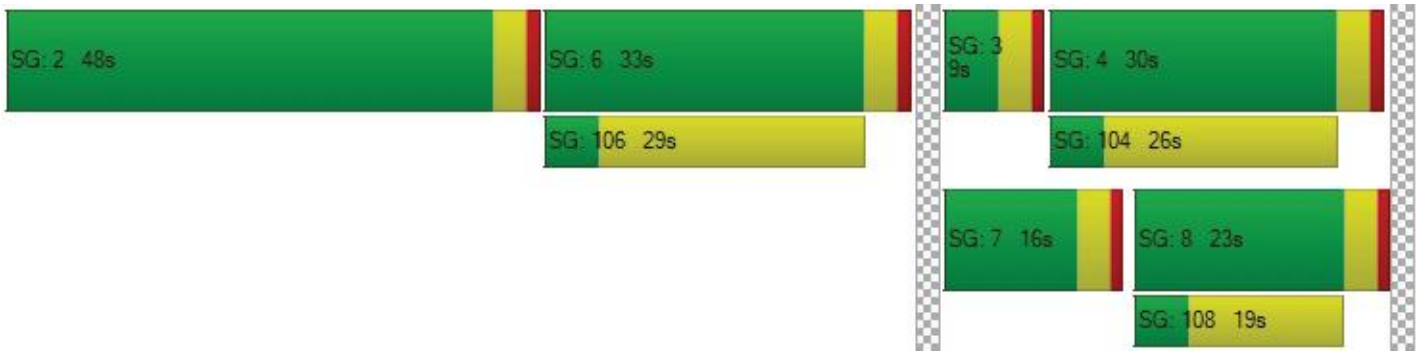
d_M, Delay for Movement [s/veh]	63.95	57.86	62.34	29.64	29.61	84.95	56.99	21.74	20.35	74.30	32.93	34.18
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	61.92			65.37			36.14			34.60		
Approach LOS	E			E			D			C		
d_I, Intersection Delay [s/veh]	50.92											
Intersection LOS	D											
Intersection V/C	0.693											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.204	2.811	0.000	2.873
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.657	4.333	1.948	2.069
Bicycle LOS	A	E	A	B

Sequence

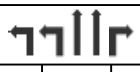
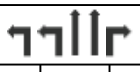
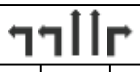
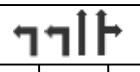
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	228	643	85	59	766	139	149	155	92	143	309	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	7	2	0	1	2	27	22	0	12	51	35
Site-Generated Trips [veh/h]	0	0	6	7	0	0	0	106	0	101	94	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	242	689	98	70	813	149	185	292	98	265	473	80
Peak Hour Factor	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	65	186	26	19	219	40	50	79	26	71	128	22
Total Analysis Volume [veh/h]	261	743	106	76	877	161	200	315	106	286	510	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	44	0	9	36	0	14	36	0	31	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	67	5	60	60	9	20	20	13	23	23
g / C, Green / Cycle	0.09	0.56	0.04	0.50	0.50	0.08	0.16	0.16	0.11	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.02	0.26	0.11	0.06	0.09	0.07	0.09	0.17	0.17
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1711
c, Capacity [veh/h]	316	1912	128	1719	767	253	558	249	358	349	332
d1, Uniform Delay [s]	53.33	14.97	56.78	20.04	16.66	54.49	46.31	45.18	52.29	46.93	46.94
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.46	0.60	4.35	1.09	0.62	5.43	0.90	1.15	4.15	6.90	7.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.39	0.59	0.51	0.21	0.79	0.56	0.43	0.80	0.87	0.87
d, Delay for Lane Group [s/veh]	58.79	15.56	61.13	21.12	17.29	59.92	47.21	46.34	56.44	53.83	54.18
Lane Group LOS	E	B	E	C	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.10	5.77	1.21	8.34	2.60	3.16	4.41	2.93	4.41	9.50	9.06
50th-Percentile Queue Length [ft/ln]	102.58	144.24	30.29	208.4	65.00	79.02	110.2	73.24	110.3	237.5	226.6
95th-Percentile Queue Length [veh/ln]	7.39	9.71	2.18	13.08	4.68	5.69	7.85	5.27	7.86	14.55	14.00
95th-Percentile Queue Length [ft/ln]	184.65	242.72	54.52	326.8	116.9	142.2	196.3	131.8	196.4	363.8	350.0

Movement, Approach, & Intersection Results

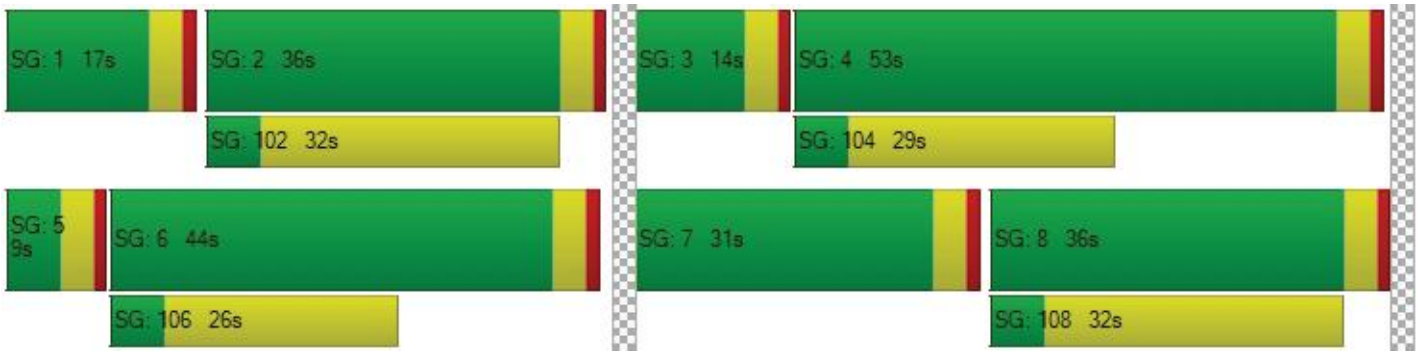
d_M, Delay for Movement [s/veh]	58.79	15.56	0.00	61.13	21.12	17.29	59.92	47.21	46.34	56.44	53.97	54.18
Movement LOS	E	B		E	C	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.80			23.30			51.15			54.79		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.72											
Intersection LOS	D											
Intersection V/C	0.564											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.018	2.908	2.930	2.675
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	533	817
d_b, Bicycle Delay [s]	26.67	32.27	32.27	21.00
l_b,int, Bicycle LOS Score for Intersection	2.388	2.479	2.072	2.287
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	220	4	8	0	1	182	33	263	473	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	35	0	39	0	0	0	0	24	0	86	62	0
Site-Generated Trips [veh/h]	0	0	31	0	0	0	0	119	0	11	195	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	3	303	4	8	0	1	336	35	376	758	2
Peak Hour Factor	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	85	1	2	0	0	94	10	105	212	1
Total Analysis Volume [veh/h]	94	3	339	4	9	0	1	375	39	420	847	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	35	0	9	35	0	37	26	0	50	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	29	36	0	41	41	32	72	72
g / C, Green / Cycle	0.30	0.30	0.24	0.30	0.00	0.34	0.34	0.26	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.22	0.01	0.00	0.11	0.03	0.25	0.24	0.24
s, saturation flow rate [veh/h]	1428	1390	1530	1421	1714	3427	1530	1714	1800	1799
c, Capacity [veh/h]	407	530	366	476	3	1161	518	452	1081	1081
d1, Uniform Delay [s]	31.08	31.08	44.64	29.88	59.81	29.45	26.91	43.07	12.51	12.52
k, delay calibration	0.11	0.25	0.31	0.11	0.11	0.50	0.50	0.16	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.19	22.99	0.02	46.07	0.74	0.28	11.86	1.07	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.10	0.93	0.03	0.31	0.32	0.08	0.93	0.39	0.39
d, Delay for Lane Group [s/veh]	31.20	31.27	67.63	29.90	105.8	30.19	27.20	54.92	13.59	13.59
Lane Group LOS	C	C	E	C	F	C	C	D	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.92	1.21	12.13	0.27	0.07	4.15	0.81	13.54	6.10	6.10
50th-Percentile Queue Length [ft/ln]	23.07	30.24	303.1	6.80	1.80	103.7	20.17	338.3	152.6	152.5
95th-Percentile Queue Length [veh/ln]	1.66	2.18	17.84	0.49	0.13	7.47	1.45	19.57	10.16	10.15
95th-Percentile Queue Length [ft/ln]	41.53	54.43	445.9	12.24	3.24	186.7	36.31	489.2	253.9	253.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.20	31.27	67.63	29.90	29.90	29.90	105.8	30.19	27.20	54.92	13.59	13.59
Movement LOS	C	C	E	C	C	C	F	C	C	D	B	B
d_A, Approach Delay [s/veh]	59.53			29.90			30.09			27.27		
Approach LOS	E			C			C			C		
d_I, Intersection Delay [s/veh]	34.43											
Intersection LOS	C											
Intersection V/C	0.586											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.491	0.000	2.936	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	367	583
d_b, Bicycle Delay [s]	26.67	26.67	40.02	30.10
l_b,int, Bicycle LOS Score for Intersection	2.279	1.581	1.902	2.607
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.340

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	3	0	397	746	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0000	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	146	0	60	3	0
Site-Generated Trips [veh/h]	0	0	0	150	206	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	149	0	631	1000	1
Peak Hour Factor	0.9060	0.9060	1.0000	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	41	0	174	276	0
Total Analysis Volume [veh/h]	0	164	0	696	1104	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.34	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	37.94	16.26	10.74	0.00	0.00	0.00
Movement LOS	E	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.49	1.49	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	37.26	37.26	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.26		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.36					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	46.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	854	95	88	904	383	181	80	118	143	332	79
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	88	0	12	131	3	60	0	0	0	0	10
Site-Generated Trips [veh/h]	0	325	0	10	181	206	150	0	0	0	0	25
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	118	1318	101	115	1270	615	402	85	125	152	352	119
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	32	360	28	31	347	168	110	23	34	42	96	33
Total Analysis Volume [veh/h]	129	1440	110	126	1388	672	439	93	137	166	385	130
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	37	0	13	35	35	34	43	0	27	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	44	44	9	43	77	30	37	14	21	21
g / C, Green / Cycle	0.09	0.37	0.37	0.08	0.36	0.64	0.25	0.31	0.11	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.30	0.30	0.07	0.28	0.44	0.26	0.03	0.10	0.15	0.15
s, saturation flow rate [veh/h]	1714	3427	1735	1714	4903	1530	1714	3427	1714	1800	1647
c, Capacity [veh/h]	154	1264	640	129	1737	976	429	1056	196	311	285
d1, Uniform Delay [s]	53.78	34.15	34.16	55.41	34.89	14.05	45.00	29.52	52.08	48.24	48.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.47	0.11	0.11	0.13	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.46	5.81	10.91	32.30	3.95	3.97	48.43	0.04	9.48	8.15	9.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.81	0.81	0.98	0.80	0.69	1.02	0.09	0.84	0.86	0.87
d, Delay for Lane Group [s/veh]	65.24	39.96	45.06	87.71	38.84	18.02	93.43	29.56	61.56	56.39	57.74
Lane Group LOS	E	D	D	F	D	B	F	C	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.32	14.34	15.45	4.95	12.65	12.07	18.40	0.97	5.42	8.48	7.93
50th-Percentile Queue Length [ft/ln]	108.0	358.6	386.2	123.8	316.2	301.6	460.09	24.24	135.4	212.1	198.2
95th-Percentile Queue Length [veh/ln]	7.73	20.56	21.89	8.60	18.48	17.76	25.81	1.75	9.23	13.26	12.55
95th-Percentile Queue Length [ft/ln]	193.2	513.9	547.3	215.1	462.0	444.0	645.32	43.63	230.8	331.5	313.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.24	41.42	45.06	87.71	38.84	18.02	93.43	29.56	0.00	61.56	56.80	57.74
Movement LOS	E	D	D	F	D	B	F	C		E	E	E
d_A, Approach Delay [s/veh]	43.49			35.25			82.27			58.14		
Approach LOS	D			D			F			E		
d_I, Intersection Delay [s/veh]	45.97											
Intersection LOS	D											
Intersection V/C	0.803											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.215	3.252	2.747	2.512
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	517	650	533
d_b, Bicycle Delay [s]	31.54	33.00	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.483	2.762	1.999	2.121
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.518

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	29	126	6	43	129	75	30	216	16	7	341	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	2	0	0	0	6	0	0	6	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	10	0	0	18	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	134	6	48	137	80	32	245	17	7	385	70
Peak Hour Factor	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	44	2	16	45	26	10	80	6	2	125	23
Total Analysis Volume [veh/h]	40	174	8	63	178	104	42	319	22	9	501	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	9	82	0	9	82	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	68	68	4	38	1	36	36
g / C, Green / Cycle	0.57	0.57	0.03	0.32	0.01	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.14	0.21	0.02	0.19	0.01	0.28	0.06
s, saturation flow rate [veh/h]	1609	1606	1714	1780	1714	1800	1530
c, Capacity [veh/h]	949	948	54	570	20	540	459
d1, Uniform Delay [s]	12.78	14.01	57.67	34.31	58.91	40.72	31.24
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.58	1.08	20.28	1.01	14.68	7.47	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.36	0.77	0.60	0.45	0.93	0.20
d, Delay for Lane Group [s/veh]	13.35	15.09	77.95	35.32	73.58	48.19	31.45
Lane Group LOS	B	B	E	D	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.06	5.24	1.57	8.51	0.35	15.33	2.01
50th-Percentile Queue Length [ft/ln]	76.58	131.04	39.30	212.70	8.86	383.2	50.17
95th-Percentile Queue Length [veh/ln]	5.51	9.00	2.83	13.29	0.64	21.75	3.61
95th-Percentile Queue Length [ft/ln]	137.84	224.91	70.74	332.29	15.94	543.7	90.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.35	13.35	13.35	15.09	15.09	15.09	77.95	35.32	35.32	73.58	48.19	31.45
Movement LOS	B	B	B	B	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	13.35			15.09			40.00			46.04		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	32.98											
Intersection LOS	C											
Intersection V/C	0.518											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.940	2.048	2.454	0.000
Crosswalk LOS	A	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	417	1300	1300
d_b, Bicycle Delay [s]	37.60	37.60	7.35	7.35
l_b,int, Bicycle LOS Score for Intersection	1.926	2.129	2.192	2.551
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.333

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	21	14	9	8	0	42	34	21	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	6	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	35	15	10	8	0	45	36	22	16
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	11	5	3	3	0	14	11	7	5
Total Analysis Volume [veh/h]	1	45	19	13	10	0	57	46	28	20
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	30	0	0	0	0	30	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	13	13
g / C, Green / Cycle	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.07	0.10
s, saturation flow rate [veh/h]	1308	1575
c, Capacity [veh/h]	191	216
d1, Uniform Delay [s]	50.50	52.32
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	1.72	4.03
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.70
d, Delay for Lane Group [s/veh]	52.22	56.35
Lane Group LOS	D	E
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	2.61	4.70
50th-Percentile Queue Length [ft/ln]	65.22	117.60
95th-Percentile Queue Length [veh/ln]	4.70	8.26
95th-Percentile Queue Length [ft/ln]	117.39	206.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.22	52.22	52.22	52.22	52.22	56.35	56.35	56.35	56.35	56.35
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	52.22					56.35				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.10									
Intersection LOS	C									
Intersection V/C	0.333									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.863	1.917
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433
d_b, Bicycle Delay [s]	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	1.614	1.682
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	42	159	11	5	1	9	169	11	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	1	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	10	0	0	0	0	11	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	45	180	19	5	1	10	190	12	6
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	14	57	6	2	0	3	61	4	2
Total Analysis Volume [veh/h]	13	57	229	24	6	1	13	242	15	8
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	52	0	0	9	0	52	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	82	76	82	73	73
g / C, Green / Cycle	0.68	0.63	0.68	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.06	0.15	0.01	0.13	0.02
s, saturation flow rate [veh/h]	1178	1764	1166	1800	1530
c, Capacity [veh/h]	803	1117	787	1102	936
d1, Uniform Delay [s]	6.70	9.45	6.52	10.44	9.17
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.49	0.01	0.46	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.23	0.02	0.22	0.02
d, Delay for Lane Group [s/veh]	6.91	9.94	6.53	10.90	9.22
Lane Group LOS	A	A	A	B	A
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.61	2.99	0.11	2.96	0.25
50th-Percentile Queue Length [ft/ln]	15.25	74.70	2.77	73.91	6.19
95th-Percentile Queue Length [veh/ln]	1.10	5.38	0.20	5.32	0.45
95th-Percentile Queue Length [ft/ln]	27.45	134.46	4.98	133.04	11.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.91	6.91	9.94	9.94	9.94	6.53	6.53	10.90	9.22	9.22
Movement LOS	A	A	A	A	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	9.30					10.54				
Approach LOS	A					B				
d_I, Intersection Delay [s/veh]	32.10									
Intersection LOS	C									
Intersection V/C	0.333									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.282	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800
d_b, Bicycle Delay [s]	21.60	21.60
l_b,int, Bicycle LOS Score for Intersection	1.999	1.985
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	10	36	12	1	3	14	94	78	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	38	13	1	3	15	100	83	2
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	12	4	0	1	5	32	26	1
Total Analysis Volume [veh/h]	0	14	48	17	1	4	19	127	106	3
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	29	0	0	0	0	29	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	13
g / C, Green / Cycle	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.08	0.09	0.07
s, saturation flow rate [veh/h]	973	1710	1530
c, Capacity [veh/h]	138	215	162
d1, Uniform Delay [s]	50.43	52.49	51.66
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.80	4.02	4.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.70	0.67
d, Delay for Lane Group [s/veh]	54.23	56.51	56.47
Lane Group LOS	D	E	E
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.40	4.66	3.37
50th-Percentile Queue Length [ft/ln]	60.07	116.60	84.35
95th-Percentile Queue Length [veh/ln]	4.32	8.21	6.07
95th-Percentile Queue Length [ft/ln]	108.12	205.14	151.83

Movement, Approach, & Intersection Results

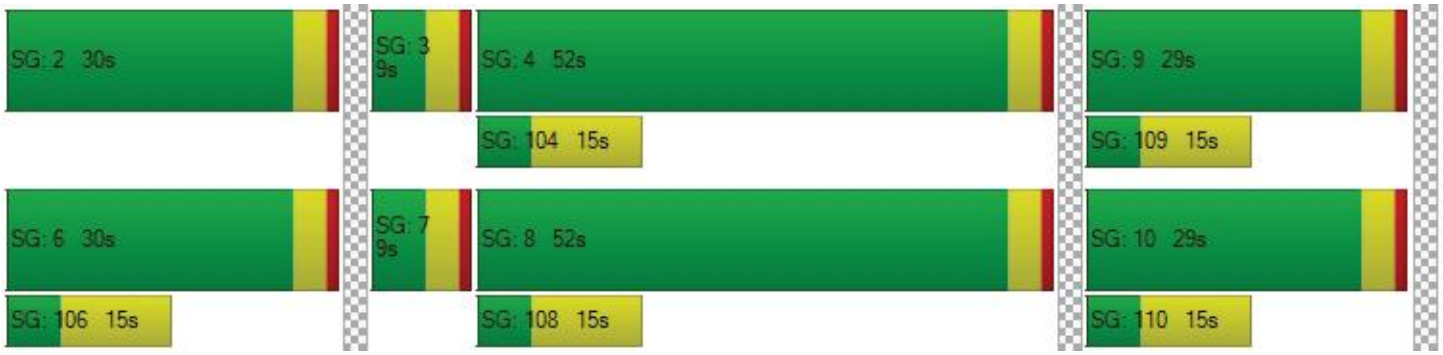
d_M, Delay for Movement [s/veh]	54.23	54.23	54.23	54.23	54.23	56.51	56.51	56.51	56.47	56.47
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	54.23					56.49				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.10									
Intersection LOS	C									
Intersection V/C	0.333									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.933	2.224
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	417
d_b, Bicycle Delay [s]	37.60	37.60
l_b,int, Bicycle LOS Score for Intersection	1.640	1.975
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	589	159	100	785	63	135	118	67	107	130	261
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	31	0	10	32	0	0	1	0	0	0	8
Site-Generated Trips [veh/h]	0	7	0	0	0	0	0	10	0	0	11	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	662	169	116	864	67	143	136	71	113	149	293
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	178	45	31	232	18	38	36	19	30	40	79
Total Analysis Volume [veh/h]	132	710	181	124	927	72	153	146	76	121	160	314
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	40	0	16	41	0	16	41	0	23	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	54	54	10	54	54	12	29	29	10	27	27
g / C, Green / Cycle	0.09	0.45	0.45	0.09	0.45	0.45	0.10	0.24	0.24	0.09	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.26	0.07	0.28	0.28	0.09	0.06	0.07	0.07	0.09	0.21
s, saturation flow rate [veh/h]	1714	1800	1675	1714	1800	1755	1714	1800	1599	1714	1800	1530
c, Capacity [veh/h]	157	814	758	149	807	786	171	432	384	150	409	348
d1, Uniform Delay [s]	53.67	24.19	24.19	53.91	25.42	25.42	53.36	37.03	37.14	53.78	39.33	45.08
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.47	2.85	3.06	11.20	3.67	3.77	14.49	0.33	0.39	9.87	0.61	10.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.57	0.57	0.83	0.63	0.63	0.89	0.27	0.28	0.81	0.39	0.90
d, Delay for Lane Group [s/veh]	65.14	27.04	27.25	65.11	29.09	29.19	67.86	37.36	37.53	63.66	39.94	55.65
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.42	10.16	9.51	4.15	11.72	11.45	5.25	2.80	2.61	4.00	4.09	10.07
50th-Percentile Queue Length [ft/ln]	110.4	254.0	237.6	103.6	292.9	286.3	131.1	70.02	65.27	99.98	102.2	251.6
95th-Percentile Queue Length [veh/ln]	7.87	15.39	14.56	7.46	17.33	17.00	9.00	5.04	4.70	7.20	7.36	15.27
95th-Percentile Queue Length [ft/ln]	196.6	384.8	364.0	186.6	433.2	425.0	225.0	126.0	117.4	179.9	184.0	381.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.14	27.11	27.25	65.11	29.13	29.19	67.86	37.39	37.53	63.66	39.94	55.65
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	32.04			33.11			49.85			53.05		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.58											
Intersection LOS	D											
Intersection V/C	0.653											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.734	2.764	2.459	2.638
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	617	617	733
d_b, Bicycle Delay [s]	29.40	28.70	28.70	24.07
l_b,int, Bicycle LOS Score for Intersection	2.404	2.486	1.869	2.050
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	30.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.680

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	731	162	10	1158	67	27	177	83	258	306	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	1	13	0	4	22	0	0	2	2	0	1	3
Site-Generated Trips [veh/h]	11	13	0	0	0	0	0	0	10	0	1	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	801	172	15	1249	71	29	190	100	273	326	49
Peak Hour Factor	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	210	45	4	328	19	8	50	26	72	86	13
Total Analysis Volume [veh/h]	67	841	180	16	1311	75	30	199	105	286	342	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	27	0	9	26	0	32	36	0	48	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	66	66	2	62	62	3	14	14	22	32	32
g / C, Green / Cycle	0.05	0.55	0.55	0.02	0.52	0.52	0.03	0.11	0.11	0.19	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.12	0.01	0.38	0.05	0.02	0.09	0.09	0.17	0.11	0.11
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1598	1714	1800	1720
c, Capacity [veh/h]	85	1888	843	30	1778	794	48	203	180	318	487	465
d1, Uniform Delay [s]	56.42	16.04	13.72	58.47	22.49	14.60	57.70	51.74	51.99	47.78	35.94	35.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.00	0.76	0.58	14.10	2.77	0.24	12.63	6.18	8.52	9.11	0.56	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.45	0.21	0.54	0.74	0.09	0.63	0.77	0.81	0.90	0.41	0.41
d, Delay for Lane Group [s/veh]	71.42	16.80	14.30	72.57	25.27	14.84	70.34	57.91	60.51	56.88	36.50	36.55
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.36	6.92	2.60	0.60	14.63	1.09	1.07	4.95	4.74	9.14	4.91	4.72
50th-Percentile Queue Length [ft/ln]	59.03	173.1	64.93	14.98	365.7	27.20	26.76	123.7	118.5	228.4	122.8	117.9
95th-Percentile Queue Length [veh/ln]	4.25	11.24	4.68	1.08	20.90	1.96	1.93	8.60	8.31	14.09	8.55	8.28
95th-Percentile Queue Length [ft/ln]	106.2	281.0	116.8	26.97	522.6	48.97	48.16	214.9	207.7	352.3	213.6	207.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.42	16.80	14.30	72.57	25.27	14.84	70.34	58.46	60.51	56.88	36.52	36.55
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	19.75			25.25			60.17			45.10		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	30.72											
Intersection LOS	C											
Intersection V/C	0.680											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.081	2.846	2.475	2.525
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	367	533	800
d_b, Bicycle Delay [s]	39.20	40.02	32.27	21.60
l_b,int, Bicycle LOS Score for Intersection	2.457	2.716	1.835	2.120
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.323

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	102	8	8	123	45	21	43	2	21	147	7
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	108	8	8	130	48	22	46	2	22	156	7
Peak Hour Factor	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	32	2	2	38	14	6	13	1	6	46	2
Total Analysis Volume [veh/h]	7	126	9	9	152	56	26	54	2	26	183	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	722	755	679	647	751
Degree of Utilization, x	0.20	0.29	0.12	0.32	0.01

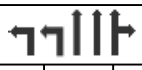
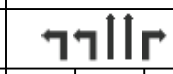
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.73	1.19	0.41	1.40	0.03
95th-Percentile Queue Length [ft]	18.19	29.76	10.24	34.89	0.81
Approach Delay [s/veh]	9.21	9.69	9.03	10.77	
Approach LOS	A	A	A	B	
Intersection Delay [s/veh]	9.86				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.483

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	292	941	78	41	857	43	25	45	128	165	161	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	9	0	0	13	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	0	101	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	310	1012	83	43	1022	46	27	48	136	175	171	72
Peak Hour Factor	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	85	278	23	12	280	13	7	13	37	48	47	20
Total Analysis Volume [veh/h]	340	1111	91	47	1122	50	30	53	149	192	188	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	62	0	12	49	0	13	30	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	77	77	4	67	67	3	14	14	9	20	20
g / C, Green / Cycle	0.12	0.64	0.64	0.04	0.55	0.55	0.03	0.12	0.12	0.07	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.10	0.23	0.23	0.03	0.23	0.23	0.02	0.02	0.10	0.06	0.05	0.05
s, saturation flow rate [veh/h]	3329	3427	1731	1714	3427	1761	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	406	2195	1109	60	1898	975	46	398	178	249	561	251
d1, Uniform Delay [s]	51.52	10.11	10.11	57.42	15.42	15.43	57.80	47.61	51.93	54.51	44.39	44.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.65	0.47	0.93	18.99	0.65	1.27	14.03	0.15	9.98	5.04	0.35	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.36	0.36	0.78	0.41	0.41	0.65	0.13	0.84	0.77	0.33	0.32
d, Delay for Lane Group [s/veh]	56.18	10.57	11.03	76.41	16.08	16.69	71.83	47.76	61.91	59.56	44.74	44.95
Lane Group LOS	E	B	B	E	B	B	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.26	4.86	5.06	1.73	6.15	6.49	1.08	0.72	4.88	3.02	2.51	2.13
50th-Percentile Queue Length [ft/ln]	131.4	121.6	126.3	43.34	153.7	162.2	27.09	18.10	122.0	75.58	62.83	53.30
95th-Percentile Queue Length [veh/ln]	9.02	8.48	8.74	3.12	10.22	10.67	1.95	1.30	8.51	5.44	4.52	3.84
95th-Percentile Queue Length [ft/ln]	225.5	212.0	218.5	78.01	255.4	266.7	48.76	32.58	212.6	136.0	113.1	95.94

Movement, Approach, & Intersection Results

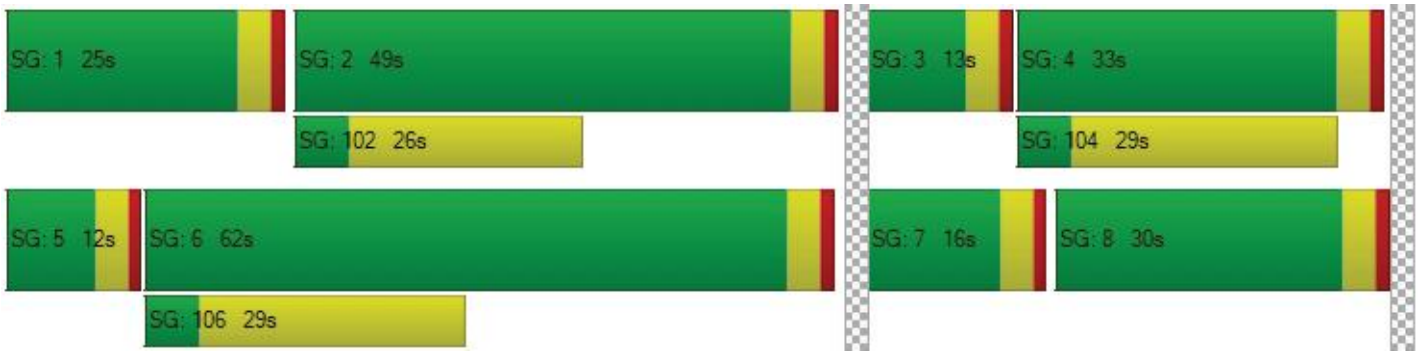
d_M, Delay for Movement [s/veh]	56.18	10.70	11.03	76.41	16.27	16.69	71.83	47.76	61.91	59.56	44.74	44.95
Movement LOS	E	B	B	E	B	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	20.75			18.60			59.96			50.98		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	26.65											
Intersection LOS	C											
Intersection V/C	0.483											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.949	2.600	2.700
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	750	433	483
d_b, Bicycle Delay [s]	16.02	23.44	36.82	34.50
l_b,int, Bicycle LOS Score for Intersection	2.408	2.230	1.751	1.938
Bicycle LOS	B	B	A	A

Sequence

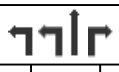
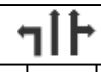
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.447

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	215	398	8	307	42	18	107	21	394	320	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	74	0	0	86	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	31	0	0	11	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	333	422	8	422	45	19	113	22	418	339	32
Peak Hour Factor	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	85	108	2	108	11	5	29	6	107	86	8
Total Analysis Volume [veh/h]	60	339	430	8	430	46	19	115	22	426	346	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	36	0	9	36	0	11	10	0	65	64	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	78	78	1	75	75	2	6	6	18	22	22
g / C, Green / Cycle	0.04	0.65	0.65	0.01	0.63	0.63	0.02	0.05	0.05	0.15	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.19	0.28	0.00	0.13	0.14	0.01	0.03	0.01	0.13	0.10	0.02
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1740	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	120	1175	999	17	1128	1090	34	176	78	508	631	282
d1, Uniform Delay [s]	56.77	8.92	10.07	59.08	9.66	9.67	58.29	55.88	54.79	49.40	44.42	40.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	0.62	1.36	18.42	0.43	0.45	13.52	4.08	1.92	3.77	0.75	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.29	0.43	0.47	0.21	0.22	0.56	0.65	0.28	0.84	0.55	0.12
d, Delay for Lane Group [s/veh]	59.96	9.54	11.42	77.50	10.09	10.12	71.81	59.96	56.71	53.16	45.17	41.00
Lane Group LOS	E	A	B	E	B	B	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.95	3.82	5.56	0.33	2.79	2.73	0.70	1.81	0.68	6.46	4.75	0.83
50th-Percentile Queue Length [ft/ln]	23.67	95.60	139.0	8.25	69.80	68.25	17.51	45.24	17.08	161.6	118.6	20.87
95th-Percentile Queue Length [veh/ln]	1.70	6.88	9.43	0.59	5.03	4.91	1.26	3.26	1.23	10.63	8.32	1.50
95th-Percentile Queue Length [ft/ln]	42.60	172.0	235.7	14.84	125.6	122.8	31.51	81.42	30.75	265.8	207.9	37.56

Movement, Approach, & Intersection Results

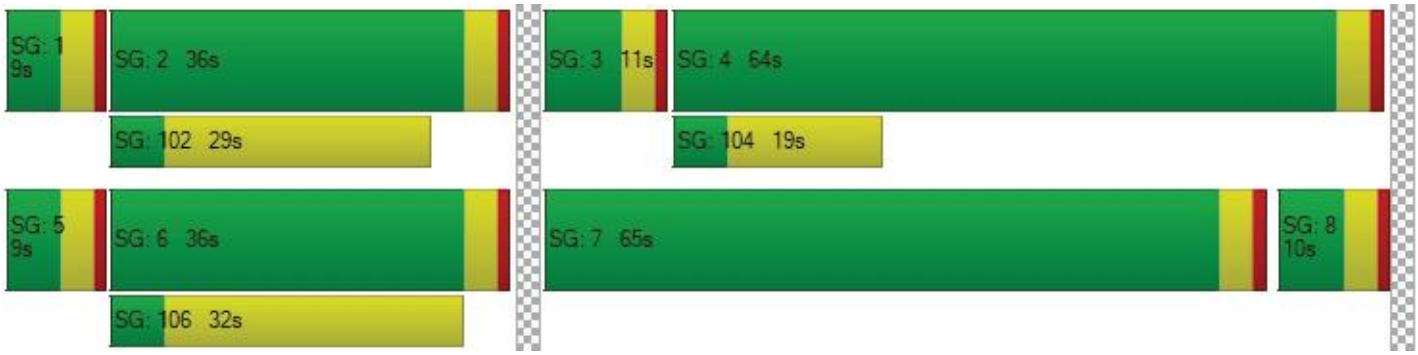
d_M, Delay for Movement [s/veh]	59.96	9.54	11.42	77.50	10.11	10.12	71.81	59.96	56.71	53.16	45.17	41.00
Movement LOS	E	A	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	14.16			11.22			60.94			49.23		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	29.16											
Intersection LOS	C											
Intersection V/C	0.447											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.360	2.694	2.906
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	100	1000
d_b, Bicycle Delay [s]	32.27	32.27	54.15	15.00
l_b,int, Bicycle LOS Score for Intersection	2.927	1.959	1.688	2.224
Bicycle LOS	C	A	A	B

Sequence

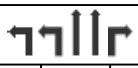
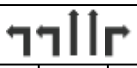
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.817

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	466	1012	370	91	1138	69	86	116	267	506	305	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	88	0	1	130	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	300	0	22	159	0	0	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	494	1461	392	119	1495	73	91	123	283	536	323	99
Peak Hour Factor	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	130	384	103	31	393	19	24	32	74	141	85	26
Total Analysis Volume [veh/h]	519	1536	412	125	1572	77	96	129	298	564	340	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	44	0	13	36	0	13	40	40	23	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	65	65	9	57	57	5	11	32	19	25	25
g / C, Green / Cycle	0.14	0.54	0.54	0.08	0.47	0.47	0.04	0.09	0.27	0.16	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.16	0.45	0.27	0.07	0.32	0.05	0.03	0.04	0.19	0.17	0.13	0.13
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1657
c, Capacity [veh/h]	472	1852	827	129	2323	725	148	319	410	527	372	343
d1, Uniform Delay [s]	51.50	22.97	17.35	55.38	24.46	17.50	56.40	51.29	39.93	50.50	43.32	43.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.29	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	52.92	4.47	2.14	30.66	1.61	0.30	4.68	0.83	6.41	40.30	1.70	1.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.83	0.50	0.97	0.68	0.11	0.65	0.40	0.73	1.07	0.62	0.62
d, Delay for Lane Group [s/veh]	104.4	27.44	19.49	86.04	26.07	17.80	61.08	52.12	46.34	90.80	45.01	45.16
Lane Group LOS	F	C	B	F	C	B	E	D	D	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.53	18.46	7.51	4.86	11.65	1.25	1.53	1.87	8.69	10.83	6.42	5.92
50th-Percentile Queue Length [ft/ln]	263.3	461.5	187.6	121.5	291.3	31.20	38.22	46.74	217.3	270.8	160.4	148.1
95th-Percentile Queue Length [veh/ln]	16.54	25.51	12.00	8.48	17.25	2.25	2.75	3.37	13.53	16.75	10.57	9.92
95th-Percentile Queue Length [ft/ln]	413.4	637.6	299.9	212.0	431.2	56.17	68.79	84.13	338.1	418.7	264.3	247.8

Movement, Approach, & Intersection Results

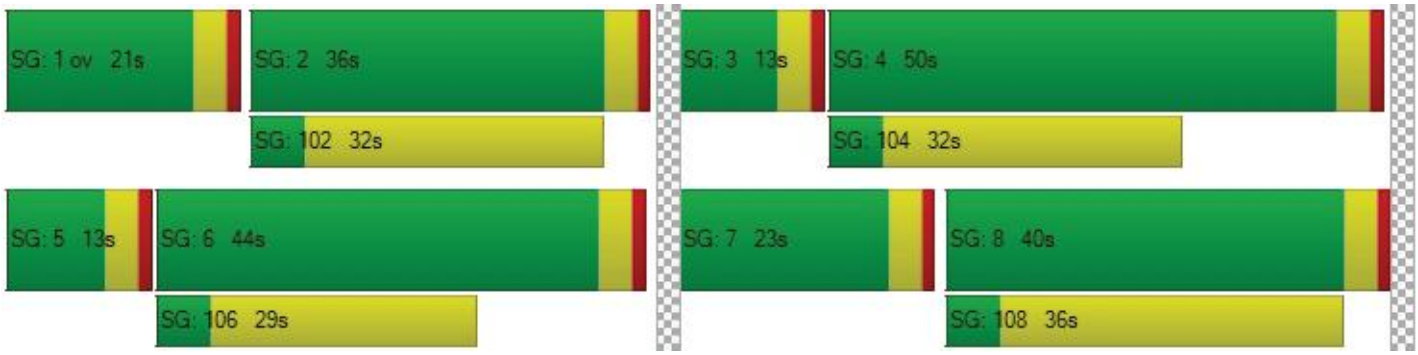
d_M, Delay for Movement [s/veh]	104.4	27.44	19.49	86.04	26.07	17.80	61.08	52.12	46.34	90.80	45.06	45.16
Movement LOS	F	C	B	F	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	42.30			29.93			50.47			70.66		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	44.20											
Intersection LOS	D											
Intersection V/C	0.817											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.395	3.168	2.919	2.842
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	600	767
d_b, Bicycle Delay [s]	26.67	32.27	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	3.595	2.535	1.991	2.391
Bicycle LOS	D	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.531

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	8	9	4	23	1	73	5	50	26	56	314	11
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	22	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	10	4	24	1	77	5	53	28	59	356	12
Peak Hour Factor	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	3	1	7	0	22	1	15	8	17	101	3
Total Analysis Volume [veh/h]	9	11	5	27	1	88	6	60	32	67	406	14
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	71	65	65
g / C, Green / Cycle	0.12	0.12	0.59	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.03	0.10	0.12	0.12	0.12
s, saturation flow rate [veh/h]	1651	1483	809	1800	1779
c, Capacity [veh/h]	231	223	459	974	963
d1, Uniform Delay [s]	48.17	51.95	12.16	14.32	14.32
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	3.87	1.08	0.51	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.70	0.22	0.22	0.22
d, Delay for Lane Group [s/veh]	48.66	55.82	13.24	14.83	14.84
Lane Group LOS	D	E	B	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.45	4.82	1.25	3.10	3.08
50th-Percentile Queue Length [ft/ln]	36.37	120.57	31.37	77.54	76.90
95th-Percentile Queue Length [veh/ln]	2.62	8.42	2.26	5.58	5.54
95th-Percentile Queue Length [ft/ln]	65.47	210.61	56.46	139.58	138.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.66	48.66	48.66	48.66	55.82	55.82	55.82	55.82	13.24	13.24	14.83	14.84
Movement LOS	D	D	D	D	E	E	E	E	B	B	B	B
d_A, Approach Delay [s/veh]	48.66				55.82				14.53			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	27.58											
Intersection LOS	C											
Intersection V/C	0.531											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.780	0.000	2.726
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	250
d_b, Bicycle Delay [s]	45.94	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.601	1.670	1.933
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	16	545	49	18	10	9	194	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	602	52	19	11	10	206	1
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	172	15	5	3	3	59	0
Total Analysis Volume [veh/h]	19	686	59	22	13	11	235	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	19	0	0	0	73	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	62	62	62	22
g / C, Green / Cycle	0.02	0.52	0.52	0.52	0.19
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.23	0.05	0.17
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1548
c, Capacity [veh/h]	34	936	936	796	290
d1, Uniform Delay [s]	58.30	16.23	17.98	14.58	47.61
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.79	0.77	1.54	0.26	9.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.29	0.45	0.10	0.90
d, Delay for Lane Group [s/veh]	72.10	17.01	19.52	14.84	57.20
Lane Group LOS	E	B	B	B	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.70	4.34	7.51	1.18	8.34
50th-Percentile Queue Length [ft/ln]	17.55	108.38	187.80	29.41	208.48
95th-Percentile Queue Length [veh/ln]	1.26	7.75	12.01	2.12	13.08
95th-Percentile Queue Length [ft/ln]	31.59	193.75	300.18	52.94	326.88

Movement, Approach, & Intersection Results

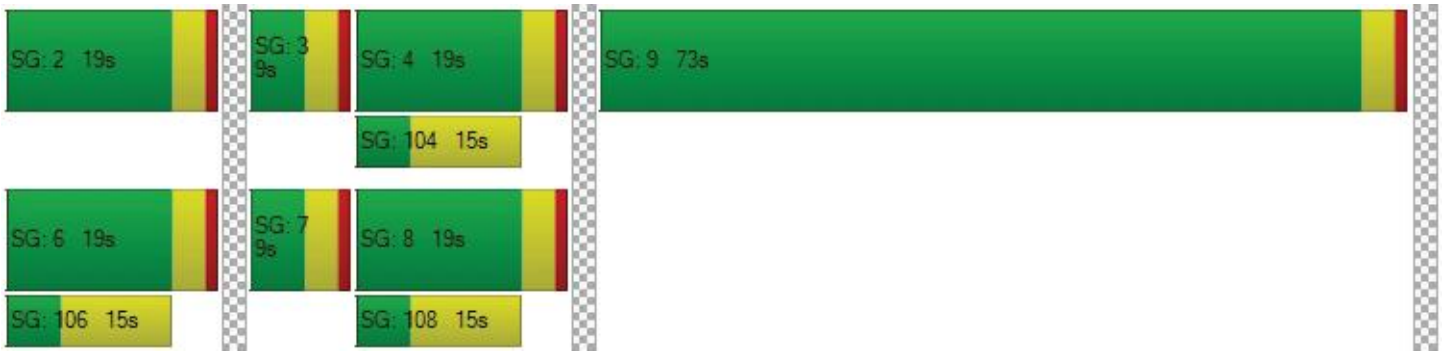
d_M, Delay for Movement [s/veh]	72.10	18.53	19.52	14.84	57.20	57.20	57.20	57.20
Movement LOS	E	B	B	B	E	E	E	E
d_A, Approach Delay [s/veh]	19.45				57.20			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	27.58							
Intersection LOS	C							
Intersection V/C	0.531							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.105
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	1150
d_b, Bicycle Delay [s]	45.94	10.84
l_b,int, Bicycle LOS Score for Intersection	2.190	1.987
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	77.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	1	21	92	3	29	14	399	8	14	605	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	1	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	22	0	0	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1	22	98	3	31	15	446	8	15	665	76
Peak Hour Factor	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	0	6	28	1	9	4	126	2	4	188	21
Total Analysis Volume [veh/h]	7	1	25	111	3	35	17	504	9	17	751	86
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

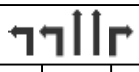
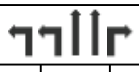
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.03	0.72	0.02	0.06	0.02	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	24.19	32.58	10.50	75.74	77.90	11.50	9.56	0.00	0.00	8.44	0.00	0.00
Movement LOS	C	D	B	F	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.25	4.50	4.50	0.19	0.06	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.21	6.21	6.21	112.5	112.5	4.73	1.62	0.00	0.00	1.22	0.00	0.00
d_A, Approach Delay [s/veh]	14.08			60.69			0.31			0.17		
Approach LOS	B			F			A			A		
d_I, Intersection Delay [s/veh]	6.27											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	55.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	439	581	136	84	759	31	35	281	464	265	376	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	30	0	0	32	0	0	1	0	0	0	1
Site-Generated Trips [veh/h]	24	7	0	0	0	0	0	0	22	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	489	653	144	89	837	33	37	299	514	281	399	88
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	128	171	38	23	219	9	10	78	134	73	104	23
Total Analysis Volume [veh/h]	511	682	150	93	875	34	39	312	537	294	417	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	44	0	14	35	0	11	47	0	15	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	42	42	8	31	31	4	43	43	11	50	50
g / C, Green / Cycle	0.16	0.35	0.35	0.07	0.26	0.26	0.03	0.36	0.36	0.09	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.10	0.05	0.25	0.25	0.01	0.09	0.35	0.09	0.15	0.15
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1776	3329	3427	1530	3329	1800	1689
c, Capacity [veh/h]	527	1196	534	116	465	459	104	1228	548	305	754	707
d1, Uniform Delay [s]	50.21	31.74	28.18	55.16	44.25	44.25	56.98	27.18	38.06	54.30	23.72	23.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.45	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.34	1.97	1.31	12.04	37.93	38.20	2.24	0.11	31.76	16.67	0.28	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	0.57	0.28	0.80	0.98	0.98	0.38	0.25	0.98	0.96	0.35	0.35
d, Delay for Lane Group [s/veh]	62.55	33.71	29.49	67.20	82.18	82.45	59.22	27.29	69.82	70.97	24.00	24.03
Lane Group LOS	E	C	C	E	F	F	E	C	E	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.50	8.33	3.32	3.16	18.29	18.09	0.61	3.19	20.15	5.12	5.12	4.82
50th-Percentile Queue Length [ft/ln]	212.5	208.3	83.05	79.02	457.3	452.2	15.32	79.86	503.6	128.0	127.9	120.3
95th-Percentile Queue Length [veh/ln]	13.28	13.07	5.98	5.69	25.31	25.07	1.10	5.75	27.51	8.84	8.83	8.41
95th-Percentile Queue Length [ft/ln]	332.0	326.7	149.4	142.2	632.7	626.6	27.58	143.7	687.7	220.8	220.6	210.3

Movement, Approach, & Intersection Results

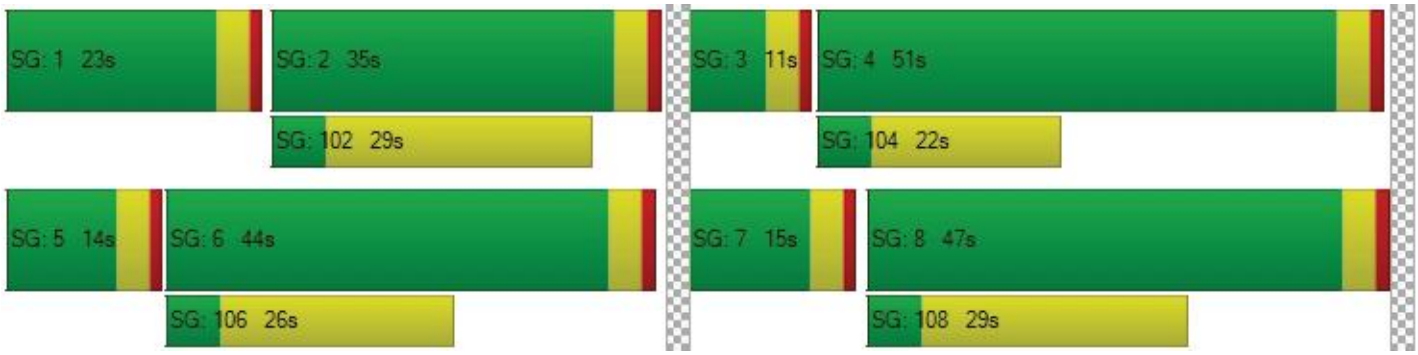
d_M, Delay for Movement [s/veh]	62.55	33.71	29.49	67.20	82.31	82.45	59.22	27.29	69.82	70.97	24.01	24.03
Movement LOS	E	C	C	E	F	F	E	C	E	E	C	C
d_A, Approach Delay [s/veh]	44.21			80.91			54.41			41.20		
Approach LOS	D			F			D			D		
d_I, Intersection Delay [s/veh]	54.97											
Intersection LOS	D											
Intersection V/C	0.847											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.034	2.669	2.867	2.906
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	517	717	783
d_b, Bicycle Delay [s]	26.67	33.00	24.70	22.20
l_b,int, Bicycle LOS Score for Intersection	2.668	2.386	2.292	2.222
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	180	1217	675	109	1386	98	170	259	151	546	419	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	1	10	0	6	18	0	0	0	1	0	0	4
Site-Generated Trips [veh/h]	0	17	0	0	10	0	0	0	0	0	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	1317	716	122	1497	104	180	275	161	579	444	111
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	352	191	33	400	28	48	73	43	155	119	30
Total Analysis Volume [veh/h]	205	1407	765	130	1599	111	192	294	172	619	474	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	9	36	0	35	43	0	28	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	59	87	5	55	55	9	16	16	24	31	40
g / C, Green / Cycle	0.08	0.49	0.72	0.04	0.46	0.46	0.08	0.14	0.14	0.20	0.26	0.33
(v / s)_i Volume / Saturation Flow Rate	0.06	0.29	0.50	0.04	0.33	0.33	0.06	0.09	0.11	0.19	0.14	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1741	3329	3427	1530	3329	3427	2708
c, Capacity [veh/h]	250	2400	1106	139	1563	794	260	465	207	666	883	901
d1, Uniform Delay [s]	54.71	21.93	9.22	57.34	26.52	26.54	54.12	49.04	50.51	47.17	38.38	27.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.60	1.06	3.56	23.04	2.96	5.75	4.10	1.43	8.23	6.42	0.51	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.59	0.69	0.94	0.72	0.73	0.74	0.63	0.83	0.93	0.54	0.13
d, Delay for Lane Group [s/veh]	61.31	22.99	12.78	80.39	29.48	32.30	58.22	50.47	58.75	53.59	38.89	28.03
Lane Group LOS	E	C	B	F	C	C	E	D	E	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.28	9.52	10.80	2.41	13.54	14.41	2.99	4.26	5.50	9.64	6.07	1.21
50th-Percentile Queue Length [ft/ln]	82.04	238.1	270.0	60.24	338.4	360.3	74.67	106.5	137.5	240.8	151.8	30.33
95th-Percentile Queue Length [veh/ln]	5.91	14.59	16.19	4.34	19.57	20.64	5.38	7.65	9.35	14.73	10.12	2.18
95th-Percentile Queue Length [ft/ln]	147.6	364.6	404.8	108.4	489.3	515.9	134.4	191.2	233.6	368.1	252.9	54.59

Movement, Approach, & Intersection Results

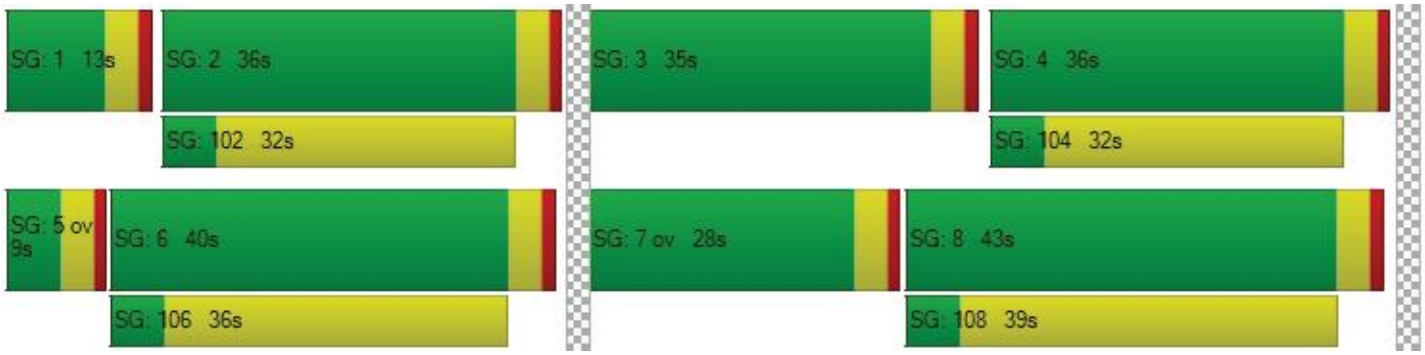
d_M, Delay for Movement [s/veh]	61.31	22.99	12.78	80.39	30.30	32.30	58.22	50.47	58.75	53.59	38.89	28.03
Movement LOS	E	C	B	F	C	C	E	D	E	D	D	C
d_A, Approach Delay [s/veh]	23.01			33.96			54.90			45.33		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.21											
Intersection LOS	C											
Intersection V/C	0.729											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.446	3.174	2.917	3.125
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.867	2.572	1.922	2.560
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.515

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	762	445	0	774	408	0	0	0	490	0	531
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	9	0	0	6	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	0	0	101	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	823	445	0	826	540	0	0	0	519	0	563
Peak Hour Factor	1.000	0.924	1.000	1.000	0.924	0.924	1.000	1.000	1.000	0.924	1.000	0.924
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	223	111	0	223	146	0	0	0	140	0	152
Total Analysis Volume [veh/h]	0	891	445	0	894	584	0	0	0	562	0	609
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	43	0	0	43	0	0	0	0	77	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	77	77		35	35	35
g / C, Green / Cycle	0.64	0.64		0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.26	0.18		0.23	0.24	0.26
s, saturation flow rate [veh/h]	3427	4903		1714	1606	1530
c, Capacity [veh/h]	2204	3153		498	466	444
d1, Uniform Delay [s]	10.33	9.35		39.13	39.93	40.57
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	0.23		2.77	4.07	5.75
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.28		0.78	0.84	0.88
d, Delay for Lane Group [s/veh]	10.88	9.57		41.90	44.00	46.32
Lane Group LOS	B	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.58	3.34		10.90	11.25	11.61
50th-Percentile Queue Length [ft/ln]	139.48	83.52		272.3	281.3	290.2
95th-Percentile Queue Length [veh/ln]	9.45	6.01		16.31	16.75	17.20
95th-Percentile Queue Length [ft/ln]	236.32	150.34		407.7	418.8	429.9

Movement, Approach, & Intersection Results

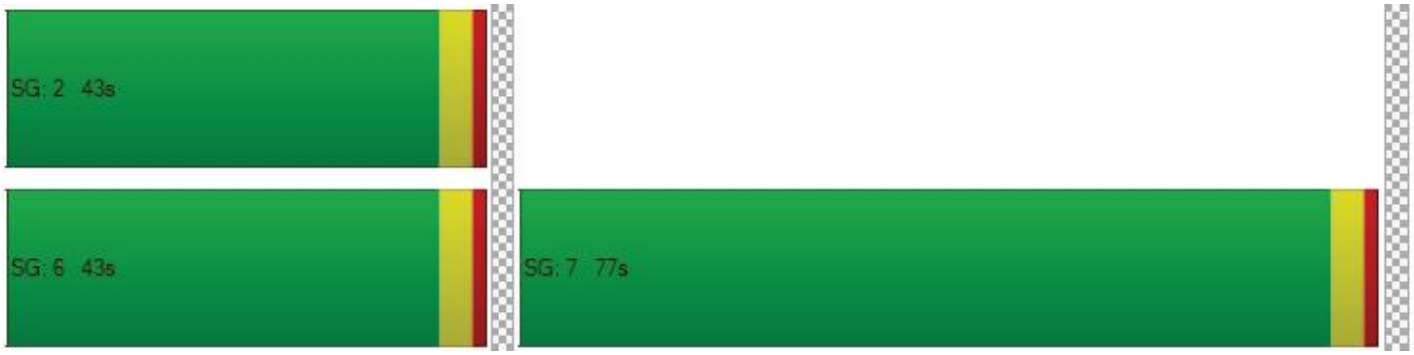
d_M, Delay for Movement [s/veh]	0.00	10.88	0.00	0.00	9.57	0.00	0.00	0.00	0.00	42.54	0.00	45.49
Movement LOS		B			A					D		D
d_A, Approach Delay [s/veh]	10.88			9.57			0.00			44.07		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	23.64											
Intersection LOS	C											
Intersection V/C	0.515											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	0	1217
d_b, Bicycle Delay [s]	27.34	27.34	60.00	9.20
l_b,int, Bicycle LOS Score for Intersection	2.295	2.051	4.132	3.492
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	53.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.972

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	993	543	0	1748	0	0	0	0	738	0	637
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	26	0	0	124	0	0	0	0	0	0	62
Site-Generated Trips [veh/h]	0	180	0	0	143	16	0	0	0	0	0	120
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1259	576	0	2120	16	0	0	0	782	0	857
Peak Hour Factor	1.000	0.910	0.910	1.000	0.910	0.910	0.910	0.910	0.910	0.910	1.000	0.910
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	346	158	0	582	4	0	0	0	215	0	235
Total Analysis Volume [veh/h]	0	1384	633	0	2330	18	0	0	0	859	0	942
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	45	0	0	45	0	0	0	0	75	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	41	41		71	71
g / C, Green / Cycle	0.34	0.34		0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.28	0.36		0.26	0.62
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	1675	2234		1970	905
d1, Uniform Delay [s]	36.23	39.50		13.48	24.50
k, delay calibration	0.50	0.50		0.11	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	4.81	31.44		0.15	40.99
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.83	1.04		0.44	1.04
d, Delay for Lane Group [s/veh]	41.04	70.94		13.64	65.49
Lane Group LOS	D	F		B	F
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	13.00	21.04		6.25	34.09
50th-Percentile Queue Length [ft/ln]	324.93	526.10		156.28	852.18
95th-Percentile Queue Length [veh/ln]	18.91	29.39		10.35	45.17
95th-Percentile Queue Length [ft/ln]	472.74	734.79		258.79	1129.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	41.04	0.00	0.00	70.94	0.00	0.00	0.00	0.00	13.64	0.00	65.49
Movement LOS		D			F					B		F
d_A, Approach Delay [s/veh]	41.04			70.94			0.00			40.76		
Approach LOS	D			E			A			D		
d_I, Intersection Delay [s/veh]	53.58											
Intersection LOS	D											
Intersection V/C	0.972											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	683	0	1183
d_b, Bicycle Delay [s]	26.00	26.00	60.00	10.00
l_b,int, Bicycle LOS Score for Intersection	2.321	2.521	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	654	272	0	983	466	0	0	0	363	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	4	0	0	32	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	7	0	0	22	0	0	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	704	272	0	1096	466	0	0	0	385	0	525
Peak Hour Factor	1.000	0.960	0.868	1.000	0.960	1.000	1.000	1.000	1.000	0.960	1.000	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	183	78	0	285	117	0	0	0	100	0	137
Total Analysis Volume [veh/h]	0	733	313	0	1142	466	0	0	0	401	0	547
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	55	0	0	55	0	0	0	0	65	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	80	80		32	32
g / C, Green / Cycle	0.67	0.67		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.15	0.33		0.23	0.20
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3275	2289		455	719
d1, Uniform Delay [s]	7.78	9.93		42.25	40.56
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.16	0.78		5.72	1.69
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.50		0.88	0.76
d, Delay for Lane Group [s/veh]	7.94	10.71		47.98	42.26
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.39	7.24		12.04	7.58
50th-Percentile Queue Length [ft/ln]	59.81	180.91		301.09	189.53
95th-Percentile Queue Length [veh/ln]	4.31	11.65		17.73	12.10
95th-Percentile Queue Length [ft/ln]	107.66	291.20		443.37	302.42

Movement, Approach, & Intersection Results

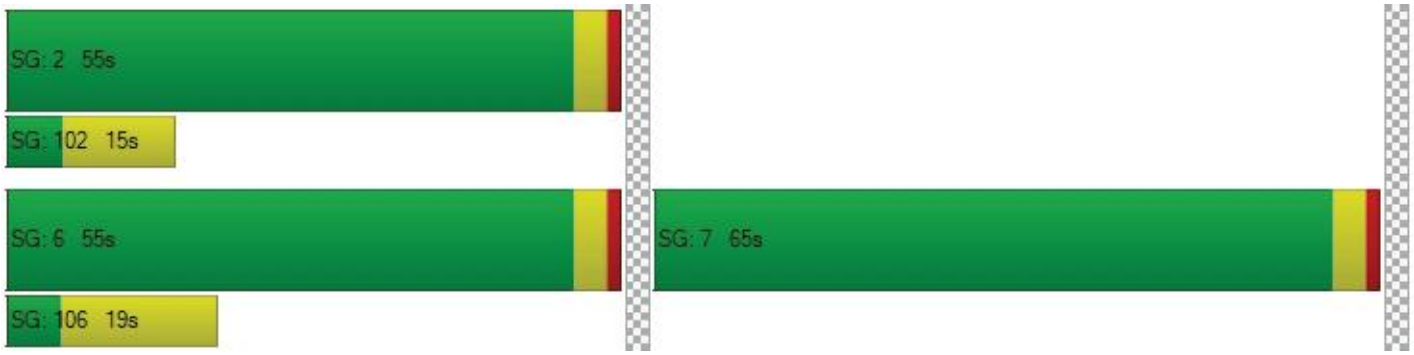
d_M, Delay for Movement [s/veh]	0.00	7.94	0.00	0.00	10.71	0.00	0.00	0.00	0.00	47.98	0.00	42.26
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	7.94			10.71			0.00			44.68		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	21.40											
Intersection LOS	C											
Intersection V/C	0.567											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.377
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	850	0	1017
d_b, Bicycle Delay [s]	19.84	19.84	60.00	14.50
l_b,int, Bicycle LOS Score for Intersection	1.963	2.502	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1074	381	0	966	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1148	381	0	1030	238	308	0	671	0	0	0
Peak Hour Factor	1.000	0.927	1.000	1.000	0.927	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	310	95	0	278	60	83	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1238	381	0	1111	238	332	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	60	60	
g / C, Green / Cycle	0.43	0.43	0.50	0.50	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.32	0.10	0.47	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	2129	1488	1662	764	
d1, Uniform Delay [s]	25.70	28.42	16.72	28.57	
k, delay calibration	0.50	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.17	3.46	0.06	9.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.58	0.75	0.20	0.95	
d, Delay for Lane Group [s/veh]	26.87	31.88	16.78	38.55	
Lane Group LOS	C	C	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.04	13.83	2.56	21.13	
50th-Percentile Queue Length [ft/ln]	225.90	345.65	64.12	528.33	
95th-Percentile Queue Length [veh/ln]	13.97	19.92	4.62	28.67	
95th-Percentile Queue Length [ft/ln]	349.15	498.10	115.41	716.81	

Movement, Approach, & Intersection Results

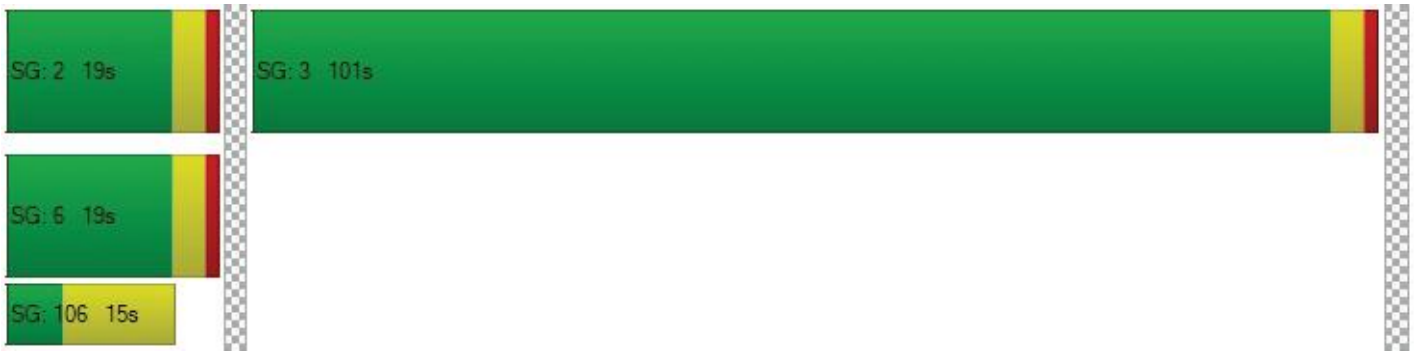
d_M, Delay for Movement [s/veh]	0.00	26.87	0.00	0.00	31.88	0.00	16.78	0.00	38.55	0.00	0.00	0.00
Movement LOS		C			C		B		D			
d_A, Approach Delay [s/veh]	26.87			31.88			31.70			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	30.00											
Intersection LOS	C											
Intersection V/C	0.797											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.241	2.476	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.894

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1234	483	460	1488	0	401	6	617	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	21	0	92	32	0	5	0	0	0	0	0
Site-Generated Trips [veh/h]	0	36	0	138	5	0	132	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1365	512	718	1614	0	562	6	654	0	0	0
Peak Hour Factor	1.000	0.914	0.914	0.914	0.914	1.000	0.914	0.914	0.914	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	373	140	196	441	0	154	2	179	0	0	0
Total Analysis Volume [veh/h]	0	1493	560	786	1766	0	615	7	716	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	48	0	33	81	0	0	39	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	44	44	29	77	35	35	35	
g / C, Green / Cycle	0.37	0.37	0.24	0.64	0.29	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.37	0.24	0.36	0.26	0.28	0.29	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1599	1530	
c, Capacity [veh/h]	1798	561	805	3146	500	466	446	
d1, Uniform Delay [s]	34.60	37.96	45.17	12.04	40.69	41.75	42.49	
k, delay calibration	0.50	0.50	0.11	0.50	0.38	0.43	0.46	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.62	37.57	10.29	0.73	16.71	29.03	40.60	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.83	1.00	0.98	0.56	0.89	0.96	1.00	
d, Delay for Lane Group [s/veh]	39.23	75.53	55.46	12.77	57.40	70.78	83.09	
Lane Group LOS	D	E	E	B	E	E	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.81	21.95	12.67	8.55	14.82	16.58	18.08	
50th-Percentile Queue Length [ft/ln]	345.30	548.84	316.75	213.71	370.3	414.5	452.0	
95th-Percentile Queue Length [veh/ln]	19.91	29.64	18.51	13.34	21.13	23.26	25.05	
95th-Percentile Queue Length [ft/ln]	497.67	740.95	462.69	333.58	528.2	581.4	626.3	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	39.23	75.53	55.46	12.77	0.00	61.08	70.78	78.45	0.00	0.00	0.00
Movement LOS		D	E	E	B		E	E	E			
d_A, Approach Delay [s/veh]	49.13			25.92			70.42			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	43.96											
Intersection LOS	D											
Intersection V/C	0.894											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.472	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	1283	583	0
d_b, Bicycle Delay [s]	24.07	7.70	30.10	60.00
l_b,int, Bicycle LOS Score for Intersection	2.689	2.963	3.767	4.132
Bicycle LOS	B	C	D	D

Sequence

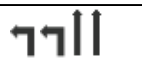
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	651	332	534	851	0	304	8	427	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	26	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	22	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	701	352	614	908	0	322	8	453	0	0	0
Peak Hour Factor	1.000	0.964	0.964	0.964	0.964	1.000	0.964	0.964	0.964	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	182	91	159	235	0	84	2	117	0	0	0
Total Analysis Volume [veh/h]	0	727	365	637	942	0	334	8	470	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	34	43	0	0	77	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	25	71	41	41	
g / C, Green / Cycle	0.35	0.35	0.21	0.60	0.34	0.34	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.24	0.19	0.27	0.10	0.31	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1534	
c, Capacity [veh/h]	1197	534	708	2040	1125	519	
d1, Uniform Delay [s]	32.25	33.37	45.99	13.55	29.22	38.19	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.30	6.92	4.48	0.75	0.15	7.32	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.68	0.90	0.46	0.30	0.92	
d, Delay for Lane Group [s/veh]	34.54	40.29	50.47	14.31	29.37	45.52	
Lane Group LOS	C	D	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.05	10.03	9.64	7.10	3.59	14.38	
50th-Percentile Queue Length [ft/ln]	226.27	250.86	241.10	177.41	89.63	359.52	
95th-Percentile Queue Length [veh/ln]	13.98	15.23	14.74	11.47	6.45	20.60	
95th-Percentile Queue Length [ft/ln]	349.61	380.74	368.42	286.63	161.33	515.00	

Movement, Approach, & Intersection Results

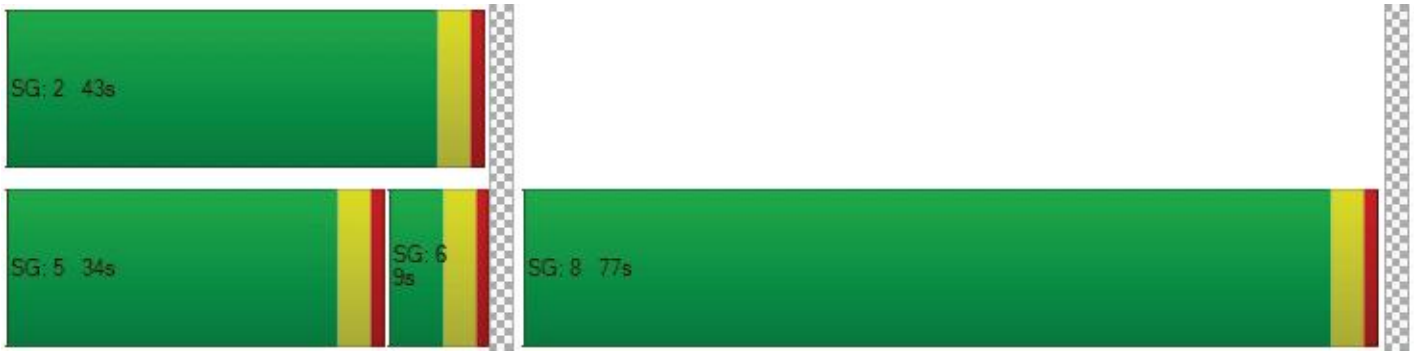
d_M, Delay for Movement [s/veh]	0.00	34.54	40.29	50.47	14.31	0.00	29.37	45.52	45.52	0.00	0.00	0.00
Movement LOS		C	D	D	B		C	D	D			
d_A, Approach Delay [s/veh]	36.47			28.90			38.87			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	33.60											
Intersection LOS	C											
Intersection V/C	0.742											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	650	1217	0
d_b, Bicycle Delay [s]	55.10	27.34	9.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.160	2.862	2.899	4.132
Bicycle LOS	B	C	C	D

Sequence

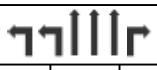
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.720

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	420	718	357	500	741	821	855	0	501	428	0	550
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	4	0	13	6	0	0	0	0	0	0	7
Site-Generated Trips [veh/h]	0	7	0	10	0	0	0	0	0	0	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	445	772	378	553	791	870	906	0	531	454	0	600
Peak Hour Factor	0.955	0.955	0.955	0.955	0.955	0.955	0.955	1.000	0.955	0.955	1.000	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	116	202	99	145	207	228	237	0	139	119	0	157
Total Analysis Volume [veh/h]	466	808	396	579	828	911	949	0	556	475	0	628
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	62	0	0	62	0	58	0	0	58	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	74	74	74	74	38	38
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.36	0.16	0.44	0.17	0.29	0.14
s, saturation flow rate [veh/h]	1306	4903	1331	4903	3329	3329
c, Capacity [veh/h]	719	3026	735	3026	1053	1053
d1, Uniform Delay [s]	22.88	10.53	25.80	10.58	39.24	32.72
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.48	0.22	8.36	0.22	3.15	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.27	0.79	0.27	0.90	0.45
d, Delay for Lane Group [s/veh]	27.35	10.75	34.15	10.81	42.39	33.02
Lane Group LOS	C	B	C	B	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.37	3.24	7.78	3.33	13.69	5.57
50th-Percentile Queue Length [ft/ln]	134.30	80.94	194.49	83.36	342.30	139.17
95th-Percentile Queue Length [veh/ln]	9.17	5.83	12.35	6.00	19.76	9.44
95th-Percentile Queue Length [ft/ln]	229.33	145.69	308.84	150.04	494.02	235.91

Movement, Approach, & Intersection Results

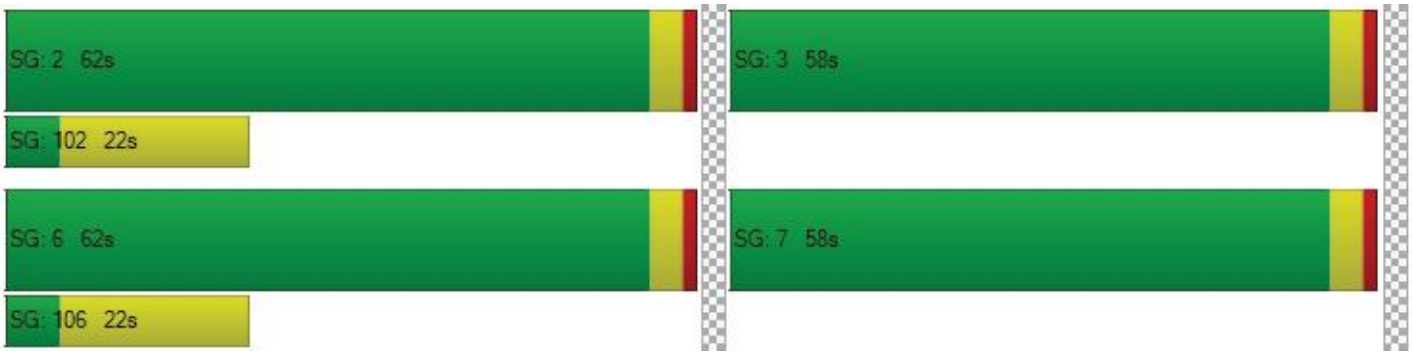
d_M, Delay for Movement [s/veh]	27.35	10.75	0.00	34.15	10.81	0.00	42.39	0.00	0.00	33.02	0.00	0.00
Movement LOS	C	B		C	B		D			C		
d_A, Approach Delay [s/veh]	16.82			20.42			42.39			33.02		
Approach LOS	B			C			D			C		
d_I, Intersection Delay [s/veh]	25.84											
Intersection LOS	C											
Intersection V/C	0.720											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.254	3.344
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	900	900
d_b, Bicycle Delay [s]	16.02	16.02	18.15	18.15
l_b,int, Bicycle LOS Score for Intersection	2.260	2.333	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	38.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	333	80	108	705	218	77	409	118	156	1102	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	4	4	0	0	0	4	0	6	6	6
Site-Generated Trips [veh/h]	0	0	7	7	0	0	0	7	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	187	353	96	125	747	231	82	445	125	171	1174	115
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	103	28	36	218	67	24	130	36	50	342	34
Total Analysis Volume [veh/h]	218	411	112	146	871	269	96	519	146	199	1368	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	29	0	11	27	0	12	59	0	21	68	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	36	36	7	34	34	8	45	45	16	53	53
g / C, Green / Cycle	0.08	0.30	0.30	0.06	0.28	0.28	0.07	0.38	0.38	0.13	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.07	0.08	0.07	0.04	0.18	0.18	0.06	0.15	0.10	0.12	0.40	0.09
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	250	1474	460	194	1393	435	114	1287	575	226	1511	675
d1, Uniform Delay [s]	54.93	32.02	31.66	55.64	37.40	37.32	55.37	27.56	25.86	51.14	31.21	20.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.23	0.47	1.25	5.77	2.13	6.48	14.82	0.20	0.23	10.51	2.33	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.28	0.24	0.75	0.63	0.62	0.84	0.40	0.25	0.88	0.91	0.20
d, Delay for Lane Group [s/veh]	64.16	32.50	32.91	61.41	39.53	43.80	70.18	27.77	26.09	61.65	33.54	20.70
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.58	3.12	2.63	2.33	7.67	7.62	3.34	5.52	2.93	6.53	18.45	2.34
50th-Percentile Queue Length [ft/ln]	89.50	77.88	65.65	58.30	191.8	190.5	83.52	138.0	73.28	163.2	461.1	58.58
95th-Percentile Queue Length [veh/ln]	6.44	5.61	4.73	4.20	12.22	12.15	6.01	9.37	5.28	10.72	25.49	4.22
95th-Percentile Queue Length [ft/ln]	161.0	140.1	118.1	104.9	305.4	303.7	150.3	234.3	131.9	267.9	637.2	105.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.16	32.50	32.91	61.41	39.53	43.80	70.18	27.77	26.09	61.65	33.54	20.70
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	41.87			42.91			32.80			35.82		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	38.34											
Intersection LOS	D											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.076	3.073	2.893	2.871
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	383	917	1067
d_b, Bicycle Delay [s]	37.60	39.20	17.60	13.07
l_b,int, Bicycle LOS Score for Intersection	1.967	2.267	2.187	2.963
Bicycle LOS	A	B	B	C

Sequence

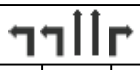
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.692

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	170	66	105	390	270	118	333	69	166	1013	134
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	12	0	0	18	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	21	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	180	70	111	413	286	125	386	73	176	1092	142
Peak Hour Factor	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	53	21	33	122	84	37	114	22	52	322	42
Total Analysis Volume [veh/h]	61	212	83	131	487	337	147	455	86	208	1288	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	12	33	0	14	35	35	16	56	0	17	57	57
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	33	33	10	38	54	12	51	51	10	49	63
g / C, Green / Cycle	0.05	0.28	0.28	0.08	0.32	0.45	0.10	0.43	0.43	0.08	0.41	0.52
(v / s)_i Volume / Saturation Flow Rate	0.04	0.06	0.05	0.08	0.14	0.22	0.09	0.15	0.15	0.06	0.38	0.11
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1702	3329	3427	1530
c, Capacity [veh/h]	79	951	425	143	1078	685	171	765	723	269	1391	799
d1, Uniform Delay [s]	56.58	33.38	33.12	54.59	32.87	23.46	53.16	23.46	23.48	54.07	33.94	15.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.21	0.54	1.03	19.69	1.37	2.52	11.57	0.29	0.31	4.69	3.20	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.22	0.20	0.92	0.45	0.49	0.86	0.36	0.36	0.77	0.93	0.21
d, Delay for Lane Group [s/veh]	70.79	33.93	34.14	74.28	34.24	25.98	64.72	23.75	23.78	58.76	37.13	15.49
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.14	2.47	1.98	4.71	5.86	7.18	4.91	5.40	5.13	3.26	18.08	2.47
50th-Percentile Queue Length [ft/ln]	53.58	61.65	49.53	117.6	146.6	179.4	122.7	134.9	128.3	81.42	452.0	61.82
95th-Percentile Queue Length [veh/ln]	3.86	4.44	3.57	8.26	9.84	11.57	8.54	9.21	8.85	5.86	25.06	4.45
95th-Percentile Queue Length [ft/ln]	96.45	110.9	89.15	206.6	245.9	289.2	213.6	230.1	221.2	146.5	626.4	111.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	70.79	33.93	34.14	74.28	34.24	25.98	64.72	23.76	23.78	58.76	37.13	15.49
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	B
d_A, Approach Delay [s/veh]	40.29			36.81			32.52			37.66		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	36.73											
Intersection LOS	D											
Intersection V/C	0.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.653	2.709	2.778	2.934
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	517	867	883
d_b, Bicycle Delay [s]	34.50	33.00	19.27	18.70
l_b,int, Bicycle LOS Score for Intersection	1.853	2.347	2.127	2.932
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.697

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	937	55	409	1110	522	407	220	42	53	258	351
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	17	0	0	26	6	4	0	0	0	0	0
Site-Generated Trips [veh/h]	0	29	0	0	5	0	7	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	1039	58	434	1208	559	442	233	45	56	273	372
Peak Hour Factor	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	289	16	121	336	156	123	65	13	16	76	104
Total Analysis Volume [veh/h]	33	1157	65	483	1345	622	492	259	50	62	304	414
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	33	0	22	42	42	22	56	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	52	52	18	67	89	18	30	30	4	16	38
g / C, Green / Cycle	0.03	0.43	0.43	0.15	0.55	0.74	0.15	0.25	0.25	0.04	0.13	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.24	0.24	0.15	0.27	0.41	0.15	0.09	0.09	0.02	0.09	0.27
s, saturation flow rate [veh/h]	1714	3427	1751	3329	4903	1530	3329	1800	1700	3329	3427	1530
c, Capacity [veh/h]	49	1482	757	499	2716	1128	499	446	421	121	460	486
d1, Uniform Delay [s]	57.74	25.30	25.31	50.71	16.46	6.98	50.87	37.23	37.24	56.76	49.34	38.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.34
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.96	1.45	2.82	12.46	0.65	1.94	15.56	0.48	0.51	3.29	1.63	12.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.55	0.55	0.97	0.50	0.55	0.99	0.36	0.36	0.51	0.66	0.85
d, Delay for Lane Group [s/veh]	72.69	26.75	28.12	63.16	17.11	8.93	66.42	37.71	37.75	60.05	50.97	50.45
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.20	8.78	9.27	8.05	7.56	6.76	8.42	3.92	3.72	0.98	4.44	12.91
50th-Percentile Queue Length [ft/ln]	29.90	219.6	231.8	201.3	189.0	168.9	210.6	98.07	92.89	24.47	110.9	322.8
95th-Percentile Queue Length [veh/ln]	2.15	13.64	14.27	12.71	12.07	11.02	13.19	7.06	6.69	1.76	7.89	18.80
95th-Percentile Queue Length [ft/ln]	53.83	341.1	356.6	317.6	301.8	275.4	329.6	176.5	167.2	44.05	197.2	470.1

Movement, Approach, & Intersection Results

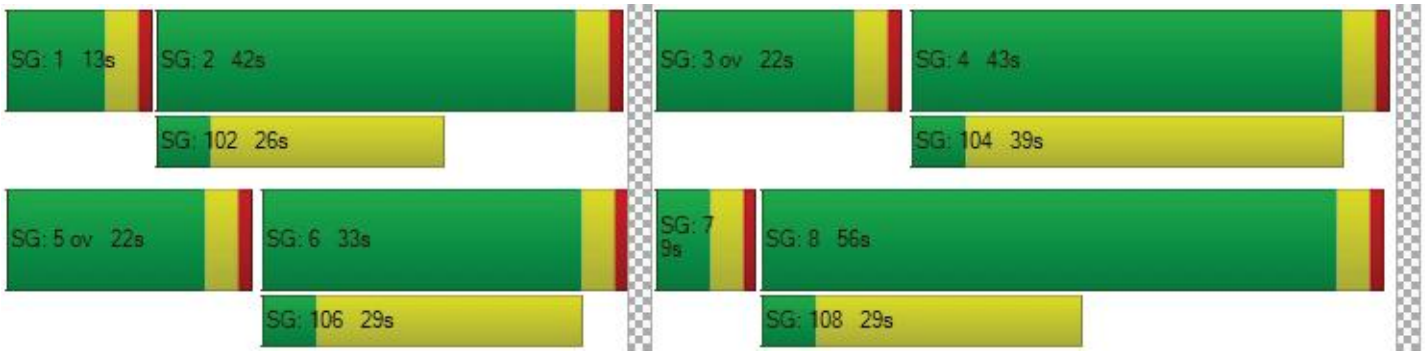
d_M, Delay for Movement [s/veh]	72.69	27.16	28.12	63.16	17.11	8.93	66.42	37.73	37.75	60.05	50.97	50.45
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	28.41			24.11			55.35			51.41		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	33.89											
Intersection LOS	C											
Intersection V/C	0.697											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.071	3.422	2.754	2.830
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	633	867	650
d_b, Bicycle Delay [s]	34.50	28.02	19.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.250	2.907	2.220	2.203
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	659.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	35.119

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	762	11	114	720	331	245	39	80	9	21	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	14	6	6	4	0	0	0	0	9
Site-Generated Trips [veh/h]	0	7	0	5	0	0	7	0	0	0	0	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	819	12	140	769	357	271	41	85	10	22	94
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	224	3	38	211	98	74	11	23	3	6	26
Total Analysis Volume [veh/h]	42	897	13	153	842	391	297	45	93	11	24	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	12	12	5	13	13	91	91	91	91
g / C, Green / Cycle	0.03	0.10	0.10	0.04	0.11	0.11	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.02	0.17	0.17	0.09	0.25	0.26	34.84	0.06	0.40	0.07
s, saturation flow rate [veh/h]	1714	3427	1787	1714	3427	1530	10	1530	88	1530
c, Capacity [veh/h]	54	347	181	71	383	171	63	1158	106	1158
d1, Uniform Delay [s]	57.71	53.92	53.92	57.50	53.30	53.30	53.50	3.77	34.77	3.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.16	336.4	347.4	523.9	548.7	598.2	2008.48	0.03	1.92	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	1.72	1.72	2.14	2.20	2.29	5.39	0.08	0.33	0.09
d, Delay for Lane Group [s/veh]	78.87	390.3	401.3	581.4	602.0	651.5	2061.98	3.80	36.69	3.83
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.58	21.47	22.94	12.56	34.92	33.53	37.35	0.52	0.90	0.58
50th-Percentile Queue Length [ft/ln]	39.56	536.8	573.5	314.0	873.0	838.1	933.78	13.09	22.46	14.60
95th-Percentile Queue Length [veh/ln]	2.85	34.26	36.35	21.04	55.00	53.16	67.23	0.94	1.62	1.05
95th-Percentile Queue Length [ft/ln]	71.20	856.6	908.7	526.1	1375.	1328.	1680.80	23.57	40.43	26.29

Movement, Approach, & Intersection Results

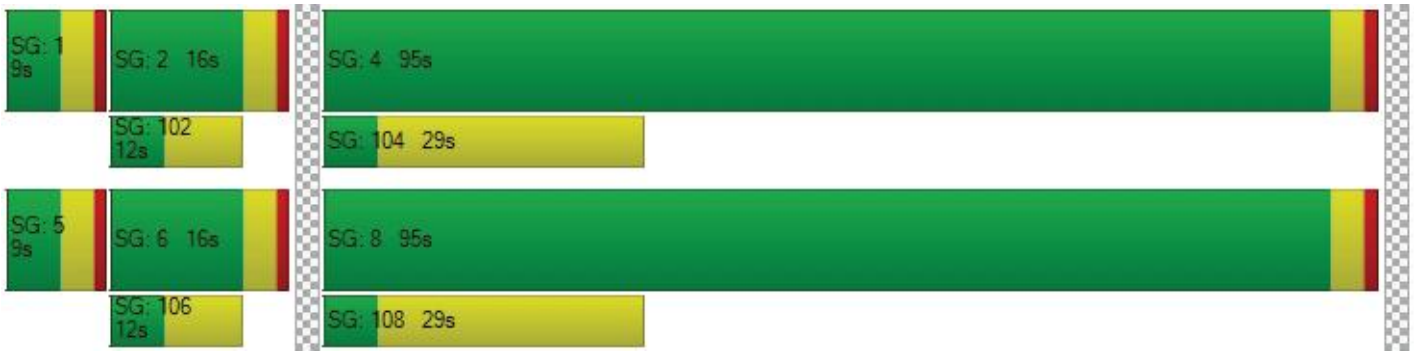
d_M, Delay for Movement [s/veh]	78.87	394.0	401.3	581.4	602.0	651.5	2061.	2061.	3.80	36.69	36.69	3.83
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	380.22			613.73			1621.95			12.17		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	659.51											
Intersection LOS	F											
Intersection V/C	35.119											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.889	3.405	2.245	2.069
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.083	2.322	2.277	1.787
Bicycle LOS	B	B	B	A

Sequence

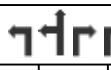
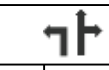
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	311	15	0	0	38	357	189	0	211	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	311	15	0	0	38	357	189	0	211	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	78	4	0	0	10	89	47	0	53	0	0	0
Total Analysis Volume [veh/h]	311	15	0	0	38	357	189	0	211	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	55	69	0	9	23	23	0	33	0	0	9	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	91	91	0	66	88	13	13	13	0	0
g / C, Green / Cycle	0.20	0.76	0.76	0.00	0.55	0.73	0.11	0.11	0.11	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.18	0.00	0.00	0.00	0.01	0.24	0.06	0.06	0.08	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1687	2665	1687	1772
c, Capacity [veh/h]	343	2548	1338	1	1864	1099	187	187	295	1	1
d1, Uniform Delay [s]	46.70	3.60	3.60	0.00	12.15	5.73	50.27	50.27	51.54	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.10	0.00	0.01	0.00	0.02	0.79	2.12	2.12	3.24	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.00	0.00	0.00	0.02	0.32	0.51	0.51	0.72	0.00	0.00
d, Delay for Lane Group [s/veh]	55.80	3.60	3.61	0.00	12.17	6.51	52.39	52.39	54.77	0.00	0.00
Lane Group LOS	E	A	A	A	B	A	D	D	D	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.90	0.03	0.03	0.00	0.24	3.10	2.79	2.79	3.20	0.00	0.00
50th-Percentile Queue Length [ft/ln]	247.3	0.67	0.73	0.00	5.90	77.42	69.74	69.74	79.99	0.00	0.00
95th-Percentile Queue Length [veh/ln]	15.05	0.05	0.05	0.00	0.42	5.57	5.02	5.02	5.76	0.00	0.00
95th-Percentile Queue Length [ft/ln]	376.3	1.21	1.31	0.00	10.62	139.3	125.5	125.5	143.9	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.80	3.60	3.61	0.00	12.17	6.51	52.39	52.39	54.77	0.00	0.00	0.00
Movement LOS	E	A	A	A	B	A	D	D	D	A	A	A
d_A, Approach Delay [s/veh]	53.40			7.06			53.65			0.00		
Approach LOS	D			A			D			A		
d_I, Intersection Delay [s/veh]	37.16											
Intersection LOS	D											
Intersection V/C	0.470											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.689	0.000	2.642	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317	483	83
d_b, Bicycle Delay [s]	12.60	42.50	34.50	55.10
l_b,int, Bicycle LOS Score for Intersection	1.739	1.885	2.220	1.560
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

Vistro File: K:\...\Speedway CC PM.vistro
Scenario 4 OY 2024 CUM Plus Phase 1 PM
Report File: K:\...\4 OY 2024 CUM Plus Phase 1 PM.pdf
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Left	0.707	38.4	D
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.639	26.3	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.437	16.6	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.745	31.8	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.720	30.0	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.475	14.3	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.384	34.7	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.683	39.7	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	EB Left	0.826	46.6	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.456	40.2	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.341	16.0	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.473	34.4	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.763	41.4	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.481	42.9	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.545	39.7	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.527	35.6	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.534	43.2	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.876	20.7	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.557	21.8	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.685	43.4	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.741	45.1	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	4.042	1,871.6	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.806	52.4	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.729	42.8	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.737	41.2	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.961	92.5	F
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.596	24.4	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.717	43.3	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.565	36.5	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.757	26.9	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.989	100.1	F
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.468	39.5	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.615	27.3	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.900	44.5	D
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	EB Thru	1.050	47.4	E
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.569	31.0	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	SB Left	0.621	43.0	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.478	23.8	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Right	1.103	138.6	F
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	1.319	101.3	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	EB Thru	1.144	75.8	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.544	31.1	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.607	33.4	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Right	0.955	65.2	E
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.633	36.0	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.624	39.0	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	WB Left	0.952	87.5	F
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.262	12.9	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	1.081	94.8	F
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.501	35.1	D
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	NB Thru	0.494	27.9	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.524	31.9	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	SB Left	0.742	41.1	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	EB Thru	0.335	9.8	A
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.609	34.2	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	NB Right	0.883	51.4	D
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.929	55.9	E
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.485	15.1	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Left	1.235	293.7	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.759	46.0	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.898	52.6	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.515	19.0	B
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.936	47.6	D
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.545	19.2	B
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.591	18.6	B
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	NB Right	0.876	48.4	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.718	31.0	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	1.035	54.0	D
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.766	40.8	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.715	39.4	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.666	36.0	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	33.585	550.2	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition	NB Left	0.793	41.0	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	38.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	302	571	0	0	461	146	0	0	0	287	0	135
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	15	5	0	0	8	0	0	0	0	26	0	0
Site-Generated Trips [veh/h]	130	12	0	0	12	0	0	0	0	120	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	465	622	0	0	509	155	0	0	0	450	0	143
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	122	164	0	0	134	41	0	0	0	118	0	38
Total Analysis Volume [veh/h]	489	655	0	0	536	163	0	0	0	474	0	151
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	50	76	0	0	26	0	0	0	0	0	44	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	36	77	36	36		35	35
g / C, Green / Cycle	0.30	0.64	0.30	0.30		0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.29	0.19	0.14	0.15		0.28	0.10
s, saturation flow rate [veh/h]	1714	3427	3427	1602		1714	1530
c, Capacity [veh/h]	521	2188	1033	483		505	451
d1, Uniform Delay [s]	40.68	9.69	33.90	34.27		41.24	33.10
k, delay calibration	0.28	0.50	0.50	0.50		0.34	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	17.73	0.35	1.43	3.43		20.71	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.30	0.45	0.48		0.94	0.33
d, Delay for Lane Group [s/veh]	58.41	10.04	35.33	37.70		61.95	33.54
Lane Group LOS	E	B	D	D		E	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	16.48	3.81	5.70	6.02		16.42	3.51
50th-Percentile Queue Length [ft/ln]	411.97	95.34	142.50	150.40		410.61	87.77
95th-Percentile Queue Length [veh/ln]	23.14	6.86	9.62	10.04		23.07	6.32
95th-Percentile Queue Length [ft/ln]	578.40	171.61	240.38	250.96		576.77	157.99

Movement, Approach, & Intersection Results

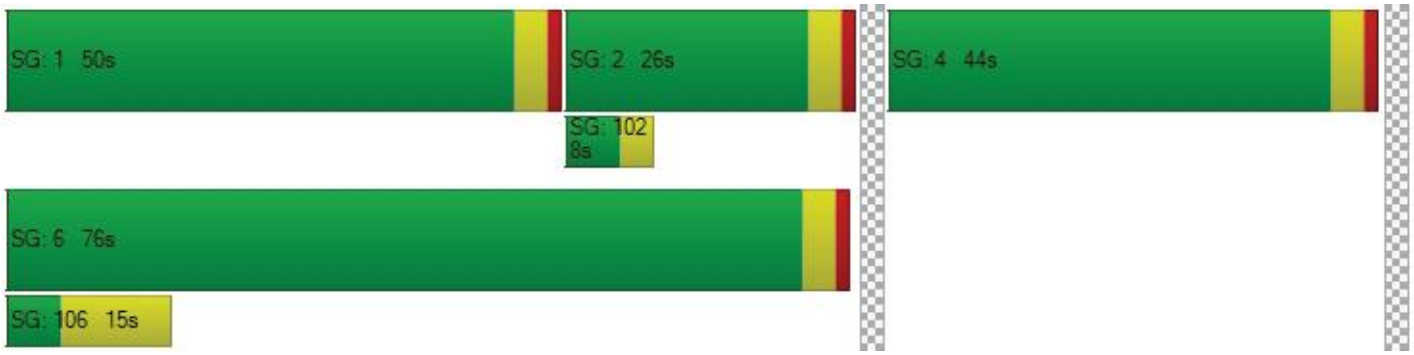
d_M, Delay for Movement [s/veh]	58.41	10.04	0.00	0.00	35.64	37.70	0.00	0.00	0.00	61.95	61.95	33.54
Movement LOS	E	B			D	D				E	E	C
d_A, Approach Delay [s/veh]	30.72			36.12			0.00			55.08		
Approach LOS	C			D			A			E		
d_I, Intersection Delay [s/veh]	38.42											
Intersection LOS	D											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.074	2.159
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	367	0	667
d_b, Bicycle Delay [s]	9.60	40.02	60.00	26.67
l_b,int, Bicycle LOS Score for Intersection	2.503	1.944	4.132	2.591
Bicycle LOS	B	A	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	323	1038	0	0	732	395	0	0	0	341	0	332
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	7	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	342	1117	0	0	796	419	0	0	0	380	0	352
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	90	294	0	0	209	110	0	0	0	100	0	93
Total Analysis Volume [veh/h]	360	1176	0	0	838	441	0	0	0	400	0	371
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	59	0	0	38	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	80	61	61		32	32	32
g / C, Green / Cycle	0.13	0.66	0.51	0.51		0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.34	0.24	0.29		0.12	0.12	0.24
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1714	1530
c, Capacity [veh/h]	417	2277	1733	774		461	461	412
d1, Uniform Delay [s]	51.47	10.30	19.41	20.60		36.29	36.29	42.32
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.40	0.84	0.97	3.04		0.64	0.64	7.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.52	0.48	0.57		0.43	0.43	0.90
d, Delay for Lane Group [s/veh]	56.88	11.14	20.38	23.64		36.93	36.93	49.71
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.62	7.68	7.76	9.06		4.95	4.95	11.38
50th-Percentile Queue Length [ft/ln]	140.41	192.08	193.95	226.48		123.7	123.7	284.4
95th-Percentile Queue Length [veh/ln]	9.50	12.23	12.33	14.00		8.60	8.60	16.91
95th-Percentile Queue Length [ft/ln]	237.58	305.72	308.15	349.88		215.0	215.0	422.6

Movement, Approach, & Intersection Results

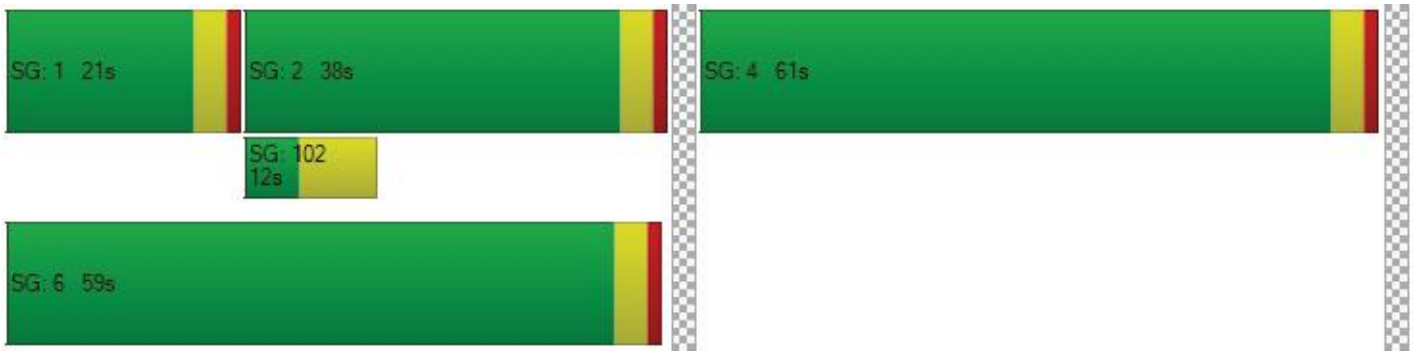
d_M, Delay for Movement [s/veh]	56.88	11.14	0.00	0.00	20.38	23.64	0.00	0.00	0.00	36.93	36.93	49.71
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	21.86			21.50			0.00			43.08		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.29											
Intersection LOS	C											
Intersection V/C	0.639											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.121	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	567	0	950
d_b, Bicycle Delay [s]	17.60	30.82	60.00	16.54
l_b,int, Bicycle LOS Score for Intersection	2.827	2.615	4.132	2.832
Bicycle LOS	C	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.437

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1132	0	0	1172	0	0	0	0	297	0	400
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	4	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	0	0	0	6	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1217	0	0	1262	0	0	0	0	325	0	424
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	320	0	0	332	0	0	0	0	86	0	112
Total Analysis Volume [veh/h]	0	1281	0	0	1328	0	0	0	0	342	0	446
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	52	0	0	52	0	0	0	0	0	68	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	89	89		23	23	23
g / C, Green / Cycle	0.74	0.74		0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.26	0.27		0.16	0.16	0.17
s, saturation flow rate [veh/h]	4903	4903		1714	1574	1530
c, Capacity [veh/h]	3612	3612		337	310	301
d1, Uniform Delay [s]	5.63	5.71		46.08	46.36	46.45
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	0.29		4.73	6.00	6.51
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.37		0.81	0.84	0.85
d, Delay for Lane Group [s/veh]	5.91	6.00		50.82	52.36	52.96
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.48	3.66		8.24	7.95	7.85
50th-Percentile Queue Length [ft/ln]	87.05	91.44		206.0	198.6	196.3
95th-Percentile Queue Length [veh/ln]	6.27	6.58		12.95	12.57	12.45
95th-Percentile Queue Length [ft/ln]	156.68	164.60		323.7	314.2	311.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.91	0.00	0.00	6.00	0.00	0.00	0.00	0.00	51.16	52.36	52.71
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	5.91			6.00			0.00			52.02		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.64											
Intersection LOS	B											
Intersection V/C	0.437											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	0	1067
d_b, Bicycle Delay [s]	21.60	21.60	60.00	13.07
l_b,int, Bicycle LOS Score for Intersection	2.264	2.290	4.132	2.860
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	687	307	72	673	0	193	2	359	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	34	0	0	0	16	0	0	0
Site-Generated Trips [veh/h]	0	142	88	0	132	0	0	0	177	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	890	435	76	879	0	205	2	574	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	234	114	20	231	0	54	1	151	0	0	0
Total Analysis Volume [veh/h]	0	937	458	80	925	0	216	2	604	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	37	0	10	47	0	0	73	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	6	62	50	50	
g / C, Green / Cycle	0.43	0.43	0.05	0.52	0.42	0.42	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.30	0.05	0.27	0.13	0.39	
s, saturation flow rate [veh/h]	3427	1533	1714	3427	1715	1530	
c, Capacity [veh/h]	1480	662	86	1766	717	640	
d1, Uniform Delay [s]	26.58	27.79	56.80	19.31	23.27	33.57	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.24	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.03	6.13	31.16	1.12	0.24	14.45	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.63	0.70	0.93	0.52	0.30	0.94	
d, Delay for Lane Group [s/veh]	28.61	33.92	87.96	20.43	23.51	48.01	
Lane Group LOS	C	C	F	C	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.65	11.82	3.16	8.67	4.18	19.07	
50th-Percentile Queue Length [ft/ln]	266.17	295.60	78.93	216.70	104.42	476.74	
95th-Percentile Queue Length [veh/ln]	16.00	17.46	5.68	13.50	7.52	26.23	
95th-Percentile Queue Length [ft/ln]	399.95	436.59	142.07	337.40	187.96	655.79	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.65	33.92	87.96	20.43	0.00	23.51	23.51	48.01	0.00	0.00	0.00
Movement LOS		C	C	F	C		C	C	D			
d_A, Approach Delay [s/veh]	30.38			25.81			41.51			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.79											
Intersection LOS	C											
Intersection V/C	0.745											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.223	1.965
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	717	1150	0
d_b, Bicycle Delay [s]	31.54	24.70	10.84	60.00
l_b,int, Bicycle LOS Score for Intersection	2.327	2.389	2.916	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.720

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1043	269	204	682	0	496	3	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	7	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	11	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1123	303	216	762	0	526	3	365	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	296	80	57	201	0	138	1	96	0	0	0
Total Analysis Volume [veh/h]	0	1182	319	227	802	0	554	3	384	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	67	0	14	81	0	0	39	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	70	70	10	84	28	28	28	
g / C, Green / Cycle	0.59	0.59	0.08	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.42	0.45	0.07	0.23	0.18	0.19	0.20	
s, saturation flow rate [veh/h]	1800	1674	3329	3427	1714	1668	1530	
c, Capacity [veh/h]	1054	981	277	2407	396	385	353	
d1, Uniform Delay [s]	17.66	18.66	54.11	6.94	43.50	43.74	44.53	
k, delay calibration	0.50	0.50	0.11	0.50	0.18	0.20	0.23	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.09	5.68	5.89	0.37	6.18	7.46	13.78	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.71	0.77	0.82	0.33	0.80	0.82	0.88	
d, Delay for Lane Group [s/veh]	21.75	24.34	59.99	7.31	49.68	51.19	58.32	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	15.22	16.37	3.60	3.79	9.49	9.63	10.24	
50th-Percentile Queue Length [ft/ln]	380.58	409.19	89.93	94.83	237.3	240.7	255.8	
95th-Percentile Queue Length [veh/ln]	21.62	23.00	6.48	6.83	14.55	14.72	15.48	
95th-Percentile Queue Length [ft/ln]	540.55	575.06	161.88	170.70	363.7	367.9	387.0	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	22.69	24.34	59.99	7.31	0.00	50.33	51.19	57.00	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	23.04			18.93			53.04			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	29.96											
Intersection LOS	C											
Intersection V/C	0.720											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.376	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1283	583	0
d_b, Bicycle Delay [s]	13.54	7.70	30.10	60.00
l_b,int, Bicycle LOS Score for Intersection	2.798	2.409	3.112	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1417	643	0	1189	41	193	0	409	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	5	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1519	687	0	1290	41	205	0	434	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	400	181	0	339	11	54	0	114	0	0	0
Total Analysis Volume [veh/h]	0	1599	723	0	1358	43	216	0	457	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	81	0	0	81	0	0	39	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	91	91	21	21	21	
g / C, Green / Cycle	0.76	0.76	0.18	0.18	0.18	
(v / s)_i Volume / Saturation Flow Rate	0.33	0.28	0.13	0.15	0.15	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3710	3710	303	270	270	
d1, Uniform Delay [s]	5.28	4.92	46.52	47.80	47.80	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.37	0.28	3.11	7.10	7.10	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.37	0.71	0.84	0.84	
d, Delay for Lane Group [s/veh]	5.64	5.20	49.63	54.90	54.90	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	Yes	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	4.24	3.35	6.34	7.14	7.14	
50th-Percentile Queue Length [ft/ln]	106.04	83.84	158.4	178.4	178.4	
95th-Percentile Queue Length [veh/ln]	7.62	6.04	10.47	11.52	11.52	
95th-Percentile Queue Length [ft/ln]	190.47	150.91	261.6	287.9	287.9	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.64	0.00	0.00	5.20	0.00	49.63	54.90	54.90	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	5.64			5.20			53.21			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	14.30											
Intersection LOS	B											
Intersection V/C	0.475											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.310	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1283	1283	583	0
d_b, Bicycle Delay [s]	7.70	7.70	30.10	60.00
l_b,int, Bicycle LOS Score for Intersection	2.439	2.307	2.670	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	384	87	100	386	54	65	324	60	68	185	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	407	92	106	409	57	69	343	64	72	196	87
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	107	24	28	108	15	18	90	17	19	52	23
Total Analysis Volume [veh/h]	29	428	97	112	431	60	73	361	67	76	206	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	14	29	0	43	65	0	11	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	70	70	9	77	77	7	17	17	7	17	17
g / C, Green / Cycle	0.03	0.59	0.59	0.08	0.64	0.64	0.06	0.15	0.15	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.07	0.14	0.14	0.04	0.12	0.12	0.04	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1687	1714	1800	1724	1714	1800	1704	1714	1800	1618
c, Capacity [veh/h]	45	1055	989	136	1150	1102	96	262	248	95	261	235
d1, Uniform Delay [s]	57.86	12.09	12.11	54.43	9.08	9.09	55.82	49.84	49.93	55.99	47.95	48.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.22	0.58	0.63	11.78	0.43	0.46	11.43	6.79	7.64	13.82	2.11	2.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.26	0.26	0.83	0.22	0.22	0.76	0.83	0.84	0.80	0.59	0.61
d, Delay for Lane Group [s/veh]	72.08	12.67	12.75	66.21	9.52	9.55	67.25	56.63	57.56	69.81	50.06	50.71
Lane Group LOS	E	B	B	E	A	A	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.05	3.62	3.45	3.78	2.79	2.70	2.49	6.86	6.64	2.64	4.47	4.21
50th-Percentile Queue Length [ft/ln]	26.27	90.58	86.35	94.41	69.69	67.39	62.17	171.6	166.0	66.01	111.6	105.3
95th-Percentile Queue Length [veh/ln]	1.89	6.52	6.22	6.80	5.02	4.85	4.48	11.16	10.87	4.75	7.93	7.58
95th-Percentile Queue Length [ft/ln]	47.29	163.0	155.4	169.9	125.4	121.2	111.9	279.0	271.7	118.8	198.3	189.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.08	12.70	12.75	66.21	9.53	9.55	67.25	57.00	57.56	69.81	50.22	50.71
Movement LOS	E	B	B	E	A	A	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	15.82			20.06			58.57			54.32		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	34.70											
Intersection LOS	C											
Intersection V/C	0.384											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.535	2.548	2.470	2.622
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	417	1017	483
d_b, Bicycle Delay [s]	36.82	37.60	14.50	34.50
l_b,int, Bicycle LOS Score for Intersection	2.017	2.057	1.973	1.868
Bicycle LOS	B	B	A	A

Sequence

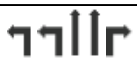
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	750	75	294	625	106	192	300	54	124	296	363
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	12	0	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	0	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	830	80	312	702	112	204	318	57	131	314	385
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	218	21	82	185	29	54	84	15	34	83	101
Total Analysis Volume [veh/h]	69	874	84	328	739	118	215	335	60	138	331	405
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	40	0	18	48	0	13	43	0	19	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	47	47	14	54	54	9	32	32	12	35	35
g / C, Green / Cycle	0.05	0.39	0.39	0.11	0.45	0.45	0.08	0.27	0.27	0.10	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.05	0.10	0.22	0.08	0.06	0.10	0.04	0.08	0.18	0.26
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	86	1334	596	380	1553	693	250	914	408	166	519	441
d1, Uniform Delay [s]	56.42	30.04	23.68	52.25	22.87	19.44	54.88	35.77	33.59	53.22	37.23	41.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.86	2.52	0.50	5.95	1.05	0.53	8.50	0.25	0.16	10.17	1.31	15.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.66	0.14	0.86	0.48	0.17	0.86	0.37	0.15	0.83	0.64	0.92
d, Delay for Lane Group [s/veh]	72.28	32.57	24.18	58.19	23.91	19.97	63.38	36.02	33.76	63.39	38.53	57.03
Lane Group LOS	E	C	C	E	C	B	E	D	C	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.45	10.70	1.63	5.16	7.44	2.06	3.51	4.03	1.37	4.56	8.65	13.41
50th-Percentile Queue Length [ft/ln]	61.17	267.5	40.82	129.0	186.0	51.53	87.67	100.8	34.13	113.9	216.2	335.3
95th-Percentile Queue Length [veh/ln]	4.40	16.07	2.94	8.89	11.92	3.71	6.31	7.26	2.46	8.06	13.47	19.42
95th-Percentile Queue Length [ft/ln]	110.1	401.7	73.48	222.2	297.9	92.75	157.8	181.5	61.43	201.4	336.7	485.5

Movement, Approach, & Intersection Results

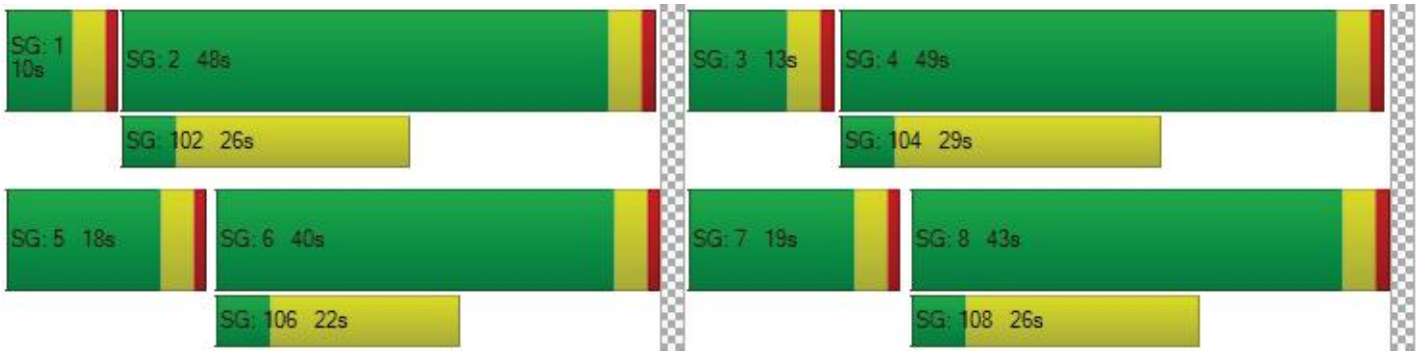
d_M, Delay for Movement [s/veh]	72.28	32.57	24.18	58.19	23.91	19.97	63.38	36.02	33.76	63.39	38.53	57.03
Movement LOS	E	C	C	E	C	B	E	D	C	E	D	E
d_A, Approach Delay [s/veh]	34.55			33.01			45.44			51.03		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.75											
Intersection LOS	D											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.787	2.982	2.766	2.732
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	733	650	750
d_b, Bicycle Delay [s]	29.40	24.07	27.34	23.44
l_b,int, Bicycle LOS Score for Intersection	2.407	2.537	2.063	3.002
Bicycle LOS	B	B	B	C

Sequence

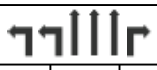
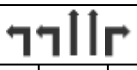
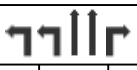
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	46.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.826

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1316	65	357	973	241	426	251	51	69	171	354
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	8	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	1420	69	378	1061	255	452	266	54	73	181	375
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	374	18	99	279	67	119	70	14	19	48	99
Total Analysis Volume [veh/h]	66	1495	73	398	1117	268	476	280	57	77	191	395
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	21	40	0	21	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	39	39	15	50	50	17	45	45	5	33	33
g / C, Green / Cycle	0.04	0.33	0.33	0.13	0.41	0.41	0.14	0.38	0.38	0.04	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.02	0.30	0.05	0.12	0.23	0.18	0.14	0.08	0.04	0.02	0.06	0.26
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	126	1595	498	416	2022	631	472	1292	577	131	942	420
d1, Uniform Delay [s]	56.67	39.30	28.68	52.18	26.83	25.11	51.50	25.35	24.18	56.69	33.42	42.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.36
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.34	11.88	0.62	12.52	1.09	2.09	21.55	0.08	0.07	4.17	0.11	24.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.94	0.15	0.96	0.55	0.42	1.01	0.22	0.10	0.59	0.20	0.94
d, Delay for Lane Group [s/veh]	60.00	51.18	29.30	64.69	27.92	27.20	73.05	25.43	24.25	60.86	33.53	67.34
Lane Group LOS	E	D	C	E	C	C	F	C	C	E	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	15.81	1.59	6.66	8.25	5.79	8.48	2.74	1.07	1.22	2.17	14.23
50th-Percentile Queue Length [ft/ln]	26.04	395.2	39.72	166.5	206.2	144.7	211.9	68.47	26.74	30.62	54.18	355.7
95th-Percentile Queue Length [veh/ln]	1.87	22.33	2.86	10.90	12.96	9.73	13.31	4.93	1.93	2.20	3.90	20.42
95th-Percentile Queue Length [ft/ln]	46.87	558.2	71.49	272.4	324.0	243.3	332.7	123.2	48.13	55.11	97.52	510.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.00	51.18	29.30	64.69	27.92	27.20	73.05	25.43	24.25	60.86	33.53	67.34
Movement LOS	E	D	C	E	C	C	F	C	C	E	C	E
d_A, Approach Delay [s/veh]	50.55			36.02			53.23			56.85		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	46.56											
Intersection LOS	D											
Intersection V/C	0.826											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.177	3.314	2.796	2.806
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	567	600	600
d_b, Bicycle Delay [s]	29.40	30.82	29.40	29.40
I_b,int, Bicycle LOS Score for Intersection	2.458	2.540	2.230	2.107
Bicycle LOS	B	B	B	B

Sequence

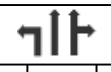
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	40.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	163	206	49	94	61	74	991	115	128	620	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	5	5	0	0	8	0	0	0	8	0	0	0
Site-Generated Trips [veh/h]	12	12	0	0	12	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	190	218	52	120	65	78	1050	142	136	657	49
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	50	57	14	32	17	21	276	37	36	173	13
Total Analysis Volume [veh/h]	132	200	229	55	126	68	82	1105	149	143	692	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	36	36	11	31	0	14	60	0	13	59	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	56	69	5	55	55	7	34	34	9	35	35
g / C, Green / Cycle	0.06	0.47	0.58	0.04	0.46	0.46	0.06	0.28	0.28	0.08	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.15	0.03	0.06	0.06	0.05	0.24	0.24	0.04	0.21	0.21
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1597	1714	3427	1693	3329	1800	1756
c, Capacity [veh/h]	188	847	886	70	819	726	103	960	474	250	531	518
d1, Uniform Delay [s]	55.61	18.93	12.52	57.01	18.87	18.95	55.65	41.17	41.17	53.64	37.71	37.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.67	0.66	0.71	16.98	0.30	0.37	12.79	2.68	5.46	2.07	1.76	1.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.24	0.26	0.78	0.12	0.13	0.79	0.87	0.87	0.57	0.71	0.71
d, Delay for Lane Group [s/veh]	60.28	19.58	13.23	73.99	19.18	19.32	68.45	43.85	46.64	55.71	39.47	39.52
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.09	3.47	3.18	1.98	1.68	1.61	2.82	12.09	12.32	2.16	10.08	9.84
50th-Percentile Queue Length [ft/ln]	52.15	86.86	79.39	49.61	42.02	40.13	70.41	302.3	307.9	53.99	251.9	246.0
95th-Percentile Queue Length [veh/ln]	3.75	6.25	5.72	3.57	3.03	2.89	5.07	17.80	18.07	3.89	15.28	14.99
95th-Percentile Queue Length [ft/ln]	93.87	156.3	142.9	89.29	75.63	72.24	126.7	444.8	451.8	97.19	382.0	374.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.28	19.58	13.23	73.99	19.21	19.32	68.45	44.52	46.64	55.71	39.49	39.52
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.56			31.34			46.23			42.11		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.16											
Intersection LOS	D											
Intersection V/C	0.456											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.627	2.429	2.830	3.018
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	450	933	917
d_b, Bicycle Delay [s]	32.27	36.04	17.07	17.60
l_b,int, Bicycle LOS Score for Intersection	2.485	1.765	2.294	2.291
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.341

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	258	0	250	0	1047	169	0	558	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	47	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	320	0	265	0	1110	179	0	591	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	84	0	70	0	292	47	0	156	0
Total Analysis Volume [veh/h]	0	0	0	337	0	279	0	1168	188	0	622	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	43	0	0	0	77	0	0	77	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		16	16	96	96
g / C, Green / Cycle		0.13	0.13	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate		0.10	0.10	0.24	0.13
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		440	358	3928	3928
d1, Uniform Delay [s]		50.26	50.36	3.12	2.72
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.80	3.68	0.19	0.09
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.77	0.78	0.30	0.16
d, Delay for Lane Group [s/veh]		53.06	54.04	3.31	2.81
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		5.06	4.24	1.97	0.91
50th-Percentile Queue Length [ft/ln]		126.46	105.93	49.31	22.87
95th-Percentile Queue Length [veh/ln]		8.75	7.61	3.55	1.65
95th-Percentile Queue Length [ft/ln]		218.67	190.32	88.75	41.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	53.06	0.00	54.04	0.00	3.31	0.00	0.00	2.81	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			53.51			3.31			2.81		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	16.03											
Intersection LOS	B											
Intersection V/C	0.341											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.435	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	1217	1217
d_b, Bicycle Delay [s]	60.00	27.34	9.20	9.20
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.202	1.902
Bicycle LOS	D	A	B	A

Sequence

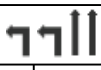
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	276	0	514	0	0	0	439	912	0	0	798	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.000	1.000	1.000	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	47	0	0	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	293	0	545	0	0	0	465	1014	0	0	846	211
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	0	143	0	0	0	122	267	0	0	223	56
Total Analysis Volume [veh/h]	308	0	574	0	0	0	489	1067	0	0	891	222
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	35	0	0	0	0	58	85	0	0	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	67	67	67		21	45	21
g / C, Green / Cycle	0.56	0.56	0.56		0.17	0.38	0.17
(v / s)_i Volume / Saturation Flow Rate	0.18	0.19	0.19		0.15	0.22	0.14
s, saturation flow rate [veh/h]	1714	1533	1530		3329	4903	6538
c, Capacity [veh/h]	952	851	849		576	1854	1123
d1, Uniform Delay [s]	14.41	14.64	14.65		48.10	29.65	47.64
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.88	1.09	1.09		3.61	0.28	1.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.34	0.34		0.85	0.58	0.79
d, Delay for Lane Group [s/veh]	15.29	15.73	15.74		51.71	29.94	48.95
Lane Group LOS	B	B	B		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.60	4.52	4.52		7.37	8.17	6.48
50th-Percentile Queue Length [ft/ln]	115.0	113.0	112.9		184.26	204.32	161.94
95th-Percentile Queue Length [veh/ln]	8.12	8.01	8.01		11.82	12.86	10.65
95th-Percentile Queue Length [ft/ln]	202.9	200.1	200.1		295.57	321.53	266.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.31	15.73	15.74	0.00	0.00	0.00	51.71	29.94	0.00	0.00	48.95	0.00
Movement LOS	B	B	B				D	C			D	
d_A, Approach Delay [s/veh]	15.58			0.00			36.78			48.95		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	34.42											
Intersection LOS	C											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.361	1.968	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	0	1350	383
d_b, Bicycle Delay [s]	33.00	60.00	6.34	39.20
l_b,int, Bicycle LOS Score for Intersection	3.015	4.132	2.415	1.927
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	41.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	154	926	338	107	435	86	305	1060	81	292	590	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	42	39	0	50	0	0	0	0	63	0	0
Site-Generated Trips [veh/h]	39	230	93	0	309	0	0	0	47	97	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	202	1254	490	113	820	91	323	1124	133	470	625	65
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	53	330	129	30	216	24	85	296	35	124	164	17
Total Analysis Volume [veh/h]	213	1320	516	119	863	96	340	1183	140	495	658	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	44	0	9	40	0	23	40	0	27	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	5	42	42	15	33	33	20	39	39
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.35	0.35	0.12	0.28	0.28	0.17	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.27	0.34	0.04	0.18	0.06	0.10	0.24	0.09	0.15	0.13	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	250	1868	583	139	1704	532	406	1354	423	559	1579	493
d1, Uniform Delay [s]	54.85	31.46	34.69	57.15	30.99	27.25	51.50	41.43	34.60	48.81	31.86	28.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.06	2.28	17.74	13.90	1.08	0.74	4.60	1.92	0.46	4.93	0.18	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.71	0.89	0.86	0.51	0.18	0.84	0.87	0.33	0.89	0.42	0.14
d, Delay for Lane Group [s/veh]	62.91	33.75	52.43	71.05	32.07	27.99	56.11	43.35	35.05	53.74	32.04	28.99
Lane Group LOS	E	C	D	E	C	C	E	D	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.46	11.07	16.68	2.06	6.75	2.04	5.26	11.28	3.33	7.61	5.02	1.42
50th-Percentile Queue Length [ft/ln]	86.49	276.8	417.0	51.53	168.7	51.01	131.4	281.9	83.16	190.3	125.4	35.49
95th-Percentile Queue Length [veh/ln]	6.23	16.53	23.38	3.71	11.01	3.67	9.02	16.79	5.99	12.14	8.69	2.55
95th-Percentile Queue Length [ft/ln]	155.6	413.3	584.5	92.75	275.2	91.82	225.5	419.6	149.6	303.4	217.2	63.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.91	33.75	52.43	71.05	32.07	27.99	56.11	43.35	35.05	53.74	32.04	28.99
Movement LOS	E	C	D	E	C	C	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	41.48			36.01			45.26			40.67		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.38											
Intersection LOS	D											
Intersection V/C	0.763											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.249	3.168	3.326	3.278
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	600	600	667
d_b, Bicycle Delay [s]	26.67	29.40	29.40	26.67
l_b,int, Bicycle LOS Score for Intersection	2.687	2.153	2.474	2.231
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	42.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	94	250	24	131	191	90	211	979	73	65	552	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	33	0	0	54	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	81	0	0	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	100	265	25	139	202	95	224	1152	77	69	724	128
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	70	7	37	53	25	59	303	20	18	191	34
Total Analysis Volume [veh/h]	105	279	26	146	213	100	236	1213	81	73	762	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	37	0	16	40	0	37	57	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	49	49	12	52	52	19	37	37	6	25	25
g / C, Green / Cycle	0.07	0.41	0.41	0.10	0.43	0.43	0.16	0.31	0.31	0.05	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.02	0.09	0.09	0.09	0.14	0.25	0.05	0.04	0.18	0.18
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1585	1714	4903	1506	1687	3427	1666
c, Capacity [veh/h]	128	1391	621	171	763	683	267	1526	469	84	704	342
d1, Uniform Delay [s]	54.72	23.07	21.56	53.16	21.41	21.48	49.57	37.82	30.08	56.60	45.97	46.05
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.03	0.32	0.13	11.36	0.64	0.74	9.32	0.98	0.17	21.79	3.12	6.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.20	0.04	0.85	0.21	0.22	0.88	0.79	0.17	0.87	0.86	0.86
d, Delay for Lane Group [s/veh]	66.75	23.39	21.68	64.52	22.05	22.22	58.89	38.80	30.26	78.39	49.09	52.69
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.56	2.63	0.47	4.87	3.02	2.81	7.61	10.93	1.74	2.71	8.92	9.09
50th-Percentile Queue Length [ft/ln]	88.88	65.78	11.73	121.7	75.49	70.19	190.1	273.2	43.55	67.67	223.0	227.3
95th-Percentile Queue Length [veh/ln]	6.40	4.74	0.84	8.49	5.43	5.05	12.13	16.35	3.14	4.87	13.82	14.04
95th-Percentile Queue Length [ft/ln]	159.9	118.4	21.11	212.1	135.8	126.3	303.2	408.7	78.39	121.8	345.5	350.9

Movement, Approach, & Intersection Results

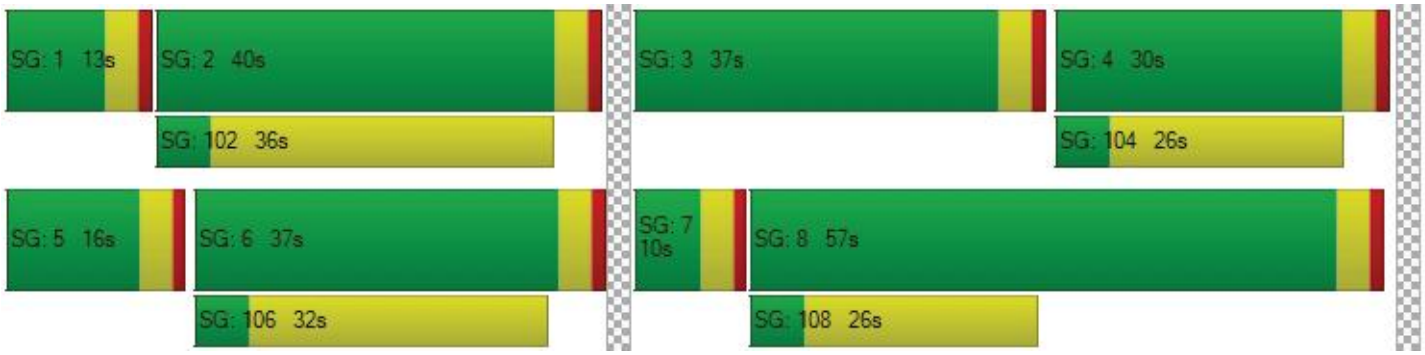
d_M, Delay for Movement [s/veh]	66.75	23.39	21.68	64.52	22.09	22.22	58.89	38.80	30.26	78.39	49.85	52.69
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	34.39			35.61			41.45			52.39		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	42.94											
Intersection LOS	D											
Intersection V/C	0.481											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.594	2.648	3.135	3.028
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	600	883	433
d_b, Bicycle Delay [s]	31.54	29.40	18.70	36.82
l_b,int, Bicycle LOS Score for Intersection	1.898	1.938	2.401	2.093
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.545

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	607	69	127	443	106	299	720	115	160	526	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	2	0	0	15	10	18	0	1	30	0
Site-Generated Trips [veh/h]	0	2	1	0	0	24	21	47	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	647	76	135	470	151	348	828	122	171	637	61
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	170	20	36	124	40	92	218	32	45	168	16
Total Analysis Volume [veh/h]	106	681	80	142	495	159	366	872	128	180	671	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	17	40	0	20	43	0	30	48	0	12	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	56	56	12	59	59	16	28	28	8	20	36
g / C, Green / Cycle	0.08	0.47	0.47	0.10	0.49	0.49	0.13	0.23	0.23	0.07	0.17	0.30
(v / s)_i Volume / Saturation Flow Rate	0.06	0.22	0.22	0.08	0.14	0.10	0.11	0.18	0.08	0.05	0.14	0.04
s, saturation flow rate [veh/h]	1714	1800	1734	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	131	846	815	170	1689	754	438	1133	353	222	815	457
d1, Uniform Delay [s]	54.59	21.48	21.48	53.11	18.04	17.22	50.84	43.16	38.72	55.25	48.33	30.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.36	1.79	1.85	10.29	0.44	0.64	4.28	1.14	0.62	6.95	2.17	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.46	0.46	0.84	0.29	0.21	0.84	0.77	0.36	0.81	0.82	0.14
d, Delay for Lane Group [s/veh]	65.95	23.26	23.33	63.40	18.48	17.86	55.12	44.29	39.34	62.21	50.50	30.96
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.57	7.71	7.45	4.69	4.15	2.62	5.62	8.17	3.24	2.90	6.62	1.39
50th-Percentile Queue Length [ft/ln]	89.16	192.7	186.1	117.2	103.8	65.43	140.5	204.1	81.03	72.50	165.5	34.69
95th-Percentile Queue Length [veh/ln]	6.42	12.26	11.92	8.24	7.48	4.71	9.51	12.85	5.83	5.22	10.84	2.50
95th-Percentile Queue Length [ft/ln]	160.4	306.5	298.0	206.0	186.8	117.7	237.7	321.3	145.8	130.5	270.9	62.44

Movement, Approach, & Intersection Results

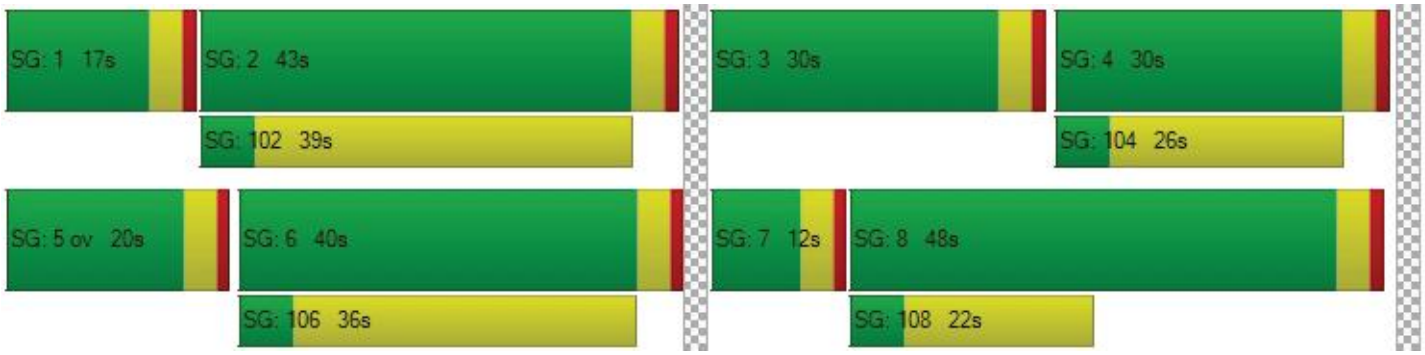
d_M, Delay for Movement [s/veh]	65.95	23.29	23.33	63.40	18.48	17.86	55.12	44.29	39.34	62.21	50.50	30.96
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	28.51			26.37			46.73			51.44		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.71											
Intersection LOS	D											
Intersection V/C	0.545											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.641	2.778	3.114	3.178
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	733	433
d_b, Bicycle Delay [s]	29.40	27.34	24.07	36.82
l_b,int, Bicycle LOS Score for Intersection	2.275	2.216	2.311	2.063
Bicycle LOS	B	B	B	B

Sequence

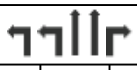
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	104	974	61	226	510	55	136	597	90	92	640	235
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	6	14	9	5	0	0	8	0
Site-Generated Trips [veh/h]	0	5	0	0	6	25	24	12	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	1041	65	240	553	97	177	650	95	98	698	249
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	274	17	63	146	26	47	171	25	26	184	66
Total Analysis Volume [veh/h]	116	1096	68	253	582	102	186	684	100	103	735	262
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	16	43	0	13	55	0	9	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	60	11	65	65	9	28	28	5	25	25
g / C, Green / Cycle	0.05	0.50	0.50	0.09	0.54	0.54	0.07	0.24	0.24	0.04	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.04	0.08	0.17	0.07	0.06	0.14	0.07	0.03	0.15	0.17
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	169	2433	759	307	1842	822	239	1161	362	139	1014	316
d1, Uniform Delay [s]	56.02	19.62	15.94	53.53	15.46	13.75	54.77	40.62	37.40	56.86	44.41	45.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.89	0.61	0.23	5.60	0.45	0.31	5.46	0.48	0.41	7.59	1.00	5.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.45	0.09	0.83	0.32	0.12	0.78	0.59	0.28	0.74	0.73	0.83
d, Delay for Lane Group [s/veh]	60.91	20.22	16.17	59.12	15.91	14.06	60.23	41.10	37.81	64.45	45.42	51.09
Lane Group LOS	E	C	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.84	6.67	1.04	3.99	4.50	1.44	2.95	6.03	2.46	1.69	6.89	7.94
50th-Percentile Queue Length [ft/ln]	46.08	166.8	25.95	99.67	112.5	35.95	73.63	150.8	61.41	42.26	172.1	198.4
95th-Percentile Queue Length [veh/ln]	3.32	10.91	1.87	7.18	7.98	2.59	5.30	10.06	4.42	3.04	11.19	12.56
95th-Percentile Queue Length [ft/ln]	82.94	272.7	46.70	179.4	199.5	64.71	132.5	251.5	110.5	76.08	279.8	313.9

Movement, Approach, & Intersection Results

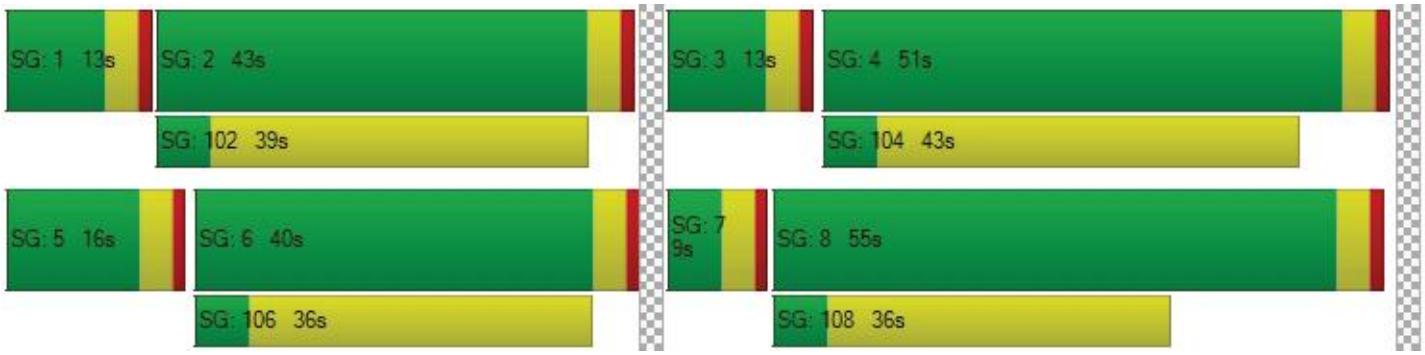
d_M, Delay for Movement [s/veh]	60.91	20.22	16.17	59.12	15.91	14.06	60.23	41.10	37.81	64.45	45.42	51.09
Movement LOS	E	C	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.69			27.38			44.43			48.55		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.57											
Intersection LOS	D											
Intersection V/C	0.527											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.088	3.313	3.169	3.092
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	850	783
d_b, Bicycle Delay [s]	29.40	27.34	19.84	22.20
l_b,int, Bicycle LOS Score for Intersection	2.264	2.333	2.093	2.165
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	43.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	256	98	23	224	93	137	439	167	42	256	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	10	0	0	16	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	24	0	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	305	104	24	277	99	145	465	177	46	271	32
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	80	27	6	73	26	38	122	47	12	71	8
Total Analysis Volume [veh/h]	148	321	109	25	292	104	153	489	186	48	285	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	27	0	12	23	23	0	51	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	52	52	3	43	43	33	33	16	16
g / C, Green / Cycle	0.10	0.43	0.43	0.02	0.36	0.36	0.28	0.28	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.09	0.12	0.13	0.01	0.09	0.07	0.25	0.25	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1647	1714	3427	1530	1770	1508	1778	1583
c, Capacity [veh/h]	171	781	715	42	1227	548	493	420	231	206
d1, Uniform Delay [s]	53.19	21.95	21.99	57.97	27.02	26.52	41.77	41.79	50.96	51.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.99	0.92	1.02	13.18	0.46	0.77	7.05	8.22	7.80	9.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.29	0.29	0.60	0.24	0.19	0.91	0.91	0.84	0.84
d, Delay for Lane Group [s/veh]	65.18	22.87	23.02	71.15	27.48	27.29	48.82	50.01	58.76	60.05
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.96	4.26	3.98	0.90	3.03	2.18	13.61	11.76	6.17	5.61
50th-Percentile Queue Length [ft/ln]	124.0	106.5	99.53	22.61	75.75	54.52	340.36	293.98	154.24	140.31
95th-Percentile Queue Length [veh/ln]	8.62	7.65	7.17	1.63	5.45	3.93	19.67	17.38	10.24	9.50
95th-Percentile Queue Length [ft/ln]	215.4	191.2	179.1	40.70	136.3	98.14	491.64	434.58	256.08	237.43

Movement, Approach, & Intersection Results

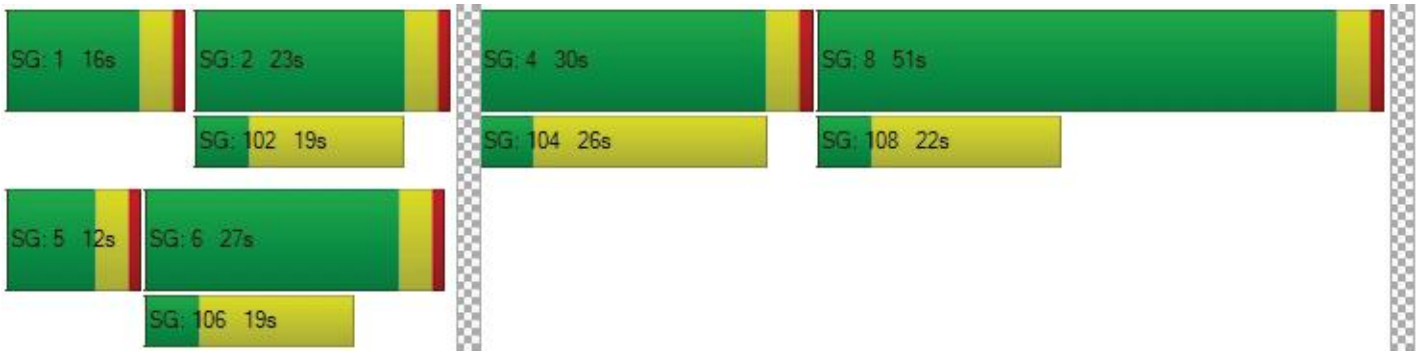
d_M, Delay for Movement [s/veh]	65.18	22.91	23.02	71.15	27.48	27.29	48.82	49.30	50.01	58.76	59.39	60.05
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	33.76			30.03			49.37			59.37		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	43.22											
Intersection LOS	D											
Intersection V/C	0.534											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.530	2.619	2.479	2.388
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	317	783	433
d_b, Bicycle Delay [s]	39.20	42.50	22.20	36.82
l_b,int, Bicycle LOS Score for Intersection	2.036	1.907	2.243	1.862
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	167	0	536	0	1898	934	0	1348	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.000	1.060	1.060	1.000	1.060	1.000
In-Process Volume [veh/h]	0	0	0	42	0	0	0	16	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	24	0	0	21	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	219	0	568	0	2052	990	0	1466	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	58	0	149	0	540	261	0	386	0
Total Analysis Volume [veh/h]	0	0	0	231	0	598	0	2160	1042	0	1543	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	29	0	0	0	91	0	0	91	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		25	25	25	87	87	87
g / C, Green / Cycle		0.21	0.21	0.21	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate		0.13	0.20	0.20	0.44	0.68	0.31
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		357	319	319	3555	1109	3555
d1, Uniform Delay [s]		43.46	46.74	46.74	8.11	14.23	6.62
k, delay calibration		0.11	0.29	0.29	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.04	25.80	25.80	0.78	15.89	0.39
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.65	0.94	0.94	0.61	0.94	0.43
d, Delay for Lane Group [s/veh]		45.51	72.54	72.54	8.89	30.12	7.01
Lane Group LOS		D	E	E	A	C	A
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		6.48	11.02	11.02	8.34	25.42	4.84
50th-Percentile Queue Length [ft/ln]		161.9	275.4	275.4	208.55	635.51	121.07
95th-Percentile Queue Length [veh/ln]		10.65	16.46	16.46	13.08	33.69	8.45
95th-Percentile Queue Length [ft/ln]		266.3	411.5	411.5	326.97	842.22	211.29

Movement, Approach, & Intersection Results

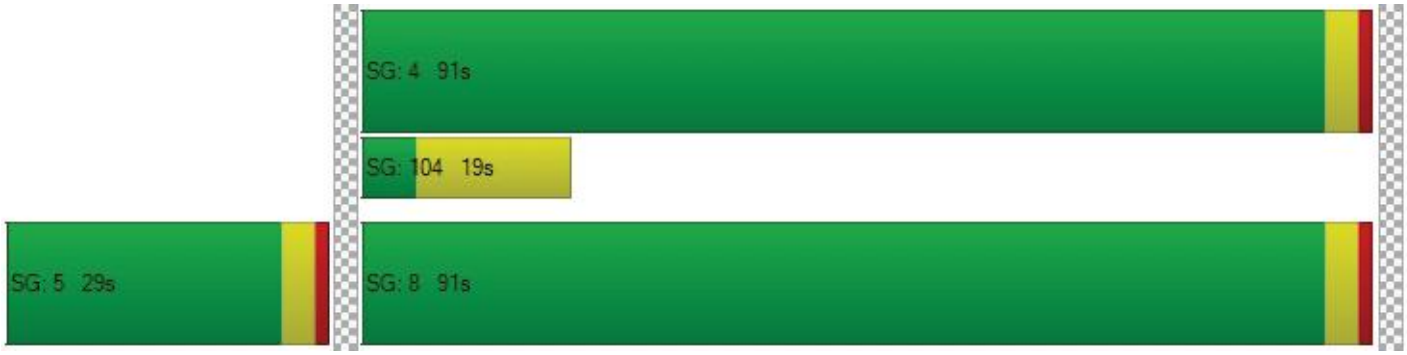
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.51	0.00	72.54	0.00	8.89	30.12	0.00	7.01	0.00
Movement LOS				D		E		A	C		A	
d_A, Approach Delay [s/veh]	0.00			65.01			15.80			7.01		
Approach LOS	A			E			B			A		
d_I, Intersection Delay [s/veh]	20.68											
Intersection LOS	C											
Intersection V/C	0.876											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.348	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	417	1450	1450
d_b, Bicycle Delay [s]	60.00	37.60	4.54	4.54
l_b,int, Bicycle LOS Score for Intersection	4.132	2.927	3.321	2.408
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	731	0	465	0	0	0	0	1092	0	0	1114	292
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	58	0	0	16	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	24	0	0	21	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	775	0	493	0	0	0	0	1240	0	0	1218	345
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	204	0	130	0	0	0	0	326	0	0	321	91
Total Analysis Volume [veh/h]	816	0	519	0	0	0	0	1305	0	0	1282	363
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	97	0	0	0	0	0	0	23	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39		73	73	73
g / C, Green / Cycle	0.33	0.33	0.33		0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.29		0.27	0.26	0.24
s, saturation flow rate [veh/h]	1714	1681	1530		4903	4903	1530
c, Capacity [veh/h]	562	550	501		2970	2970	927
d1, Uniform Delay [s]	36.64	36.90	38.26		12.71	12.63	12.22
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.57	2.88	5.54		0.47	0.46	1.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.81	0.89		0.44	0.43	0.39
d, Delay for Lane Group [s/veh]	39.22	39.79	43.80		13.18	13.08	13.47
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.15	12.28	13.04		6.20	6.05	5.19
50th-Percentile Queue Length [ft/ln]	303.8	306.9	326.0		154.90	151.18	129.76
95th-Percentile Queue Length [veh/ln]	17.87	18.02	18.96		10.28	10.08	8.93
95th-Percentile Queue Length [ft/ln]	446.7	450.5	474.1		256.96	252.01	223.17

Movement, Approach, & Intersection Results

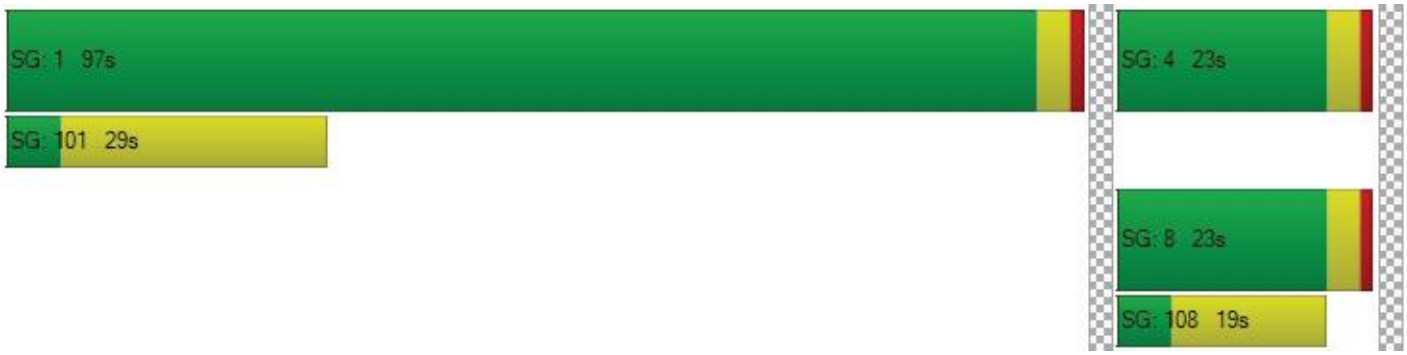
d_M, Delay for Movement [s/veh]	39.48	0.00	43.23	0.00	0.00	0.00	0.00	13.18	0.00	0.00	13.08	13.47
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	40.93			0.00			13.18			13.17		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	21.82											
Intersection LOS	C											
Intersection V/C	0.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.472	0.000	0.000	3.092
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1550	0	317	317
d_b, Bicycle Delay [s]	3.04	60.00	42.50	42.50
l_b,int, Bicycle LOS Score for Intersection	3.762	4.132	2.277	2.464
Bicycle LOS	D	D	B	B

Sequence

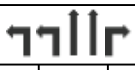
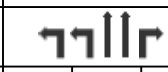
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	43.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.685

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	260	348	189	62	209	155	236	931	176	104	748	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	51	10	0	0	17	0	0	0	58	1	0	0
Site-Generated Trips [veh/h]	19	21	0	4	20	0	0	2	22	0	2	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	346	400	200	70	259	164	250	989	267	111	795	53
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	91	105	53	18	68	43	66	260	70	29	209	14
Total Analysis Volume [veh/h]	364	421	211	74	273	173	263	1041	281	117	837	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	31	56	0	11	36	0	15	44	44	9	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	54	54	7	33	33	11	39	70	5	33	33
g / C, Green / Cycle	0.23	0.45	0.45	0.05	0.28	0.28	0.09	0.32	0.58	0.04	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.21	0.23	0.14	0.04	0.13	0.13	0.08	0.30	0.18	0.04	0.24	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1573	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	386	805	684	94	498	435	305	1108	890	139	937	418
d1, Uniform Delay [s]	45.75	23.95	21.29	56.03	36.10	36.25	53.75	39.46	12.86	57.11	41.93	32.89
k, delay calibration	0.34	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.26	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	26.18	2.43	1.17	13.53	3.18	3.83	7.13	4.66	0.48	12.79	3.27	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.52	0.31	0.79	0.47	0.49	0.86	0.94	0.32	0.84	0.89	0.13
d, Delay for Lane Group [s/veh]	71.93	26.38	22.46	69.56	39.29	40.09	60.88	44.12	13.34	69.90	45.19	33.03
Lane Group LOS	E	C	C	E	D	D	E	D	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.41	9.08	4.02	2.57	6.17	5.63	4.21	15.43	3.93	2.01	12.25	1.26
50th-Percentile Queue Length [ft/ln]	335.2	226.9	100.5	64.18	154.3	140.8	105.3	385.8	98.24	50.21	306.1	31.44
95th-Percentile Queue Length [veh/ln]	19.42	14.02	7.24	4.62	10.25	9.53	7.58	21.87	7.07	3.61	17.99	2.26
95th-Percentile Queue Length [ft/ln]	485.4	350.4	181.0	115.5	256.2	238.1	189.5	546.8	176.8	90.37	449.6	56.60

Movement, Approach, & Intersection Results

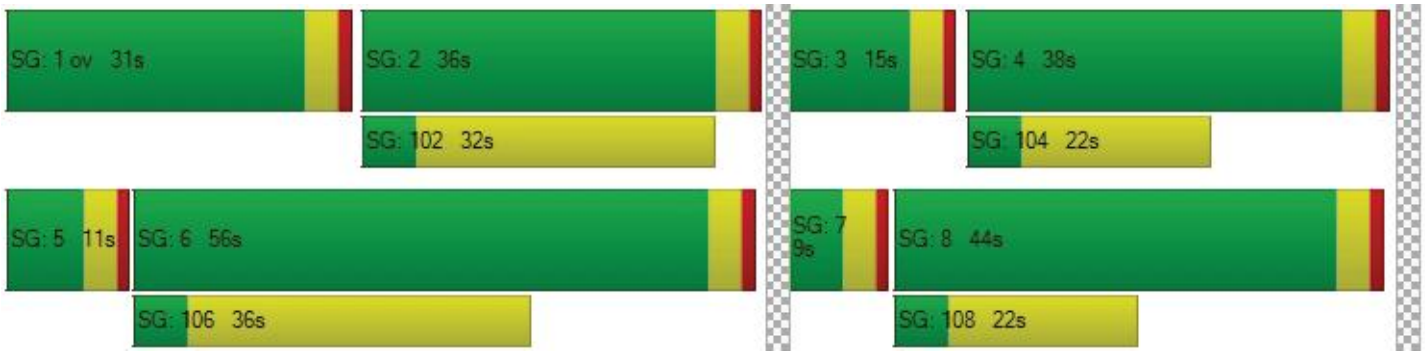
d_M, Delay for Movement [s/veh]	71.93	26.38	22.46	69.56	39.40	40.09	60.88	44.12	13.34	69.90	45.19	33.03
Movement LOS	E	C	C	E	D	D	E	D	B	E	D	C
d_A, Approach Delay [s/veh]	42.20			43.92			41.44			47.38		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.40											
Intersection LOS	D											
Intersection V/C	0.685											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.640	2.561	3.101	3.118
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	533	667	567
d_b, Bicycle Delay [s]	19.27	32.27	26.67	30.82
l_b,int, Bicycle LOS Score for Intersection	3.203	1.989	2.867	2.393
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	45.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.741

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	276	828	230	281	634	195	247	860	100	135	567	123
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	87	26	0	120	1	0	0	0	36	0	0
Site-Generated Trips [veh/h]	5	373	54	0	464	0	0	0	6	57	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	298	1338	324	298	1256	208	262	912	112	236	601	130
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	78	352	85	78	331	55	69	240	29	62	158	34
Total Analysis Volume [veh/h]	314	1408	341	314	1322	219	276	960	118	248	633	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	26	40	0	26	40	40	14	40	0	14	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	22	45	45	22	45	59	10	27	27	10	27	53
g / C, Green / Cycle	0.18	0.37	0.37	0.18	0.37	0.49	0.08	0.23	0.23	0.08	0.23	0.45
(v / s)_i Volume / Saturation Flow Rate	0.18	0.29	0.22	0.18	0.27	0.14	0.08	0.20	0.08	0.07	0.13	0.09
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	314	1817	567	314	1817	745	277	1125	351	277	1125	683
d1, Uniform Delay [s]	48.99	33.35	30.59	48.99	32.55	18.41	54.97	44.30	38.60	54.47	40.90	20.22
k, delay calibration	0.25	0.50	0.50	0.25	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	36.00	3.30	4.67	36.00	2.59	1.00	23.92	1.95	0.56	9.80	0.44	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.78	0.60	1.00	0.73	0.29	0.99	0.85	0.34	0.89	0.56	0.20
d, Delay for Lane Group [s/veh]	84.99	36.66	35.26	84.99	35.14	19.42	78.89	46.25	39.16	64.28	41.35	20.36
Lane Group LOS	F	D	D	F	D	B	E	D	D	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.50	12.46	8.67	12.50	11.35	3.84	5.09	9.28	2.97	4.09	5.57	2.37
50th-Percentile Queue Length [ft/ln]	312.4	311.5	216.7	312.4	283.6	95.89	127.1	232.0	74.29	102.1	139.3	59.33
95th-Percentile Queue Length [veh/ln]	18.30	18.25	13.50	18.30	16.87	6.90	8.78	14.28	5.35	7.35	9.45	4.27
95th-Percentile Queue Length [ft/ln]	457.4	456.3	337.5	457.4	421.8	172.6	219.6	356.9	133.7	183.8	236.1	106.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	84.99	36.66	35.26	84.99	35.14	19.42	78.89	46.25	39.16	64.28	41.35	20.36
Movement LOS	F	D	D	F	D	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	43.78			41.72			52.28			44.11		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.06											
Intersection LOS	D											
Intersection V/C	0.741											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.198	3.263	3.137	3.150
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	600	600
d_b, Bicycle Delay [s]	29.40	29.40	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.694	2.580	2.304	2.120
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	1,871.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	4.042

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	60	0	118	0	0	0	0	1326	54	104	760	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	1	0	0	0	0	26	0	1	36	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	54	0	0	57	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	0	126	0	0	0	0	1486	57	111	899	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	0	33	0	0	0	0	391	15	29	237	0
Total Analysis Volume [veh/h]	67	0	133	0	0	0	0	1564	60	117	946	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	4.04	0.00	0.41	0.00	0.00	0.00	0.00	0.02	0.00	0.29	0.01	0.00
d_M, Delay for Movement [s/veh]	1871.	1914.	1665.	207.2	277.4	11.63	9.91	0.00	0.00	17.42	0.00	0.00
Movement LOS	F	F	F	F	F	B	A	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	22.69	22.69	22.69	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.00	0.00
95th-Percentile Queue Length [ft/ln]	567.1	567.1	567.1	0.00	0.00	0.00	0.00	0.00	0.00	29.41	0.00	0.00
d_A, Approach Delay [s/veh]	1734.49			165.44			0.00			1.92		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	120.86											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	52.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.806

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	673	87	131	551	71	256	837	177	287	553	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	0	0	1	0	0	21	0	0	28	0
Site-Generated Trips [veh/h]	0	3	0	0	0	0	0	42	0	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	720	92	139	585	75	271	950	188	304	659	126
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	38	189	24	37	154	20	71	250	49	80	173	33
Total Analysis Volume [veh/h]	154	758	97	146	616	79	285	1000	198	320	694	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	37	0	15	36	0	28	40	0	28	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	33	33	11	32	32	22	36	36	24	38	38
g / C, Green / Cycle	0.10	0.28	0.28	0.09	0.27	0.27	0.18	0.30	0.30	0.20	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.09	0.24	0.24	0.09	0.20	0.20	0.17	0.29	0.13	0.19	0.20	0.09
s, saturation flow rate [veh/h]	1714	1800	1729	1714	1800	1729	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	171	495	476	157	480	461	313	1028	459	343	1088	486
d1, Uniform Delay [s]	53.40	41.62	41.62	54.11	40.18	40.18	48.08	41.51	33.77	47.21	35.06	30.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.20	0.11	0.11	0.26	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.08	19.67	20.31	19.95	9.77	10.16	16.87	8.10	0.64	22.32	0.63	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.88	0.88	0.93	0.74	0.74	0.91	0.97	0.43	0.93	0.64	0.27
d, Delay for Lane Group [s/veh]	68.47	61.29	61.93	74.06	49.94	50.34	64.95	49.62	34.41	69.53	35.68	30.92
Lane Group LOS	E	E	E	E	D	D	E	D	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.31	14.95	14.45	5.24	10.81	10.45	9.80	15.59	4.73	11.48	8.73	2.93
50th-Percentile Queue Length [ft/ln]	132.6	373.8	361.2	131.0	270.3	261.2	245.0	389.8	118.3	287.0	218.2	73.28
95th-Percentile Queue Length [veh/ln]	9.08	21.29	20.68	9.00	16.21	15.75	14.94	22.07	8.30	17.04	13.58	5.28
95th-Percentile Queue Length [ft/ln]	227.0	532.3	517.1	224.9	405.1	393.7	373.4	551.7	207.5	426.0	339.3	131.9

Movement, Approach, & Intersection Results

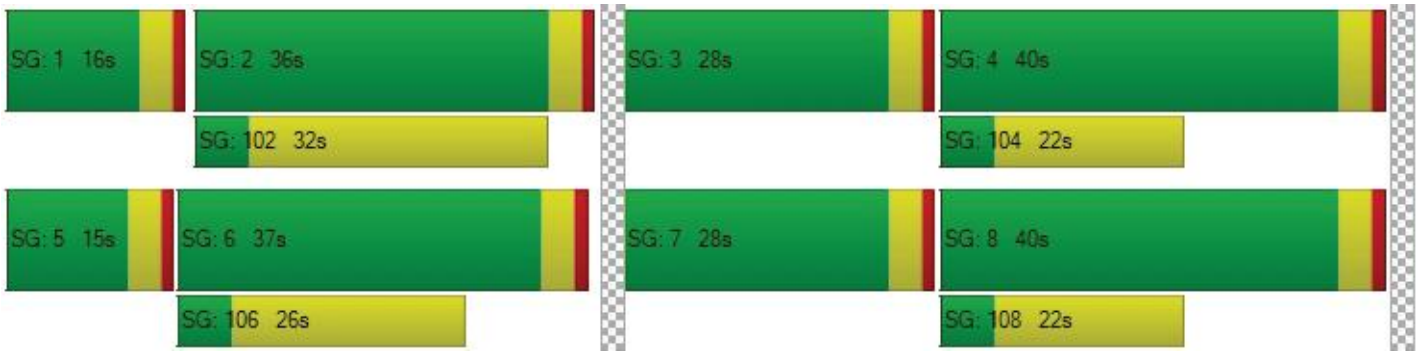
d_M, Delay for Movement [s/veh]	68.47	61.56	61.93	74.06	50.11	50.34	64.95	49.62	34.41	69.53	35.68	30.92
Movement LOS	E	E	E	E	D	D	E	D	C	E	D	C
d_A, Approach Delay [s/veh]	62.65			54.29			50.53			44.58		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	52.44											
Intersection LOS	D											
Intersection V/C	0.806											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.733	2.708	2.860	2.856
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	533	600	600
d_b, Bicycle Delay [s]	31.54	32.27	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.392	2.253	2.783	2.506
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	798	135	153	488	119	200	689	134	200	501	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	7	3	0	10	5	3	13	0	1	15	0
Site-Generated Trips [veh/h]	0	8	0	0	9	9	9	21	0	0	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	861	146	162	536	140	224	764	142	213	570	172
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	227	38	43	141	37	59	201	37	56	150	45
Total Analysis Volume [veh/h]	115	906	154	171	564	147	236	804	149	224	600	181
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	39	0	18	32	0	27	41	0	22	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	42	42	14	45	45	18	31	31	17	30	30
g / C, Green / Cycle	0.08	0.35	0.35	0.11	0.38	0.38	0.15	0.26	0.26	0.15	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.07	0.26	0.10	0.10	0.16	0.10	0.14	0.23	0.10	0.13	0.18	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	142	1190	531	196	1297	579	264	890	397	249	861	384
d1, Uniform Delay [s]	54.07	34.77	28.44	52.26	27.74	25.64	49.81	42.96	36.43	50.41	40.79	38.16
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.26	4.63	1.38	11.23	1.06	1.05	11.29	3.76	0.59	11.15	1.03	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.76	0.29	0.87	0.43	0.25	0.89	0.90	0.37	0.90	0.70	0.47
d, Delay for Lane Group [s/veh]	64.33	39.40	29.82	63.49	28.80	26.69	61.10	46.72	37.02	61.56	41.82	39.06
Lane Group LOS	E	D	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.82	12.39	3.44	5.67	6.20	3.07	7.76	11.91	3.66	7.37	8.15	4.63
50th-Percentile Queue Length [ft/ln]	95.50	309.7	85.89	141.7	155.0	76.65	193.9	297.7	91.56	184.2	203.7	115.6
95th-Percentile Queue Length [veh/ln]	6.88	18.16	6.18	9.58	10.29	5.52	12.33	17.57	6.59	11.82	12.83	8.16
95th-Percentile Queue Length [ft/ln]	171.8	454.0	154.6	239.4	257.2	137.9	308.1	439.2	164.8	295.5	320.8	203.8

Movement, Approach, & Intersection Results

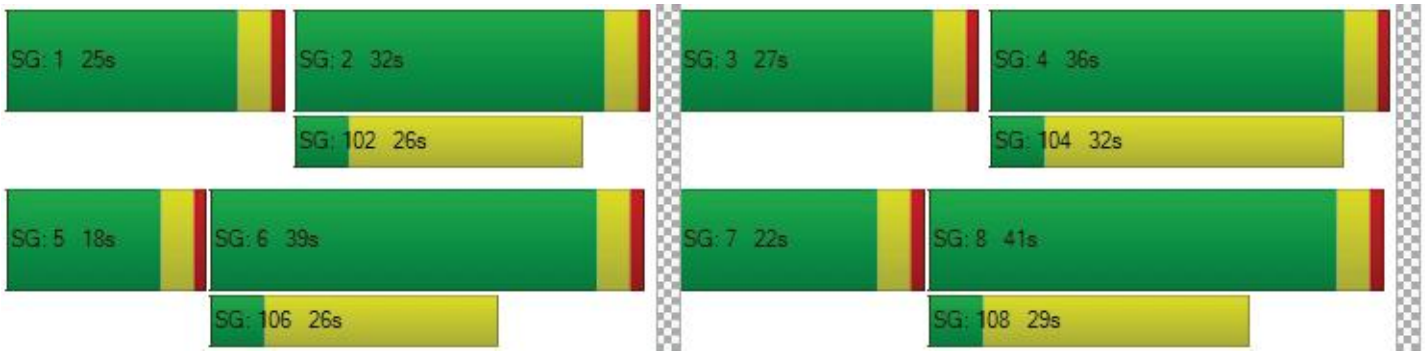
d_M, Delay for Movement [s/veh]	64.33	39.40	29.82	63.49	28.80	26.69	61.10	46.72	37.02	61.56	41.82	39.06
Movement LOS	E	D	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	40.58			35.17			48.36			45.72		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.85											
Intersection LOS	D											
Intersection V/C	0.729											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.903	3.009	2.801	2.815
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	467	617	533
d_b, Bicycle Delay [s]	30.10	35.27	28.70	32.27
l_b,int, Bicycle LOS Score for Intersection	2.529	2.287	2.541	2.389
Bicycle LOS	B	B	B	B

Sequence

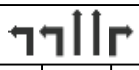
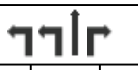
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	163	520	116	127	235	114	349	622	387	100	360	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	15	61	0	0	76	0	0	0	24	0	0	0
Site-Generated Trips [veh/h]	7	1	0	42	0	0	0	36	0	0	29	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	613	123	177	325	121	370	695	434	106	411	192
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	161	32	47	86	32	97	183	114	28	108	51
Total Analysis Volume [veh/h]	205	645	129	186	342	127	389	732	457	112	433	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	18	30	30	18	30	30	40	63	63	9	32	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	33	42	14	33	54	17	52	70	5	40	40
g / C, Green / Cycle	0.12	0.28	0.35	0.12	0.28	0.45	0.14	0.43	0.58	0.04	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.08	0.11	0.10	0.08	0.12	0.41	0.30	0.03	0.19	0.19
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1609
c, Capacity [veh/h]	388	953	540	200	953	695	477	775	888	139	592	529
d1, Uniform Delay [s]	49.89	38.52	27.43	52.51	34.74	19.47	49.87	32.82	15.07	57.02	33.20	33.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.34	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.11	3.86	1.04	16.84	1.05	0.58	3.47	16.47	2.13	10.49	0.85	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.68	0.24	0.93	0.36	0.18	0.82	0.95	0.51	0.81	0.57	0.57
d, Delay for Lane Group [s/veh]	51.00	42.38	28.47	69.35	35.80	20.04	53.35	49.29	17.20	67.51	34.05	34.21
Lane Group LOS	D	D	C	E	D	C	D	D	B	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.96	8.92	2.79	6.48	4.16	2.23	5.89	23.41	7.76	1.89	8.13	7.34
50th-Percentile Queue Length [ft/ln]	74.03	223.1	69.71	161.9	104.0	55.82	147.2	585.3	194.0	47.15	203.3	183.4
95th-Percentile Queue Length [veh/ln]	5.33	13.82	5.02	10.65	7.49	4.02	9.87	31.35	12.33	3.39	12.81	11.78
95th-Percentile Queue Length [ft/ln]	133.2	345.6	125.4	266.2	187.3	100.4	246.7	783.7	308.2	84.87	320.3	294.5

Movement, Approach, & Intersection Results

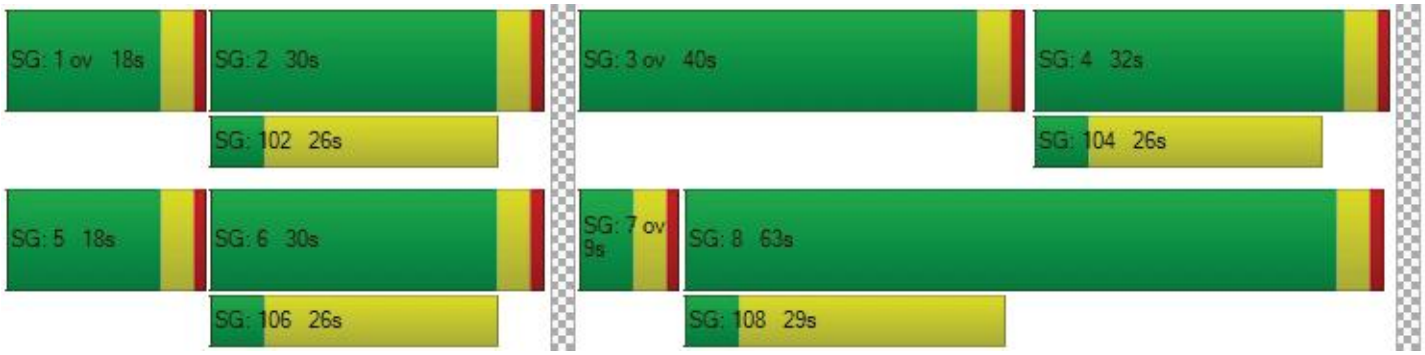
d_M, Delay for Movement [s/veh]	51.00	42.38	28.47	69.35	35.80	20.04	53.35	49.29	17.20	67.51	34.09	34.21
Movement LOS	D	D	C	E	D	C	D	D	B	E	C	C
d_A, Approach Delay [s/veh]	42.35			42.27			41.00			39.13		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.19											
Intersection LOS	D											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.872	2.775	2.935	2.760
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	983	467
d_b, Bicycle Delay [s]	36.82	36.82	15.50	35.27
l_b,int, Bicycle LOS Score for Intersection	2.367	2.100	4.163	2.176
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	92.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.961

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	1069	219	69	777	93	84	606	98	116	542	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	113	18	0	156	0	0	0	0	30	0	0
Site-Generated Trips [veh/h]	68	432	50	0	527	0	0	0	78	50	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	1678	300	73	1507	99	89	642	182	203	575	63
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	56	442	79	19	397	26	23	169	48	53	151	17
Total Analysis Volume [veh/h]	225	1766	316	77	1586	104	94	676	192	214	605	66
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	49	0	9	40	0	21	44	0	18	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	45	45	5	36	36	8	40	40	14	46	46
g / C, Green / Cycle	0.12	0.38	0.38	0.04	0.30	0.30	0.07	0.33	0.33	0.12	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.13	0.41	0.42	0.04	0.33	0.33	0.05	0.38	0.13	0.12	0.34	0.04
s, saturation flow rate [veh/h]	1714	3427	1666	1714	3427	1744	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	200	1285	625	71	1028	523	119	600	510	200	685	583
d1, Uniform Delay [s]	53.00	37.50	37.50	57.50	42.00	42.00	55.00	40.00	30.49	53.00	34.65	24.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.38	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	70.26	50.06	69.63	71.86	55.46	66.18	11.18	76.80	0.46	50.16	12.21	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.13	1.08	1.11	1.08	1.09	1.09	0.79	1.13	0.38	1.07	0.88	0.11
d, Delay for Lane Group [s/veh]	123.2	87.56	107.1	129.3	97.46	108.1	66.17	116.8	30.95	103.1	46.86	24.13
Lane Group LOS	F	F	F	F	F	F	E	F	C	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.92	27.39	30.02	3.59	22.94	24.90	3.17	30.20	4.31	8.80	18.49	1.24
50th-Percentile Queue Length [ft/ln]	247.9	684.7	750.6	89.79	573.4	622.5	79.21	755.1	107.7	220.0	462.3	30.94
95th-Percentile Queue Length [veh/ln]	15.81	37.97	41.88	6.47	32.49	34.96	5.70	42.40	7.72	14.05	25.54	2.23
95th-Percentile Queue Length [ft/ln]	395.2	949.3	1047.	161.6	812.2	873.8	142.5	1059.	192.9	351.2	638.6	55.69

Movement, Approach, & Intersection Results

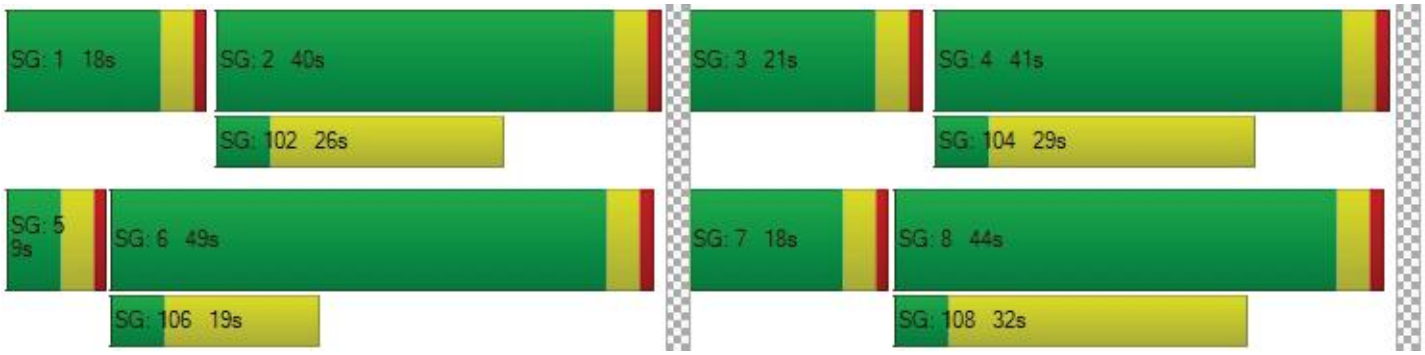
d_M, Delay for Movement [s/veh]	123.2	91.73	107.1	129.3	100.6	108.1	66.17	116.8	30.95	103.1	46.86	24.13
Movement LOS	F	F	F	F	F	F	E	F	C	F	D	C
d_A, Approach Delay [s/veh]	96.92			102.31			94.72			58.78		
Approach LOS	F			F			F			E		
d_I, Intersection Delay [s/veh]	92.47											
Intersection LOS	F											
Intersection V/C	0.961											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.265	3.124	2.776	2.623
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	600	667	617
d_b, Bicycle Delay [s]	23.44	29.40	26.67	28.70
l_b,int, Bicycle LOS Score for Intersection	2.828	2.531	3.147	3.020
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	96	151	218	18	141	22	31	636	65	90	429	27
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	1	2	0	1	0	0	18	0	3	30	0
Site-Generated Trips [veh/h]	0	0	3	0	0	0	0	50	0	3	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	161	236	19	150	23	33	742	69	101	535	29
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	42	62	5	39	6	9	195	18	27	141	8
Total Analysis Volume [veh/h]	107	169	248	20	158	24	35	781	73	106	563	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45	45	45	45	67	67	67	67	67	67
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.38	0.38	0.56	0.56	0.56	0.56	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.16	0.02	0.09	0.02	0.04	0.43	0.05	0.16	0.31	0.02
s, saturation flow rate [veh/h]	1221	1800	1530	985	1800	1530	836	1800	1530	656	1800	1530
c, Capacity [veh/h]	431	677	575	355	677	575	338	1003	853	186	1003	853
d1, Uniform Delay [s]	31.88	25.80	27.90	30.08	25.62	23.75	27.94	20.75	12.34	46.73	17.10	11.99
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.20	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.37	0.88	2.35	0.30	0.81	0.14	0.13	2.41	0.04	2.73	0.49	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.25	0.43	0.06	0.23	0.04	0.10	0.78	0.09	0.57	0.56	0.04
d, Delay for Lane Group [s/veh]	33.26	26.68	30.25	30.38	26.43	23.88	28.07	23.17	12.38	49.46	17.59	12.01
Lane Group LOS	C	C	C	C	C	C	C	C	B	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.55	3.50	5.67	0.45	3.25	0.46	0.72	17.08	0.92	3.19	9.88	0.38
50th-Percentile Queue Length [ft/ln]	63.63	87.59	141.8	11.18	81.29	11.45	18.04	426.9	23.04	79.63	247.0	9.51
95th-Percentile Queue Length [veh/ln]	4.58	6.31	9.58	0.81	5.85	0.82	1.30	23.86	1.66	5.73	15.04	0.68
95th-Percentile Queue Length [ft/ln]	114.5	157.6	239.4	20.13	146.3	20.61	32.46	596.4	41.48	143.3	375.8	17.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.26	26.68	30.25	30.38	26.43	23.88	28.07	23.17	12.38	49.46	17.59	12.01
Movement LOS	C	C	C	C	C	C	C	C	B	D	B	B
d_A, Approach Delay [s/veh]	29.71			26.52			22.47			22.17		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.37											
Intersection LOS	C											
Intersection V/C	0.596											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.507	2.303	2.684	2.685
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	1383	1383
d_b, Bicycle Delay [s]	34.50	34.50	5.70	5.70
l_b,int, Bicycle LOS Score for Intersection	2.424	1.893	3.026	2.715
Bicycle LOS	B	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	43.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.717

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	175	861	169	138	729	67	78	565	168	144	309	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	4	2	0	1	0	0	10	0	3	17	0
Site-Generated Trips [veh/h]	0	3	3	0	0	0	0	29	0	3	29	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	920	184	146	774	71	83	638	178	159	374	98
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	242	48	38	204	19	22	168	47	42	98	26
Total Analysis Volume [veh/h]	196	968	194	154	815	75	87	672	187	167	394	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	28	50	0	17	39	0	12	35	0	18	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	52	52	13	48	48	8	26	26	13	32	32
g / C, Green / Cycle	0.13	0.43	0.43	0.10	0.40	0.40	0.06	0.22	0.22	0.11	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.33	0.33	0.09	0.25	0.25	0.05	0.20	0.12	0.10	0.22	0.07
s, saturation flow rate [veh/h]	1714	1800	1697	1714	1800	1747	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	225	775	731	179	726	705	108	752	336	192	483	411
d1, Uniform Delay [s]	51.11	29.09	29.22	52.86	28.49	28.49	55.48	45.47	41.65	52.39	41.09	34.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.24	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.89	7.22	7.89	11.24	3.98	4.10	12.86	4.00	1.45	11.18	7.20	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.77	0.78	0.86	0.62	0.62	0.80	0.89	0.56	0.87	0.82	0.25
d, Delay for Lane Group [s/veh]	61.00	36.30	37.11	64.09	32.47	32.59	68.34	49.48	43.09	63.57	48.29	34.73
Lane Group LOS	E	D	D	E	C	C	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.39	15.88	15.29	5.12	11.04	10.74	2.98	10.09	5.06	5.54	11.81	2.41
50th-Percentile Queue Length [ft/ln]	159.7	396.9	382.3	128.0	276.0	268.5	74.61	252.2	126.6	138.4	295.2	60.26
95th-Percentile Queue Length [veh/ln]	10.54	22.41	21.71	8.83	16.49	16.12	5.37	15.30	8.75	9.40	17.45	4.34
95th-Percentile Queue Length [ft/ln]	263.3	560.2	542.6	220.8	412.2	402.9	134.3	382.4	218.8	234.9	436.1	108.4

Movement, Approach, & Intersection Results

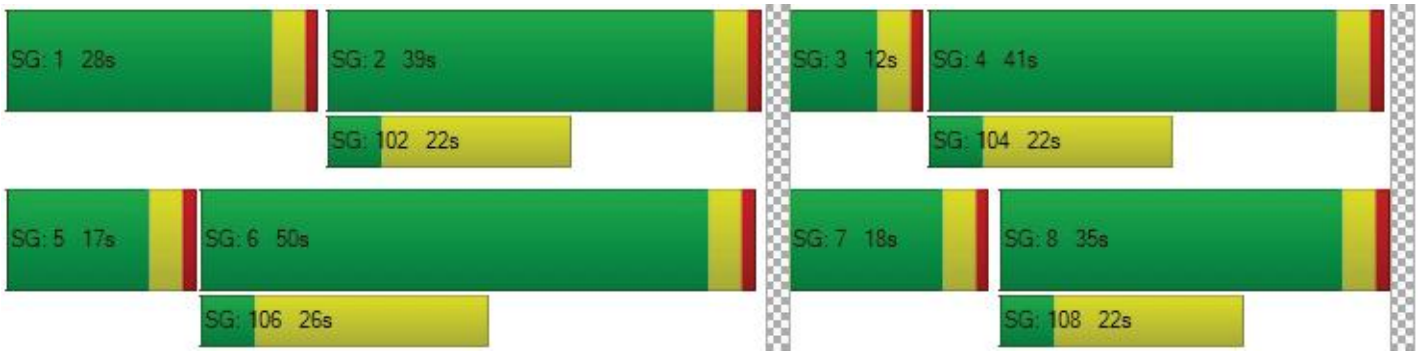
d_M, Delay for Movement [s/veh]	61.00	36.62	37.11	64.09	32.52	32.59	68.34	49.48	43.09	63.57	48.29	34.73
Movement LOS	E	D	D	E	C	C	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	40.21			37.19			49.95			50.03		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.34											
Intersection LOS	D											
Intersection V/C	0.717											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.808	2.744	2.629	2.742
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	583	517	617
d_b, Bicycle Delay [s]	22.82	30.10	33.00	28.70
l_b,int, Bicycle LOS Score for Intersection	2.680	2.421	2.340	2.655
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	36.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	85	770	56	108	507	77	101	475	89	64	311	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	10	2	0	11	0	0	3	0	3	5	0
Site-Generated Trips [veh/h]	0	8	3	0	9	0	0	9	0	3	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	834	64	114	557	82	107	516	94	74	344	56
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	219	17	30	147	22	28	136	25	19	91	15
Total Analysis Volume [veh/h]	95	878	67	120	586	86	113	543	99	78	362	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	26	35	0	18	27	0	30	49	0	18	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	62	62	10	64	64	10	25	25	7	22	22
g / C, Green / Cycle	0.07	0.52	0.52	0.08	0.53	0.53	0.08	0.21	0.21	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.27	0.27	0.07	0.19	0.19	0.07	0.18	0.18	0.05	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1756	1714	1800	1721	1714	1800	1705	1714	1800	1714
c, Capacity [veh/h]	120	930	907	145	956	914	140	374	354	99	331	315
d1, Uniform Delay [s]	54.95	19.10	19.10	54.05	16.28	16.29	54.16	46.11	46.14	55.80	45.39	45.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.10	2.03	2.08	11.14	1.05	1.10	10.32	6.84	7.32	12.80	2.14	2.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.51	0.51	0.83	0.36	0.36	0.81	0.88	0.88	0.79	0.65	0.66
d, Delay for Lane Group [s/veh]	66.05	21.13	21.19	65.19	17.33	17.39	64.48	52.95	53.45	68.60	47.54	47.79
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.20	9.14	8.93	4.01	5.67	5.45	3.76	10.19	9.73	2.68	6.12	5.92
50th-Percentile Queue Length [ft/ln]	79.96	228.4	223.1	100.3	141.8	136.1	93.93	254.8	243.2	67.09	153.0	147.8
95th-Percentile Queue Length [veh/ln]	5.76	14.10	13.83	7.23	9.58	9.27	6.76	15.43	14.85	4.83	10.18	9.90
95th-Percentile Queue Length [ft/ln]	143.9	352.3	345.6	180.6	239.5	231.8	169.0	385.7	371.1	120.7	254.4	247.6

Movement, Approach, & Intersection Results

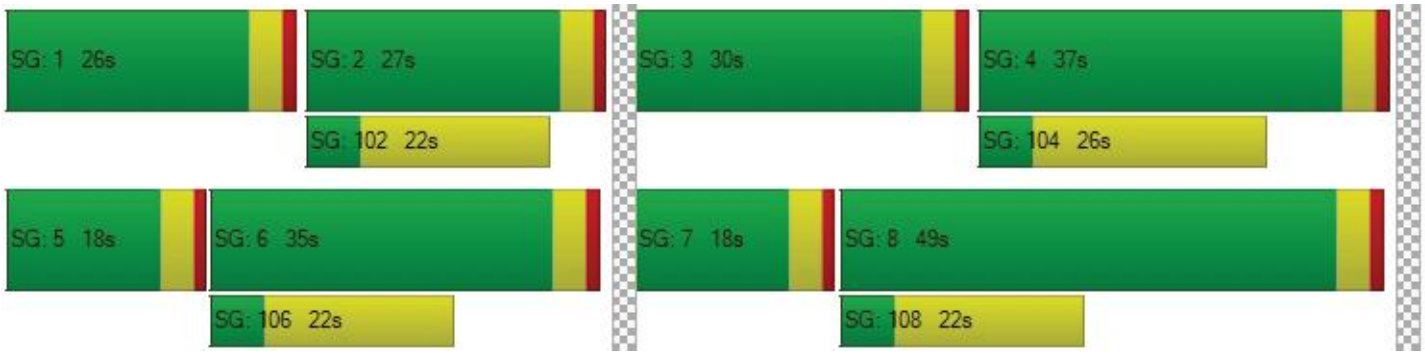
d_M, Delay for Movement [s/veh]	66.05	21.16	21.19	65.19	17.36	17.39	64.48	53.15	53.45	68.60	47.64	47.79
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	25.26			24.61			54.88			50.93		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.49											
Intersection LOS	D											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.667	2.767	2.568	2.555
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	383	750	550
d_b, Bicycle Delay [s]	33.00	39.20	23.44	31.54
l_b,int, Bicycle LOS Score for Intersection	2.418	2.213	2.182	1.971
Bicycle LOS	B	B	B	A

Sequence

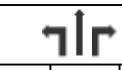
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.757

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	664	283	196	515	0	0	0	0	201	0	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	76	0	0	100	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	0	0	0	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	784	300	208	646	0	0	0	0	213	0	97
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	206	79	55	170	0	0	0	0	56	0	26
Total Analysis Volume [veh/h]	0	825	316	219	680	0	0	0	0	224	0	102
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	30	46	0	48	64	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	68	68	18	86	86	22	22	22	22
g / C, Green / Cycle	0.00	0.57	0.57	0.15	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.46	0.21	0.13	0.38	0.00	0.00	0.00	0.17	0.07
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1638	1530	1309	1530
c, Capacity [veh/h]	1	1027	873	250	1288	1095	330	281	300	281
d1, Uniform Delay [s]	0.00	20.42	13.94	50.17	7.79	0.00	0.00	0.00	49.34	42.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.22	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	6.65	1.16	9.33	1.55	0.00	0.00	0.00	7.29	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.80	0.36	0.88	0.53	0.00	0.00	0.00	0.75	0.36
d, Delay for Lane Group [s/veh]	0.00	27.07	15.10	59.50	9.34	0.00	0.00	0.00	56.63	43.67
Lane Group LOS	A	C	B	E	A	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	19.29	4.83	7.07	7.74	0.00	0.00	0.00	7.21	2.72
50th-Percentile Queue Length [ft/ln]	0.00	482.3	120.7	176.8	193.4	0.00	0.00	0.00	180.27	68.03
95th-Percentile Queue Length [veh/ln]	0.00	26.50	8.44	11.43	12.30	0.00	0.00	0.00	11.61	4.90
95th-Percentile Queue Length [ft/ln]	0.00	662.4	210.9	285.8	307.5	0.00	0.00	0.00	290.36	122.46

Movement, Approach, & Intersection Results

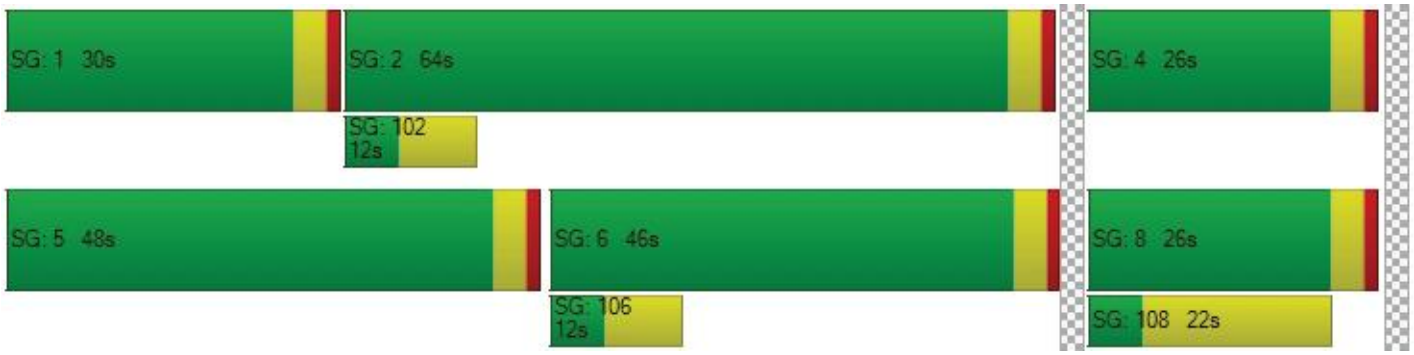
d_M, Delay for Movement [s/veh]	0.00	27.07	15.10	59.50	9.34	0.00	0.00	0.00	0.00	56.63	56.63	43.67
Movement LOS	A	C	B	E	A	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	23.75			21.56			0.00			52.57		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.89											
Intersection LOS	C											
Intersection V/C	0.757											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.033	0.000	1.955	2.235
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	1000	367	367
d_b, Bicycle Delay [s]	25.35	15.00	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	3.442	3.043	1.560	2.098
Bicycle LOS	C	C	A	B

Sequence

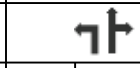
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	100.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.989

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	1366	112	38	688	56	87	141	294	122	67	73
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	131	0	0	186	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	4	550	0	0	655	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	156	2129	119	40	1570	59	92	149	312	131	71	77
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	560	31	11	413	16	24	39	82	34	19	20
Total Analysis Volume [veh/h]	164	2241	125	42	1653	62	97	157	328	138	75	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	68	0	9	55	0	10	29	0	14	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	65	65	4	56	56	6	25	25	10	29
g / C, Green / Cycle	0.11	0.54	0.54	0.03	0.46	0.46	0.05	0.21	0.21	0.08	0.24
(v / s)_i Volume / Saturation Flow Rate	0.10	0.66	0.67	0.02	0.48	0.04	0.06	0.09	0.21	0.08	0.09
s, saturation flow rate [veh/h]	1714	1800	1767	1714	3427	1530	1714	1800	1530	1714	1649
c, Capacity [veh/h]	192	978	960	54	1587	708	86	375	319	143	398
d1, Uniform Delay [s]	52.31	27.40	27.40	57.67	32.22	18.04	57.00	41.20	47.50	54.83	38.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.35	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.23	104.0	113.6	20.28	34.32	0.24	86.09	0.74	49.58	27.59	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	1.21	1.23	0.77	1.04	0.09	1.13	0.42	1.03	0.97	0.39
d, Delay for Lane Group [s/veh]	62.54	131.4	141.0	77.95	66.54	18.28	143.0	41.94	97.08	82.42	38.74
Lane Group LOS	E	F	F	E	F	B	F	D	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.39	54.66	56.24	1.57	29.73	1.02	4.65	4.12	13.85	5.25	3.93
50th-Percentile Queue Length [ft/ln]	134.8	1366.	1405.	39.30	743.1	25.44	116.1	103.0	346.3	131.20	98.19
95th-Percentile Queue Length [veh/ln]	9.20	77.13	80.08	2.83	39.92	1.83	8.36	7.42	20.27	9.00	7.07
95th-Percentile Queue Length [ft/ln]	230.0	1928.	2002.	70.74	998.0	45.79	209.1	185.4	506.8	225.12	176.75

Movement, Approach, & Intersection Results

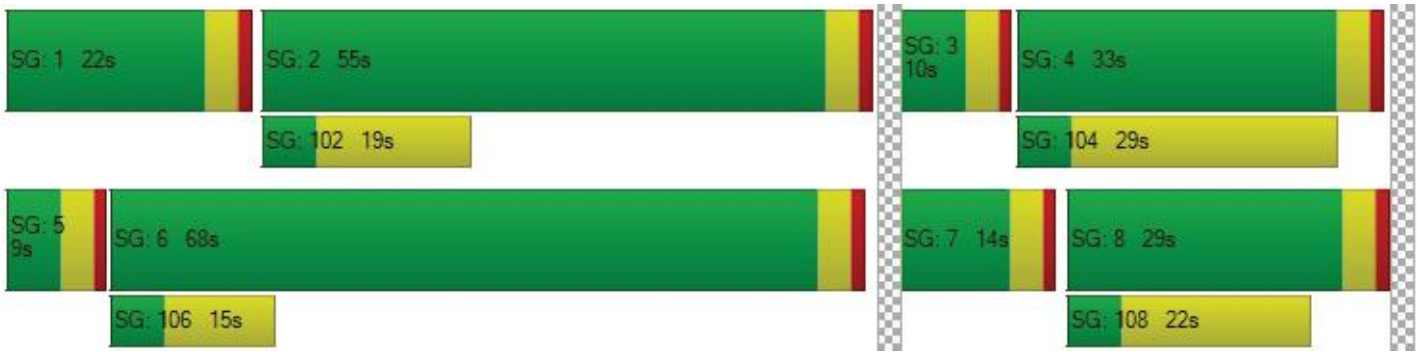
d_M, Delay for Movement [s/veh]	62.54	135.9	141.0	77.95	66.54	18.28	143.0	41.94	97.08	82.42	38.74	38.74
Movement LOS	E	F	F	E	F	B	F	D	F	F	D	D
d_A, Approach Delay [s/veh]	131.46			65.11			89.88			59.24		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	100.08											
Intersection LOS	F											
Intersection V/C	0.989											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.224	3.191	2.362	2.156
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	850	417	483
d_b, Bicycle Delay [s]	13.07	19.84	37.60	34.50
l_b,int, Bicycle LOS Score for Intersection	3.647	3.009	2.520	2.045
Bicycle LOS	D	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	39.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.468

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	88	400	0	0	314	39	80	0	165	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.060	1.060	1.000	1.000	1.060	1.060	1.060	1.000	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	3	0	0	2	2	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	430	0	0	338	43	85	0	175	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	113	0	0	89	11	22	0	46	0	0	0
Total Analysis Volume [veh/h]	98	453	0	0	356	45	89	0	184	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.27	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.36	0.00	0.00	0.00	0.00	0.00	39.51	0.00	12.35	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.00	0.00	2.24	0.00	1.11	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.85	6.85	0.00	0.00	0.00	0.00	55.97	0.00	27.73	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.49			0.00			21.21			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	5.39											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	907	60	95	571	0	5	0	30	191	0	49
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	88	100	0	0	0	0	0	9	0	76
Site-Generated Trips [veh/h]	0	4	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	965	152	201	605	0	5	0	32	211	0	128
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	254	40	53	159	0	1	0	8	56	0	34
Total Analysis Volume [veh/h]	0	1016	160	212	637	0	5	0	34	222	0	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	53	9	0	74	30	0	0	9	0	0	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	65	65	17	82	82	4	4	18	18
g / C, Green / Cycle	0.00	0.54	0.54	0.14	0.69	0.69	0.03	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.33	0.12	0.18	0.18	0.00	0.02	0.13	0.09
s, saturation flow rate [veh/h]	1714	1800	1716	1714	1800	1800	1714	1392	1687	1530
c, Capacity [veh/h]	1	980	934	243	1234	1234	52	42	253	229
d1, Uniform Delay [s]	0.00	18.70	18.72	50.40	7.20	7.20	56.58	57.83	49.93	47.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.87	3.03	9.29	0.51	0.51	0.79	28.66	9.44	2.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.61	0.62	0.87	0.26	0.26	0.10	0.81	0.88	0.59
d, Delay for Lane Group [s/veh]	0.00	21.57	21.75	59.69	7.71	7.71	57.37	86.49	59.37	49.95
Lane Group LOS	A	C	C	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	11.89	11.41	6.85	3.11	3.11	0.16	1.36	7.17	3.92
50th-Percentile Queue Length [ft/ln]	0.00	297.2	285.1	171.2	77.67	77.67	3.98	34.06	179.24	98.04
95th-Percentile Queue Length [veh/ln]	0.00	17.54	16.94	11.14	5.59	5.59	0.29	2.45	11.56	7.06
95th-Percentile Queue Length [ft/ln]	0.00	438.6	423.5	278.5	139.8	139.8	7.16	61.30	289.02	176.46

Movement, Approach, & Intersection Results

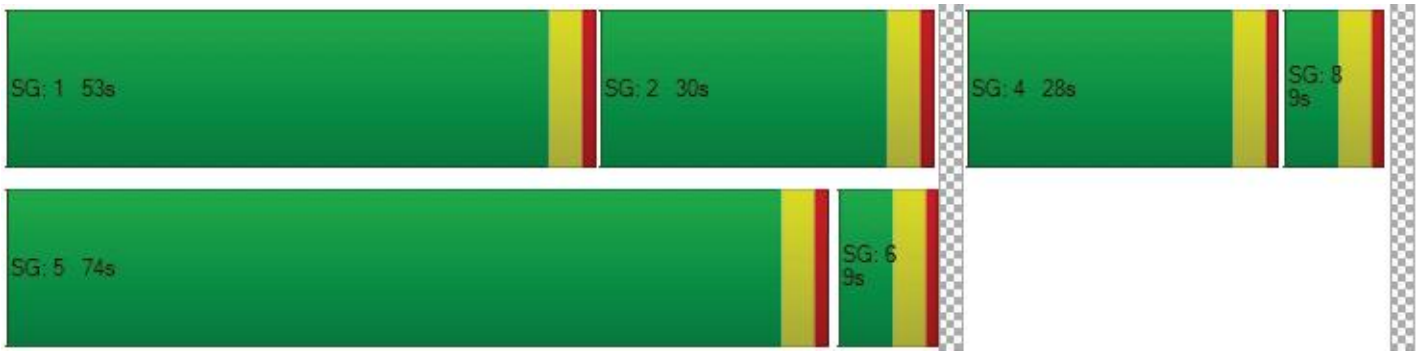
d_M, Delay for Movement [s/veh]	0.00	21.64	21.75	59.69	7.71	7.71	57.37	71.93	86.49	59.37	59.37	49.95
Movement LOS	A	C	C	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	21.66			20.69			82.76			55.81		
Approach LOS	C			C			F			E		
d_I, Intersection Delay [s/veh]	27.34											
Intersection LOS	C											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	433	83	400
d_b, Bicycle Delay [s]	55.10	36.82	55.10	38.40
l_b,int, Bicycle LOS Score for Intersection	2.530	2.260	1.592	2.149
Bicycle LOS	B	B	A	B

Sequence

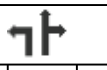
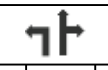
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.900

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	199	841	1	0	1	0	107	0	206
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	554	28	0	655	0	0	0	0	28	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2012	228	211	1496	1	0	1	0	135	0	218
Peak Hour Factor	0.946	0.946	0.946	0.950	0.946	0.950	0.950	0.950	0.946	0.946	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	532	60	56	395	0	0	0	0	36	0	57
Total Analysis Volume [veh/h]	1	2127	241	222	1581	1	0	1	0	143	0	229
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	56	0	16	63	0	32	30	0	18	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	72	72	12	84	84	0	8	12	20
g / C, Green / Cycle	0.00	0.60	0.60	0.10	0.70	0.70	0.00	0.07	0.10	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.62	0.16	0.13	0.46	0.00	0.00	0.00	0.08	0.15
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	2	2054	917	171	2392	1068	1	124	169	255
d1, Uniform Delay [s]	59.86	24.03	11.43	54.00	10.16	5.48	0.00	52.05	53.22	48.99
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	81.55	29.67	0.70	142.0	1.45	0.00	0.00	0.03	11.07	10.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	1.04	0.26	1.30	0.66	0.00	0.00	0.01	0.85	0.90
d, Delay for Lane Group [s/veh]	141.4	53.71	12.13	196.0	11.61	5.48	0.00	52.07	64.29	59.79
Lane Group LOS	F	F	B	F	B	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.09	35.34	3.18	11.93	11.04	0.01	0.00	0.03	4.76	7.46
50th-Percentile Queue Length [ft/ln]	2.16	883.5	79.40	298.2	276.0	0.19	0.00	0.73	118.94	186.58
95th-Percentile Queue Length [veh/ln]	0.16	46.47	5.72	19.27	16.49	0.01	0.00	0.05	8.33	11.94
95th-Percentile Queue Length [ft/ln]	3.89	1161.	142.9	481.8	412.2	0.35	0.00	1.31	208.37	298.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	141.4	53.71	12.13	196.0	11.61	5.48	0.00	52.07	52.07	64.29	59.79	59.79
Movement LOS	F	F	B	F	B	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	49.51			34.31			52.07			61.52		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	44.46											
Intersection LOS	D											
Intersection V/C	0.900											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.179	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	983	433	200
d_b, Bicycle Delay [s]	19.27	15.50	36.82	48.60
l_b,int, Bicycle LOS Score for Intersection	3.514	3.048	1.561	2.173
Bicycle LOS	D	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	47.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.050

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	215	48	118	172	40	129	224	33	32	148	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	3	0	0	2	0	0	10	0	0	17	0
Site-Generated Trips [veh/h]	0	3	0	0	3	0	0	28	0	0	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	234	51	125	187	42	137	275	35	34	202	137
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	62	13	33	49	11	36	72	9	9	53	36
Total Analysis Volume [veh/h]	34	246	54	132	197	44	144	289	37	36	213	144
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	404	442	419	433	459	404	443
Degree of Utilization, x	0.69	0.12	0.89	1.05	0.08	0.62	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.08	0.41	9.28	14.10	0.26	3.99	1.39
95th-Percentile Queue Length [ft]	127.08	10.35	232.01	352.52	6.53	99.74	34.86
Approach Delay [s/veh]	26.52		50.40	81.90		21.14	
Approach LOS	D		F	F		C	
Intersection Delay [s/veh]	47.42						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	922	34	78	735	100	139	250	53	29	195	136
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	6	1	0	4	0	0	10	0	1	17	0
Site-Generated Trips [veh/h]	0	6	1	0	3	0	0	28	0	1	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	989	38	83	786	106	147	303	56	33	252	144
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	260	10	22	207	28	39	80	15	9	66	38
Total Analysis Volume [veh/h]	51	1041	40	87	827	112	155	319	59	35	265	152
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	48	0	12	51	0	21	41	0	19	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	66	66	8	69	69	13	27	27	4	18	18
g / C, Green / Cycle	0.04	0.55	0.55	0.06	0.58	0.58	0.11	0.22	0.22	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.30	0.30	0.05	0.27	0.27	0.09	0.09	0.04	0.02	0.12	0.13
s, saturation flow rate [veh/h]	1714	1800	1777	1714	1800	1726	1714	3427	1530	1714	1800	1586
c, Capacity [veh/h]	65	989	976	108	1035	992	182	768	343	52	266	235
d1, Uniform Delay [s]	57.25	17.46	17.46	55.48	14.79	14.79	52.69	39.84	37.58	57.61	49.57	49.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.60	2.20	2.23	12.86	1.49	1.56	10.55	0.36	0.24	14.28	6.14	8.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.55	0.55	0.80	0.46	0.46	0.85	0.42	0.17	0.68	0.82	0.85
d, Delay for Lane Group [s/veh]	75.85	19.66	19.69	68.34	16.28	16.35	63.25	40.20	37.82	71.89	55.71	58.05
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.87	10.05	9.93	2.98	7.79	7.49	5.12	4.08	1.43	1.26	6.79	6.35
50th-Percentile Queue Length [ft/ln]	46.73	251.1	248.2	74.61	194.7	187.2	128.0	102.0	35.82	31.46	169.7	158.6
95th-Percentile Queue Length [veh/ln]	3.36	15.24	15.10	5.37	12.37	11.98	8.83	7.34	2.58	2.26	11.06	10.48
95th-Percentile Queue Length [ft/ln]	84.11	381.1	377.4	134.3	309.2	299.4	220.7	183.6	64.47	56.62	276.6	261.9

Movement, Approach, & Intersection Results

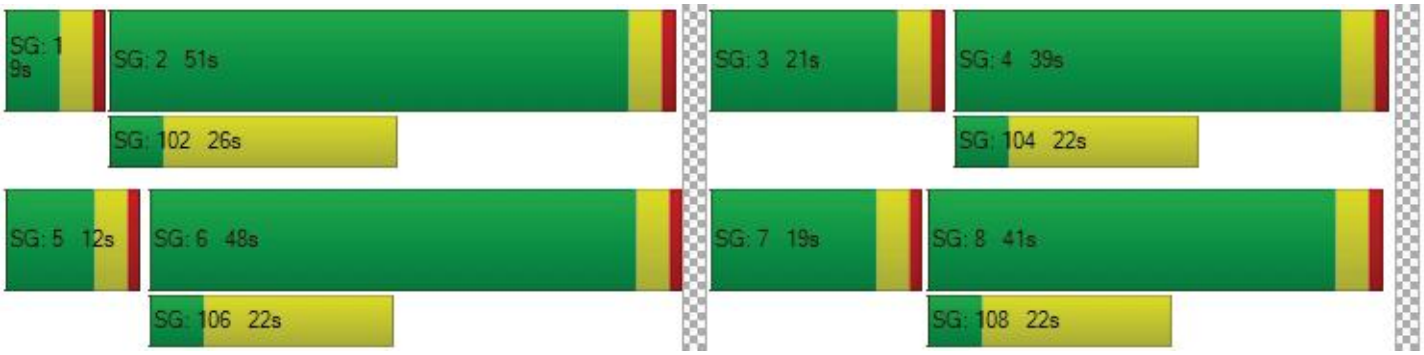
d_M, Delay for Movement [s/veh]	75.85	19.68	19.69	68.34	16.31	16.35	63.25	40.20	37.82	71.89	56.12	58.05
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	22.21			20.73			46.64			57.99		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	31.01											
Intersection LOS	C											
Intersection V/C	0.569											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.715	2.854	2.624	2.614
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	783	617	583
d_b, Bicycle Delay [s]	24.07	22.20	28.70	30.10
l_b,int, Bicycle LOS Score for Intersection	2.494	2.406	1.999	1.933
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	43.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	833	164	64	696	56	75	453	101	111	270	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	4	5	0	0	5	17	12	5	2	0	8	0
Site-Generated Trips [veh/h]	7	5	0	0	5	19	18	12	7	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	893	174	68	748	95	110	497	116	118	306	49
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	235	46	18	197	25	29	131	31	31	81	13
Total Analysis Volume [veh/h]	138	940	183	72	787	100	116	523	122	124	322	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	65	0	11	61	0	14	30	0	14	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	42	42	6	37	37	10	46	46	10	46	46
g / C, Green / Cycle	0.09	0.35	0.35	0.05	0.31	0.31	0.08	0.38	0.38	0.08	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.08	0.32	0.32	0.04	0.25	0.25	0.07	0.18	0.19	0.07	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1700	1714	1800	1730	1714	1800	1684	1714	1800	1714
c, Capacity [veh/h]	157	631	596	91	562	540	140	683	639	143	686	653
d1, Uniform Delay [s]	53.84	37.20	37.29	56.14	37.90	37.90	54.27	28.35	28.37	54.35	25.71	25.74
k, delay calibration	0.11	0.19	0.19	0.11	0.12	0.12	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.18	9.17	10.11	13.94	2.98	3.10	11.67	2.48	2.66	14.41	1.01	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.91	0.92	0.79	0.80	0.80	0.83	0.49	0.49	0.87	0.28	0.28
d, Delay for Lane Group [s/veh]	68.01	46.37	47.39	70.08	40.88	41.00	65.94	30.83	31.03	68.75	26.71	26.81
Lane Group LOS	E	D	D	E	D	D	E	C	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.73	17.52	16.81	2.51	12.59	12.11	3.90	7.73	7.29	4.27	3.97	3.84
50th-Percentile Queue Length [ft/ln]	118.2	438.0	420.2	62.72	314.6	302.8	97.59	193.1	182.1	106.7	99.18	95.91
95th-Percentile Queue Length [veh/ln]	8.30	24.39	23.53	4.52	18.41	17.82	7.03	12.29	11.71	7.66	7.14	6.91
95th-Percentile Queue Length [ft/ln]	207.4	609.7	588.3	112.8	460.1	445.5	175.6	307.1	292.8	191.4	178.5	172.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.01	46.77	47.39	70.08	40.93	41.00	65.94	30.90	31.03	68.75	26.75	26.81
Movement LOS	E	D	D	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	49.18			43.13			36.26			37.22		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.98											
Intersection LOS	D											
Intersection V/C	0.621											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.841	2.804	2.573	2.564
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	950	433	433
d_b, Bicycle Delay [s]	14.50	16.54	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.600	2.351	2.187	1.970
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	23.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.478

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	868	69	34	681	106	136	178	9	42	83	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	2	0	0	4	1	5	9	0	10	2	0
Site-Generated Trips [veh/h]	0	2	0	0	4	0	5	9	0	10	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	924	73	36	730	113	154	207	10	65	90	21
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	243	19	9	192	30	41	54	3	17	24	6
Total Analysis Volume [veh/h]	20	973	77	38	768	119	162	218	11	68	95	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	14	38	0	34	59	0	14	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	78	78	4	79	79	13	17	17	6	9	9
g / C, Green / Cycle	0.02	0.65	0.65	0.03	0.66	0.66	0.11	0.14	0.14	0.05	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.30	0.02	0.25	0.25	0.09	0.12	0.01	0.04	0.05	0.01
s, saturation flow rate [veh/h]	1714	1800	1754	1714	1800	1717	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	35	1162	1132	52	1180	1125	192	253	215	87	142	121
d1, Uniform Delay [s]	58.25	10.70	10.70	57.69	9.53	9.53	52.26	50.46	44.67	56.33	53.74	51.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.77	1.30	1.33	17.69	0.95	1.00	9.68	8.54	0.10	14.34	5.35	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.46	0.46	0.73	0.38	0.38	0.84	0.86	0.05	0.79	0.67	0.18
d, Delay for Lane Group [s/veh]	72.03	12.00	12.03	75.38	10.48	10.52	61.94	59.00	44.77	70.66	59.09	52.37
Lane Group LOS	E	B	B	E	B	B	E	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.74	7.14	6.97	1.40	5.52	5.28	5.30	7.00	0.29	2.38	3.00	0.65
50th-Percentile Queue Length [ft/ln]	18.41	178.4	174.2	35.00	137.9	131.9	132.4	174.9	7.29	59.55	75.05	16.13
95th-Percentile Queue Length [veh/ln]	1.33	11.52	11.30	2.52	9.37	9.05	9.07	11.33	0.52	4.29	5.40	1.16
95th-Percentile Queue Length [ft/ln]	33.14	288.0	282.4	62.99	234.2	226.1	226.8	283.3	13.12	107.1	135.1	29.04

Movement, Approach, & Intersection Results

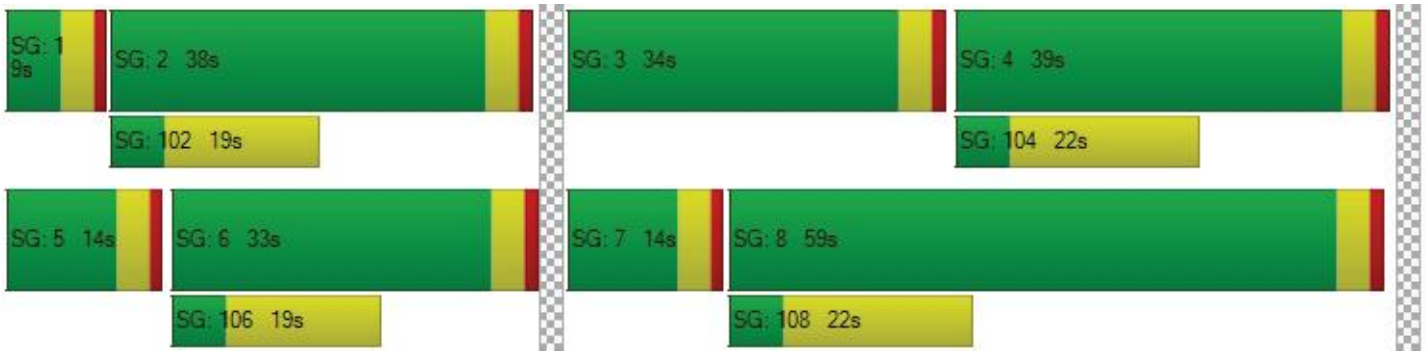
d_M, Delay for Movement [s/veh]	72.03	12.01	12.03	75.38	10.50	10.52	61.94	59.00	44.77	70.66	59.09	52.37
Movement LOS	E	B	B	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	13.14			13.16			59.82			62.54		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	23.80											
Intersection LOS	C											
Intersection V/C	0.478											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.689	2.721	2.299	2.273
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	567	917	583
d_b, Bicycle Delay [s]	34.50	30.82	17.60	30.10
l_b,int, Bicycle LOS Score for Intersection	2.442	2.323	2.205	1.865
Bicycle LOS	B	B	B	A

Sequence

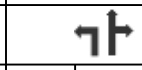
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	138.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.103

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	16	1461	163	160	882	2	5	2	5	165	0	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.060	1.060	1.060	1.000
In-Process Volume [veh/h]	144	0	0	0	0	0	0	106	93	0	116	0
Site-Generated Trips [veh/h]	394	454	0	69	340	56	49	116	291	0	112	69
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	555	1915	173	229	1222	58	54	224	389	175	228	193
Peak Hour Factor	0.950	0.972	0.950	0.972	0.972	0.972	0.972	0.950	0.950	0.950	0.950	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	146	493	46	59	314	15	14	59	102	46	60	50
Total Analysis Volume [veh/h]	584	1970	182	236	1257	60	56	236	409	184	240	199
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	35	46	0	20	31	0	10	40	0	14	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	42	42	16	27	27	5	36	10	41
g / C, Green / Cycle	0.26	0.35	0.35	0.13	0.23	0.23	0.04	0.30	0.08	0.34
(v / s)_i Volume / Saturation Flow Rate	0.34	0.41	0.43	0.14	0.26	0.04	0.03	0.40	0.11	0.26
s, saturation flow rate [veh/h]	1714	3427	1725	1714	4903	1530	1714	1619	1714	1667
c, Capacity [veh/h]	443	1200	604	229	1103	344	73	486	143	568
d1, Uniform Delay [s]	44.50	39.00	39.00	52.00	46.50	37.51	56.87	42.00	55.00	35.39
k, delay calibration	0.50	0.50	0.50	0.12	0.50	0.50	0.11	0.50	0.11	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	158.6	90.03	113.1	37.93	74.03	1.10	15.54	161.37	140.81	6.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.32	1.18	1.22	1.03	1.14	0.17	0.77	1.33	1.29	0.77
d, Delay for Lane Group [s/veh]	203.1	129.0	152.1	89.93	120.5	38.61	72.41	203.37	195.81	41.39
Lane Group LOS	F	F	F	F	F	D	E	F	F	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	32.55	32.33	36.42	9.27	18.45	1.54	2.00	35.96	9.90	12.31
50th-Percentile Queue Length [ft/ln]	813.8	808.2	910.5	231.6	461.2	38.46	49.90	898.93	247.50	307.82
95th-Percentile Queue Length [veh/ln]	48.54	46.33	52.50	14.46	27.35	2.77	3.59	53.65	16.35	18.07
95th-Percentile Queue Length [ft/ln]	1213.	1158.	1312.	361.5	683.7	69.23	89.81	1341.22	408.75	451.68

Movement, Approach, & Intersection Results

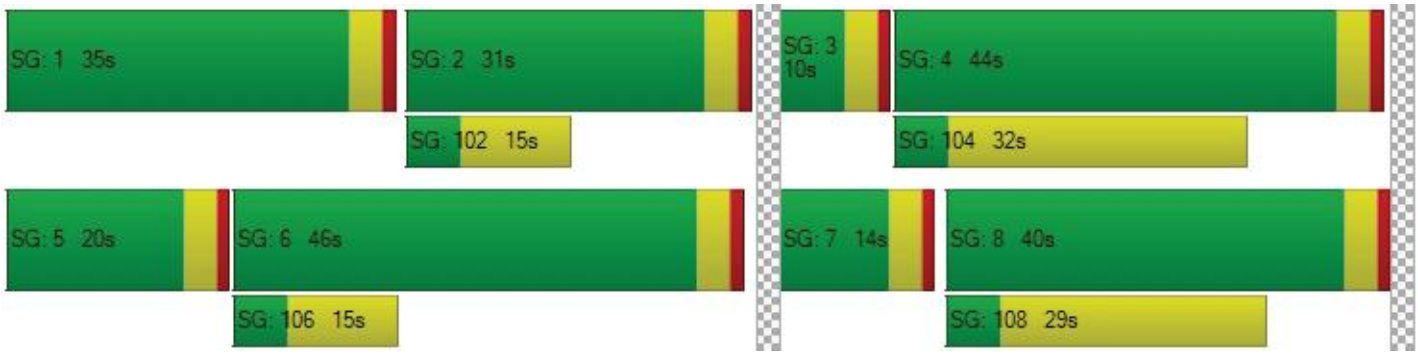
d_M, Delay for Movement [s/veh]	203.1	135.5	152.1	89.93	120.5	38.61	72.41	203.3	203.3	195.8	41.39	41.39
Movement LOS	F	F	F	F	F	D	E	F	F	F	D	D
d_A, Approach Delay [s/veh]	151.07			112.71			192.91			87.00		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	138.57											
Intersection LOS	F											
Intersection V/C	1.103											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.248	3.350	2.471	2.370
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	450	600	667
d_b, Bicycle Delay [s]	25.35	36.04	29.40	26.67
l_b,int, Bicycle LOS Score for Intersection	3.064	2.414	2.716	2.588
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	101.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.319

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	213	12	34	162	31	62	171	22	10	113	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	8	0	0	0	0	2	3	135	6	0	144	0
Site-Generated Trips [veh/h]	12	0	0	0	0	3	3	144	14	0	142	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	226	13	36	172	38	72	460	43	11	406	45
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	59	3	9	45	10	19	121	11	3	107	12
Total Analysis Volume [veh/h]	38	238	14	38	181	40	76	484	45	12	427	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	419	413	605	486
Degree of Utilization, x	0.69	0.63	1.32	1.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.13	4.14	26.75	15.16
95th-Percentile Queue Length [ft]	128.14	103.56	668.76	379.12
Approach Delay [s/veh]	28.82	25.23	181.47	85.22
Approach LOS	D	D	F	F
Intersection Delay [s/veh]	101.28			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	75.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.144

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	33	51	48	20	4	12	42	7	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	35	54	51	21	4	13	45	7	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	14	13	6	1	3	12	2	0
Total Analysis Volume [veh/h]	0	37	57	54	22	4	14	47	7	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	443	417
Degree of Utilization, x	0.38	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.77	0.63
95th-Percentile Queue Length [ft]	44.32	15.70
Approach Delay [s/veh]	16.08	13.46
Approach LOS	C	B
Intersection Delay [s/veh]	75.77	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	39	2	143	22	4	12	39	142	7	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	13	115	0	0	0	0	132	0	0
Site-Generated Trips [veh/h]	0	14	118	0	0	0	0	130	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	29	385	23	4	13	41	413	7	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	8	101	6	1	3	11	109	2	1
Total Analysis Volume [veh/h]	43	31	405	24	4	14	43	435	7	5
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	507	504
Degree of Utilization, x	1.14	1.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	18.34	18.11
95th-Percentile Queue Length [ft]	458.50	452.84
Approach Delay [s/veh]	115.82	114.09
Approach LOS	F	F
Intersection Delay [s/veh]	75.77	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	16	240	40	0	5	39	95	31	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	17	254	42	0	5	41	101	36	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	67	11	0	1	11	27	9	2
Total Analysis Volume [veh/h]	3	18	267	44	0	5	43	106	38	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	424	385	425
Degree of Utilization, x	0.78	0.40	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.81	1.87	0.35
95th-Percentile Queue Length [ft]	170.31	46.81	8.84
Approach Delay [s/veh]	36.06	16.76	
Approach LOS	E	C	
Intersection Delay [s/veh]	75.77		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	874	82	66	634	13	20	165	39	57	148	63
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	49	0	0	0	0	14	2	54	60	0	69	0
Site-Generated Trips [veh/h]	26	0	0	0	0	14	2	92	24	0	90	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	128	926	87	70	672	42	25	321	125	60	316	67
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	244	23	18	177	11	7	84	33	16	83	18
Total Analysis Volume [veh/h]	135	975	92	74	707	44	26	338	132	63	333	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	36	0	22	27	0	9	26	0	36	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	70	70	7	65	65	3	22	22	6	25	25
g / C, Green / Cycle	0.10	0.58	0.58	0.06	0.54	0.54	0.02	0.18	0.18	0.05	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.08	0.30	0.30	0.04	0.21	0.21	0.02	0.10	0.09	0.04	0.19	0.05
s, saturation flow rate [veh/h]	1714	1800	1746	1714	1800	1763	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	164	1047	1016	95	975	955	42	620	277	83	369	314
d1, Uniform Delay [s]	53.29	15.01	15.02	55.95	15.96	15.96	58.00	44.67	44.07	56.38	46.51	39.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.96	1.82	1.89	12.77	1.17	1.20	14.32	0.75	1.28	12.90	8.16	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.52	0.52	0.78	0.39	0.39	0.62	0.55	0.48	0.76	0.90	0.23
d, Delay for Lane Group [s/veh]	63.25	16.83	16.90	68.72	17.13	17.16	72.32	45.42	45.34	69.28	54.67	40.11
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.45	9.07	8.84	2.55	6.26	6.14	0.95	4.64	3.62	2.19	10.49	1.79
50th-Percentile Queue Length [ft/ln]	111.2	226.8	220.9	63.75	156.5	153.6	23.70	116.0	90.60	54.64	262.1	44.75
95th-Percentile Queue Length [veh/ln]	7.91	14.01	13.71	4.59	10.37	10.21	1.71	8.17	6.52	3.93	15.80	3.22
95th-Percentile Queue Length [ft/ln]	197.7	350.3	342.8	114.7	259.1	255.2	42.67	204.3	163.0	98.36	394.9	80.54

Movement, Approach, & Intersection Results

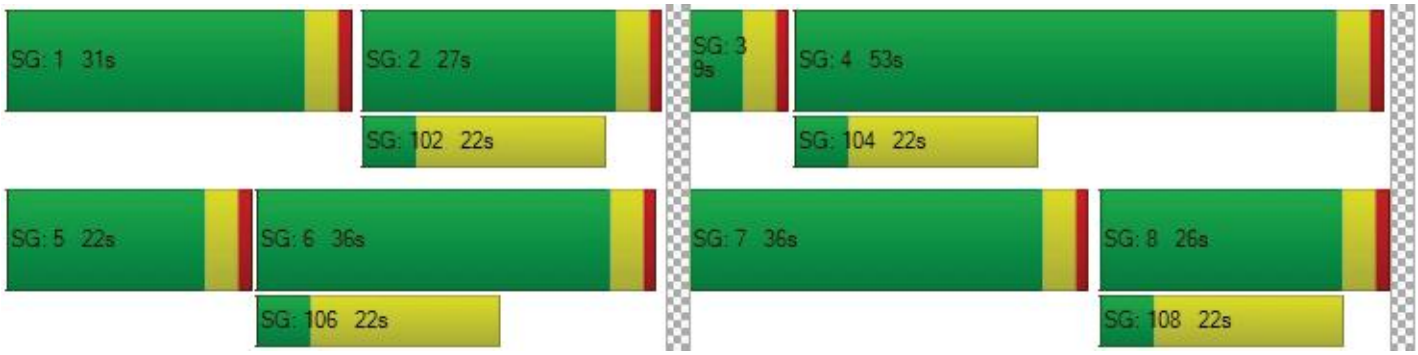
d_M, Delay for Movement [s/veh]	63.25	16.86	16.90	68.72	17.14	17.16	72.32	45.42	45.34	69.28	54.67	40.11
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.07			21.77			46.81			54.43		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.15											
Intersection LOS	C											
Intersection V/C	0.544											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.725	2.685	2.512	2.626
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	383	367	817
d_b, Bicycle Delay [s]	32.27	39.20	40.02	21.00
l_b,int, Bicycle LOS Score for Intersection	2.551	2.240	1.969	2.330
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.607

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	1025	112	64	785	62	76	231	66	117	164	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	35	0	0	0	0	9	8	5	30	0	8	0
Site-Generated Trips [veh/h]	44	0	0	0	0	10	10	12	46	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	151	1087	119	68	832	85	99	262	146	124	194	61
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	40	286	31	18	219	22	26	69	38	33	51	16
Total Analysis Volume [veh/h]	159	1144	125	72	876	89	104	276	154	131	204	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	54	0	10	40	0	26	41	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	69	69	6	62	62	9	18	18	11	20	20
g / C, Green / Cycle	0.11	0.58	0.58	0.05	0.52	0.52	0.08	0.15	0.15	0.09	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.09	0.36	0.36	0.04	0.27	0.27	0.06	0.13	0.13	0.08	0.08	0.08
s, saturation flow rate [veh/h]	1714	1800	1739	1714	1800	1742	1714	1800	1589	1714	1800	1656
c, Capacity [veh/h]	187	1035	999	86	928	898	131	272	240	156	298	274
d1, Uniform Delay [s]	52.48	16.88	16.95	56.52	19.35	19.35	54.50	49.44	49.61	53.71	45.24	45.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.18	2.81	2.97	18.87	2.15	2.22	10.36	6.44	8.21	11.48	1.12	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.62	0.63	0.84	0.53	0.53	0.79	0.83	0.85	0.84	0.46	0.48
d, Delay for Lane Group [s/veh]	62.66	19.69	19.92	75.40	21.50	21.57	64.85	55.88	57.82	65.19	46.35	46.62
Lane Group LOS	E	B	B	E	C	C	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.23	12.09	11.85	2.61	9.47	9.19	3.47	7.05	6.51	4.39	3.81	3.62
50th-Percentile Queue Length [ft/ln]	130.7	302.1	296.1	65.31	236.8	229.7	86.70	176.3	162.6	109.6	95.22	90.58
95th-Percentile Queue Length [veh/ln]	8.98	17.79	17.49	4.70	14.52	14.16	6.24	11.41	10.69	7.82	6.86	6.52
95th-Percentile Queue Length [ft/ln]	224.5	444.7	437.2	117.5	363.0	354.0	156.0	285.2	267.2	195.5	171.4	163.0

Movement, Approach, & Intersection Results

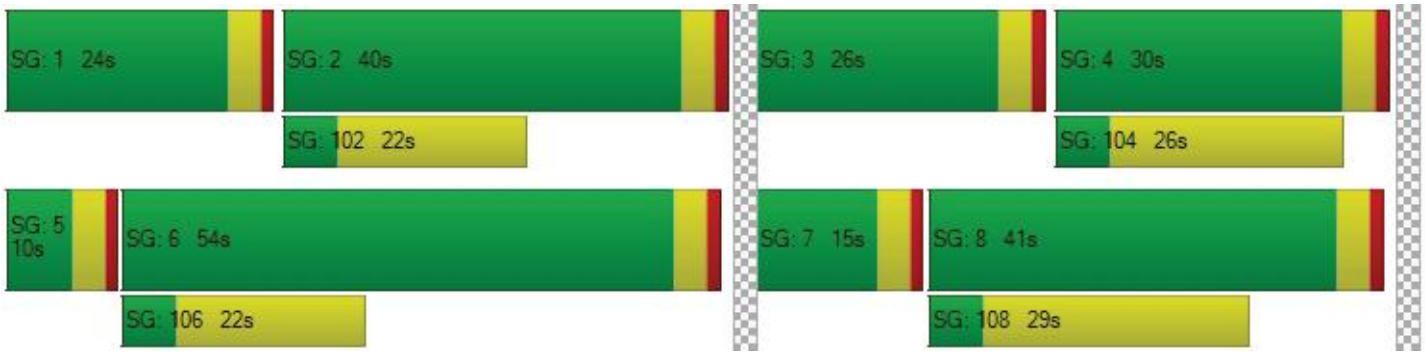
d_M, Delay for Movement [s/veh]	62.66	19.79	19.92	75.40	21.53	21.57	64.85	56.23	57.82	65.19	46.44	46.62
Movement LOS	E	B	B	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	24.57			25.28			58.37			52.63		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	33.39											
Intersection LOS	C											
Intersection V/C	0.607											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.970	2.850	2.507	2.485
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	600	617	433
d_b, Bicycle Delay [s]	20.42	29.40	28.70	36.82
l_b,int, Bicycle LOS Score for Intersection	2.738	2.415	2.000	1.889
Bicycle LOS	B	B	B	A

Sequence

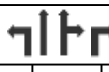
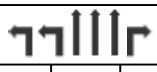
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	65.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.955

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	119	208	360	107	282	534	817	1020	94	152	605	306
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	8	0	0	5	51
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	12	0	0	12	132
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	220	382	113	299	566	866	1101	100	161	658	507
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	58	101	30	79	149	228	290	26	42	173	133
Total Analysis Volume [veh/h]	133	232	402	119	315	596	912	1159	105	169	693	534
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	32	0	12	31	0	34	64	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	28	28	8	27	27	27	30	60	60	8	38	38
g / C, Green / Cycle	0.08	0.23	0.23	0.07	0.23	0.23	0.23	0.25	0.50	0.50	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.26	0.07	0.18	0.19	0.19	0.27	0.24	0.07	0.05	0.14	0.35
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	129	800	357	114	405	344	344	832	2453	765	221	1553	485
d1, Uniform Delay [s]	55.50	37.83	46.00	56.0	43.6	44.7	44.7	45.00	19.62	16.09	55.09	32.63	41.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	46.07	0.92	86.32	50.2	13.6	24.0	24.0	48.34	0.14	0.08	5.42	0.20	71.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.29	1.13	1.04	0.78	0.87	0.87	1.10	0.47	0.14	0.76	0.45	1.10
d, Delay for Lane Group [s/veh]	101.5	38.74	132.3	106.	57.3	68.8	68.8	93.34	19.77	16.17	60.51	32.83	112.6
Lane Group LOS	F	D	F	F	E	E	E	F	B	B	E	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.53	2.92	19.12	5.05	10.3	10.8	10.8	17.86	7.00	1.57	2.68	5.38	23.75
50th-Percentile Queue Length [ft/ln]	138.2	73.07	477.9	126.	257.	269.	269.	446.4	175.0	39.25	67.00	134.5	593.8
95th-Percentile Queue Length [veh/ln]	9.49	5.26	28.07	8.85	15.5	16.1	16.1	26.12	11.34	2.83	4.82	9.19	33.77
95th-Percentile Queue Length [ft/ln]	237.3	131.5	701.7	221.	389.	404.	404.	653.0	283.4	70.65	120.6	229.6	844.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	101.5	38.74	132.3	106.2	57.37	68.85	93.34	19.77	16.17	60.51	32.83	112.6
Movement LOS	F	D	F	F	E	E	F	B	B	E	C	F
d_A, Approach Delay [s/veh]	98.68			69.66			50.43			66.73		
Approach LOS	F			E			D			E		
d_I, Intersection Delay [s/veh]	65.25											
Intersection LOS	E											
Intersection V/C	0.955											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.688	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	450	1000	633
d_b, Bicycle Delay [s]	35.27	36.04	15.00	28.02
l_b,int, Bicycle LOS Score for Intersection	2.192	2.409	2.756	2.327
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	36.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	48	43	114	42	359	674	752	63	37	631	140
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	51	0	0	0	8	0	0	56	0
Site-Generated Trips [veh/h]	0	0	0	176	0	0	0	12	0	0	144	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	51	46	348	45	381	714	817	67	39	869	148
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	21	13	12	92	12	100	188	215	18	10	229	39
Total Analysis Volume [veh/h]	82	54	48	366	47	401	752	860	71	41	915	156
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	27	0	30	23	0	37	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	20	20	20	30	72	72	4	45	45
g / C, Green / Cycle	0.07	0.07	0.07	0.17	0.17	0.17	0.25	0.60	0.60	0.03	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.12	0.12	0.15	0.23	0.18	0.05	0.02	0.21	0.21
s, saturation flow rate [veh/h]	1714	1800	1537	1714	1733	2708	3329	4903	1530	1714	3427	1669
c, Capacity [veh/h]	115	121	103	290	293	458	845	2935	916	55	1291	629
d1, Uniform Delay [s]	54.84	53.78	53.96	47.08	47.05	48.63	43.16	11.73	10.14	57.60	29.49	29.53
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.91	2.45	3.43	3.21	3.13	5.47	3.49	0.25	0.17	18.10	1.74	3.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.43	0.48	0.71	0.71	0.88	0.89	0.29	0.08	0.75	0.56	0.56
d, Delay for Lane Group [s/veh]	62.75	56.23	57.39	50.30	50.18	54.10	46.65	11.98	10.31	75.70	31.23	33.09
Lane Group LOS	E	E	E	D	D	D	D	B	B	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.68	1.61	1.54	6.06	6.09	6.19	11.09	3.71	0.82	1.51	8.45	8.59
50th-Percentile Queue Length [ft/ln]	67.07	40.17	38.58	151.6	152.3	154.6	277.2	92.75	20.55	37.77	211.2	214.8
95th-Percentile Queue Length [veh/ln]	4.83	2.89	2.78	10.10	10.14	10.27	16.55	6.68	1.48	2.72	13.22	13.40
95th-Percentile Queue Length [ft/ln]	120.7	72.30	69.45	252.5	253.5	256.6	413.7	166.9	36.98	67.98	330.4	335.0

Movement, Approach, & Intersection Results

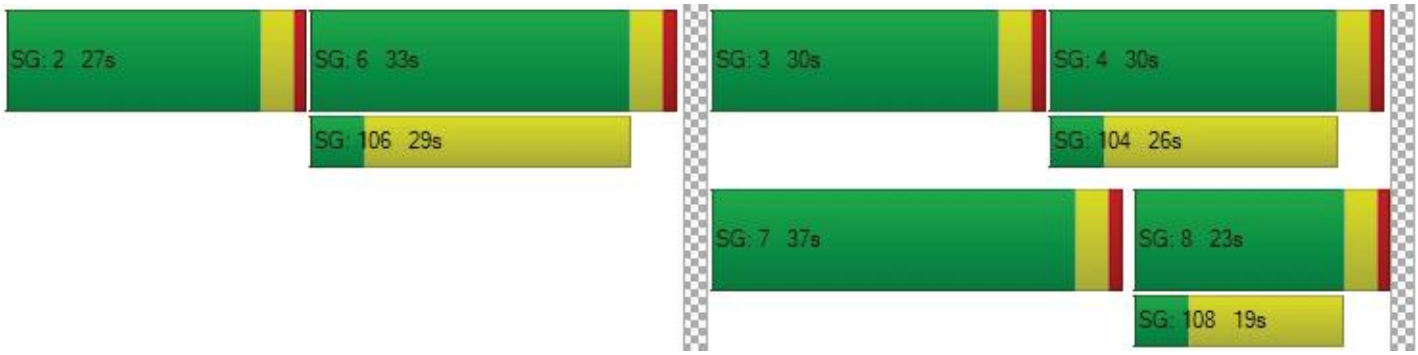
d_M, Delay for Movement [s/veh]	62.75	56.27	57.39	50.25	50.18	54.10	46.65	11.98	10.31	75.70	31.63	33.09
Movement LOS	E	E	E	D	D	D	D	B	B	E	C	C
d_A, Approach Delay [s/veh]	59.45			52.14			27.40			33.46		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	36.04											
Intersection LOS	D											
Intersection V/C	0.633											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.230	2.757	0.000	2.941
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	383	317	433
d_b, Bicycle Delay [s]	34.50	39.20	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.711	2.903	2.485	2.171
Bicycle LOS	A	C	B	B

Sequence

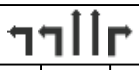
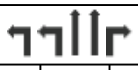
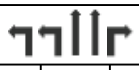
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.624

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	754	90	148	608	171	182	575	229	108	268	65
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	10	6	0	2	2	35	24	0	9	54	35
Site-Generated Trips [veh/h]	0	0	11	12	0	0	0	188	0	97	144	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	167	809	112	169	646	183	228	822	243	220	482	120
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	213	29	44	170	48	60	216	64	58	127	32
Total Analysis Volume [veh/h]	176	852	118	178	680	193	240	865	256	232	507	126
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	37	0	12	36	0	23	57	0	14	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	52	8	52	52	11	34	34	10	33	33
g / C, Green / Cycle	0.07	0.43	0.07	0.43	0.43	0.09	0.29	0.29	0.08	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.05	0.20	0.13	0.07	0.25	0.17	0.07	0.18	0.18
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1678
c, Capacity [veh/h]	229	1478	222	1470	656	307	978	437	277	498	464
d1, Uniform Delay [s]	54.92	25.83	55.22	24.41	22.39	53.29	40.98	36.79	54.19	38.38	38.39
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.32	1.64	6.61	1.05	1.14	4.34	2.88	1.25	6.57	1.49	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.58	0.80	0.46	0.29	0.78	0.88	0.59	0.84	0.66	0.66
d, Delay for Lane Group [s/veh]	60.24	27.48	61.83	25.46	23.53	57.63	43.85	38.04	60.77	39.87	39.99
Lane Group LOS	E	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.79	9.44	2.86	7.06	3.77	3.73	12.51	6.59	3.70	8.70	8.13
50th-Percentile Queue Length [ft/ln]	69.64	236.08	71.44	176.4	94.26	93.22	312.7	164.8	92.59	217.5	203.3
95th-Percentile Queue Length [veh/ln]	5.01	14.48	5.14	11.41	6.79	6.71	18.31	10.80	6.67	13.54	12.81
95th-Percentile Queue Length [ft/ln]	125.35	362.07	128.6	285.3	169.6	167.8	457.7	270.0	166.6	338.4	320.2

Movement, Approach, & Intersection Results

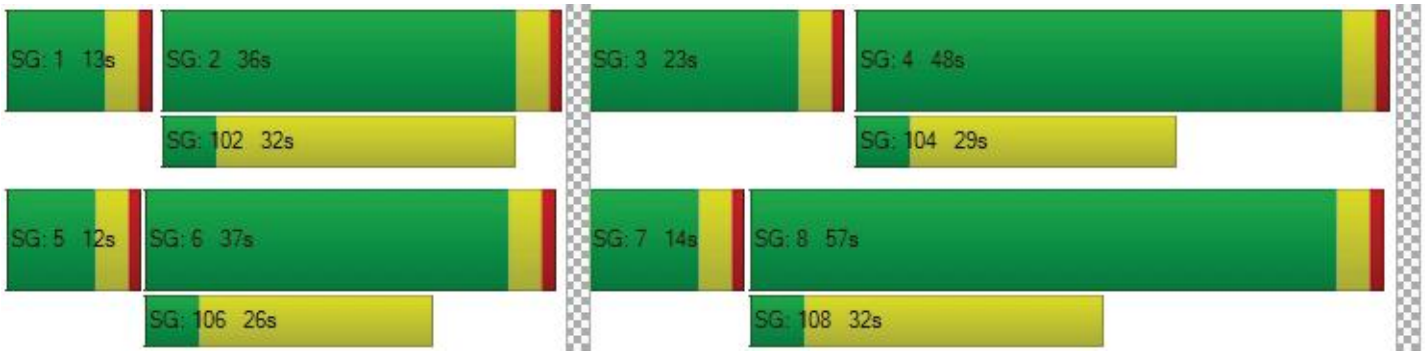
d_M, Delay for Movement [s/veh]	60.24	27.48	0.00	61.83	25.46	23.53	57.63	43.85	38.04	60.77	39.91	39.99
Movement LOS	E	C		E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	33.09			31.26			45.19			45.52		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.96											
Intersection LOS	D											
Intersection V/C	0.624											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.008	2.925	3.013	2.778
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	533	883	733
d_b, Bicycle Delay [s]	31.54	32.27	18.70	24.07
l_b,int, Bicycle LOS Score for Intersection	2.408	2.427	2.682	2.273
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	87.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.952

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	492	3	0	1	0	791	45	140	261	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	35	0	61	0	0	0	0	29	0	90	64	0
Site-Generated Trips [veh/h]	0	0	46	0	0	0	0	211	0	61	257	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	3	629	3	0	1	0	1078	48	299	598	2
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	1	166	1	0	0	0	284	13	79	157	1
Total Analysis Volume [veh/h]	88	3	662	3	0	1	0	1135	51	315	629	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	49	0	9	47	0	9	39	0	23	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	49	54	0	35	35	19	54	54
g / C, Green / Cycle	0.45	0.45	0.41	0.45	0.00	0.29	0.29	0.16	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.43	0.00	0.00	0.33	0.03	0.18	0.18	0.18
s, saturation flow rate [veh/h]	1439	1489	1530	832	1714	3427	1530	1714	1800	1798
c, Capacity [veh/h]	681	786	627	464	0	995	444	274	811	810
d1, Uniform Delay [s]	18.78	18.72	35.42	18.28	0.00	42.57	31.25	50.40	21.97	21.97
k, delay calibration	0.11	0.11	0.50	0.11	0.11	0.50	0.50	0.26	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.03	51.67	0.01	0.00	75.41	0.52	86.60	1.41	1.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.06	1.06	0.01	0.00	1.14	0.11	1.15	0.39	0.39
d, Delay for Lane Group [s/veh]	18.82	18.76	87.09	18.29	0.00	117.9	31.77	137.0	23.38	23.38
Lane Group LOS	B	B	F	B	A	F	C	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.68	0.78	26.82	0.06	0.00	24.98	1.16	14.81	6.23	6.22
50th-Percentile Queue Length [ft/ln]	17.10	19.52	670.4	1.57	0.00	624.5	28.99	370.3	155.6	155.5
95th-Percentile Queue Length [veh/ln]	1.23	1.41	36.75	0.11	0.00	35.93	2.09	22.52	10.32	10.31
95th-Percentile Queue Length [ft/ln]	30.78	35.14	918.6	2.83	0.00	898.1	52.18	563.0	257.9	257.7

Movement, Approach, & Intersection Results

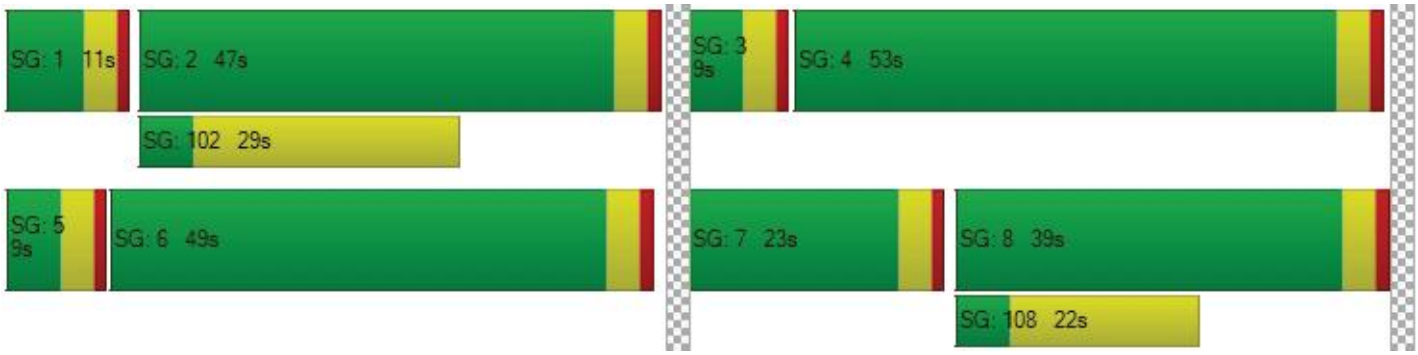
d_M, Delay for Movement [s/veh]	18.82	18.76	87.09	18.29	18.29	18.29	0.00	117.9	31.77	137.0	23.38	23.38
Movement LOS	B	B	F	B	B	B	A	F	C	F	C	C
d_A, Approach Delay [s/veh]	78.84			18.29			114.28			61.21		
Approach LOS	E			B			F			E		
d_I, Intersection Delay [s/veh]	87.53											
Intersection LOS	F											
Intersection V/C	0.952											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.533	0.000	3.004	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	583	817
d_b, Bicycle Delay [s]	18.15	18.15	30.10	21.00
l_b,int, Bicycle LOS Score for Intersection	2.802	1.566	2.538	2.340
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.262

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1295	400	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0000	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	153	0	82	1	0
Site-Generated Trips [veh/h]	0	0	0	257	318	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	153	0	1712	743	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	451	196	0
Total Analysis Volume [veh/h]	0	161	0	1802	782	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

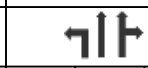
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	48.45	12.94	9.33	0.00	0.00	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.05	1.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	26.20	26.20	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.94		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.76					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	94.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.081

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	1021	140	76	775	225	468	667	302	75	184	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	130	0	10	159	1	82	0	0	0	0	18
Site-Generated Trips [veh/h]	0	549	0	33	280	318	257	0	0	0	0	42
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	1761	148	124	1261	558	835	707	320	80	195	121
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	463	39	33	332	147	220	186	84	21	51	32
Total Analysis Volume [veh/h]	73	1854	156	131	1327	587	879	744	337	84	205	127
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	30	44	67	0	13	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	43	43	6	43	87	40	47	7	15	15
g / C, Green / Cycle	0.05	0.36	0.36	0.05	0.36	0.73	0.33	0.39	0.06	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.39	0.39	0.08	0.27	0.38	0.51	0.22	0.05	0.10	0.10
s, saturation flow rate [veh/h]	1714	3427	1730	1714	4903	1530	1714	3427	1714	1800	1577
c, Capacity [veh/h]	86	1238	625	86	1772	1114	571	1350	105	220	192
d1, Uniform Delay [s]	56.56	38.32	38.32	57.00	33.56	7.20	40.00	28.14	55.59	51.19	51.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.04	48.72	60.83	250.2	2.96	1.79	250.90	0.35	12.85	6.25	8.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	1.08	1.08	1.53	0.75	0.53	1.54	0.55	0.80	0.79	0.82
d, Delay for Lane Group [s/veh]	76.60	87.04	99.16	307.2	36.51	8.99	290.90	28.50	68.43	57.44	59.94
Lane Group LOS	E	F	F	F	D	A	F	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.67	26.20	28.55	8.55	11.63	6.42	56.40	8.30	2.88	5.45	5.11
50th-Percentile Queue Length [ft/ln]	66.79	655.0	713.7	213.8	290.8	160.5	1410.03	207.56	72.11	136.3	127.6
95th-Percentile Queue Length [veh/ln]	4.81	36.38	39.44	14.75	17.23	10.58	86.20	13.03	5.19	9.28	8.81
95th-Percentile Queue Length [ft/ln]	120.2	909.5	986.1	368.8	430.7	264.4	2154.98	325.70	129.8	232.0	220.3

Movement, Approach, & Intersection Results

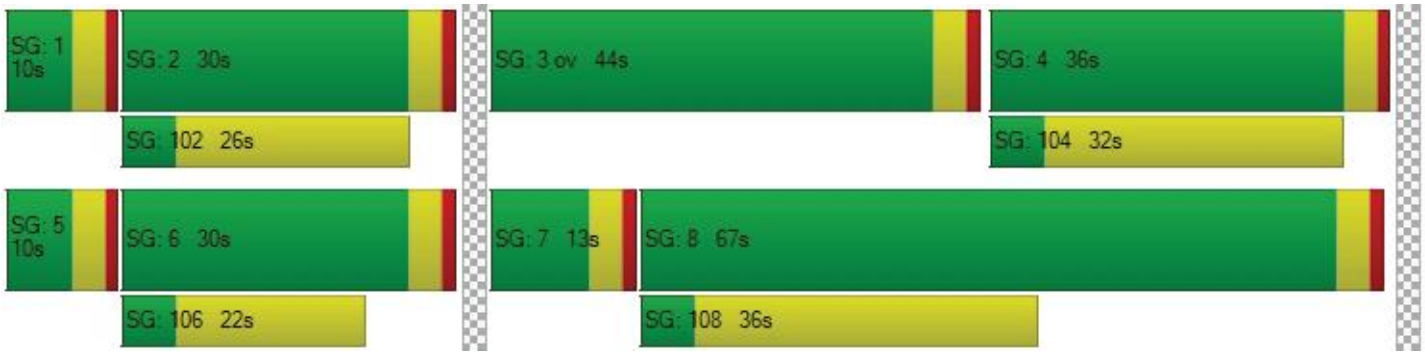
d_M, Delay for Movement [s/veh]	76.60	90.45	99.16	307.2	36.51	8.99	290.9	28.50	0.00	68.43	57.82	59.94
Movement LOS	E	F	F	F	D	A	F	C		E	E	E
d_A, Approach Delay [s/veh]	90.61			45.95			170.61			60.61		
Approach LOS	F			D			F			E		
d_I, Intersection Delay [s/veh]	94.83											
Intersection LOS	F											
Intersection V/C	1.081											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.243	3.338	2.872	2.597
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1050	533
d_b, Bicycle Delay [s]	36.82	36.82	13.54	32.27
l_b,int, Bicycle LOS Score for Intersection	2.705	2.684	2.899	1.903
Bicycle LOS	B	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	35.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	17	158	25	39	100	35	68	546	12	13	227	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	1	0	0	0	5	0	0	10	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	21	0	0	30	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	167	27	44	106	37	72	605	13	14	281	37
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	44	7	12	28	10	19	159	3	4	74	10
Total Analysis Volume [veh/h]	19	176	28	46	112	39	76	637	14	15	296	39
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	79	88	0	9	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	7	46	2	41	41
g / C, Green / Cycle	0.50	0.50	0.06	0.38	0.02	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.04	0.36	0.01	0.16	0.03
s, saturation flow rate [veh/h]	1720	1592	1714	1793	1714	1800	1530
c, Capacity [veh/h]	894	834	100	686	28	613	521
d1, Uniform Delay [s]	17.12	16.86	55.65	35.89	58.55	31.21	26.76
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.67	0.67	11.03	7.82	14.54	0.59	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.24	0.76	0.95	0.53	0.48	0.07
d, Delay for Lane Group [s/veh]	17.79	17.53	66.68	43.71	73.09	31.80	26.82
Lane Group LOS	B	B	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.68	3.21	2.58	19.57	0.57	6.85	0.77
50th-Percentile Queue Length [ft/ln]	91.94	80.25	64.39	489.30	14.17	171.3	19.29
95th-Percentile Queue Length [veh/ln]	6.62	5.78	4.64	26.83	1.02	11.15	1.39
95th-Percentile Queue Length [ft/ln]	165.50	144.45	115.91	670.68	25.50	278.7	34.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.79	17.79	17.79	17.53	17.53	17.53	66.68	43.71	43.71	73.09	31.80	26.82
Movement LOS	B	B	B	B	B	B	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	17.79			17.53			46.11			33.02		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	35.07											
Intersection LOS	D											
Intersection V/C	0.501											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.908	1.968	2.437	0.000
Crosswalk LOS	A	A	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	233
d_b, Bicycle Delay [s]	42.50	42.50	5.40	46.82
l_b,int, Bicycle LOS Score for Intersection	1.928	1.885	2.759	2.137
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	5	19	54	26	3	0	14	23	8	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	9	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	41	57	28	3	0	15	24	8	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	11	15	7	1	0	4	6	2	3
Total Analysis Volume [veh/h]	5	43	60	29	3	0	16	25	8	14
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	12	12
g / C, Green / Cycle	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.08	0.04
s, saturation flow rate [veh/h]	1649	1613
c, Capacity [veh/h]	204	198
d1, Uniform Delay [s]	53.04	50.56
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	4.06	0.92
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.32
d, Delay for Lane Group [s/veh]	57.11	51.48
Lane Group LOS	E	D
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	4.38	1.83
50th-Percentile Queue Length [ft/ln]	109.42	45.66
95th-Percentile Queue Length [veh/ln]	7.81	3.29
95th-Percentile Queue Length [ft/ln]	195.20	82.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.11	57.11	57.11	57.11	57.11	51.48	51.48	51.48	51.48	51.48
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	57.11					51.48				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	27.90									
Intersection LOS	C									
Intersection V/C	0.494									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.871	1.977
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.715	1.614
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	8	128	402	18	1	6	12	184	18	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	6	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	11	12	0	0	0	18	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	136	437	37	1	6	13	214	19	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	36	115	10	0	2	3	56	5	3
Total Analysis Volume [veh/h]	8	143	460	39	1	6	14	225	20	11
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	64	0	0	9	0	64	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	79	73	79	69	69
g / C, Green / Cycle	0.66	0.61	0.66	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.13	0.28	0.02	0.13	0.02
s, saturation flow rate [veh/h]	1199	1775	958	1800	1530
c, Capacity [veh/h]	804	1076	569	1040	884
d1, Uniform Delay [s]	7.88	12.94	8.71	12.23	10.92
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	1.44	0.02	0.48	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.46	0.04	0.22	0.04
d, Delay for Lane Group [s/veh]	8.40	14.38	8.74	12.71	10.99
Lane Group LOS	A	B	A	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.51	7.54	0.17	3.01	0.37
50th-Percentile Queue Length [ft/ln]	37.72	188.49	4.36	75.32	9.30
95th-Percentile Queue Length [veh/ln]	2.72	12.04	0.31	5.42	0.67
95th-Percentile Queue Length [ft/ln]	67.89	301.07	7.84	135.58	16.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.40	8.40	14.38	14.38	14.38	8.74	8.74	12.71	10.99	10.99
Movement LOS	A	A	B	B	B	A	A	B	B	B
d_A, Approach Delay [s/veh]	12.99					12.23				
Approach LOS	B					B				
d_I, Intersection Delay [s/veh]	27.90									
Intersection LOS	C									
Intersection V/C	0.494									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.387	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000
d_b, Bicycle Delay [s]	15.00	15.00
l_b,int, Bicycle LOS Score for Intersection	2.396	1.974
Bicycle LOS	B	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	7	16	152	12	4	4	7	52	62	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	17	161	13	4	4	7	55	66	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	42	3	1	1	2	14	17	1
Total Analysis Volume [veh/h]	7	18	169	14	4	4	7	58	69	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	28	0	0	0	0	28	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	17
g / C, Green / Cycle	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.12	0.04	0.05
s, saturation flow rate [veh/h]	1717	1680	1530
c, Capacity [veh/h]	274	270	214
d1, Uniform Delay [s]	50.53	46.14	46.53
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	4.65	0.49	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.26	0.33
d, Delay for Lane Group [s/veh]	55.18	46.63	47.43
Lane Group LOS	E	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.59	1.89	1.97
50th-Percentile Queue Length [ft/ln]	164.70	47.18	49.34
95th-Percentile Queue Length [veh/ln]	10.80	3.40	3.55
95th-Percentile Queue Length [ft/ln]	269.93	84.93	88.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.18	55.18	55.18	55.18	55.18	46.63	46.63	46.63	47.43	47.43
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	55.18					47.04				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	27.90									
Intersection LOS	C									
Intersection V/C	0.494									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.961	2.266
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	400
d_b, Bicycle Delay [s]	38.40	38.40
l_b,int, Bicycle LOS Score for Intersection	1.857	1.781
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	956	47	48	575	25	53	305	64	44	212	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	37	0	10	50	0	0	0	0	0	1	12
Site-Generated Trips [veh/h]	0	12	0	12	12	0	0	11	0	0	18	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	1062	50	73	672	27	56	334	68	47	244	101
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	279	13	19	177	7	15	88	18	12	64	27
Total Analysis Volume [veh/h]	193	1118	53	77	707	28	59	352	72	49	257	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	35	68	0	13	46	0	11	29	0	10	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	76	76	7	67	67	5	17	17	4	16	16
g / C, Green / Cycle	0.13	0.63	0.63	0.06	0.56	0.56	0.04	0.14	0.14	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.11	0.33	0.33	0.04	0.21	0.21	0.03	0.12	0.12	0.03	0.10	0.11
s, saturation flow rate [veh/h]	1714	1800	1772	1714	1800	1776	1714	1800	1696	1714	1800	1626
c, Capacity [veh/h]	224	1135	1117	97	1002	989	75	257	242	62	244	220
d1, Uniform Delay [s]	51.09	12.17	12.18	55.90	14.84	14.84	56.80	50.12	50.23	57.35	50.08	50.27
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.35	1.70	1.73	13.34	1.05	1.06	16.12	7.37	8.43	18.95	5.11	6.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.52	0.52	0.79	0.37	0.37	0.78	0.84	0.86	0.78	0.77	0.80
d, Delay for Lane Group [s/veh]	60.43	13.86	13.92	69.24	15.89	15.91	72.92	57.49	58.66	76.30	55.19	56.72
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.26	8.78	8.69	2.66	5.82	5.74	2.11	6.86	6.63	1.80	5.78	5.49
50th-Percentile Queue Length [ft/ln]	156.5	219.5	217.1	66.58	145.4	143.6	52.70	171.4	165.8	45.09	144.6	137.2
95th-Percentile Queue Length [veh/ln]	10.36	13.64	13.52	4.79	9.77	9.68	3.79	11.15	10.86	3.25	9.73	9.33
95th-Percentile Queue Length [ft/ln]	259.0	341.0	337.9	119.8	244.2	241.9	94.87	278.8	271.4	81.17	243.2	233.3

Movement, Approach, & Intersection Results

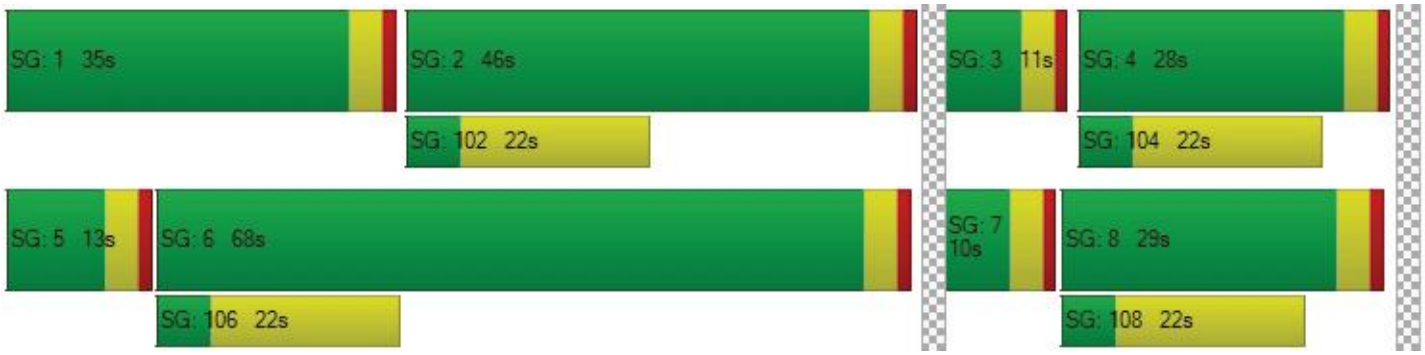
d_M, Delay for Movement [s/veh]	60.43	13.89	13.92	69.24	15.90	15.91	72.92	57.94	58.66	76.30	55.60	56.72
Movement LOS	E	B	B	E	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	20.48			20.96			59.88			58.35		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	31.88											
Intersection LOS	C											
Intersection V/C	0.524											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.743	2.724	2.502	2.613
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	700	417	400
d_b, Bicycle Delay [s]	13.07	25.35	37.60	38.40
l_b,int, Bicycle LOS Score for Intersection	2.685	2.230	1.958	1.900
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	41.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	182	958	368	67	880	54	92	340	135	232	281	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	2	21	0	4	21	0	0	1	3	0	2	6
Site-Generated Trips [veh/h]	18	22	0	10	24	0	0	2	9	0	2	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	213	1058	390	85	978	57	98	363	155	246	302	96
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	56	278	103	22	257	15	26	96	41	65	79	25
Total Analysis Volume [veh/h]	224	1114	411	89	1029	60	103	382	163	259	318	101
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	42	0	11	32	0	18	43	0	24	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	55	55	7	45	45	9	22	22	20	33	33
g / C, Green / Cycle	0.14	0.46	0.46	0.06	0.38	0.38	0.07	0.18	0.18	0.17	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.13	0.33	0.27	0.05	0.30	0.04	0.06	0.16	0.16	0.15	0.12	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1621	1714	1800	1654
c, Capacity [veh/h]	243	1574	703	100	1289	575	128	331	298	283	494	454
d1, Uniform Delay [s]	50.85	25.98	23.98	56.12	33.38	24.31	54.69	47.52	47.62	49.24	35.92	35.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.67	2.71	3.54	21.83	5.23	0.36	11.29	6.69	7.88	15.45	0.62	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.71	0.58	0.89	0.80	0.10	0.81	0.86	0.87	0.91	0.44	0.44
d, Delay for Lane Group [s/veh]	64.52	28.69	27.52	77.95	38.61	24.68	65.98	54.20	55.49	64.70	36.54	36.64
Lane Group LOS	E	C	C	E	D	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.55	13.07	9.19	3.28	14.10	1.18	3.47	8.87	8.18	8.83	5.36	4.97
50th-Percentile Queue Length [ft/ln]	188.7	326.8	229.7	82.06	352.4	29.40	86.65	221.6	204.4	220.6	133.9	124.2
95th-Percentile Queue Length [veh/ln]	12.06	19.00	14.16	5.91	20.26	2.12	6.24	13.75	12.87	13.70	9.15	8.63
95th-Percentile Queue Length [ft/ln]	301.4	475.0	354.0	147.7	506.4	52.92	155.9	343.7	321.7	342.4	228.8	215.7

Movement, Approach, & Intersection Results

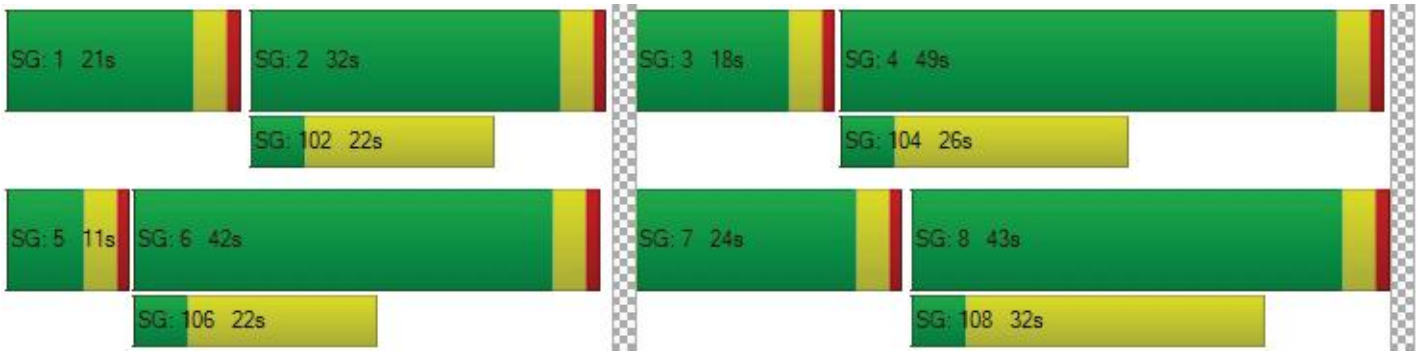
d_M, Delay for Movement [s/veh]	64.52	28.69	27.52	77.95	38.61	24.68	65.98	54.53	55.49	64.70	36.57	36.64
Movement LOS	E	C	C	E	D	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	33.00			40.87			56.59			47.33		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	41.06											
Intersection LOS	D											
Intersection V/C	0.742											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.131	2.874	2.559	2.619
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	467	650	750
d_b, Bicycle Delay [s]	28.02	35.27	27.34	23.44
l_b,int, Bicycle LOS Score for Intersection	3.003	2.531	2.094	2.119
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.335

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	164	64	4	101	23	42	130	1	7	77	12
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	174	68	4	107	24	45	138	1	7	82	13
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	46	18	1	28	6	12	36	0	2	22	3
Total Analysis Volume [veh/h]	0	183	72	4	113	25	47	145	1	7	86	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	761	727	691	624	716
Degree of Utilization, x	0.34	0.20	0.28	0.15	0.02

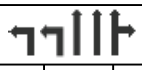
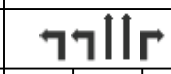
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.48	0.72	1.14	0.52	0.06
95th-Percentile Queue Length [ft]	36.96	18.02	28.54	13.04	1.49
Approach Delay [s/veh]	10.10	9.15	10.22	9.26	
Approach LOS	B	A	B	A	
Intersection Delay [s/veh]	9.81				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	937	121	64	940	30	75	256	340	136	91	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	16	0	0	11	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	0	0	97	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	272	1020	128	68	1104	32	80	271	360	144	96	93
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	72	268	34	18	291	8	21	71	95	38	25	24
Total Analysis Volume [veh/h]	286	1074	135	72	1162	34	84	285	379	152	101	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	40	0	11	35	0	19	58	0	11	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	58	58	6	52	52	7	33	33	7	32	32
g / C, Green / Cycle	0.10	0.48	0.48	0.05	0.44	0.44	0.06	0.27	0.27	0.06	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.09	0.24	0.24	0.04	0.23	0.23	0.05	0.08	0.25	0.05	0.03	0.06
s, saturation flow rate [veh/h]	3329	3427	1699	1714	3427	1774	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	333	1658	822	91	1497	775	108	931	415	194	914	408
d1, Uniform Delay [s]	53.17	20.93	20.93	56.16	24.72	24.72	55.37	34.73	42.32	55.75	33.24	34.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.46	1.03	2.07	14.13	1.33	2.55	11.19	0.18	9.58	6.75	0.05	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.49	0.49	0.79	0.53	0.53	0.78	0.31	0.91	0.78	0.11	0.24
d, Delay for Lane Group [s/veh]	59.63	21.96	22.99	70.29	26.04	27.27	66.56	34.91	51.90	62.50	33.29	34.77
Lane Group LOS	E	C	C	E	C	C	E	C	D	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.54	7.80	7.97	2.51	8.40	8.96	2.84	3.35	11.89	2.45	1.13	2.29
50th-Percentile Queue Length [ft/ln]	113.5	195.0	199.3	62.81	209.9	223.9	71.06	83.80	297.3	61.30	28.20	57.26
95th-Percentile Queue Length [veh/ln]	8.04	12.38	12.60	4.52	13.15	13.87	5.12	6.03	17.55	4.41	2.03	4.12
95th-Percentile Queue Length [ft/ln]	200.8	309.5	315.1	113.0	328.7	346.7	127.9	150.8	438.7	110.3	50.76	103.0

Movement, Approach, & Intersection Results

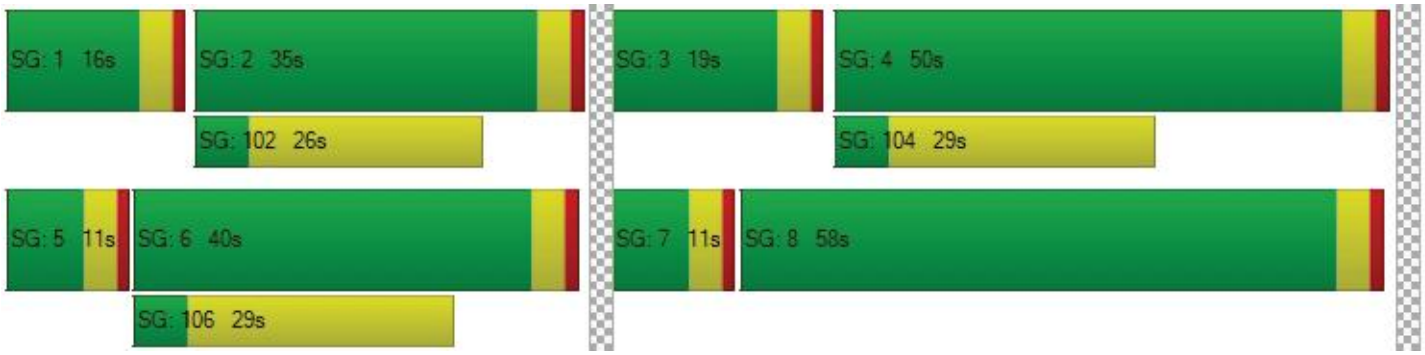
d_M, Delay for Movement [s/veh]	59.63	22.21	22.99	70.29	26.44	27.27	66.56	34.91	51.90	62.50	33.29	34.77
Movement LOS	E	C	C	E	C	C	E	C	D	E	C	C
d_A, Approach Delay [s/veh]	29.44			28.95			47.07			46.35		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.23											
Intersection LOS	C											
Intersection V/C	0.609											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.961	2.658	2.727
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	517	900	767
d_b, Bicycle Delay [s]	29.40	33.00	18.15	22.82
l_b,int, Bicycle LOS Score for Intersection	2.382	2.257	2.177	1.849
Bicycle LOS	B	B	B	A

Sequence

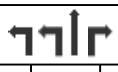
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	51.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	371	673	11	254	25	40	443	23	718	443	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	96	0	0	90	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	46	0	0	61	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	535	713	12	420	27	42	470	24	761	470	75
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	141	188	3	111	7	11	124	6	200	124	20
Total Analysis Volume [veh/h]	36	563	751	13	442	28	44	495	25	801	495	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	56	0	9	56	0	32	22	0	33	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	55	55	2	54	54	4	18	18	29	43	43
g / C, Green / Cycle	0.03	0.46	0.46	0.01	0.45	0.45	0.03	0.15	0.15	0.24	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.01	0.31	0.49	0.01	0.13	0.13	0.03	0.14	0.02	0.24	0.14	0.05
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1763	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	97	828	704	25	802	786	59	514	230	805	1225	547
d1, Uniform Delay [s]	57.16	25.45	32.39	58.67	21.22	21.24	57.44	50.67	44.07	45.44	28.95	26.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.33	4.47	53.14	14.89	0.94	0.96	17.26	11.59	0.21	13.76	0.22	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.68	1.07	0.51	0.30	0.30	0.75	0.96	0.11	1.00	0.40	0.14
d, Delay for Lane Group [s/veh]	59.49	29.92	85.53	73.57	22.16	22.20	74.70	62.26	44.28	59.19	29.17	26.24
Lane Group LOS	E	C	F	E	C	C	E	E	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.57	13.41	30.09	0.50	4.46	4.40	1.61	8.19	0.66	13.35	5.39	1.56
50th-Percentile Queue Length [ft/ln]	14.20	335.1	752.3	12.45	111.5	109.9	40.15	204.7	16.50	333.6	134.7	39.00
95th-Percentile Queue Length [veh/ln]	1.02	19.41	41.06	0.90	7.92	7.84	2.89	12.88	1.19	19.34	9.20	2.81
95th-Percentile Queue Length [ft/ln]	25.55	485.2	1026.	22.40	198.0	195.9	72.26	322.0	29.70	483.4	229.9	70.21

Movement, Approach, & Intersection Results

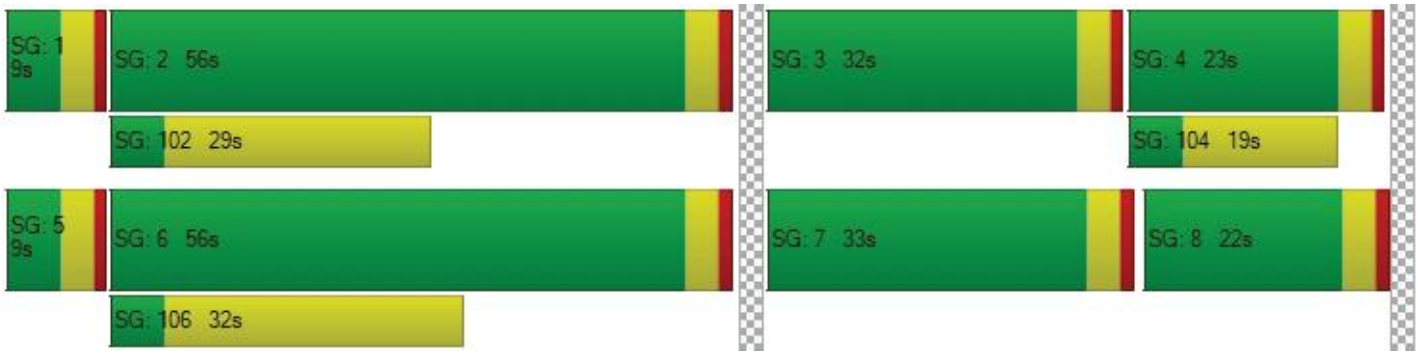
d_M, Delay for Movement [s/veh]	59.49	29.92	85.53	73.57	22.18	22.20	74.70	62.26	44.28	59.19	29.17	26.24
Movement LOS	E	C	F	E	C	C	E	E	D	E	C	C
d_A, Approach Delay [s/veh]	61.64			23.56			62.43			46.49		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	51.36											
Intersection LOS	D											
Intersection V/C	0.883											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.431	2.766	3.062
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	300	317
d_b, Bicycle Delay [s]	19.27	19.27	43.35	42.50
l_b,int, Bicycle LOS Score for Intersection	3.787	1.958	2.025	2.694
Bicycle LOS	D	A	B	B

Sequence

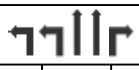
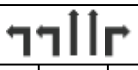
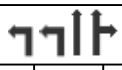
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	55.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.929

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	247	951	696	98	948	67	178	452	354	395	240	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	129	0	2	157	0	0	0	0	0	0	1
Site-Generated Trips [veh/h]	0	513	0	20	261	0	0	0	0	0	0	37
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	262	1650	738	126	1423	71	189	479	375	419	254	125
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	69	434	194	33	374	19	50	126	99	110	67	33
Total Analysis Volume [veh/h]	276	1737	777	133	1498	75	199	504	395	441	267	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	18	47	0	13	42	0	24	40	40	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	58	58	9	53	53	9	21	39	16	28	28
g / C, Green / Cycle	0.12	0.48	0.48	0.08	0.44	0.44	0.08	0.18	0.33	0.13	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.51	0.51	0.08	0.31	0.05	0.06	0.15	0.26	0.13	0.12	0.12
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1602
c, Capacity [veh/h]	388	1647	735	129	2152	672	264	609	501	444	417	371
d1, Uniform Delay [s]	51.05	31.16	31.16	55.50	27.20	19.86	54.10	47.56	36.55	51.95	40.11	40.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.48	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.41	38.16	49.19	46.07	1.89	0.34	4.34	2.95	11.31	18.38	0.95	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	1.05	1.06	1.03	0.70	0.11	0.75	0.83	0.79	0.99	0.51	0.51
d, Delay for Lane Group [s/veh]	53.46	69.33	80.35	101.5	29.09	20.20	58.44	50.51	47.87	70.33	41.06	41.19
Lane Group LOS	D	F	F	F	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.13	31.59	30.46	5.53	11.74	1.31	3.10	7.50	11.98	7.74	5.54	4.95
50th-Percentile Queue Length [ft/ln]	103.1	789.7	761.4	138.2	293.5	32.73	77.59	187.4	299.4	193.5	138.4	123.7
95th-Percentile Queue Length [veh/ln]	7.43	42.54	41.24	9.49	17.36	2.36	5.59	11.99	17.65	12.31	9.40	8.60
95th-Percentile Queue Length [ft/ln]	185.7	1063.	1031.	237.3	434.0	58.92	139.6	299.7	441.3	307.6	234.9	215.0

Movement, Approach, & Intersection Results

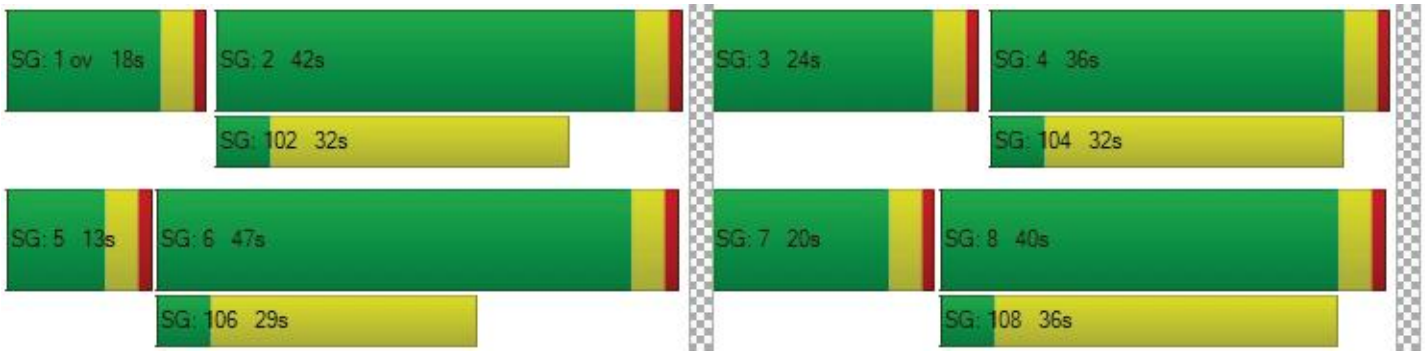
d_M, Delay for Movement [s/veh]	53.46	69.33	80.35	101.5	29.09	20.20	58.44	50.51	47.87	70.33	41.08	41.19
Movement LOS	D	F	F	F	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	70.83			34.35			50.99			56.46		
Approach LOS	E			C			D			E		
d_I, Intersection Delay [s/veh]	55.89											
Intersection LOS	E											
Intersection V/C	0.929											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.420	3.201	2.950	2.923
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	633	600	533
d_b, Bicycle Delay [s]	24.70	28.02	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	3.861	2.498	2.465	2.253
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	15.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.485

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	5	4	23	3	46	4	21	43	157	1081	15
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	5	4	24	3	49	4	22	46	166	1168	16
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	1	1	6	1	13	1	6	12	44	307	4
Total Analysis Volume [veh/h]	17	5	4	25	3	52	4	23	48	175	1229	17
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	69	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	89	83	83
g / C, Green / Cycle	0.07	0.07	0.74	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.25	0.35	0.35
s, saturation flow rate [veh/h]	1670	1513	875	1800	1791
c, Capacity [veh/h]	148	148	664	1251	1245
d1, Uniform Delay [s]	54.18	55.44	5.31	8.54	8.55
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	3.22	1.36	1.42	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.55	0.34	0.50	0.50
d, Delay for Lane Group [s/veh]	55.56	58.66	6.68	9.96	9.98
Lane Group LOS	E	E	A	A	A
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.54	2.58	1.71	7.43	7.41
50th-Percentile Queue Length [ft/ln]	38.62	64.55	42.66	185.73	185.26
95th-Percentile Queue Length [veh/ln]	2.78	4.65	3.07	11.90	11.87
95th-Percentile Queue Length [ft/ln]	69.51	116.19	76.79	297.48	296.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.56	55.56	55.56	55.56	58.66	58.66	58.66	58.66	6.68	6.68	9.97	9.98
Movement LOS	E	E	E	E	E	E	E	E	A	A	A	A
d_A, Approach Delay [s/veh]	55.56				58.66				9.47			
Approach LOS	E				E				A			
d_I, Intersection Delay [s/veh]	15.06											
Intersection LOS	B											
Intersection V/C	0.485											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.774	0.000	2.849
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1083
d_b, Bicycle Delay [s]	45.94	45.94	12.60
l_b,int, Bicycle LOS Score for Intersection	1.603	1.609	2.627
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	10	487	53	23	5	6	94	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	554	56	24	5	6	100	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	146	15	6	1	2	26	1
Total Analysis Volume [veh/h]	12	583	59	25	5	6	105	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	69	0	0	0	23	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	78	78	78	11
g / C, Green / Cycle	0.01	0.65	0.65	0.65	0.09
(v / s)_i Volume / Saturation Flow Rate	0.01	0.13	0.19	0.05	0.08
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1549
c, Capacity [veh/h]	25	1174	1174	998	143
d1, Uniform Delay [s]	58.67	8.34	9.01	7.68	53.50
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.51	0.38	0.65	0.17	11.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.20	0.30	0.08	0.82
d, Delay for Lane Group [s/veh]	72.18	8.72	9.66	7.84	64.68
Lane Group LOS	E	A	A	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.46	2.45	3.99	0.82	3.94
50th-Percentile Queue Length [ft/ln]	11.41	61.30	99.73	20.47	98.59
95th-Percentile Queue Length [veh/ln]	0.82	4.41	7.18	1.47	7.10
95th-Percentile Queue Length [ft/ln]	20.53	110.34	179.51	36.85	177.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.18	9.28	9.66	7.84	64.68	64.68	64.68	64.68
Movement LOS	E	A	A	A	E	E	E	E
d_A, Approach Delay [s/veh]	10.22				64.68			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	15.06							
Intersection LOS	B							
Intersection V/C	0.485							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.179
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317
d_b, Bicycle Delay [s]	12.60	42.50
l_b,int, Bicycle LOS Score for Intersection	2.099	1.751
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	293.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.235

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	2	18	74	0	20	117	1003	7	7	509	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	2	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	20	0	0	37	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	2	19	78	0	21	124	1085	7	7	578	133
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	1	5	21	0	6	33	286	2	2	152	35
Total Analysis Volume [veh/h]	4	2	20	82	0	22	131	1142	7	7	608	140
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

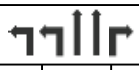
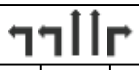
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.05	0.04	1.24	0.00	0.03	0.15	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	83.01	100.4	17.74	293.7	321.5	10.93	9.87	0.00	0.00	10.92	0.00	0.00
Movement LOS	F	F	C	F	F	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.61	0.61	0.61	6.61	6.61	0.11	0.53	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.22	15.22	15.22	165.1	165.1	2.71	13.22	0.00	0.00	0.86	0.00	0.00
d_A, Approach Delay [s/veh]	34.14			233.92			1.01			0.10		
Approach LOS	D			F			A			A		
d_I, Intersection Delay [s/veh]	12.28											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	46.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.759

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	553	970	285	96	540	41	70	663	405	158	753	183
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	34	0	0	50	0	0	2	0	0	1	3
Site-Generated Trips [veh/h]	37	12	0	0	12	0	0	0	20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	623	1074	302	102	634	43	74	705	449	167	799	197
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	164	283	79	27	167	11	19	186	118	44	210	52
Total Analysis Volume [veh/h]	656	1131	318	107	667	45	78	742	473	176	841	207
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	30	51	0	12	33	0	9	46	0	11	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	49	49	8	32	32	5	40	40	7	42	42
g / C, Green / Cycle	0.21	0.41	0.41	0.07	0.27	0.27	0.04	0.33	0.33	0.06	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.20	0.33	0.21	0.06	0.20	0.20	0.02	0.22	0.31	0.05	0.30	0.30
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1760	3329	3427	1530	3329	1800	1679
c, Capacity [veh/h]	707	1409	629	114	478	467	130	1133	506	194	630	588
d1, Uniform Delay [s]	46.37	31.06	26.27	55.75	40.46	40.47	56.75	34.31	38.91	56.17	36.24	36.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.38	0.11	0.33	0.33
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.01	4.93	2.89	26.15	10.50	10.74	4.42	0.65	22.03	14.43	9.84	10.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.80	0.51	0.94	0.75	0.75	0.60	0.65	0.94	0.91	0.86	0.86
d, Delay for Lane Group [s/veh]	52.38	35.99	29.16	81.89	50.96	51.21	61.16	34.96	60.94	70.60	46.09	47.12
Lane Group LOS	D	D	C	F	D	D	E	C	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.14	15.09	7.22	4.05	11.10	10.89	1.24	9.31	16.41	3.04	16.26	15.41
50th-Percentile Queue Length [ft/ln]	253.5	377.1	180.5	101.2	277.4	272.2	31.10	232.7	410.2	75.94	406.5	385.2
95th-Percentile Queue Length [veh/ln]	15.36	21.46	11.63	7.29	16.56	16.30	2.24	14.31	23.05	5.47	22.87	21.85
95th-Percentile Queue Length [ft/ln]	384.0	536.3	290.7	182.3	414.0	407.6	55.98	357.8	576.3	136.6	571.8	546.2

Movement, Approach, & Intersection Results

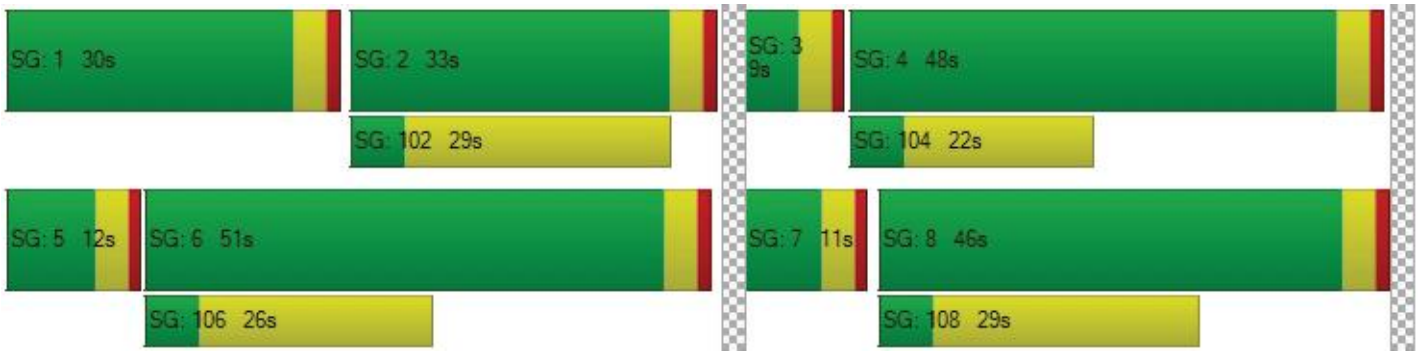
d_M, Delay for Movement [s/veh]	52.38	35.99	29.16	81.89	51.08	51.21	61.16	34.96	60.94	70.60	46.46	47.12
Movement LOS	D	D	C	F	D	D	E	C	E	E	D	D
d_A, Approach Delay [s/veh]	40.07			55.11			46.05			50.04		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	46.00											
Intersection LOS	D											
Intersection V/C	0.759											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.086	2.751	3.004	3.032
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	483	700	733
d_b, Bicycle Delay [s]	22.20	34.50	25.35	24.07
l_b,int, Bicycle LOS Score for Intersection	3.296	2.235	2.626	2.569
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	52.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.898

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	236	1176	727	154	1201	87	267	863	219	633	638	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	4	15	0	5	18	0	0	0	2	0	0	8
Site-Generated Trips [veh/h]	0	28	0	12	21	0	0	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	1290	771	180	1312	92	283	915	234	671	676	132
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	67	339	203	47	345	24	74	241	62	177	178	35
Total Analysis Volume [veh/h]	267	1358	812	189	1381	97	298	963	246	706	712	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	40	40	10	36	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	43	70	6	39	39	13	32	32	23	42	52
g / C, Green / Cycle	0.08	0.36	0.58	0.05	0.32	0.32	0.11	0.27	0.27	0.19	0.35	0.43
(v / s)_i Volume / Saturation Flow Rate	0.08	0.28	0.53	0.06	0.29	0.29	0.09	0.24	0.24	0.21	0.21	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1740	3329	3427	1619	3329	3427	2708
c, Capacity [veh/h]	277	1745	889	166	1106	561	372	922	436	638	1196	1171
d1, Uniform Delay [s]	54.81	34.42	22.45	57.00	38.56	38.57	52.00	42.16	42.16	48.50	32.09	20.38
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.27	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.59	3.49	15.35	76.54	10.53	18.47	4.04	3.22	13.93	53.56	0.48	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.78	0.91	1.14	0.89	0.89	0.80	0.89	0.89	1.11	0.60	0.12
d, Delay for Lane Group [s/veh]	72.41	37.92	37.80	133.5	49.09	57.03	56.04	45.37	56.09	102.0	32.57	20.42
Lane Group LOS	E	D	D	F	D	E	E	D	E	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.69	12.20	22.96	4.29	15.13	16.62	4.59	12.01	12.64	14.24	8.52	1.18
50th-Percentile Queue Length [ft/ln]	117.3	304.9	574.1	107.2	378.3	415.4	114.6	300.2	316.1	356.0	213.1	29.52
95th-Percentile Queue Length [veh/ln]	8.25	17.93	30.82	7.72	21.51	23.30	8.10	17.69	18.48	21.50	13.31	2.13
95th-Percentile Queue Length [ft/ln]	206.1	448.1	770.5	193.1	537.8	582.5	202.4	442.3	461.9	537.5	332.8	53.13

Movement, Approach, & Intersection Results

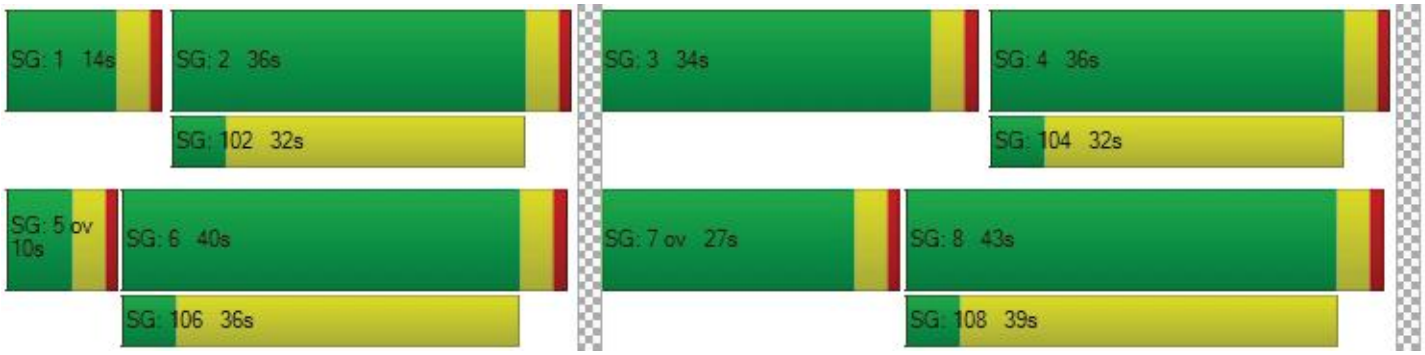
d_M, Delay for Movement [s/veh]	72.41	37.92	37.80	133.5	51.40	57.03	56.04	46.95	56.09	102.0	32.57	20.42
Movement LOS	E	D	D	F	D	E	E	D	E	F	C	C
d_A, Approach Delay [s/veh]	41.66			61.04			50.24			62.99		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	52.60											
Intersection LOS	D											
Intersection V/C	0.898											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.447	3.163	3.055	3.246
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.900	2.476	2.388	2.844
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.515

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	986	622	0	1033	422	0	0	0	347	0	432
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.060	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	16	0	0	5	6	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	0	0	12	85	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1072	622	0	1112	538	0	0	0	368	0	458
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	282	164	0	293	142	0	0	0	97	0	121
Total Analysis Volume [veh/h]	0	1128	655	0	1171	566	0	0	0	387	0	482
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	72	0	0	72	0	0	0	0	48	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	86	86		26	26	26
g / C, Green / Cycle	0.72	0.72		0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.33	0.24		0.17	0.18	0.19
s, saturation flow rate [veh/h]	3427	4903		1714	1583	1530
c, Capacity [veh/h]	2458	3517		370	342	331
d1, Uniform Delay [s]	7.15	6.30		44.61	45.07	45.27
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.62	0.26		4.08	5.60	6.48
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.33		0.80	0.84	0.86
d, Delay for Lane Group [s/veh]	7.77	6.56		48.68	50.66	51.74
Lane Group LOS	A	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.69	3.42		8.79	8.72	8.70
50th-Percentile Queue Length [ft/ln]	142.20	85.59		219.7	218.0	217.6
95th-Percentile Queue Length [veh/ln]	9.60	6.16		13.65	13.56	13.54
95th-Percentile Queue Length [ft/ln]	239.98	154.06		341.3	339.1	338.5

Movement, Approach, & Intersection Results

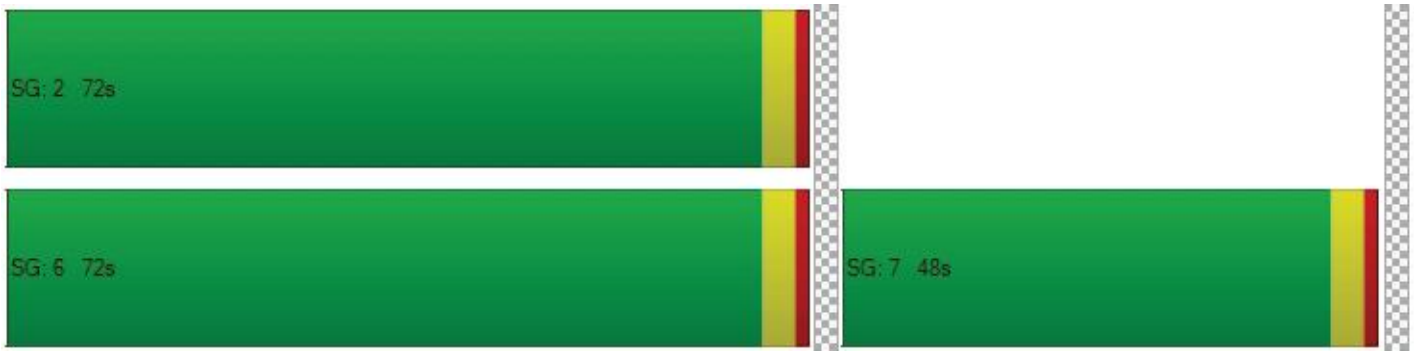
d_M, Delay for Movement [s/veh]	0.00	7.77	0.00	0.00	6.56	0.00	0.00	0.00	0.00	49.17	0.00	51.31
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	7.77			6.56			0.00			50.34		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.00											
Intersection LOS	B											
Intersection V/C	0.515											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	0	733
d_b, Bicycle Delay [s]	11.27	11.27	60.00	24.07
l_b,int, Bicycle LOS Score for Intersection	2.490	2.204	4.132	2.993
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	47.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1339	389	0	1805	0	0	0	0	518	0	492
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.060	1.000	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	47	0	0	150	0	0	0	0	0	0	82
Site-Generated Trips [veh/h]	0	311	0	0	176	85	0	0	0	0	0	202
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1777	412	0	2239	85	0	0	0	549	0	806
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	468	108	0	589	22	0	0	0	144	0	212
Total Analysis Volume [veh/h]	0	1871	434	0	2357	89	0	0	0	578	0	848
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	50	0	0	50	0	0	0	0	70	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	46	46		66	66
g / C, Green / Cycle	0.38	0.38		0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.38	0.36		0.17	0.55
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	1880	2506		1831	842
d1, Uniform Delay [s]	36.90	35.68		14.70	27.00
k, delay calibration	0.50	0.50		0.11	0.48
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	19.71	8.60		0.10	32.39
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.94		0.32	1.01
d, Delay for Lane Group [s/veh]	56.61	44.28		14.80	59.39
Lane Group LOS	E	D		B	F
Critical Lane Group	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	21.25	17.78		4.26	30.23
50th-Percentile Queue Length [ft/ln]	531.30	444.49		106.55	755.71
95th-Percentile Queue Length [veh/ln]	28.81	24.69		7.65	39.50
95th-Percentile Queue Length [ft/ln]	720.31	617.37		191.19	987.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	56.61	0.00	0.00	44.28	0.00	0.00	0.00	0.00	14.80	0.00	59.39
Movement LOS		E			D					B		F
d_A, Approach Delay [s/veh]	56.61			44.28			0.00			41.32		
Approach LOS	E			D			A			D		
d_I, Intersection Delay [s/veh]	47.61											
Intersection LOS	D											
Intersection V/C	0.936											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	0	1100
d_b, Bicycle Delay [s]	22.82	22.82	60.00	12.15
l_b,int, Bicycle LOS Score for Intersection	2.589	2.532	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.545

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1075	256	0	892	474	0	0	0	240	0	498
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.060	1.000	1.060
In-Process Volume [veh/h]	0	8	0	0	50	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	12	0	0	32	0	0	0	0	0	0	37
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1160	256	0	1028	474	0	0	0	254	0	591
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	305	67	0	271	125	0	0	0	67	0	156
Total Analysis Volume [veh/h]	0	1221	269	0	1082	499	0	0	0	267	0	622
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	57	0	0	57	0	0	0	0	63	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	81	81		31	31
g / C, Green / Cycle	0.67	0.67		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.25	0.32		0.16	0.23
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3297	2305		447	706
d1, Uniform Delay [s]	8.57	9.40		38.83	42.56
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.32	0.69		1.28	3.79
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.47		0.60	0.88
d, Delay for Lane Group [s/veh]	8.89	10.09		40.11	46.35
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	4.44	6.55		7.05	9.17
50th-Percentile Queue Length [ft/ln]	110.92	163.75		176.19	229.14
95th-Percentile Queue Length [veh/ln]	7.89	10.75		11.40	14.13
95th-Percentile Queue Length [ft/ln]	197.28	268.68		285.03	353.27

Movement, Approach, & Intersection Results

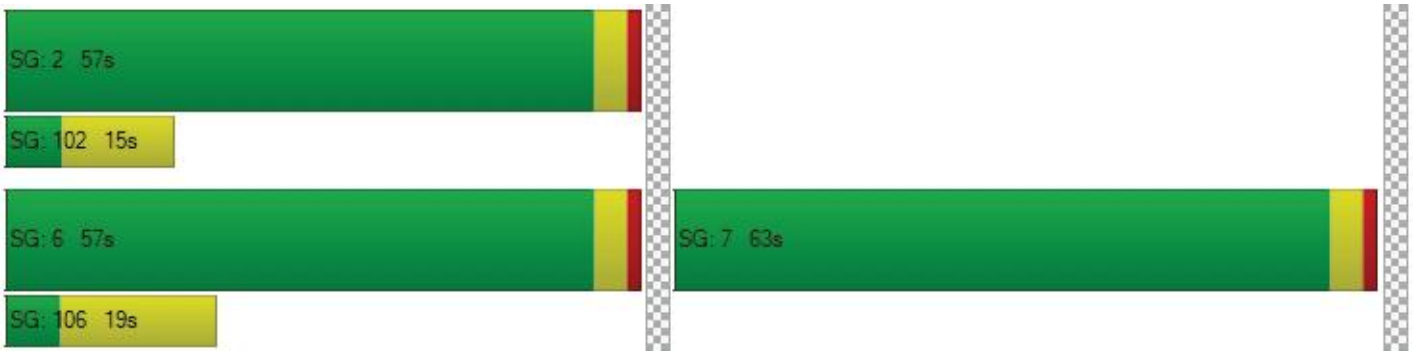
d_M, Delay for Movement [s/veh]	0.00	8.89	0.00	0.00	10.09	0.00	0.00	0.00	0.00	40.11	0.00	46.35
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	8.89			10.09			0.00			44.47		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	19.21											
Intersection LOS	B											
Intersection V/C	0.545											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.363
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	883	0	983
d_b, Bicycle Delay [s]	18.70	18.70	60.00	15.50
l_b,int, Bicycle LOS Score for Intersection	2.231	2.452	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1287	562	0	969	394	298	0	392	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.060	1.000	1.000	1.060	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	0	5	0	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	0	0	12	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1383	562	0	1044	394	306	0	392	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	364	148	0	275	104	81	0	103	0	0	0
Total Analysis Volume [veh/h]	0	1456	592	0	1099	415	322	0	413	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	34	0	0	34	0	86	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	76	76	36	36	
g / C, Green / Cycle	0.64	0.64	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.32	0.10	0.27	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	3120	2181	989	454	
d1, Uniform Delay [s]	11.29	11.68	32.83	40.61	
k, delay calibration	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.50	0.84	0.19	7.25	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.47	0.50	0.33	0.91	
d, Delay for Lane Group [s/veh]	11.79	12.52	33.02	47.86	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	6.50	7.70	3.69	12.55	
50th-Percentile Queue Length [ft/ln]	162.61	192.59	92.34	313.87	
95th-Percentile Queue Length [veh/ln]	10.69	12.26	6.65	18.37	
95th-Percentile Queue Length [ft/ln]	267.17	306.39	166.21	459.15	

Movement, Approach, & Intersection Results

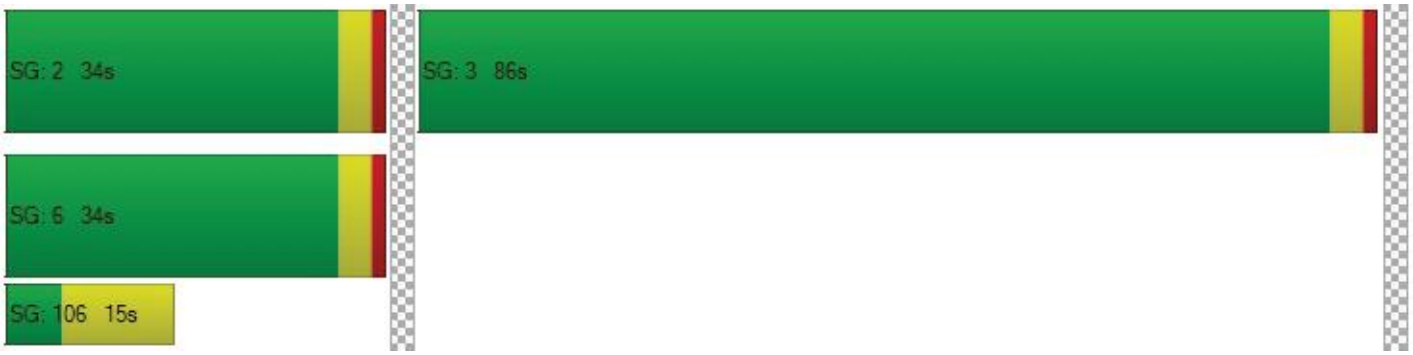
d_M, Delay for Movement [s/veh]	0.00	11.79	0.00	0.00	12.52	0.00	33.02	0.00	47.86	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	11.79			12.52			41.36			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	18.64											
Intersection LOS	B											
Intersection V/C	0.591											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	1367	0
d_b, Bicycle Delay [s]	33.75	33.75	6.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.360	2.466	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	48.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1236	419	513	1182	0	509	43	548	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	39	0	123	28	0	7	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	0	119	57	0	233	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1409	444	786	1338	0	780	46	581	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	371	117	207	352	0	205	12	153	0	0	0
Total Analysis Volume [veh/h]	0	1483	467	827	1408	0	821	48	612	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	35	76	0	0	44	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	37	37	31	72	40	40	40	
g / C, Green / Cycle	0.31	0.31	0.26	0.60	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.31	0.25	0.29	0.29	0.29	0.32	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1674	1530	
c, Capacity [veh/h]	1512	472	860	2942	571	558	510	
d1, Uniform Delay [s]	41.15	41.31	43.91	13.47	37.45	37.82	39.37	
k, delay calibration	0.50	0.50	0.11	0.50	0.36	0.38	0.44	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	19.03	39.02	7.80	0.56	12.06	14.58	30.22	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.98	0.99	0.96	0.48	0.86	0.88	0.97	
d, Delay for Lane Group [s/veh]	60.18	80.34	51.71	14.03	49.52	52.40	69.59	
Lane Group LOS	E	F	D	B	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	16.96	18.67	12.95	7.03	15.32	15.80	18.38	
50th-Percentile Queue Length [ft/ln]	423.98	466.81	323.66	175.81	383.0	394.9	459.4	
95th-Percentile Queue Length [veh/ln]	23.71	25.76	18.85	11.38	21.74	22.32	25.41	
95th-Percentile Queue Length [ft/ln]	592.83	643.97	471.18	284.53	543.5	557.9	635.1	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	60.18	80.34	51.71	14.03	0.00	50.67	52.40	66.27	0.00	0.00	0.00
Movement LOS		E	F	D	B		D	D	E			
d_A, Approach Delay [s/veh]	65.01			27.97			57.17			0.00		
Approach LOS	E			C			E			A		
d_I, Intersection Delay [s/veh]	48.35											
Intersection LOS	D											
Intersection V/C	0.876											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.507	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	1200	667	0
d_b, Bicycle Delay [s]	28.70	9.60	26.67	60.00
l_b,int, Bicycle LOS Score for Intersection	2.632	2.789	4.003	4.132
Bicycle LOS	B	C	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.718

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	893	509	501	647	0	451	7	212	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.060	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	45	5	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	20	12	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	967	540	596	703	0	478	7	225	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	254	142	157	185	0	126	2	59	0	0	0
Total Analysis Volume [veh/h]	0	1018	568	627	740	0	503	7	237	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	48	0	43	91	0	0	29	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	61	61	26	90	22	22	
g / C, Green / Cycle	0.51	0.51	0.21	0.75	0.18	0.18	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.37	0.19	0.22	0.15	0.16	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1537	
c, Capacity [veh/h]	1729	772	715	2579	602	278	
d1, Uniform Delay [s]	20.95	23.43	45.60	4.69	47.43	47.86	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.18	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.48	6.17	3.66	0.28	3.15	13.65	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.59	0.74	0.88	0.29	0.84	0.88	
d, Delay for Lane Group [s/veh]	22.43	29.60	49.25	4.97	50.57	61.51	
Lane Group LOS	C	C	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.21	13.61	9.37	2.63	7.50	8.14	
50th-Percentile Queue Length [ft/ln]	255.15	340.36	234.20	65.74	187.50	203.49	
95th-Percentile Queue Length [veh/ln]	15.45	19.67	14.39	4.73	11.99	12.82	
95th-Percentile Queue Length [ft/ln]	386.14	491.64	359.69	118.33	299.78	320.46	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	22.43	29.60	49.25	4.97	0.00	50.57	61.51	61.51	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	E	E			
d_A, Approach Delay [s/veh]	25.00			25.28			54.14			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	30.99											
Intersection LOS	C											
Intersection V/C	0.718											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	1450	417	0
d_b, Bicycle Delay [s]	24.07	4.54	37.60	60.00
l_b,int, Bicycle LOS Score for Intersection	2.432	2.687	2.792	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	54.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.035

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	512	1223	467	480	861	796	914	0	457	463	0	566
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.000	1.060	1.060	1.000	1.060
In-Process Volume [veh/h]	0	8	0	16	5	0	0	0	0	0	0	11
Site-Generated Trips [veh/h]	0	12	0	9	12	0	0	0	0	0	0	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	543	1316	495	534	930	844	969	0	484	491	0	627
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	143	346	130	141	245	222	255	0	127	129	0	165
Total Analysis Volume [veh/h]	572	1385	521	562	979	888	1020	0	509	517	0	660
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	85	0	0	85	0	35	0	0	35	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81	81	81	31	31
g / C, Green / Cycle	0.68	0.68	0.68	0.68	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.50	0.28	0.73	0.20	0.31	0.16
s, saturation flow rate [veh/h]	1134	4903	771	4903	3329	3329
c, Capacity [veh/h]	716	3310	470	3310	860	860
d1, Uniform Delay [s]	21.53	8.83	32.13	7.92	44.50	39.07
k, delay calibration	0.50	0.50	0.50	0.50	0.15	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.10	0.39	106.89	0.23	87.60	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.42	1.19	0.30	1.19	0.60
d, Delay for Lane Group [s/veh]	30.63	9.22	139.02	8.15	132.10	39.75
Lane Group LOS	C	A	F	A	F	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.35	5.23	14.14	3.31	23.13	6.76
50th-Percentile Queue Length [ft/ln]	183.82	130.86	353.62	82.78	578.13	169.10
95th-Percentile Queue Length [veh/ln]	11.80	8.99	23.02	5.96	34.12	11.03
95th-Percentile Queue Length [ft/ln]	294.99	224.66	575.52	149.00	852.92	275.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.63	9.22	0.00	139.0	8.15	0.00	132.1	0.00	0.00	39.75	0.00	0.00
Movement LOS	C	A		F	A		F			D		
d_A, Approach Delay [s/veh]	15.48			55.88			132.10			39.75		
Approach LOS	B			E			F			D		
d_I, Intersection Delay [s/veh]	53.96											
Intersection LOS	D											
Intersection V/C	1.035											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.439	3.325
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1350	1350	517	517
d_b, Bicycle Delay [s]	6.34	6.34	33.00	33.00
l_b,int, Bicycle LOS Score for Intersection	2.636	2.407	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	40.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	174	1468	329	62	520	118	237	979	186	107	541	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	8	8	0	0	0	8	0	5	5	5
Site-Generated Trips [veh/h]	0	0	12	12	0	0	0	12	0	12	12	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	184	1556	369	86	551	125	251	1058	197	130	590	125
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	409	97	23	145	33	66	278	52	34	155	33
Total Analysis Volume [veh/h]	194	1638	388	91	580	132	264	1114	207	137	621	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	36	46	0	9	19	0	38	50	0	15	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	5	41	41	21	42	42	11	33	33
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.35	0.35	0.17	0.35	0.35	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.33	0.25	0.03	0.12	0.09	0.15	0.33	0.14	0.08	0.18	0.09
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	262	1874	585	138	1691	528	295	1204	538	157	929	415
d1, Uniform Delay [s]	54.07	34.40	30.69	56.67	29.21	28.18	48.63	37.40	29.19	53.80	38.93	34.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.08	6.04	5.85	5.25	0.55	1.13	10.22	3.60	0.45	13.62	0.84	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.87	0.66	0.66	0.34	0.25	0.90	0.93	0.39	0.87	0.67	0.32
d, Delay for Lane Group [s/veh]	58.16	40.43	36.54	61.92	29.76	29.32	58.86	41.00	29.64	67.42	39.77	35.32
Lane Group LOS	E	D	D	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.02	15.57	10.16	1.46	4.24	2.90	8.55	16.06	4.55	4.67	8.23	3.14
50th-Percentile Queue Length [ft/ln]	75.41	389.2	253.9	36.51	105.9	72.55	213.7	401.6	113.8	116.8	205.6	78.57
95th-Percentile Queue Length [veh/ln]	5.43	22.04	15.38	2.63	7.62	5.22	13.35	22.64	8.05	8.22	12.93	5.66
95th-Percentile Queue Length [ft/ln]	135.7	551.0	384.5	65.72	190.3	130.5	333.6	565.9	201.3	205.4	323.2	141.4

Movement, Approach, & Intersection Results

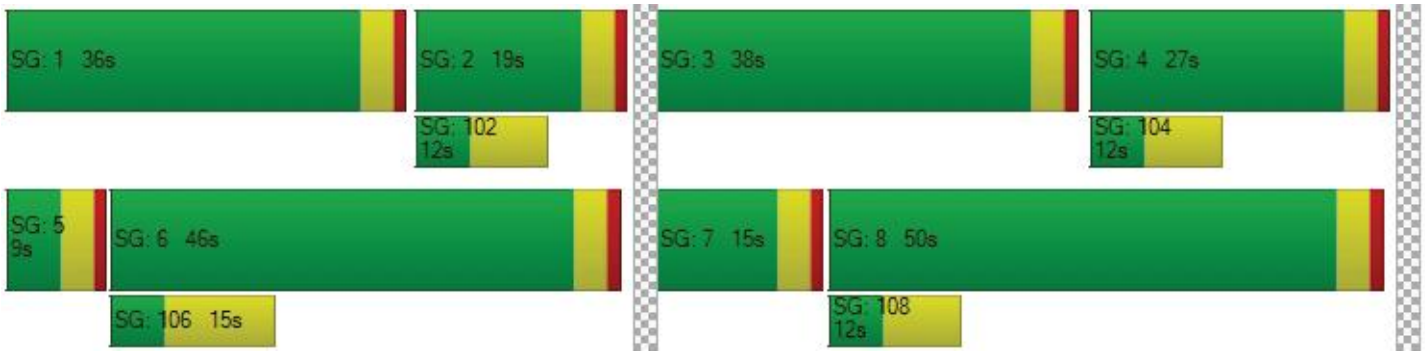
d_M, Delay for Movement [s/veh]	58.16	40.43	36.54	61.92	29.76	29.32	58.86	41.00	29.64	67.42	39.77	35.32
Movement LOS	E	D	D	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	41.30			33.33			42.49			43.36		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.81											
Intersection LOS	D											
Intersection V/C	0.766											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.205	3.172	2.880	2.872
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	250	767	383
d_b, Bicycle Delay [s]	25.35	45.94	22.82	39.20
l_b,int, Bicycle LOS Score for Intersection	2.781	2.001	2.867	2.294
Bicycle LOS	C	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	39.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	791	257	87	219	179	347	879	21	68	490	173
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	24	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	36	0	0	36	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	838	272	92	232	190	368	992	22	72	570	183
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	221	72	24	61	50	97	261	6	19	150	48
Total Analysis Volume [veh/h]	61	882	286	97	244	200	387	1044	23	76	600	193
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	22	36	0	12	26	26	42	63	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	42	42	8	45	78	30	49	49	5	24	36
g / C, Green / Cycle	0.05	0.35	0.35	0.07	0.37	0.65	0.25	0.41	0.41	0.04	0.20	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.19	0.06	0.07	0.13	0.23	0.30	0.30	0.02	0.18	0.13
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1786	3329	3427	1530
c, Capacity [veh/h]	80	1210	540	114	1277	998	423	736	730	128	687	460
d1, Uniform Delay [s]	56.52	33.83	30.90	55.40	25.42	8.33	44.00	29.85	29.88	56.78	46.48	33.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.25	0.17	0.17	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.54	3.88	3.69	15.55	0.33	0.45	16.08	2.20	2.24	4.35	3.65	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.73	0.53	0.85	0.19	0.20	0.92	0.73	0.73	0.59	0.87	0.42
d, Delay for Lane Group [s/veh]	70.06	37.71	34.59	70.95	25.75	8.79	60.08	32.05	32.12	61.13	50.13	34.20
Lane Group LOS	E	D	C	E	C	A	E	C	C	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.13	11.75	7.12	3.40	2.42	2.12	13.00	13.26	13.20	1.21	8.99	4.59
50th-Percentile Queue Length [ft/ln]	53.27	293.6	178.1	84.89	60.58	53.03	325.0	331.5	330.0	30.29	224.7	114.7
95th-Percentile Queue Length [veh/ln]	3.84	17.37	11.50	6.11	4.36	3.82	18.92	19.23	19.16	2.18	13.91	8.10
95th-Percentile Queue Length [ft/ln]	95.89	434.1	287.5	152.8	109.0	95.46	472.8	480.8	479.0	54.52	347.6	202.5

Movement, Approach, & Intersection Results

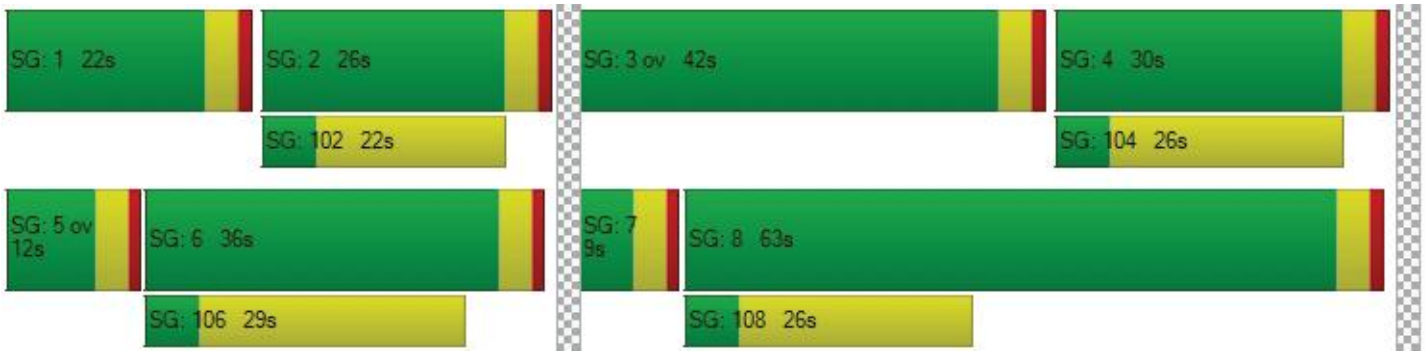
d_M, Delay for Movement [s/veh]	70.06	37.71	34.59	70.95	25.75	8.79	60.08	32.09	32.12	61.13	50.13	34.20
Movement LOS	E	D	C	E	C	A	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	38.59			27.58			39.54			47.55		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.37											
Intersection LOS	D											
Intersection V/C	0.715											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.724	2.794	2.767	2.929
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	367	983	433
d_b, Bicycle Delay [s]	32.27	40.02	15.50	36.82
I_b,int, Bicycle LOS Score for Intersection	2.574	2.006	2.759	2.277
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	36.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	35	857	66	377	983	405	440	672	84	60	177	364
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	31	0	0	23	5	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	0	45	12	12	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	987	70	400	1110	446	486	712	89	64	188	386
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	260	18	105	292	117	128	187	23	17	49	102
Total Analysis Volume [veh/h]	39	1039	74	421	1168	469	512	749	94	67	198	406
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	33	0	20	44	44	24	58	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	52	52	16	64	88	20	32	32	4	16	36
g / C, Green / Cycle	0.03	0.43	0.43	0.13	0.53	0.73	0.17	0.27	0.27	0.04	0.14	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.22	0.22	0.13	0.24	0.31	0.15	0.24	0.24	0.02	0.06	0.27
s, saturation flow rate [veh/h]	1714	3427	1739	3329	4903	1530	3329	1800	1731	3329	3427	1530
c, Capacity [veh/h]	53	1473	748	444	2611	1121	555	479	461	124	469	464
d1, Uniform Delay [s]	57.69	24.85	24.86	51.59	17.21	6.19	49.24	42.41	42.49	56.74	47.45	39.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.36	1.22	2.40	10.95	0.56	1.15	6.97	6.33	6.99	3.59	0.61	14.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.50	0.50	0.95	0.45	0.42	0.92	0.89	0.90	0.54	0.42	0.87
d, Delay for Lane Group [s/veh]	76.05	26.07	27.26	62.54	17.77	7.34	56.21	48.74	49.48	60.34	48.06	53.68
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.44	7.82	8.20	6.94	6.61	4.42	8.07	12.99	12.67	1.06	2.76	13.06
50th-Percentile Queue Length [ft/ln]	36.07	195.4	204.9	173.5	165.2	110.4	201.7	324.7	316.6	26.51	69.05	326.5
95th-Percentile Queue Length [veh/ln]	2.60	12.40	12.89	11.26	10.83	7.87	12.73	18.90	18.50	1.91	4.97	18.99
95th-Percentile Queue Length [ft/ln]	64.92	310.1	322.2	281.5	270.6	196.6	318.1	472.4	462.5	47.73	124.2	474.7

Movement, Approach, & Intersection Results

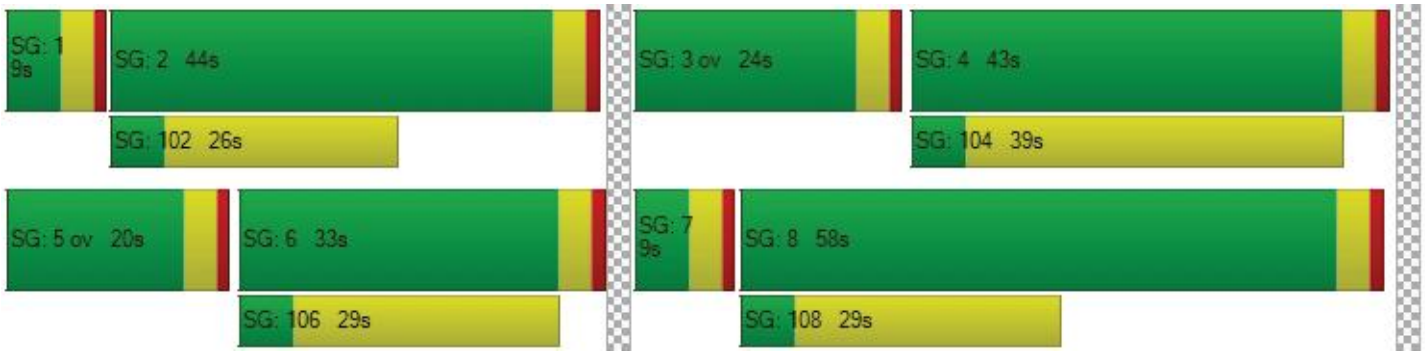
d_M, Delay for Movement [s/veh]	76.05	26.42	27.26	62.54	17.77	7.34	56.21	49.06	49.48	60.34	48.06	53.68
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	28.15			24.55			51.79			52.69		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.00											
Intersection LOS	D											
Intersection V/C	0.666											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.043	3.373	2.803	2.876
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	667	900	650
d_b, Bicycle Delay [s]	34.50	26.67	18.15	27.34
l_b,int, Bicycle LOS Score for Intersection	2.193	2.692	2.677	2.113
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	550.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	33.585

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	601	29	67	890	130	243	49	30	13	21	83
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
In-Process Volume [veh/h]	0	8	0	13	5	5	8	0	0	0	0	15
Site-Generated Trips [veh/h]	0	12	0	21	12	12	12	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	657	31	105	960	155	278	52	32	14	22	127
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	173	8	28	253	41	73	14	8	4	6	33
Total Analysis Volume [veh/h]	8	692	33	111	1011	163	293	55	34	15	23	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	12	12	5	16	16	91	91	91	91
g / C, Green / Cycle	0.01	0.10	0.10	0.04	0.13	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.00	0.14	0.14	0.06	0.23	0.23	33.35	0.02	0.61	0.09
s, saturation flow rate [veh/h]	1714	3427	1759	1714	3427	1675	10	1530	62	1530
c, Capacity [veh/h]	17	347	178	71	456	223	63	1159	89	1159
d1, Uniform Delay [s]	59.11	53.93	53.93	57.50	52.02	52.02	51.91	3.62	35.73	3.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.33	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.69	187.9	205.1	263.7	337.0	346.8	2063.67	0.01	9.68	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	1.38	1.39	1.55	1.73	1.73	5.51	0.03	0.43	0.12
d, Delay for Lane Group [s/veh]	78.80	241.9	259.1	321.2	389.0	398.8	2115.58	3.63	45.41	3.92
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.33	14.27	15.50	7.40	28.19	28.17	38.13	0.18	1.17	0.78
50th-Percentile Queue Length [ft/ln]	8.34	356.8	387.4	184.9	704.8	704.1	953.22	4.59	29.17	19.41
95th-Percentile Queue Length [veh/ln]	0.60	22.87	24.60	13.03	44.40	44.37	68.63	0.33	2.10	1.40
95th-Percentile Queue Length [ft/ln]	15.01	571.8	615.0	325.8	1110.	1109.	1715.80	8.27	52.50	34.94

Movement, Approach, & Intersection Results

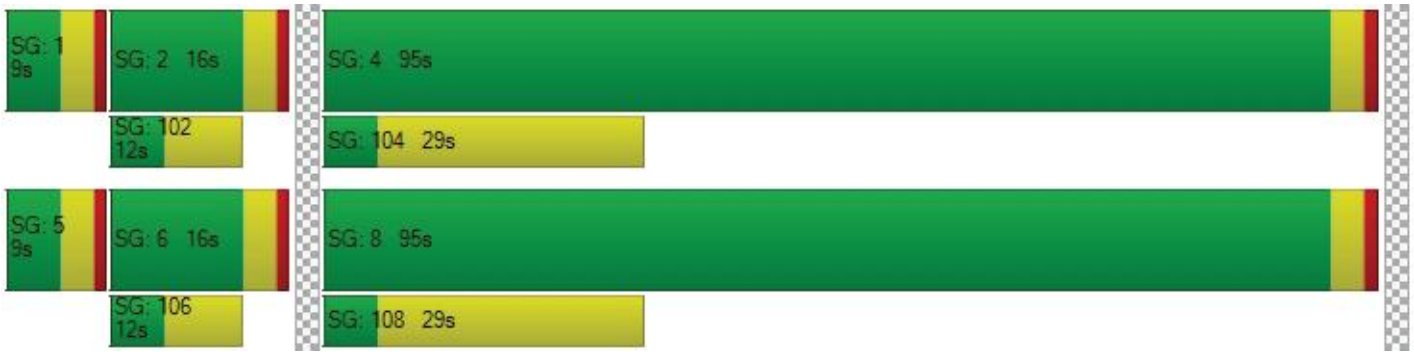
d_M, Delay for Movement [s/veh]	78.80	247.2	259.1	321.2	391.2	398.8	2115.	2115.	3.63	45.41	45.41	3.92
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	245.92			386.15			1927.60			13.09		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	550.18											
Intersection LOS	F											
Intersection V/C	33.585											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.880	3.361	2.143	2.076
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	1.963	2.266	2.190	1.843
Bicycle LOS	A	B	B	A

Sequence

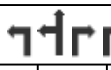
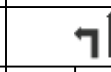
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	41.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	523	49	0	0	56	627	534	0	409	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	523	49	0	0	56	627	534	0	409	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	131	12	0	0	14	157	134	0	102	0	0	0
Total Analysis Volume [veh/h]	523	49	0	0	56	627	534	0	409	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	55	69	0	9	23	23	0	33	0	0	9	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	80	80	0	40	73	24	24	24	0	0
g / C, Green / Cycle	0.33	0.66	0.66	0.00	0.34	0.61	0.20	0.20	0.20	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.31	0.01	0.01	0.00	0.02	0.42	0.16	0.16	0.15	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1687	2665	1687	1772
c, Capacity [veh/h]	554	2236	1174	1	1131	911	342	342	539	1	1
d1, Uniform Delay [s]	39.23	6.88	6.88	0.00	26.96	16.04	45.34	45.34	45.09	0.00	0.00
k, delay calibration	0.27	0.50	0.50	0.11	0.50	0.50	0.13	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.32	0.01	0.02	0.00	0.08	4.23	4.73	4.73	2.21	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.01	0.01	0.00	0.05	0.69	0.78	0.78	0.76	0.00	0.00
d, Delay for Lane Group [s/veh]	56.55	6.89	6.90	0.00	27.04	20.27	50.08	50.08	47.30	0.00	0.00
Lane Group LOS	E	A	A	A	C	C	D	D	D	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	17.45	0.14	0.15	0.00	0.56	12.12	7.97	7.97	5.89	0.00	0.00
50th-Percentile Queue Length [ft/ln]	436.2	3.47	3.73	0.00	14.04	302.9	199.1	199.1	147.2	0.00	0.00
95th-Percentile Queue Length [veh/ln]	24.30	0.25	0.27	0.00	1.01	17.83	12.60	12.60	9.87	0.00	0.00
95th-Percentile Queue Length [ft/ln]	607.5	6.24	6.71	0.00	25.27	445.6	314.9	314.9	246.8	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.55	6.90	6.90	0.00	27.04	20.27	50.08	50.08	47.30	0.00	0.00	0.00
Movement LOS	E	A	A	A	C	C	D	D	D	A	A	A
d_A, Approach Delay [s/veh]	52.29			20.83			48.87			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	41.05											
Intersection LOS	D											
Intersection V/C	0.793											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.754	0.000	2.808	0.000
Crosswalk LOS	C	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317	483	83
d_b, Bicycle Delay [s]	12.60	42.50	34.50	55.10
l_b,int, Bicycle LOS Score for Intersection	1.874	2.123	3.116	1.560
Bicycle LOS	A	B	C	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-4

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2027

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Report File: K:\...\5 OY 2027 CUM AM.pdf

Scenario 5 OY 2027 CUM AM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.606	30.6	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.620	26.7	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.510	19.9	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.606	24.3	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.755	31.7	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.523	18.0	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.452	32.1	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.668	38.1	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.632	33.1	C
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.831	61.2	E
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.496	21.7	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.555	28.0	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.766	39.9	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.521	39.9	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.922	55.3	E
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.613	34.2	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.652	49.8	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	EB Right	1.012	44.1	D
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.700	27.7	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.813	47.9	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.713	41.5	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	2.716	1,315.7	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.811	51.5	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.733	43.5	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.784	43.7	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.784	45.5	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.525	26.9	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.784	49.0	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.625	38.0	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.682	25.8	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.813	42.0	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.434	43.5	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.483	19.9	B
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.600	24.9	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	0.926	37.4	E
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.573	30.4	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	NB Left	0.619	40.4	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.489	21.2	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.648	35.7	D
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	WB Thru	1.133	85.3	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	0.867	30.1	D
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.594	34.2	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	NB Left	0.592	29.5	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.819	48.3	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	SB Right	0.712	61.4	E
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.564	34.5	C
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.542	35.7	D
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.298	14.3	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.650	36.3	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.532	32.8	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SWB Thru	0.344	32.4	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.682	40.5	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	NB Left	0.708	31.5	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Thru	0.348	10.2	B
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.488	27.4	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.473	29.8	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.777	49.5	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.553	28.7	C
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	0.022	91.8	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Right	0.871	58.4	E
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.770	36.4	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.542	23.9	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	SB Thru	0.907	40.4	D
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.592	21.5	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.816	30.8	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.861	38.9	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.776	35.6	D
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	0.768	28.5	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.737	39.5	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	NB Left	0.731	37.5	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	EB Left	0.726	36.8	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	40.580	713.9	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	303	0	0	712	200	0	0	0	360	4	252
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	14	6	0	0	4	0	0	0	0	17	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	345	0	0	801	224	0	0	0	420	4	282
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	53	91	0	0	211	59	0	0	0	111	1	74
Total Analysis Volume [veh/h]	211	363	0	0	843	236	0	0	0	442	4	297
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	24	53	0	0	29	0	0	0	0	0	67	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	17	78	57	57		34	34
g / C, Green / Cycle	0.14	0.65	0.48	0.48		0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.12	0.11	0.21	0.22		0.26	0.19
s, saturation flow rate [veh/h]	1714	3427	3427	1613		1715	1530
c, Capacity [veh/h]	239	2219	1628	766		490	437
d1, Uniform Delay [s]	50.70	8.33	20.92	21.27		41.37	37.98
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	10.40	0.16	0.87	2.06		6.87	1.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.16	0.44	0.47		0.91	0.68
d, Delay for Lane Group [s/veh]	61.11	8.49	21.79	23.33		48.24	39.84
Lane Group LOS	E	A	C	C		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	6.90	1.84	6.84	7.19		13.56	7.94
50th-Percentile Queue Length [ft/ln]	172.54	46.10	170.91	179.73		338.97	198.62
95th-Percentile Queue Length [veh/ln]	11.21	3.32	11.12	11.59		19.60	12.57
95th-Percentile Queue Length [ft/ln]	280.25	82.98	278.11	289.66		489.94	314.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.11	8.49	0.00	0.00	22.02	23.33	0.00	0.00	0.00	48.24	48.24	39.84
Movement LOS	E	A			C	C				D	D	D
d_A, Approach Delay [s/veh]	27.83			22.31			0.00			44.88		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	30.63											
Intersection LOS	C											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.878	2.197
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	417	0	1050
d_b, Bicycle Delay [s]	21.00	37.60	60.00	13.54
l_b,int, Bicycle LOS Score for Intersection	2.033	2.153	4.132	2.786
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.620

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	302	906	0	0	822	355	0	0	0	421	1	309
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	5	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	338	1021	0	0	925	398	0	0	0	477	1	346
Peak Hour Factor	0.964	0.964	1.000	1.000	0.964	0.964	1.000	1.000	1.000	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	88	265	0	0	240	103	0	0	0	124	0	90
Total Analysis Volume [veh/h]	351	1059	0	0	960	413	0	0	0	495	1	359
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	20	61	0	0	41	0	0	0	0	0	59	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	81	62	62		31	31	31
g / C, Green / Cycle	0.12	0.67	0.52	0.52		0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.31	0.28	0.27		0.14	0.14	0.23
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1715	1530
c, Capacity [veh/h]	406	2298	1765	788		451	451	402
d1, Uniform Delay [s]	51.71	9.43	19.59	19.32		38.11	38.11	42.59
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.60	0.67	1.21	2.49		1.05	1.05	7.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.46	0.54	0.52		0.55	0.55	0.89
d, Delay for Lane Group [s/veh]	57.31	10.10	20.80	21.81		39.16	39.16	49.60
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.49	6.40	9.13	8.04		6.43	6.43	10.97
50th-Percentile Queue Length [ft/ln]	137.31	160.12	228.31	201.03		160.6	160.6	274.1
95th-Percentile Queue Length [veh/ln]	9.34	10.56	14.09	12.69		10.58	10.58	16.40
95th-Percentile Queue Length [ft/ln]	233.40	263.88	352.22	317.29		264.5	264.5	409.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.31	10.10	0.00	0.00	20.80	21.81	0.00	0.00	0.00	39.16	39.16	49.60
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	21.85			21.10			0.00			43.54		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.67											
Intersection LOS	C											
Intersection V/C	0.620											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.103	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	617	0	917
d_b, Bicycle Delay [s]	16.54	28.70	60.00	17.60
l_b,int, Bicycle LOS Score for Intersection	2.723	2.692	4.132	2.970
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.510

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	792	0	0	1079	0	0	0	0	510	0	291
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	893	0	0	1212	0	0	0	0	573	0	326
Peak Hour Factor	1.000	0.869	1.000	1.000	0.869	1.000	1.000	1.000	1.000	0.869	0.869	0.869
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	257	0	0	349	0	0	0	0	165	0	94
Total Analysis Volume [veh/h]	0	1028	0	0	1395	0	0	0	0	659	0	375
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	0	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81		31	31	31
g / C, Green / Cycle	0.68	0.68		0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.21	0.28		0.20	0.20	0.23
s, saturation flow rate [veh/h]	4903	4903		1714	1696	1530
c, Capacity [veh/h]	3312	3312		442	437	394
d1, Uniform Delay [s]	7.99	8.83		41.37	41.48	42.66
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.39		3.02	3.20	6.16
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.42		0.78	0.79	0.87
d, Delay for Lane Group [s/veh]	8.24	9.22		44.39	44.68	48.82
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.50	5.26		9.81	9.85	10.41
50th-Percentile Queue Length [ft/ln]	87.55	131.46		245.2	246.3	260.2
95th-Percentile Queue Length [veh/ln]	6.30	9.02		14.95	15.00	15.70
95th-Percentile Queue Length [ft/ln]	157.59	225.47		373.7	375.0	392.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	8.24	0.00	0.00	9.22	0.00	0.00	0.00	0.00	44.53	44.68	48.48
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	8.24			9.22			0.00			45.96		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.92											
Intersection LOS	B											
Intersection V/C	0.510											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	0	967
d_b, Bicycle Delay [s]	18.15	18.15	60.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.125	2.327	4.132	3.266
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	427	319	160	805	0	153	5	296	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	21	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	498	379	179	923	0	171	6	344	0	0	0
Peak Hour Factor	1.000	0.952	0.952	0.952	0.952	1.000	0.952	0.952	0.952	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	131	100	47	242	0	45	2	90	0	0	0
Total Analysis Volume [veh/h]	0	523	398	188	970	0	180	6	361	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	38	0	19	57	0	0	63	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	62	62	15	81	31	31	
g / C, Green / Cycle	0.52	0.52	0.12	0.67	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.15	0.26	0.11	0.28	0.11	0.24	
s, saturation flow rate [veh/h]	3427	1530	1714	3427	1717	1530	
c, Capacity [veh/h]	1770	790	213	2310	445	397	
d1, Uniform Delay [s]	16.56	18.97	51.68	8.89	36.91	43.08	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.43	2.29	11.26	0.56	0.63	8.22	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.30	0.50	0.88	0.42	0.42	0.91	
d, Delay for Lane Group [s/veh]	16.99	21.26	62.94	9.46	37.54	51.30	
Lane Group LOS	B	C	E	A	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	4.18	7.61	6.22	5.56	4.63	11.22	
50th-Percentile Queue Length [ft/ln]	104.55	190.25	155.53	139.09	115.77	280.50	
95th-Percentile Queue Length [veh/ln]	7.53	12.13	10.31	9.43	8.16	16.71	
95th-Percentile Queue Length [ft/ln]	188.19	303.36	257.79	235.80	204.00	417.83	

Movement, Approach, & Intersection Results

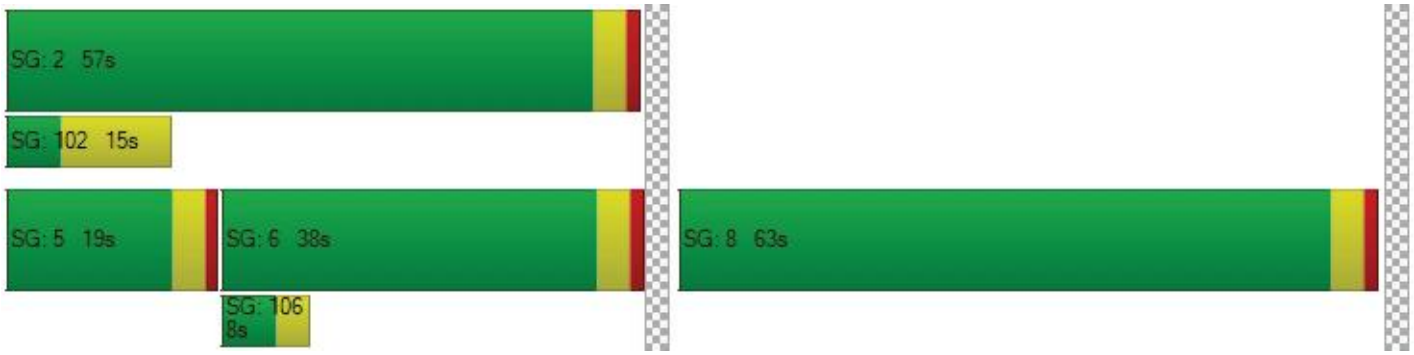
d_M, Delay for Movement [s/veh]	0.00	16.99	21.26	62.94	9.46	0.00	37.54	37.54	51.30	0.00	0.00	0.00
Movement LOS		B	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	18.84			18.14			46.62			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	24.32											
Intersection LOS	C											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.133	2.016
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	883	983	0
d_b, Bicycle Delay [s]	30.82	18.70	15.50	60.00
l_b,int, Bicycle LOS Score for Intersection	2.066	2.515	2.462	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.755

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	817	408	302	931	0	411	3	402	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	7	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	921	464	338	1052	0	460	3	450	0	0	0
Peak Hour Factor	1.000	0.966	0.966	0.966	0.966	1.000	0.966	0.966	0.966	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	238	120	87	272	0	119	1	116	0	0	0
Total Analysis Volume [veh/h]	0	953	480	350	1089	0	476	3	466	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	64	0	19	83	0	0	37	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	66	66	14	84	28	28	28	
g / C, Green / Cycle	0.55	0.55	0.12	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.40	0.45	0.11	0.32	0.19	0.19	0.20	
s, saturation flow rate [veh/h]	1800	1610	3329	3427	1714	1620	1530	
c, Capacity [veh/h]	988	883	402	2409	395	373	353	
d1, Uniform Delay [s]	20.30	22.02	51.83	7.77	43.60	44.11	44.66	
k, delay calibration	0.50	0.50	0.11	0.50	0.21	0.24	0.27	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.64	8.00	5.90	0.62	7.31	10.77	16.15	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.73	0.81	0.87	0.45	0.80	0.84	0.89	
d, Delay for Lane Group [s/veh]	24.94	30.02	57.73	8.38	50.90	54.88	60.81	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	15.72	17.63	5.50	5.79	9.67	10.03	10.54	
50th-Percentile Queue Length [ft/ln]	392.91	440.78	137.43	144.81	241.7	250.7	263.5	
95th-Percentile Queue Length [veh/ln]	22.22	24.52	9.34	9.74	14.77	15.22	15.87	
95th-Percentile Queue Length [ft/ln]	555.45	612.94	233.56	243.48	369.2	380.5	396.6	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	26.20	30.02	57.73	8.38	0.00	52.24	54.88	58.88	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	27.48			20.38			55.51			0.00		
Approach LOS	C			C			E			A		
d_I, Intersection Delay [s/veh]	31.74											
Intersection LOS	C											
Intersection V/C	0.755											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.377	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1317	550	0
d_b, Bicycle Delay [s]	15.00	7.00	31.54	60.00
l_b,int, Bicycle LOS Score for Intersection	2.742	2.747	3.119	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	946	463	0	1265	26	160	0	553	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1066	519	0	1423	26	179	0	619	0	0	0
Peak Hour Factor	1.000	0.942	0.942	1.000	0.942	1.000	0.942	0.942	0.942	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	283	138	0	378	7	48	0	164	0	0	0
Total Analysis Volume [veh/h]	0	1132	551	0	1511	26	190	0	657	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	63	0	0	63	0	0	57	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	83	83	29	29	29	
g / C, Green / Cycle	0.69	0.69	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.31	0.11	0.21	0.21	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3376	3376	420	375	375	
d1, Uniform Delay [s]	7.57	8.41	38.48	43.58	43.58	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.27	0.43	0.76	6.62	6.62	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.34	0.45	0.45	0.88	0.88	
d, Delay for Lane Group [s/veh]	7.84	8.84	39.25	50.19	50.19	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.75	5.57	4.86	10.02	10.02	
50th-Percentile Queue Length [ft/ln]	93.73	139.35	121.4	250.5	250.5	
95th-Percentile Queue Length [veh/ln]	6.75	9.45	8.47	15.22	15.22	
95th-Percentile Queue Length [ft/ln]	168.72	236.15	211.8	380.3	380.3	

Movement, Approach, & Intersection Results

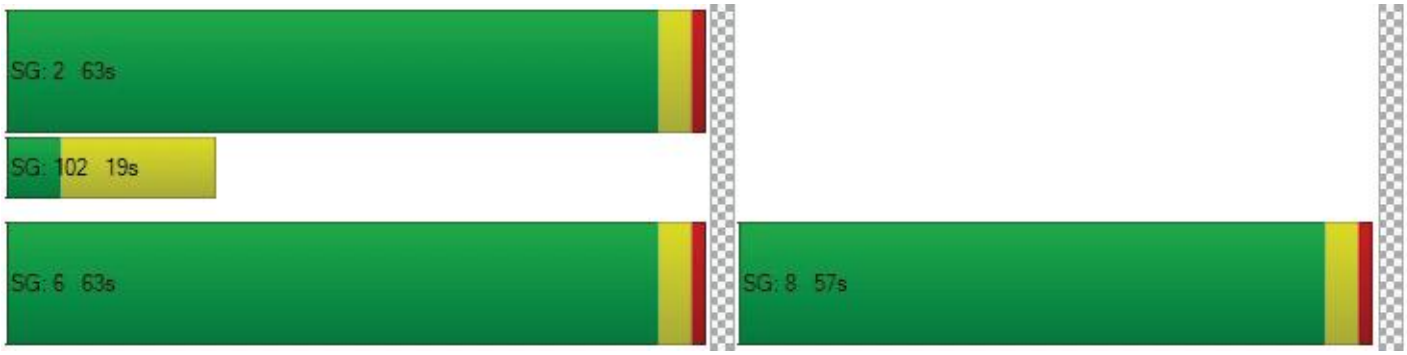
d_M, Delay for Movement [s/veh]	0.00	7.84	0.00	0.00	8.84	0.00	39.25	50.19	50.19	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	7.84			8.84			47.74			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.96											
Intersection LOS	B											
Intersection V/C	0.523											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.353	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	883	0
d_b, Bicycle Delay [s]	15.50	15.50	18.70	60.00
l_b,int, Bicycle LOS Score for Intersection	2.182	2.391	2.957	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.452

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	570	67	55	502	93	117	199	75	90	208	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	638	75	62	562	104	131	223	84	101	233	68
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	179	21	17	158	29	37	63	24	28	65	19
Total Analysis Volume [veh/h]	46	716	84	70	631	117	147	250	94	113	262	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	30	0	14	32	0	48	61	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	71	71	6	73	73	12	17	17	10	14	14
g / C, Green / Cycle	0.03	0.59	0.59	0.05	0.61	0.61	0.10	0.14	0.14	0.08	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.04	0.21	0.21	0.09	0.10	0.10	0.07	0.10	0.10
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1703	1714	1800	1636	1714	1800	1664
c, Capacity [veh/h]	59	1064	1026	89	1096	1037	178	258	235	137	216	199
d1, Uniform Delay [s]	57.50	12.96	12.96	56.23	11.67	11.67	52.72	48.84	48.97	54.37	51.45	51.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.90	1.04	1.08	14.08	0.88	0.94	9.31	3.27	3.85	11.62	6.94	8.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.38	0.38	0.79	0.35	0.35	0.83	0.69	0.71	0.82	0.81	0.82
d, Delay for Lane Group [s/veh]	77.40	14.00	14.04	70.31	12.55	12.61	62.02	52.11	52.82	65.99	58.40	59.84
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.71	5.95	5.75	2.44	5.21	4.96	4.80	5.32	4.99	3.80	5.51	5.28
50th-Percentile Queue Length [ft/ln]	42.75	148.7	143.7	61.10	130.3	123.8	120.0	132.9	124.7	95.09	137.6	131.9
95th-Percentile Queue Length [veh/ln]	3.08	9.95	9.68	4.40	8.96	8.61	8.40	9.10	8.65	6.85	9.35	9.05
95th-Percentile Queue Length [ft/ln]	76.95	248.7	241.9	109.9	223.9	215.1	209.9	227.4	216.2	171.1	233.8	226.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	77.40	14.02	14.04	70.31	12.57	12.61	62.02	52.32	52.82	65.99	58.88	59.84
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	17.47			17.52			55.32			60.83		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	32.12											
Intersection LOS	C											
Intersection V/C	0.452											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.643	2.658	2.494	2.607
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	467	950	400
d_b, Bicycle Delay [s]	36.82	35.27	16.54	38.40
l_b,int, Bicycle LOS Score for Intersection	2.258	2.234	1.965	1.932
Bicycle LOS	B	B	A	A

Sequence

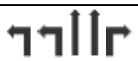
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	38.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	725	72	337	942	150	215	192	53	91	197	246
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	13	0	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	825	81	377	1064	168	241	215	59	102	221	276
Peak Hour Factor	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	225	22	103	290	46	66	59	16	28	60	75
Total Analysis Volume [veh/h]	92	899	88	411	1159	183	263	234	64	111	241	301
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	21	49	0	15	37	0	22	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	50	50	17	59	59	11	28	28	10	26	26
g / C, Green / Cycle	0.07	0.42	0.42	0.14	0.49	0.49	0.09	0.23	0.23	0.08	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.06	0.12	0.34	0.12	0.08	0.07	0.04	0.06	0.13	0.20
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	114	1429	638	462	1676	748	305	789	352	139	395	336
d1, Uniform Delay [s]	55.26	27.66	21.65	50.79	23.66	17.79	53.75	38.16	37.11	54.19	42.20	45.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.59	2.11	0.45	6.10	2.37	0.78	7.13	0.21	0.24	10.08	1.53	11.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.63	0.14	0.89	0.69	0.24	0.86	0.30	0.18	0.80	0.61	0.90
d, Delay for Lane Group [s/veh]	67.86	29.77	22.10	56.89	26.03	18.56	60.88	38.37	37.35	64.27	43.73	57.12
Lane Group LOS	E	C	C	E	C	B	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.14	10.49	1.62	6.45	12.92	3.10	4.21	2.88	1.54	3.69	6.61	9.76
50th-Percentile Queue Length [ft/ln]	78.58	262.3	40.59	161.1	322.9	77.44	105.3	72.04	38.62	92.13	165.2	243.9
95th-Percentile Queue Length [veh/ln]	5.66	15.81	2.92	10.61	18.81	5.58	7.58	5.19	2.78	6.63	10.83	14.88
95th-Percentile Queue Length [ft/ln]	141.4	395.1	73.07	265.2	470.3	139.4	189.5	129.6	69.51	165.8	270.6	372.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.86	29.77	22.10	56.89	26.03	18.56	60.88	38.37	37.35	64.27	43.73	57.12
Movement LOS	E	C	C	E	C	B	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	32.39			32.48			48.81			53.39		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.10											
Intersection LOS	D											
Intersection V/C	0.668											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.860	3.057	2.759	2.693
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	750	550	667
d_b, Bicycle Delay [s]	29.40	23.44	31.54	26.67
l_b,int, Bicycle LOS Score for Intersection	2.450	3.006	2.022	2.637
Bicycle LOS	B	C	B	B

Sequence

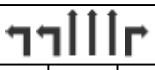
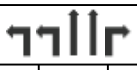
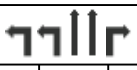
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	919	38	219	1191	403	291	252	173	16	252	199
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	9	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	179	1038	43	245	1340	451	326	282	194	18	282	223
Peak Hour Factor	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	277	11	65	357	120	87	75	52	5	75	59
Total Analysis Volume [veh/h]	191	1107	46	261	1429	481	348	301	207	19	301	238
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	34	0	23	45	0	20	54	0	9	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	56	56	12	60	60	15	34	34	2	21	21
g / C, Green / Cycle	0.07	0.47	0.47	0.10	0.50	0.50	0.12	0.28	0.28	0.02	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.03	0.08	0.29	0.31	0.10	0.09	0.14	0.01	0.09	0.16
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	222	2299	717	325	2451	765	403	960	429	66	614	274
d1, Uniform Delay [s]	55.45	21.86	17.45	53.00	21.18	21.88	51.77	34.08	35.95	57.97	44.33	47.89
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.41	0.72	0.17	4.61	1.02	3.90	5.60	0.18	0.84	2.34	0.61	8.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.48	0.06	0.80	0.58	0.63	0.86	0.31	0.48	0.29	0.49	0.87
d, Delay for Lane Group [s/veh]	64.85	22.59	17.62	57.61	22.20	25.78	57.37	34.27	36.80	60.31	44.94	56.14
Lane Group LOS	E	C	B	E	C	C	E	C	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.15	7.21	0.74	4.06	9.49	10.49	5.45	3.51	5.16	0.31	4.09	7.53
50th-Percentile Queue Length [ft/ln]	78.74	180.1	18.40	101.5	237.2	262.2	136.1	87.73	128.9	7.66	102.3	188.2
95th-Percentile Queue Length [veh/ln]	5.67	11.61	1.32	7.31	14.54	15.80	9.27	6.32	8.88	0.55	7.37	12.03
95th-Percentile Queue Length [ft/ln]	141.7	290.2	33.12	182.7	363.5	394.9	231.8	157.9	222.0	13.78	184.2	300.8

Movement, Approach, & Intersection Results

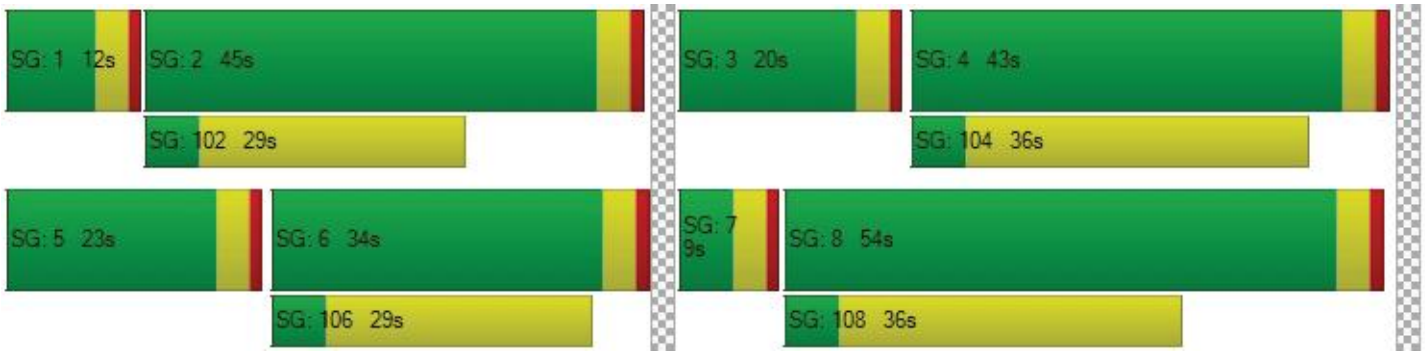
d_M, Delay for Movement [s/veh]	64.85	22.59	17.62	57.61	22.20	25.78	57.37	34.27	36.80	60.31	44.94	56.14
Movement LOS	E	C	B	E	C	C	E	C	D	E	D	E
d_A, Approach Delay [s/veh]	28.42			27.25			44.27			50.24		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.13											
Intersection LOS	C											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.189	3.283	2.864	2.772
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	683	833	650
d_b, Bicycle Delay [s]	33.75	26.00	20.42	27.34
l_b,int, Bicycle LOS Score for Intersection	2.299	2.754	2.266	2.020
Bicycle LOS	B	C	B	B

Sequence

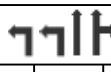
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	61.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.831

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	268	102	147	286	257	107	507	78	172	1112	236
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	6	6	0	0	4	0	0	0	4	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	306	114	165	324	288	120	568	91	193	1245	264
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	82	30	44	87	77	32	152	24	52	333	71
Total Analysis Volume [veh/h]	142	327	122	176	346	308	128	607	97	206	1330	282
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	15	40	0	12	52	0	17	57	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	46	11	36	36	8	51	51	10	53	53
g / C, Green / Cycle	0.06	0.27	0.38	0.09	0.30	0.30	0.07	0.43	0.43	0.08	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.08	0.10	0.19	0.20	0.07	0.14	0.14	0.06	0.45	0.47
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1530	1714	3427	1677	3329	1800	1695
c, Capacity [veh/h]	194	480	584	157	540	459	114	1463	716	271	795	748
d1, Uniform Delay [s]	55.60	39.43	24.94	54.50	36.37	36.79	56.00	22.85	22.90	53.95	33.50	33.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.49	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.31	7.61	0.81	71.46	5.73	7.59	76.44	0.13	0.26	4.34	37.07	52.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.68	0.21	1.12	0.64	0.67	1.12	0.32	0.33	0.76	1.02	1.07
d, Delay for Lane Group [s/veh]	60.90	47.04	25.75	125.9	42.10	44.38	132.4	22.98	23.16	58.30	70.57	86.33
Lane Group LOS	E	D	C	F	D	D	F	C	C	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.26	9.63	2.49	7.86	9.62	8.85	5.88	4.44	4.44	3.21	30.58	32.06
50th-Percentile Queue Length [ft/ln]	56.43	240.7	62.14	196.4	240.3	221.2	147.0	111.1	111.0	80.28	764.5	801.6
95th-Percentile Queue Length [veh/ln]	4.06	14.72	4.47	12.97	14.70	13.73	10.21	7.90	7.90	5.78	40.31	43.48
95th-Percentile Queue Length [ft/ln]	101.5	367.9	111.8	324.2	367.5	343.2	255.1	197.5	197.4	144.5	1007.	1086.

Movement, Approach, & Intersection Results

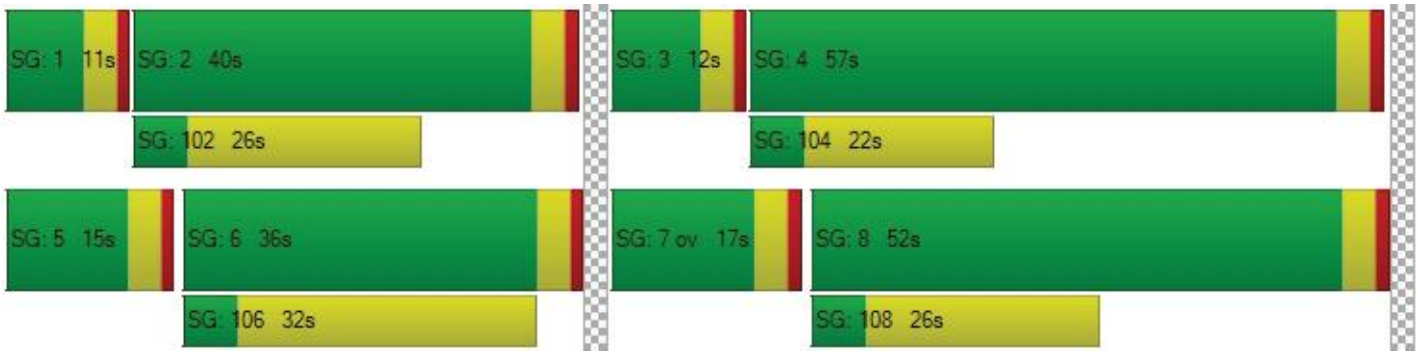
d_M, Delay for Movement [s/veh]	60.90	47.04	25.75	125.9	42.10	44.38	132.4	23.02	23.16	58.30	76.71	86.33
Movement LOS	E	D	C	F	D	D	F	C	C	E	E	F
d_A, Approach Delay [s/veh]	45.98			60.73			39.87			76.11		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	61.19											
Intersection LOS	E											
Intersection V/C	0.831											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.670	2.621	2.893	3.073
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	800	883
d_b, Bicycle Delay [s]	32.27	29.40	21.60	18.70
l_b,int, Bicycle LOS Score for Intersection	2.535	2.244	2.017	3.059
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	367	0	567	0	537	236	0	946	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	411	0	635	0	601	264	0	1060	0
Peak Hour Factor	1.000	1.000	1.000	0.908	1.000	0.908	1.000	0.908	0.908	1.000	0.908	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	113	0	175	0	165	73	0	292	0
Total Analysis Volume [veh/h]	0	0	0	453	0	699	0	662	291	0	1167	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	79	0	0	0	41	0	0	41	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		35	35	77	77
g / C, Green / Cycle		0.30	0.30	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate		0.14	0.26	0.14	0.24
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		986	802	3124	3124
d1, Uniform Delay [s]		34.40	40.06	9.13	10.37
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.33	3.12	0.15	0.34
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.46	0.87	0.21	0.37
d, Delay for Lane Group [s/veh]		34.74	43.18	9.29	10.71
Lane Group LOS		C	D	A	B
Critical Lane Group		No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]		5.45	10.05	2.39	4.79
50th-Percentile Queue Length [ft/ln]		136.19	251.35	59.69	119.68
95th-Percentile Queue Length [veh/ln]		9.28	15.25	4.30	8.38
95th-Percentile Queue Length [ft/ln]		231.89	381.36	107.44	209.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	34.74	0.00	43.18	0.00	9.29	0.00	0.00	10.71	0.00
Movement LOS				C		D		A			B	
d_A, Approach Delay [s/veh]	0.00			39.86			9.29			10.71		
Approach LOS	A			D			A			B		
d_I, Intersection Delay [s/veh]	21.66											
Intersection LOS	C											
Intersection V/C	0.496											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.540	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1250	617	617
d_b, Bicycle Delay [s]	60.00	8.44	28.70	28.70
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	1.924	2.201
Bicycle LOS	D	A	A	B

Sequence

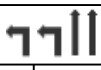
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	278	2	306	0	0	0	354	565	0	0	1595	179
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	311	2	343	0	0	0	396	633	0	0	1786	200
Peak Hour Factor	0.952	0.952	0.952	1.000	1.000	1.000	0.952	0.952	1.000	1.000	0.952	0.952
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	82	1	90	0	0	0	104	166	0	0	469	53
Total Analysis Volume [veh/h]	327	2	360	0	0	0	416	665	0	0	1876	210
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	0	0	41	111	0	0	70	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36		18	76	55
g / C, Green / Cycle	0.30	0.30	0.30		0.15	0.64	0.45
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.14		0.12	0.14	0.29
s, saturation flow rate [veh/h]	1714	1596	1530		3329	4903	6538
c, Capacity [veh/h]	508	473	453		496	3123	2972
d1, Uniform Delay [s]	34.58	34.65	34.68		49.65	9.15	25.03
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.17	3.48	3.67		3.86	0.03	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.48	0.48		0.84	0.21	0.63
d, Delay for Lane Group [s/veh]	37.75	38.12	38.35		53.51	9.18	25.26
Lane Group LOS	D	D	D		D	A	C
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	6.23	5.92	5.74		6.33	2.38	10.10
50th-Percentile Queue Length [ft/ln]	155.8	147.9	143.3		158.19	59.39	252.49
95th-Percentile Queue Length [veh/ln]	10.33	9.91	9.66		10.45	4.28	15.31
95th-Percentile Queue Length [ft/ln]	258.1	247.6	241.5		261.33	106.89	382.79

Movement, Approach, & Intersection Results

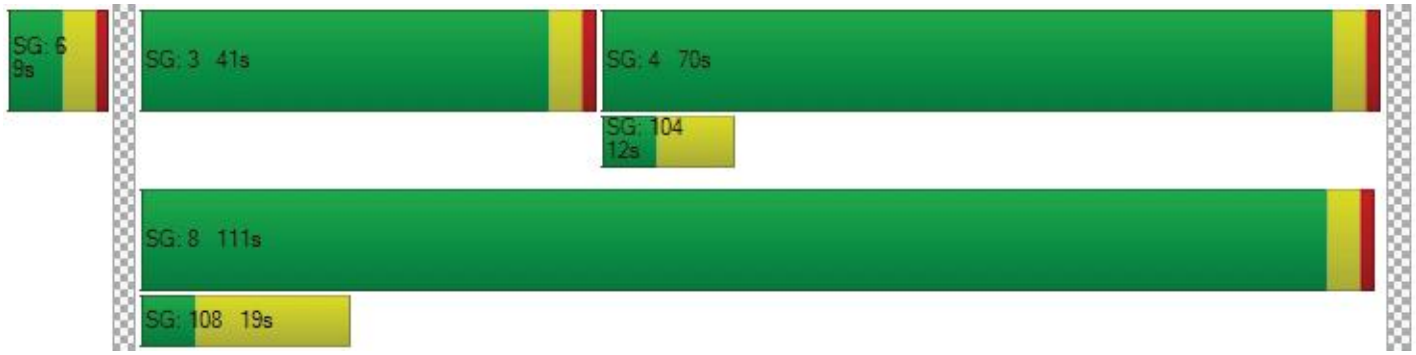
d_M, Delay for Movement [s/veh]	37.86	38.12	38.27	0.00	0.00	0.00	53.51	9.18	0.00	0.00	25.26	0.00
Movement LOS	D	D	D				D	A			C	
d_A, Approach Delay [s/veh]	38.07			0.00			26.24			25.26		
Approach LOS	D			A			C			C		
d_I, Intersection Delay [s/veh]	27.97											
Intersection LOS	C											
Intersection V/C	0.555											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.314	1.934	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	0	1783	1100
d_b, Bicycle Delay [s]	55.10	60.00	0.70	12.15
l_b,int, Bicycle LOS Score for Intersection	2.696	4.132	2.154	2.333
Bicycle LOS	B	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	63	529	155	69	828	410	232	502	139	414	1336	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	42	45	0	32	0	0	0	0	33	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	634	219	77	959	459	260	562	156	497	1496	74
Peak Hour Factor	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	172	60	21	261	125	71	153	42	135	407	20
Total Analysis Volume [veh/h]	77	689	238	84	1042	499	283	611	170	540	1626	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	44	0	10	45	0	16	40	0	26	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	43	43	5	43	43	12	35	35	21	44	44
g / C, Green / Cycle	0.04	0.36	0.36	0.04	0.36	0.36	0.10	0.29	0.29	0.18	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.16	0.03	0.21	0.33	0.09	0.12	0.11	0.16	0.33	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	129	1765	551	133	1770	552	333	1418	442	592	1799	561
d1, Uniform Delay [s]	56.76	28.60	29.11	56.75	31.10	36.35	53.12	34.63	34.10	48.42	35.98	25.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.39	0.65	2.46	4.93	1.44	20.64	6.08	0.21	0.55	5.96	1.94	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.39	0.43	0.63	0.59	0.90	0.85	0.43	0.38	0.91	0.90	0.14
d, Delay for Lane Group [s/veh]	61.15	29.25	31.57	61.68	32.55	56.99	59.19	34.84	34.65	54.39	37.92	25.49
Lane Group LOS	E	C	C	E	C	E	E	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.23	5.03	5.57	1.35	8.35	16.79	4.47	4.87	4.05	8.39	15.10	1.56
50th-Percentile Queue Length [ft/ln]	30.70	125.8	139.3	33.65	208.8	419.8	111.8	121.7	101.1	209.8	377.5	38.91
95th-Percentile Queue Length [veh/ln]	2.21	8.71	9.44	2.42	13.09	23.52	7.94	8.49	7.29	13.15	21.48	2.80
95th-Percentile Queue Length [ft/ln]	55.25	217.7	236.0	60.57	327.3	587.8	198.5	212.2	182.1	328.6	536.9	70.04

Movement, Approach, & Intersection Results

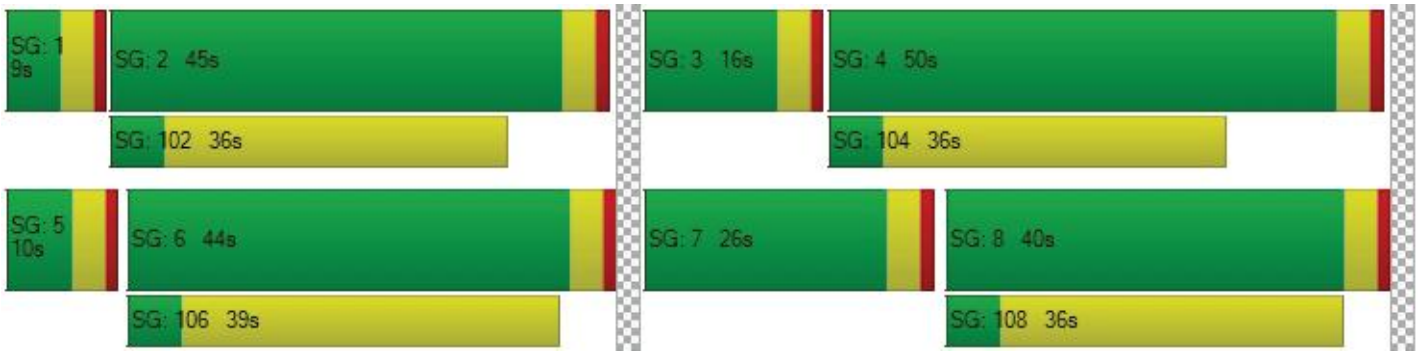
d_M, Delay for Movement [s/veh]	61.15	29.25	31.57	61.68	32.55	56.99	59.19	34.84	34.65	54.39	37.92	25.49
Movement LOS	E	C	C	E	C	E	E	C	C	D	D	C
d_A, Approach Delay [s/veh]	32.25			41.56			41.28			41.44		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	39.89											
Intersection LOS	D											
Intersection V/C	0.766											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.163	3.154	3.383	3.292
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	683	600	767
d_b, Bicycle Delay [s]	26.67	26.00	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	2.112	2.453	2.145	2.795
Bicycle LOS	B	B	B	C

Sequence

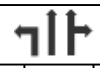
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	239	13	94	239	197	132	419	37	45	589	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	27	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	268	15	105	268	221	148	507	41	50	687	92
Peak Hour Factor	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	81	5	32	81	67	45	153	12	15	207	28
Total Analysis Volume [veh/h]	88	324	18	127	324	267	179	612	50	60	830	111
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	16	40	0	26	44	0	24	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	53	53	11	56	56	15	35	35	6	26	26
g / C, Green / Cycle	0.06	0.44	0.44	0.09	0.47	0.47	0.12	0.29	0.29	0.05	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.01	0.07	0.18	0.18	0.10	0.12	0.03	0.04	0.18	0.18
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1511	1714	4903	1506	1687	3427	1694
c, Capacity [veh/h]	109	1518	677	152	828	707	208	1414	434	79	734	363
d1, Uniform Delay [s]	55.44	20.57	18.85	53.82	20.72	20.76	51.74	34.72	31.43	56.51	45.39	45.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.80	0.32	0.07	11.30	1.34	1.60	10.03	0.21	0.12	13.69	3.03	6.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.21	0.03	0.84	0.38	0.39	0.86	0.43	0.12	0.76	0.86	0.86
d, Delay for Lane Group [s/veh]	68.24	20.90	18.92	65.12	22.06	22.36	61.77	34.93	31.55	70.20	48.42	51.54
Lane Group LOS	E	C	B	E	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.02	2.87	0.30	4.25	6.05	5.27	5.86	4.88	1.09	2.10	9.28	9.55
50th-Percentile Queue Length [ft/ln]	75.41	71.79	7.48	106.2	151.2	131.8	146.4	122.0	27.28	52.49	232.1	238.7
95th-Percentile Queue Length [veh/ln]	5.43	5.17	0.54	7.63	10.08	9.04	9.83	8.51	1.96	3.78	14.28	14.62
95th-Percentile Queue Length [ft/ln]	135.7	129.2	13.46	190.7	252.1	225.9	245.7	212.6	49.10	94.48	357.0	365.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.24	20.90	18.92	65.12	22.07	22.36	61.77	34.93	31.55	70.20	49.18	51.54
Movement LOS	E	C	B	E	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	30.50			29.79			40.44			50.70		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.89											
Intersection LOS	D											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.609	2.685	3.084	2.955
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	667	633
d_b, Bicycle Delay [s]	32.27	29.40	26.67	28.02
l_b,int, Bicycle LOS Score for Intersection	1.914	2.152	2.022	2.110
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	55.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.922

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	571	733	124	771	237	274	346	109	156	659	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	2	0	0	9	11	21	0	2	14	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	134	642	823	139	864	274	318	409	122	177	752	114
Peak Hour Factor	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	170	218	37	229	73	84	109	32	47	200	30
Total Analysis Volume [veh/h]	142	682	874	148	917	291	338	434	130	188	798	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	18	61	0	14	57	0	15	26	0	19	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	61	61	10	59	59	11	25	25	9	22	36
g / C, Green / Cycle	0.10	0.50	0.50	0.08	0.49	0.49	0.09	0.20	0.20	0.07	0.19	0.30
(v / s)_i Volume / Saturation Flow Rate	0.08	0.38	0.57	0.09	0.27	0.19	0.10	0.09	0.08	0.06	0.16	0.08
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	168	907	771	143	1677	749	305	1000	312	250	920	466
d1, Uniform Delay [s]	53.21	23.76	29.76	55.00	21.37	19.33	54.50	41.70	41.54	54.39	47.30	31.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.84	5.71	75.68	44.63	1.29	1.52	59.15	0.30	0.89	4.50	2.65	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.75	1.13	1.04	0.55	0.39	1.11	0.43	0.42	0.75	0.87	0.26
d, Delay for Lane Group [s/veh]	64.04	29.47	105.4	99.63	22.66	20.85	113.6	42.00	42.43	58.89	49.95	31.83
Lane Group LOS	E	C	F	F	C	C	F	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.72	16.42	37.42	6.08	9.14	5.39	7.11	3.78	3.43	2.94	7.92	2.71
50th-Percentile Queue Length [ft/ln]	117.8	410.3	935.6	152.0	228.5	134.8	177.7	94.47	85.86	73.56	197.8	67.68
95th-Percentile Queue Length [veh/ln]	8.28	23.06	52.18	10.25	14.10	9.20	11.90	6.80	6.18	5.30	12.53	4.87
95th-Percentile Queue Length [ft/ln]	206.9	576.5	1304.	256.3	352.5	230.0	297.5	170.0	154.5	132.4	313.2	121.8

Movement, Approach, & Intersection Results

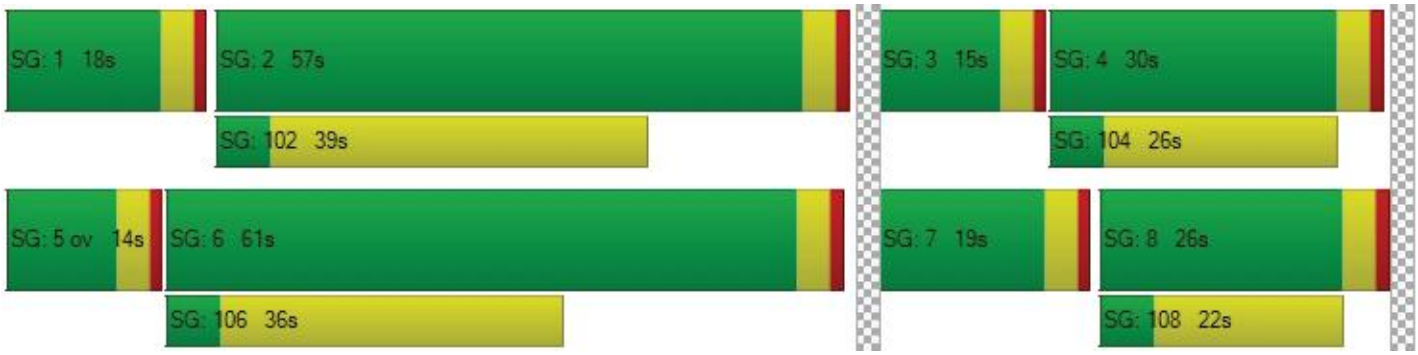
d_M, Delay for Movement [s/veh]	64.04	29.47	105.4	99.63	22.66	20.85	113.6	42.00	42.43	58.89	49.95	31.83
Movement LOS	E	C	F	F	C	C	F	D	D	E	D	C
d_A, Approach Delay [s/veh]	71.46			30.67			68.91			49.49		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	55.28											
Intersection LOS	E											
Intersection V/C	0.922											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.887	2.874	3.096	3.232
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	883	367	433
d_b, Bicycle Delay [s]	16.54	18.70	40.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.960	2.678	2.056	2.168
Bicycle LOS	C	B	B	B

Sequence

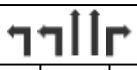
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.613

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	157	629	56	220	1054	104	94	405	109	90	492	139
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	5	0	0	4	6	10	6	0	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	709	63	246	1184	122	115	460	122	101	555	156
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	199	18	69	332	34	32	129	34	28	156	44
Total Analysis Volume [veh/h]	198	796	71	276	1329	137	129	516	137	113	623	175
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	23	50	0	10	47	0	10	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	67	67	12	70	70	6	19	19	6	19	19
g / C, Green / Cycle	0.08	0.56	0.56	0.10	0.58	0.58	0.05	0.16	0.16	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.05	0.08	0.39	0.09	0.04	0.11	0.09	0.03	0.13	0.11
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	250	2725	850	339	1997	892	166	784	245	163	779	243
d1, Uniform Delay [s]	54.58	14.13	12.41	52.77	17.06	11.47	56.33	47.32	46.50	56.18	48.62	47.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.63	0.27	0.19	4.73	1.77	0.37	7.49	0.95	2.00	5.21	1.95	3.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.29	0.08	0.81	0.67	0.15	0.77	0.66	0.56	0.69	0.80	0.72
d, Delay for Lane Group [s/veh]	60.21	14.40	12.61	57.50	18.83	11.84	63.82	48.26	48.50	61.39	50.57	51.91
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.14	3.84	0.93	4.29	12.45	1.75	2.10	4.90	3.92	1.80	6.13	5.24
50th-Percentile Queue Length [ft/ln]	78.43	96.01	23.30	107.3	311.1	43.70	52.61	122.4	97.92	45.08	153.1	131.0
95th-Percentile Queue Length [veh/ln]	5.65	6.91	1.68	7.69	18.23	3.15	3.79	8.53	7.05	3.25	10.19	9.00
95th-Percentile Queue Length [ft/ln]	141.1	172.8	41.94	192.3	455.8	78.66	94.70	213.2	176.2	81.15	254.6	224.8

Movement, Approach, & Intersection Results

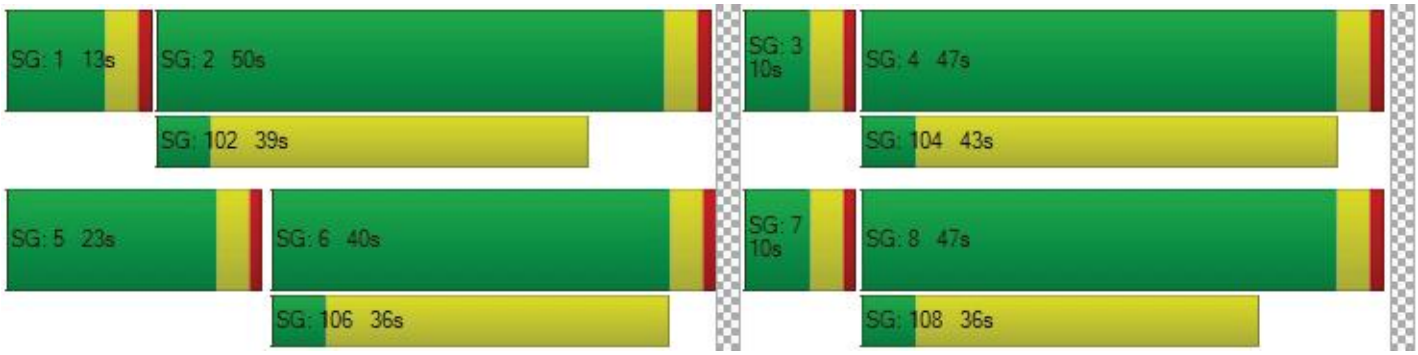
d_M, Delay for Movement [s/veh]	60.21	14.40	12.61	57.50	18.83	11.84	63.82	48.26	48.50	61.39	50.57	51.91
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.80			24.41			50.87			52.17		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.25											
Intersection LOS	C											
Intersection V/C	0.613											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.151	3.345	3.151	3.057
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	767	717	717
d_b, Bicycle Delay [s]	29.40	22.82	24.70	24.70
l_b,int, Bicycle LOS Score for Intersection	2.145	2.997	1.990	2.061
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	49.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	239	145	76	282	121	87	249	108	94	464	69
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	12	1	0	8	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	280	163	85	324	136	97	279	121	105	520	77
Peak Hour Factor	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	83	48	25	96	40	29	83	36	31	154	23
Total Analysis Volume [veh/h]	187	332	193	101	384	161	115	331	144	125	617	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	30	0	12	23	23	0	30	0	0	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	39	39	8	32	32	24	24	33	33
g / C, Green / Cycle	0.12	0.32	0.32	0.07	0.27	0.27	0.20	0.20	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.15	0.16	0.06	0.11	0.11	0.18	0.18	0.25	0.25
s, saturation flow rate [veh/h]	1714	1800	1582	1714	3427	1530	1768	1498	1775	1573
c, Capacity [veh/h]	212	579	509	114	907	405	361	306	487	431
d1, Uniform Delay [s]	51.70	32.64	32.70	55.54	36.54	36.26	46.34	46.45	42.08	42.08
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.16	0.22	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.22	2.84	3.28	18.98	1.45	2.90	9.53	12.03	12.50	13.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.48	0.48	0.88	0.42	0.40	0.88	0.89	0.91	0.91
d, Delay for Lane Group [s/veh]	62.93	35.48	35.98	74.52	37.99	39.16	55.87	58.49	54.58	55.93
Lane Group LOS	E	D	D	E	D	D	E	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	6.19	6.94	6.22	3.63	4.85	4.21	10.12	8.89	14.23	12.78
50th-Percentile Queue Length [ft/ln]	154.6	173.5	155.5	90.80	121.3	105.3	252.93	222.16	355.70	319.54
95th-Percentile Queue Length [veh/ln]	10.27	11.26	10.31	6.54	8.47	7.58	15.33	13.78	20.41	18.65
95th-Percentile Queue Length [ft/ln]	256.6	281.5	257.7	163.4	211.6	189.4	383.35	344.38	510.36	466.13

Movement, Approach, & Intersection Results

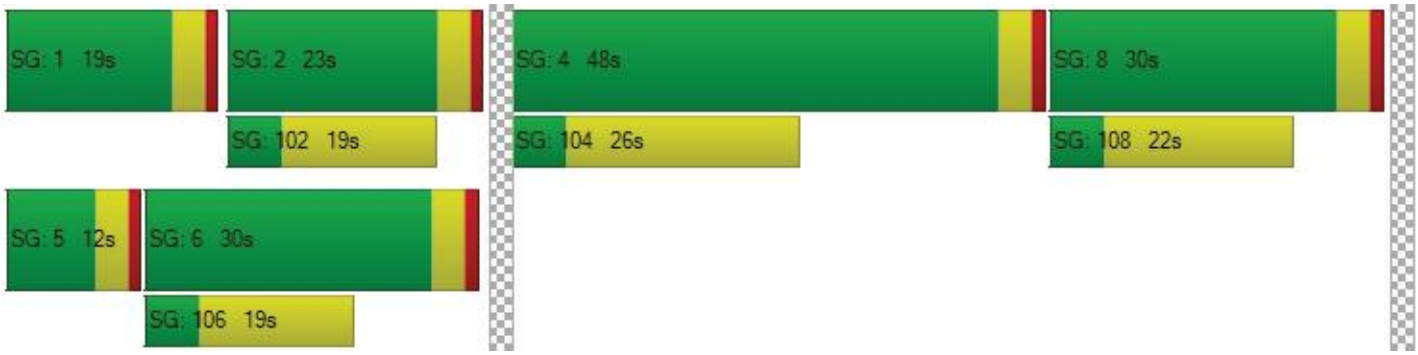
d_M, Delay for Movement [s/veh]	62.93	35.56	35.98	74.52	37.99	39.16	55.87	56.88	58.49	54.58	55.24	55.93
Movement LOS	E	D	D	E	D	D	E	E	E	D	E	E
d_A, Approach Delay [s/veh]	42.86			43.99			57.08			55.21		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	49.84											
Intersection LOS	D											
Intersection V/C	0.652											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.581	2.661	2.525	2.502
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	317	433	733
d_b, Bicycle Delay [s]	36.82	42.50	36.82	24.07
l_b,int, Bicycle LOS Score for Intersection	2.147	2.093	2.046	2.247
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	44.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.012

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	0	849	0	520	798	0	1435	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	26	0	0	0	12	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	194	0	951	0	594	894	0	1623	0
Peak Hour Factor	1.000	1.000	1.000	0.945	1.000	0.945	1.000	0.945	0.945	1.000	0.945	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	51	0	252	0	157	237	0	429	0
Total Analysis Volume [veh/h]	0	0	0	205	0	1006	0	629	946	0	1717	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	48	0	0	0	72	0	0	72	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		44	44	44	68	68	68
g / C, Green / Cycle		0.37	0.37	0.37	0.57	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate		0.12	0.39	0.26	0.13	0.62	0.35
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		629	561	561	2778	867	2778
d1, Uniform Delay [s]		27.34	38.00	32.69	12.92	26.00	17.34
k, delay calibration		0.11	0.50	0.26	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.30	59.30	4.08	0.19	58.45	1.04
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.33	1.07	0.72	0.23	1.09	0.62
d, Delay for Lane Group [s/veh]		27.63	97.30	36.77	13.11	84.45	18.38
Lane Group LOS		C	F	D	B	F	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		4.30	25.39	10.63	2.83	37.20	10.45
50th-Percentile Queue Length [ft/ln]		107.4	634.6	265.7	70.73	930.12	261.24
95th-Percentile Queue Length [veh/ln]		7.70	35.34	15.98	5.09	50.68	15.75
95th-Percentile Queue Length [ft/ln]		192.3	883.4	399.4	127.32	1267.01	393.78

Movement, Approach, & Intersection Results

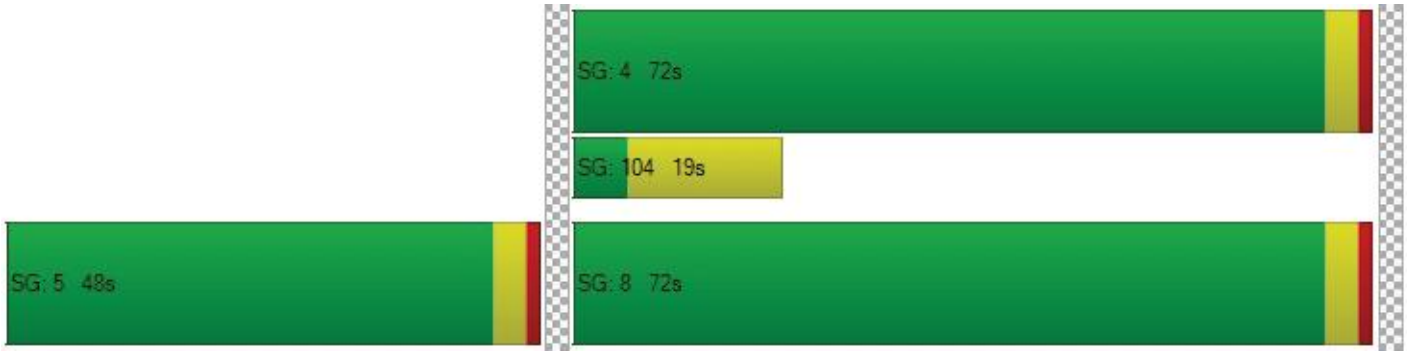
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	27.63	0.00	73.01	0.00	13.11	84.45	0.00	18.38	0.00
Movement LOS				C		E		B	F		B	
d_A, Approach Delay [s/veh]	0.00			65.33			55.96			18.38		
Approach LOS	A			E			E			B		
d_I, Intersection Delay [s/veh]	44.15											
Intersection LOS	D											
Intersection V/C	1.012											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.442	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	733	1133	1133
d_b, Bicycle Delay [s]	60.00	24.07	11.27	11.27
l_b,int, Bicycle LOS Score for Intersection	4.132	3.558	2.426	2.504
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	873	0	494	0	0	0	0	441	0	0	1219	197
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	16	36
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	978	0	553	0	0	0	0	532	0	0	1381	257
Peak Hour Factor	0.879	1.000	0.879	1.000	1.000	1.000	1.000	0.879	1.000	1.000	0.879	0.879
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	278	0	157	0	0	0	0	151	0	0	393	73
Total Analysis Volume [veh/h]	1113	0	629	0	0	0	0	605	0	0	1571	292
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	66	0	0	0	0	0	0	54	0	0	54	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	50	50	50		62	62	62
g / C, Green / Cycle	0.42	0.42	0.42		0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.34	0.34	0.38		0.12	0.32	0.19
s, saturation flow rate [veh/h]	1714	1697	1530		4903	4903	1530
c, Capacity [veh/h]	716	709	639		2528	2528	789
d1, Uniform Delay [s]	30.75	30.91	32.77		16.07	20.73	17.41
k, delay calibration	0.21	0.22	0.27		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.38	4.75	11.86		0.22	1.16	1.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.82	0.91		0.24	0.62	0.37
d, Delay for Lane Group [s/veh]	35.13	35.65	44.64		16.29	21.89	18.74
Lane Group LOS	D	D	D		B	C	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	15.40	15.54	17.59		3.10	10.47	5.07
50th-Percentile Queue Length [ft/ln]	385.0	388.5	439.8		77.45	261.83	126.75
95th-Percentile Queue Length [veh/ln]	21.84	22.01	24.47		5.58	15.78	8.76
95th-Percentile Queue Length [ft/ln]	545.9	550.1	611.8		139.41	394.51	219.07

Movement, Approach, & Intersection Results

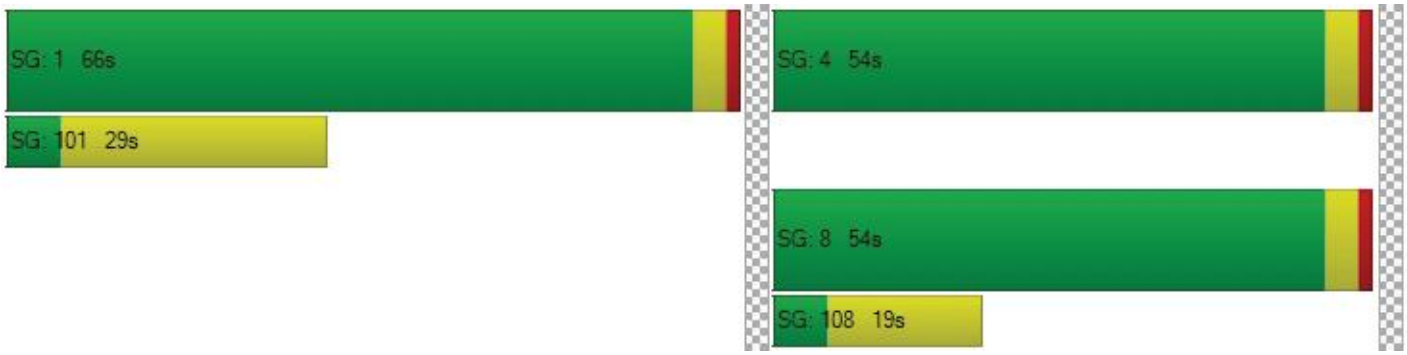
d_M, Delay for Movement [s/veh]	35.38	0.00	43.95	0.00	0.00	0.00	0.00	16.29	0.00	0.00	21.89	18.74
Movement LOS	D		D					B			C	B
d_A, Approach Delay [s/veh]	38.47			0.00			16.29			21.39		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	27.73											
Intersection LOS	C											
Intersection V/C	0.700											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.571	0.000	0.000	3.041
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	0	833	833
d_b, Bicycle Delay [s]	14.02	60.00	20.42	20.42
l_b,int, Bicycle LOS Score for Intersection	4.434	4.132	1.892	2.584
Bicycle LOS	E	D	A	B

Sequence

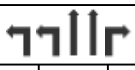
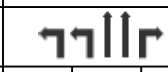
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	47.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	199	67	50	341	230	100	448	210	342	1200	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	52	13	1	0	8	0	0	0	38	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	223	236	76	56	390	258	112	502	273	383	1344	129
Peak Hour Factor	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	61	64	21	15	106	70	30	136	74	104	365	35
Total Analysis Volume [veh/h]	242	256	83	61	423	280	122	545	296	416	1459	140
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	46	0	11	36	0	9	40	40	23	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	43	43	6	32	32	5	38	59	17	50	50
g / C, Green / Cycle	0.14	0.36	0.36	0.05	0.27	0.27	0.04	0.32	0.49	0.14	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.05	0.04	0.21	0.21	0.04	0.16	0.19	0.12	0.43	0.09
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1564	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	243	651	553	80	480	417	139	1080	750	477	1428	638
d1, Uniform Delay [s]	51.47	28.50	25.85	56.55	40.76	40.83	57.20	33.48	19.35	50.32	35.00	22.47
k, delay calibration	0.13	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.28	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.73	1.78	0.57	13.86	11.95	13.86	15.84	0.37	0.89	5.10	17.09	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.39	0.15	0.76	0.78	0.79	0.88	0.50	0.39	0.87	1.02	0.22
d, Delay for Lane Group [s/veh]	80.20	30.28	26.42	70.40	52.71	54.69	73.04	33.84	20.24	55.42	52.09	22.64
Lane Group LOS	F	C	C	E	D	D	E	C	C	E	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.19	5.80	1.70	2.14	11.81	10.55	2.15	6.51	5.36	6.45	23.66	2.58
50th-Percentile Queue Length [ft/ln]	229.6	145.0	42.50	53.42	295.2	263.8	53.63	162.7	133.9	161.1	591.5	64.56
95th-Percentile Queue Length [veh/ln]	14.16	9.75	3.06	3.85	17.44	15.88	3.86	10.70	9.15	10.61	32.15	4.65
95th-Percentile Queue Length [ft/ln]	353.9	243.8	76.50	96.16	436.1	396.9	96.54	267.3	228.7	265.2	803.6	116.2

Movement, Approach, & Intersection Results

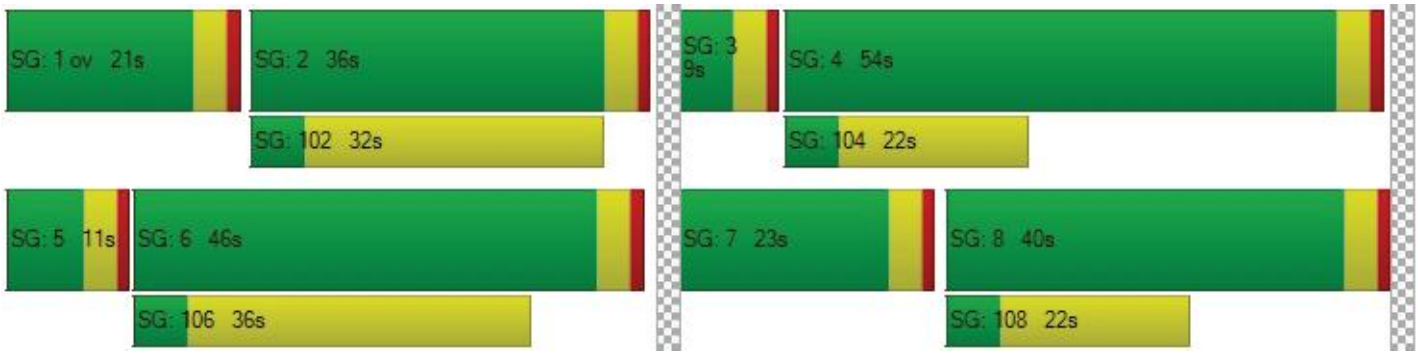
d_M, Delay for Movement [s/veh]	80.20	30.28	26.42	70.40	52.94	54.69	73.04	33.84	20.24	55.42	52.09	22.64
Movement LOS	F	C	C	E	D	D	E	C	C	E	F	C
d_A, Approach Delay [s/veh]	50.52			54.97			34.63			50.73		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	47.87											
Intersection LOS	D											
Intersection V/C	0.813											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.650	2.565	3.099	3.157
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	533	600	833
d_b, Bicycle Delay [s]	25.35	32.27	29.40	20.42
l_b,int, Bicycle LOS Score for Intersection	2.518	2.190	2.354	3.222
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	41.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	214	404	115	164	793	203	183	414	153	284	1138	98
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	91	29	0	72	0	1	0	0	19	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	543	158	184	960	227	206	464	171	337	1275	110
Peak Hour Factor	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	65	147	43	50	260	62	56	126	46	91	346	30
Total Analysis Volume [veh/h]	260	589	171	200	1041	246	223	503	185	366	1383	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	24	44	0	20	40	40	13	36	0	20	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	20	42	42	16	38	51	9	31	31	15	37	57
g / C, Green / Cycle	0.17	0.35	0.35	0.13	0.32	0.42	0.08	0.26	0.26	0.13	0.31	0.47
(v / s)_i Volume / Saturation Flow Rate	0.15	0.12	0.11	0.12	0.21	0.16	0.07	0.10	0.12	0.11	0.28	0.08
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	284	1714	535	226	1546	648	250	1270	396	421	1523	727
d1, Uniform Delay [s]	49.21	28.85	28.58	51.23	35.72	23.75	55.02	36.70	37.47	51.44	39.73	17.90
k, delay calibration	0.16	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.57	0.55	1.57	11.08	2.36	1.69	10.66	0.20	0.86	5.61	2.39	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.34	0.32	0.89	0.67	0.38	0.89	0.40	0.47	0.87	0.91	0.16
d, Delay for Lane Group [s/veh]	64.78	29.40	30.15	62.31	38.08	25.44	65.68	36.91	38.33	57.05	42.12	18.01
Lane Group LOS	E	C	C	E	D	C	E	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.87	4.28	3.85	6.60	9.11	5.08	3.71	4.10	4.69	5.72	13.26	1.91
50th-Percentile Queue Length [ft/ln]	221.6	106.9	96.21	164.9	227.8	127.1	92.74	102.5	117.1	143.1	331.3	47.70
95th-Percentile Queue Length [veh/ln]	13.75	7.67	6.93	10.81	14.06	8.78	6.68	7.38	8.24	9.65	19.23	3.43
95th-Percentile Queue Length [ft/ln]	343.7	191.7	173.1	270.2	351.6	219.5	166.9	184.5	205.9	241.2	480.6	85.86

Movement, Approach, & Intersection Results

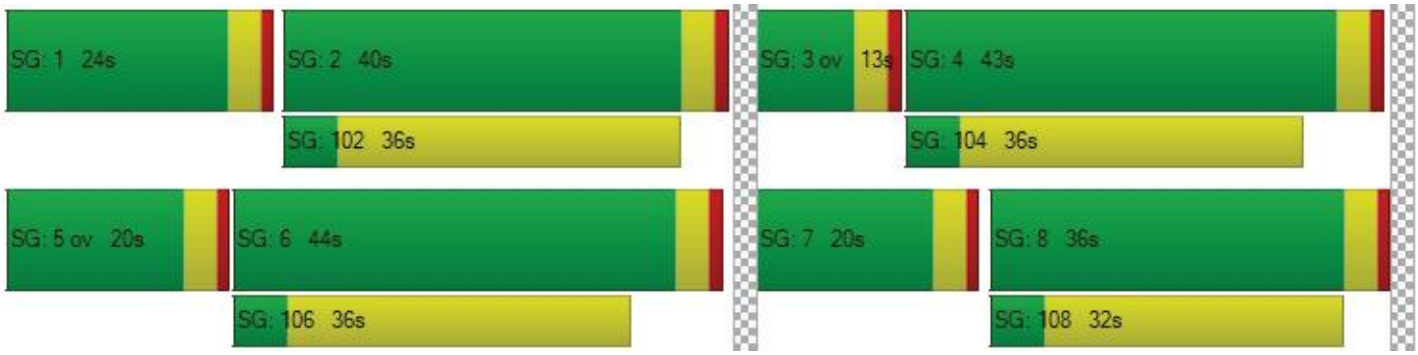
d_M, Delay for Movement [s/veh]	64.78	29.40	30.15	62.31	38.08	25.44	65.68	36.91	38.33	57.05	42.12	18.01
Movement LOS	E	C	C	E	D	C	E	D	D	E	D	B
d_A, Approach Delay [s/veh]	38.54			39.25			44.24			43.51		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.48											
Intersection LOS	D											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.059	3.126	3.168	3.162
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	600	533	650
d_b, Bicycle Delay [s]	26.67	29.40	32.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.121	2.377	2.061	2.587
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	1,315.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.716

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	102	0	0	0	0	621	36	198	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	1	0	0	0	0	29	0	2	19	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	0	115	0	0	0	0	725	40	224	1728	0
Peak Hour Factor	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	0	35	0	0	0	0	220	12	68	525	0
Total Analysis Volume [veh/h]	29	0	140	0	0	0	0	881	49	272	2100	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	2.72	0.00	0.25	0.00	0.00	0.00	0.00	0.01	0.00	0.37	0.02	0.00
d_M, Delay for Movement [s/veh]	1315.	1938.	985.1	1297.	1002.	20.85	18.55	0.00	0.00	12.60	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	17.61	17.61	17.61	0.00	0.00	0.00	0.00	0.00	0.00	1.68	0.00	0.00
95th-Percentile Queue Length [ft/ln]	440.2	440.2	440.2	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00
d_A, Approach Delay [s/veh]	1041.87			773.30			0.00			1.45		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	51.72											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	51.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	515	78	132	724	162	149	428	114	235	797	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	2	0	0	23	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	581	87	148	813	181	167	502	128	263	908	87
Peak Hour Factor	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	159	24	40	222	50	46	137	35	72	248	24
Total Analysis Volume [veh/h]	175	636	95	162	889	198	183	549	140	288	993	95
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	44	0	17	44	0	18	33	0	26	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	40	40	13	40	40	14	29	29	22	37	37
g / C, Green / Cycle	0.11	0.34	0.34	0.11	0.34	0.34	0.12	0.24	0.24	0.18	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.21	0.21	0.09	0.31	0.31	0.11	0.16	0.09	0.17	0.29	0.06
s, saturation flow rate [veh/h]	1714	1800	1719	1714	1800	1688	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	186	606	579	186	606	569	200	820	366	312	1044	466
d1, Uniform Delay [s]	53.13	33.30	33.30	52.68	38.28	38.37	52.41	41.35	38.22	48.23	40.83	30.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.21	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.52	4.65	4.86	11.86	21.78	23.50	15.03	0.96	0.66	18.69	5.71	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.62	0.62	0.87	0.92	0.93	0.92	0.67	0.38	0.92	0.95	0.20
d, Delay for Lane Group [s/veh]	72.65	37.94	38.16	64.54	60.06	61.87	67.44	42.31	38.88	66.92	46.55	31.14
Lane Group LOS	E	D	D	E	E	E	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.24	9.84	9.44	5.41	19.26	18.45	6.28	7.46	3.53	10.06	15.02	2.08
50th-Percentile Queue Length [ft/ln]	155.9	246.1	236.0	135.3	481.6	461.1	156.9	186.4	88.29	251.5	375.5	52.10
95th-Percentile Queue Length [veh/ln]	10.33	14.99	14.48	9.23	26.46	25.49	10.38	11.94	6.36	15.26	21.38	3.75
95th-Percentile Queue Length [ft/ln]	258.3	374.7	361.9	230.7	661.5	637.2	259.6	298.4	158.9	381.5	534.4	93.79

Movement, Approach, & Intersection Results

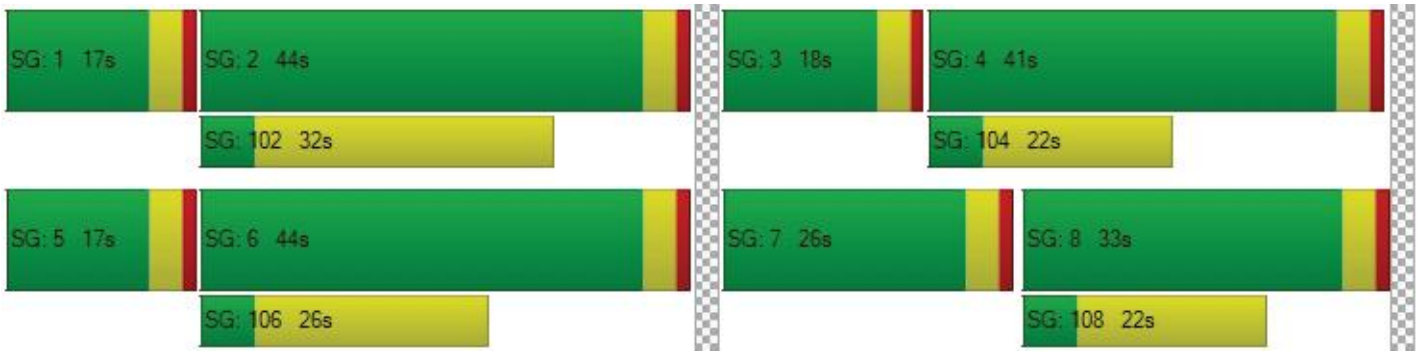
d_M, Delay for Movement [s/veh]	72.65	38.03	38.16	64.54	60.73	61.87	67.44	42.31	38.88	66.92	46.55	31.14
Movement LOS	E	D	D	E	E	E	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	44.73			61.41			47.03			49.75		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	51.48											
Intersection LOS	D											
Intersection V/C	0.811											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.749	2.737	2.832	2.823
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	483	617
d_b, Bicycle Delay [s]	26.67	26.67	34.50	28.70
l_b,int, Bicycle LOS Score for Intersection	2.307	2.590	2.279	2.695
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.733

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	436	79	192	814	126	211	375	100	151	611	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	9	2	0	8	2	3	14	0	3	9	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	497	90	215	920	143	239	434	112	172	693	140
Peak Hour Factor	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	138	25	60	255	40	66	120	31	48	192	39
Total Analysis Volume [veh/h]	98	551	100	238	1020	159	265	481	124	191	768	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	31	0	24	43	0	29	41	0	24	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	35	35	18	46	46	21	35	35	15	30	30
g / C, Green / Cycle	0.07	0.29	0.29	0.15	0.38	0.38	0.17	0.29	0.29	0.13	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.07	0.14	0.30	0.10	0.15	0.14	0.08	0.11	0.22	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	114	1000	447	264	1301	581	294	1000	446	221	853	381
d1, Uniform Delay [s]	55.44	35.84	32.19	49.84	32.89	25.78	48.69	35.02	32.76	51.25	43.64	37.68
k, delay calibration	0.11	0.50	0.50	0.12	0.50	0.50	0.17	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.32	2.18	1.16	12.02	4.79	1.16	14.28	0.36	0.33	9.73	3.81	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.55	0.22	0.90	0.78	0.27	0.90	0.48	0.28	0.87	0.90	0.41
d, Delay for Lane Group [s/veh]	71.76	38.03	33.34	61.86	37.68	26.94	62.97	35.38	33.09	60.98	47.45	38.38
Lane Group LOS	E	D	C	E	D	C	E	D	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.45	7.10	2.36	7.88	13.78	3.34	8.92	5.85	2.84	6.22	11.42	3.89
50th-Percentile Queue Length [ft/ln]	86.30	177.3	58.94	196.9	344.4	83.57	223.1	146.1	70.93	155.6	285.3	97.37
95th-Percentile Queue Length [veh/ln]	6.21	11.46	4.24	12.48	19.86	6.02	13.82	9.81	5.11	10.32	16.96	7.01
95th-Percentile Queue Length [ft/ln]	155.3	286.6	106.0	312.0	496.5	150.4	345.6	245.2	127.6	257.9	423.9	175.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.76	38.03	33.34	61.86	37.68	26.94	62.97	35.38	33.09	60.98	47.45	38.38
Movement LOS	E	D	C	E	D	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	41.81			40.54			43.46			48.51		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.52											
Intersection LOS	D											
Intersection V/C	0.733											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.899	3.032	2.776	2.782
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	650	617	533
d_b, Bicycle Delay [s]	36.04	27.34	28.70	32.27
l_b,int, Bicycle LOS Score for Intersection	2.178	2.729	2.277	2.479
Bicycle LOS	B	B	B	B

Sequence

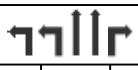
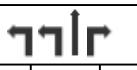
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	43.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.784

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	325	161	36	120	324	392	93	245	148	141	699	133
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	18	66	0	0	46	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	382	246	40	134	409	439	104	274	178	158	783	149
Peak Hour Factor	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	110	71	12	39	118	127	30	79	51	46	226	43
Total Analysis Volume [veh/h]	442	284	46	155	473	508	120	317	206	183	905	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	23	35	35	18	30	30	11	51	51	16	56	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	44	57	13	39	50	7	38	60	9	40	40
g / C, Green / Cycle	0.15	0.37	0.47	0.11	0.32	0.41	0.06	0.32	0.50	0.07	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.13	0.08	0.03	0.09	0.14	0.33	0.04	0.18	0.13	0.05	0.31	0.31
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1702
c, Capacity [veh/h]	500	1258	725	181	1106	634	194	577	771	245	604	571
d1, Uniform Delay [s]	49.97	26.22	17.12	52.74	31.94	30.81	55.19	33.64	17.07	54.49	38.22	38.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.25	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.39	0.42	0.17	10.81	1.21	10.28	3.18	0.82	0.19	4.51	12.14	13.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.23	0.06	0.85	0.43	0.80	0.62	0.55	0.27	0.75	0.91	0.92
d, Delay for Lane Group [s/veh]	55.37	26.63	17.29	63.55	33.15	41.09	58.37	34.46	17.26	59.01	50.36	51.56
Lane Group LOS	E	C	B	E	C	D	E	C	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.86	2.89	0.73	5.13	5.58	14.45	1.86	7.74	3.29	2.87	17.40	16.73
50th-Percentile Queue Length [ft/ln]	171.5	72.24	18.22	128.3	139.5	361.1	46.50	193.3	82.28	71.67	435.0	418.1
95th-Percentile Queue Length [veh/ln]	11.16	5.20	1.31	8.85	9.46	20.68	3.35	12.30	5.92	5.16	24.24	23.43
95th-Percentile Queue Length [ft/ln]	278.8	130.0	32.80	221.2	236.4	517.0	83.70	307.4	148.1	129.0	606.0	585.8

Movement, Approach, & Intersection Results

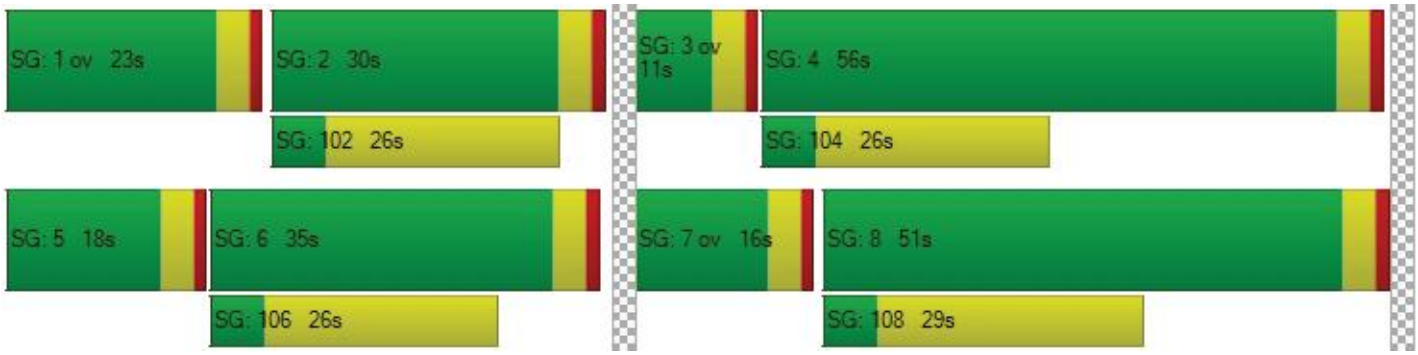
d_M, Delay for Movement [s/veh]	55.37	26.63	17.29	63.55	33.15	41.09	58.37	34.46	17.26	59.01	50.83	51.56
Movement LOS	E	C	B	E	C	D	E	C	B	E	D	D
d_A, Approach Delay [s/veh]	42.53			40.85			33.41			52.11		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	43.66											
Intersection LOS	D											
Intersection V/C	0.784											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.837	2.746	2.957	2.757
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	433	783	867
d_b, Bicycle Delay [s]	33.00	36.82	22.20	19.27
l_b,int, Bicycle LOS Score for Intersection	2.197	2.497	2.621	2.599
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	45.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.784

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	671	122	53	1008	95	70	390	93	154	601	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	121	20	0	91	0	0	0	0	13	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	873	157	59	1220	106	78	437	104	185	673	66
Peak Hour Factor	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	230	41	16	322	28	21	115	27	49	177	17
Total Analysis Volume [veh/h]	121	921	166	62	1287	112	82	461	110	195	710	70
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	38	0	10	35	0	10	36	0	36	62	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	43	43	6	39	39	6	40	40	16	50	50
g / C, Green / Cycle	0.08	0.36	0.36	0.05	0.33	0.33	0.05	0.33	0.33	0.13	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.07	0.21	0.21	0.04	0.27	0.27	0.05	0.26	0.07	0.11	0.39	0.05
s, saturation flow rate [veh/h]	1714	3427	1663	1714	3427	1727	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	129	1226	595	79	1126	568	86	596	506	226	743	632
d1, Uniform Delay [s]	55.24	31.46	31.48	56.67	37.12	37.12	56.87	36.10	28.93	51.00	34.14	21.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.20	0.11	0.11	0.33	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.92	2.14	4.39	15.79	6.96	12.92	35.51	3.94	0.21	9.29	18.13	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.60	0.60	0.79	0.83	0.83	0.96	0.77	0.22	0.86	0.95	0.11
d, Delay for Lane Group [s/veh]	80.15	33.61	35.87	72.46	44.08	50.04	92.38	40.04	29.15	60.30	52.26	21.74
Lane Group LOS	F	C	D	E	D	D	F	D	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.53	8.98	9.11	2.21	13.53	14.58	3.32	12.67	2.33	6.32	23.30	1.24
50th-Percentile Queue Length [ft/ln]	113.2	224.4	227.6	55.13	338.3	364.5	83.10	316.8	58.23	157.9	582.5	30.93
95th-Percentile Queue Length [veh/ln]	8.02	13.89	14.06	3.97	19.57	20.84	5.98	18.51	4.19	10.44	31.22	2.23
95th-Percentile Queue Length [ft/ln]	200.4	347.2	351.3	99.24	489.2	521.0	149.5	462.7	104.8	261.0	780.4	55.67

Movement, Approach, & Intersection Results

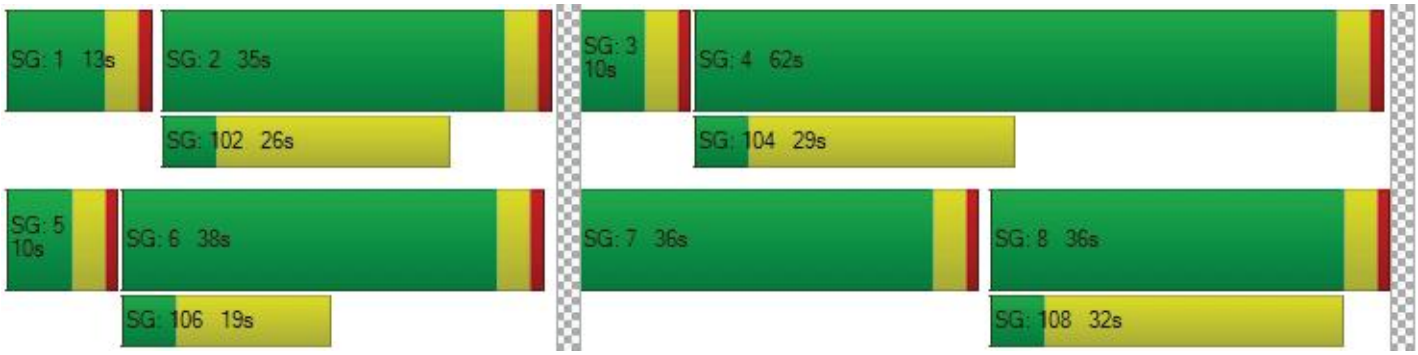
d_M, Delay for Movement [s/veh]	80.15	34.08	35.87	72.46	45.74	50.04	92.38	40.04	29.15	60.30	52.26	21.74
Movement LOS	F	C	D	E	D	D	F	D	C	E	D	C
d_A, Approach Delay [s/veh]	38.94			47.20			44.77			51.68		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.52											
Intersection LOS	D											
Intersection V/C	0.784											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.082	2.962	2.727	2.552
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	517	533	967
d_b, Bicycle Delay [s]	30.82	33.00	32.27	16.02
l_b,int, Bicycle LOS Score for Intersection	2.224	2.363	2.637	3.168
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	127	114	14	154	84	41	337	58	140	598	22
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	1	3	0	2	0	0	20	0	2	13	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	143	131	16	174	94	46	397	65	159	683	25
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	39	36	4	48	26	13	109	18	44	188	7
Total Analysis Volume [veh/h]	103	158	144	18	192	104	51	438	72	175	753	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	94	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	54	54	54	54	58	58	58	58	58	58
g / C, Green / Cycle	0.45	0.45	0.45	0.45	0.45	0.45	0.48	0.48	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.09	0.02	0.11	0.07	0.07	0.24	0.05	0.19	0.42	0.02
s, saturation flow rate [veh/h]	1100	1800	1530	1094	1800	1530	703	1800	1530	904	1800	1530
c, Capacity [veh/h]	463	818	695	475	818	695	130	862	733	334	862	733
d1, Uniform Delay [s]	26.58	19.59	19.73	23.51	20.01	19.18	52.44	21.52	17.08	36.16	27.99	16.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.11	0.53	0.68	0.15	0.67	0.46	1.92	0.46	0.06	1.28	3.87	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.19	0.21	0.04	0.23	0.15	0.39	0.51	0.10	0.52	0.87	0.04
d, Delay for Lane Group [s/veh]	27.68	20.12	20.40	23.66	20.68	19.63	54.36	21.98	17.14	37.43	31.86	16.60
Lane Group LOS	C	C	C	C	C	B	D	C	B	D	C	B
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.22	2.77	2.57	0.35	3.45	1.80	1.56	8.49	1.11	4.53	19.66	0.42
50th-Percentile Queue Length [ft/ln]	55.40	69.31	64.13	8.64	86.13	44.93	39.01	212.1	27.63	113.3	491.4	10.43
95th-Percentile Queue Length [veh/ln]	3.99	4.99	4.62	0.62	6.20	3.23	2.81	13.27	1.99	8.02	26.93	0.75
95th-Percentile Queue Length [ft/ln]	99.72	124.7	115.4	15.56	155.0	80.87	70.22	331.6	49.73	200.6	673.2	18.77

Movement, Approach, & Intersection Results

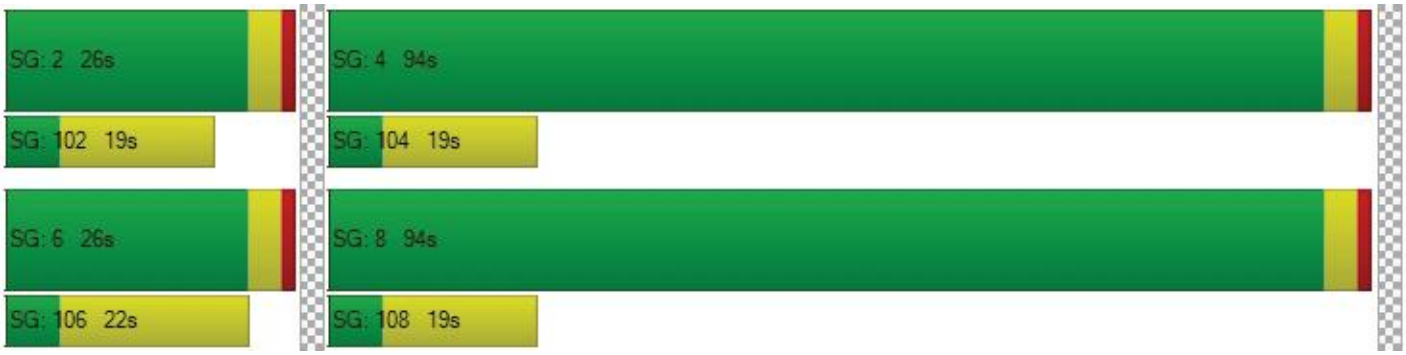
d_M, Delay for Movement [s/veh]	27.68	20.12	20.40	23.66	20.68	19.63	54.36	21.98	17.14	37.43	31.86	16.60
Movement LOS	C	C	C	C	C	B	D	C	B	D	C	B
d_A, Approach Delay [s/veh]	22.14			20.50			24.30			32.43		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.85											
Intersection LOS	C											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.601	2.353	2.664	2.644
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1500	1500
d_b, Bicycle Delay [s]	40.02	40.02	3.75	3.75
l_b,int, Bicycle LOS Score for Intersection	2.228	2.078	2.485	3.137
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	49.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.784

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	208	617	205	96	791	141	73	255	105	226	437	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	3	0	2	0	0	11	0	2	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	233	695	233	108	888	158	82	297	118	255	496	147
Peak Hour Factor	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	60	180	60	28	230	41	21	77	31	66	128	38
Total Analysis Volume [veh/h]	241	719	241	112	919	164	85	307	122	264	513	152
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	52	0	13	43	0	11	26	0	29	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	52	52	9	43	43	7	23	23	20	36	36
g / C, Green / Cycle	0.15	0.43	0.43	0.08	0.36	0.36	0.06	0.19	0.19	0.17	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.14	0.28	0.28	0.07	0.31	0.31	0.05	0.09	0.08	0.15	0.29	0.10
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1706	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	257	776	710	129	641	607	100	650	290	293	544	463
d1, Uniform Delay [s]	50.44	26.91	26.96	54.93	36.00	36.04	55.98	43.27	42.81	48.72	40.83	32.41
k, delay calibration	0.13	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.17	0.35	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.91	4.11	4.54	16.02	14.69	15.58	17.50	0.53	0.97	14.15	21.09	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.64	0.65	0.87	0.87	0.87	0.85	0.47	0.42	0.90	0.94	0.33
d, Delay for Lane Group [s/veh]	67.35	31.02	31.50	70.95	50.69	51.62	73.48	43.81	43.78	62.87	61.91	32.82
Lane Group LOS	E	C	C	E	D	D	E	D	D	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.34	12.02	11.15	3.92	17.53	16.82	3.04	4.11	3.27	8.88	17.81	3.49
50th-Percentile Queue Length [ft/ln]	208.6	300.5	278.8	98.03	438.2	420.6	75.89	102.8	81.87	222.0	445.1	87.28
95th-Percentile Queue Length [veh/ln]	13.08	17.71	16.63	7.06	24.40	23.55	5.46	7.40	5.89	13.77	24.73	6.28
95th-Percentile Queue Length [ft/ln]	327.0	442.6	415.7	176.4	609.9	588.7	136.5	185.1	147.3	344.2	618.2	157.1

Movement, Approach, & Intersection Results

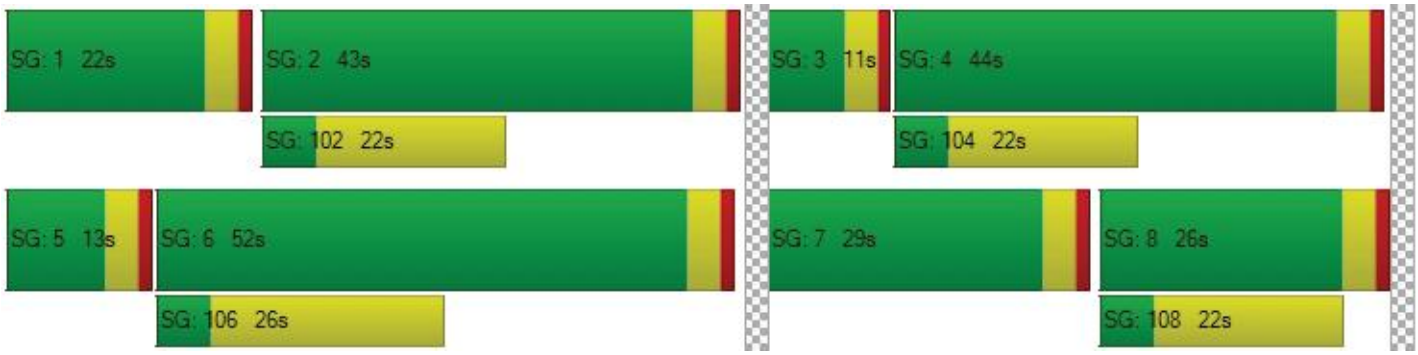
d_M, Delay for Movement [s/veh]	67.35	31.17	31.50	70.95	51.06	51.62	73.48	43.81	43.78	62.87	61.91	32.82
Movement LOS	E	C	C	E	D	D	E	D	D	E	E	C
d_A, Approach Delay [s/veh]	38.50			53.00			48.71			57.43		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	48.96											
Intersection LOS	D											
Intersection V/C	0.784											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.804	2.735	2.594	2.726
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	650	367	667
d_b, Bicycle Delay [s]	21.60	27.34	40.02	26.67
l_b,int, Bicycle LOS Score for Intersection	2.550	2.545	1.984	3.092
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	38.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	87	511	35	58	717	69	67	402	82	69	527	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	11	3	0	11	0	0	3	0	2	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	583	42	65	814	77	75	453	92	79	592	62
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	170	12	19	237	22	22	132	27	23	172	18
Total Analysis Volume [veh/h]	113	679	49	76	949	90	87	528	107	92	690	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	44	0	12	43	0	11	52	0	12	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	61	61	7	59	59	7	28	28	8	29	29
g / C, Green / Cycle	0.08	0.51	0.51	0.06	0.49	0.49	0.06	0.23	0.23	0.07	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.20	0.04	0.29	0.29	0.05	0.18	0.18	0.05	0.22	0.22
s, saturation flow rate [veh/h]	1714	1800	1758	1714	1800	1746	1714	1800	1696	1714	1800	1741
c, Capacity [veh/h]	129	920	899	96	886	859	100	420	395	114	434	420
d1, Uniform Delay [s]	54.96	18.02	18.03	55.95	21.88	21.89	56.05	43.10	43.14	55.26	44.02	44.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.78	1.30	1.33	13.46	2.94	3.03	19.52	3.14	3.38	12.59	6.79	7.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.40	0.40	0.79	0.60	0.60	0.87	0.78	0.78	0.81	0.89	0.89
d, Delay for Lane Group [s/veh]	71.74	19.32	19.36	69.41	24.82	24.92	75.56	46.24	46.52	67.86	50.82	51.06
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.98	6.53	6.39	2.63	11.18	10.87	3.15	9.41	8.94	3.14	11.89	11.53
50th-Percentile Queue Length [ft/ln]	99.51	163.1	159.6	65.81	279.4	271.8	78.87	235.3	223.4	78.58	297.2	288.3
95th-Percentile Queue Length [veh/ln]	7.16	10.72	10.53	4.74	16.66	16.28	5.68	14.45	13.84	5.66	17.54	17.10
95th-Percentile Queue Length [ft/ln]	179.1	267.9	263.2	118.4	416.5	407.0	141.9	361.1	346.0	141.4	438.5	427.5

Movement, Approach, & Intersection Results

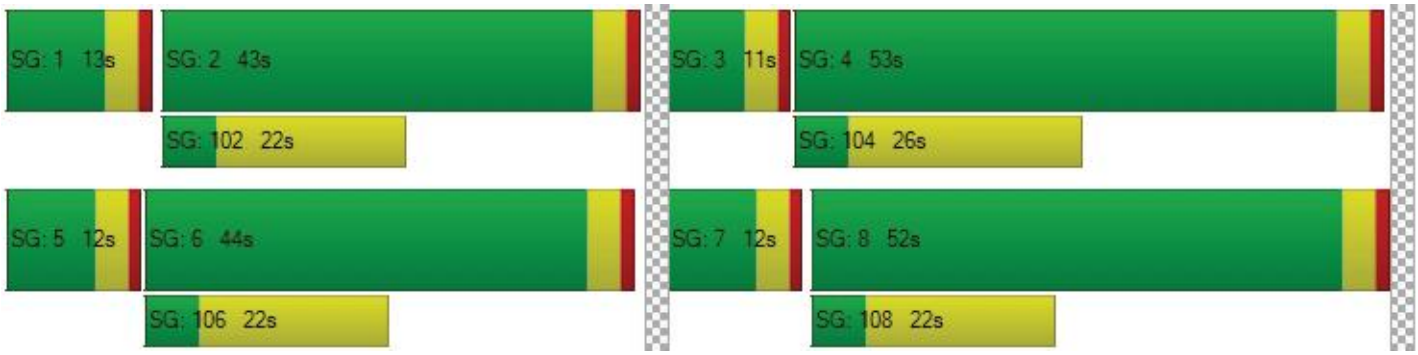
d_M, Delay for Movement [s/veh]	71.74	19.34	19.36	69.41	24.87	24.92	75.56	46.35	46.52	67.86	50.92	51.06
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.38			27.91			49.90			52.76		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.05											
Intersection LOS	D											
Intersection V/C	0.625											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.703	2.785	2.630	2.609
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	650	800	817
d_b, Bicycle Delay [s]	26.67	27.34	21.60	21.00
l_b,int, Bicycle LOS Score for Intersection	2.253	2.479	2.155	2.264
Bicycle LOS	B	B	B	B

Sequence

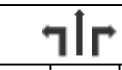
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.682

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	418	151	65	572	0	0	0	0	234	0	137
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	84	0	0	58	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	552	169	73	699	0	0	0	0	262	0	153
Peak Hour Factor	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	161	49	21	204	0	0	0	0	76	0	45
Total Analysis Volume [veh/h]	0	644	197	85	816	0	0	0	0	306	0	179
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	63	0	21	75	0	0	36	0	0	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	71	71	8	78	78	29	29	29	29
g / C, Green / Cycle	0.00	0.59	0.59	0.06	0.65	0.65	0.25	0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.00	0.36	0.13	0.05	0.45	0.00	0.00	0.00	0.23	0.12
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1703	1530	1336	1530
c, Capacity [veh/h]	1	1066	906	108	1179	1002	447	375	387	375
d1, Uniform Delay [s]	0.00	15.53	11.45	55.45	13.08	0.00	0.00	0.00	45.50	38.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.35	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.54	0.55	12.00	3.35	0.00	0.00	0.00	10.98	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.60	0.22	0.79	0.69	0.00	0.00	0.00	0.79	0.48
d, Delay for Lane Group [s/veh]	0.00	18.07	12.00	67.44	16.43	0.00	0.00	0.00	56.47	39.69
Lane Group LOS	A	B	B	E	B	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	11.51	2.56	2.90	14.00	0.00	0.00	0.00	10.06	4.61
50th-Percentile Queue Length [ft/ln]	0.00	287.6	64.10	72.39	350.0	0.00	0.00	0.00	251.46	115.27
95th-Percentile Queue Length [veh/ln]	0.00	17.07	4.62	5.21	20.14	0.00	0.00	0.00	15.26	8.13
95th-Percentile Queue Length [ft/ln]	0.00	426.7	115.3	130.3	503.4	0.00	0.00	0.00	381.49	203.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	18.07	12.00	67.44	16.43	0.00	0.00	0.00	0.00	56.47	56.47	39.69
Movement LOS	A	B	B	E	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	16.65			21.25			0.00			50.28		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	25.83											
Intersection LOS	C											
Intersection V/C	0.682											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.133	0.000	1.955	2.205
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	1183	533	533
d_b, Bicycle Delay [s]	15.50	10.00	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.947	3.046	1.560	2.360
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	42.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	186	806	132	35	1068	89	30	30	200	150	136	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	140	0	0	104	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	1043	148	39	1300	100	34	34	224	169	152	76
Peak Hour Factor	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	284	40	11	354	27	9	9	61	46	41	21
Total Analysis Volume [veh/h]	227	1137	161	43	1418	109	37	37	244	184	166	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	67	0	9	55	0	11	26	0	18	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	65	65	4	52	52	4	21	21	14	31
g / C, Green / Cycle	0.14	0.54	0.54	0.03	0.43	0.43	0.03	0.17	0.17	0.12	0.26
(v / s)_i Volume / Saturation Flow Rate	0.13	0.37	0.37	0.03	0.41	0.07	0.02	0.02	0.16	0.11	0.15
s, saturation flow rate [veh/h]	1714	1800	1723	1714	3427	1530	1714	1800	1530	1714	1700
c, Capacity [veh/h]	243	979	937	55	1488	664	52	314	267	200	443
d1, Uniform Delay [s]	50.95	19.70	19.86	57.66	32.78	20.69	57.65	41.77	48.67	52.45	38.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.18	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.13	3.69	4.01	21.01	14.58	0.53	16.19	0.17	18.20	15.60	1.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.67	0.68	0.78	0.95	0.16	0.71	0.12	0.91	0.92	0.56
d, Delay for Lane Group [s/veh]	66.08	23.40	23.88	78.68	47.36	21.22	73.84	41.93	66.87	68.05	39.67
Lane Group LOS	E	C	C	E	D	C	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	7.75	13.80	13.57	1.62	22.34	1.97	1.35	0.95	8.50	6.34	6.50
50th-Percentile Queue Length [ft/ln]	193.8	345.0	339.1	40.42	558.4	49.33	33.71	23.63	212.5	158.54	162.42
95th-Percentile Queue Length [veh/ln]	12.32	19.89	19.61	2.91	30.09	3.55	2.43	1.70	13.28	10.47	10.68
95th-Percentile Queue Length [ft/ln]	307.9	497.3	490.2	72.75	752.1	88.80	60.67	42.54	332.0	261.78	266.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.08	23.60	23.88	78.68	47.36	21.22	73.84	41.93	66.87	68.05	39.67	39.67
Movement LOS	E	C	C	E	D	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	29.95			46.40			64.78			51.73		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	42.00											
Intersection LOS	D											
Intersection V/C	0.813											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.016	3.003	2.346	2.174
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	850	367	483
d_b, Bicycle Delay [s]	13.54	19.84	40.02	34.50
l_b,int, Bicycle LOS Score for Intersection	2.818	2.855	2.084	2.274
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	134	290	0	0	261	111	57	0	66	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.120	1.000	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	3	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	329	0	0	295	125	64	0	74	0	0	0
Peak Hour Factor	0.913	0.913	1.000	1.000	0.913	0.913	0.913	1.000	0.913	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	90	0	0	81	34	18	0	20	0	0	0
Total Analysis Volume [veh/h]	164	360	0	0	323	137	70	0	81	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.12	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.80	0.00	0.00	0.00	0.00	0.00	43.47	0.00	11.20	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.52	0.52	0.00	0.00	0.00	0.00	1.96	0.00	0.42	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.92	12.92	0.00	0.00	0.00	0.00	49.12	0.00	10.40	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.75			0.00			26.16			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	4.75											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.483

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	551	201	49	753	1	0	0	2	174	0	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	73	58	0	0	0	0	0	9	0	84
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	617	298	113	843	1	0	0	2	204	0	129
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	163	79	30	223	0	0	0	1	54	0	34
Total Analysis Volume [veh/h]	1	652	315	119	891	1	0	0	2	216	0	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	24	9	0	48	33	0	0	9	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	76	76	10	86	86	0	0	18	18
g / C, Green / Cycle	0.00	0.63	0.63	0.09	0.71	0.71	0.00	0.00	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.28	0.28	0.07	0.25	0.25	0.00	0.00	0.13	0.09
s, saturation flow rate [veh/h]	1714	1800	1604	1714	1800	1799	1800	1392	1687	1530
c, Capacity [veh/h]	3	1132	1009	147	1283	1282	5	4	252	228
d1, Uniform Delay [s]	59.79	11.56	11.56	53.87	6.59	6.59	59.66	59.75	49.81	47.67
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	40.84	1.30	1.46	9.94	0.75	0.75	0.00	75.25	8.27	2.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.45	0.45	0.81	0.35	0.35	0.00	0.51	0.86	0.60
d, Delay for Lane Group [s/veh]	100.6	12.86	13.02	63.81	7.33	7.33	59.66	135.00	58.07	50.15
Lane Group LOS	F	B	B	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	7.18	6.44	3.94	4.23	4.22	0.00	0.14	6.89	3.96
50th-Percentile Queue Length [ft/ln]	1.74	179.4	161.0	98.39	105.6	105.6	0.00	3.59	172.25	99.02
95th-Percentile Queue Length [veh/ln]	0.13	11.57	10.60	7.08	7.60	7.59	0.00	0.26	11.20	7.13
95th-Percentile Queue Length [ft/ln]	3.13	289.2	265.0	177.1	189.9	189.8	0.00	6.45	279.88	178.23

Movement, Approach, & Intersection Results

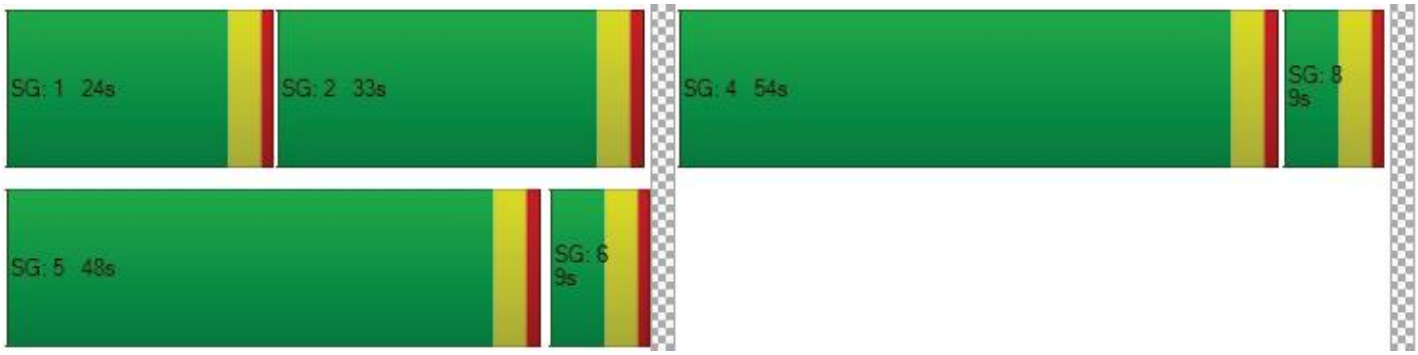
d_M, Delay for Movement [s/veh]	100.6	12.89	13.02	63.81	7.33	7.33	59.66	59.66	135.0	58.07	58.07	50.15
Movement LOS	F	B	B	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	13.02			13.98			135.00			55.01		
Approach LOS	B			B			F			E		
d_I, Intersection Delay [s/veh]	19.88											
Intersection LOS	B											
Intersection V/C	0.483											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	483	83	833
d_b, Bicycle Delay [s]	55.10	34.50	55.10	20.42
l_b,int, Bicycle LOS Score for Intersection	2.358	2.394	1.561	2.140
Bicycle LOS	B	B	A	B

Sequence

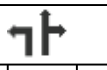
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	24.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	130	1237	0	0	0	0	145	0	253
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	813	117	146	1237	0	0	0	0	145	0	283
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	223	32	40	339	0	0	0	0	40	0	77
Total Analysis Volume [veh/h]	3	890	128	160	1355	0	0	0	0	159	0	310
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	46	0	19	56	0	9	30	0	25	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	64	64	13	77	77	0	14	13	27
g / C, Green / Cycle	0.00	0.54	0.54	0.11	0.64	0.64	0.00	0.11	0.11	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.26	0.08	0.09	0.40	0.00	0.00	0.00	0.09	0.20
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	8	1836	820	186	2192	979	1	203	188	339
d1, Uniform Delay [s]	59.56	17.47	14.12	52.59	12.88	0.00	0.00	0.00	52.46	45.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.21	0.92	0.41	10.91	1.32	0.00	0.00	0.00	10.07	9.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.48	0.16	0.86	0.62	0.00	0.00	0.00	0.85	0.91
d, Delay for Lane Group [s/veh]	87.77	18.39	14.52	63.49	14.20	0.00	0.00	0.00	62.53	55.28
Lane Group LOS	F	B	B	E	B	A	A	A	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.15	7.79	1.85	5.30	10.60	0.00	0.00	0.00	5.22	9.88
50th-Percentile Queue Length [ft/ln]	3.81	194.8	46.22	132.4	264.9	0.00	0.00	0.00	130.59	247.04
95th-Percentile Queue Length [veh/ln]	0.27	12.37	3.33	9.07	15.93	0.00	0.00	0.00	8.97	15.04
95th-Percentile Queue Length [ft/ln]	6.85	309.2	83.19	226.8	398.3	0.00	0.00	0.00	224.30	375.92

Movement, Approach, & Intersection Results

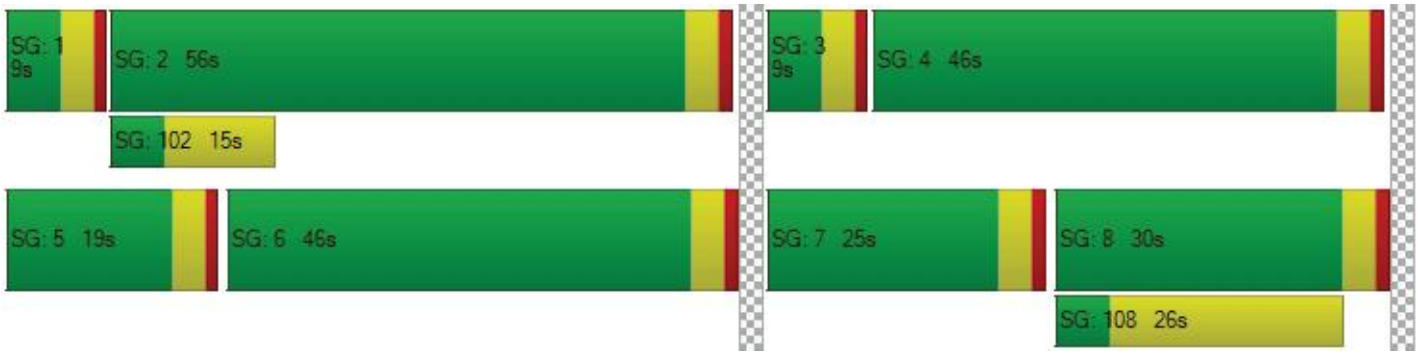
d_M, Delay for Movement [s/veh]	87.77	18.39	14.52	63.49	14.20	0.00	0.00	0.00	0.00	62.53	55.28	55.28
Movement LOS	F	B	B	E	B	A	A	A	A	E	E	E
d_A, Approach Delay [s/veh]	18.11			19.41			0.00			57.74		
Approach LOS	B			B			A			E		
d_I, Intersection Delay [s/veh]	24.95											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.962	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	867	433	700
d_b, Bicycle Delay [s]	25.35	19.27	36.82	25.35
l_b,int, Bicycle LOS Score for Intersection	2.402	2.809	1.560	2.333
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.926

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	162	58	56	145	76	103	129	56	67	230	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	3	0	0	11	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	185	65	63	165	85	115	155	63	75	265	171
Peak Hour Factor	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	52	18	18	47	24	32	44	18	21	75	48
Total Analysis Volume [veh/h]	64	209	73	71	186	96	130	175	71	85	299	193
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	395	436	416	396	441	415	459
Degree of Utilization, x	0.69	0.17	0.85	0.77	0.16	0.93	0.42

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.04	0.60	8.22	6.44	0.57	10.23	2.05
95th-Percentile Queue Length [ft]	125.95	14.90	205.46	160.98	14.19	255.77	51.21
Approach Delay [s/veh]	26.19		44.37	31.96		43.39	
Approach LOS	D		E	D		E	
Intersection Delay [s/veh]	37.39						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	676	27	61	902	92	147	156	48	43	206	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	7	1	0	4	0	0	11	0	1	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	764	31	68	1014	103	165	186	54	49	238	115
Peak Hour Factor	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	199	8	18	264	27	43	48	14	13	62	30
Total Analysis Volume [veh/h]	59	796	32	71	1056	107	172	194	56	51	248	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	48	0	10	49	0	36	39	0	23	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	68	68	6	69	69	14	25	25	5	16	16
g / C, Green / Cycle	0.04	0.57	0.57	0.05	0.58	0.58	0.12	0.21	0.21	0.04	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.04	0.33	0.33	0.10	0.06	0.04	0.03	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1776	1714	1800	1743	1714	3427	1530	1714	1800	1608
c, Capacity [veh/h]	71	1020	1006	86	1035	1002	203	721	322	68	237	211
d1, Uniform Delay [s]	57.07	14.66	14.67	56.49	16.13	16.15	51.81	39.66	38.83	57.03	50.64	50.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.49	1.21	1.23	17.79	2.28	2.37	9.26	0.20	0.25	15.07	6.44	8.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.41	0.41	0.83	0.57	0.57	0.85	0.27	0.17	0.75	0.81	0.84
d, Delay for Lane Group [s/veh]	77.55	15.88	15.90	74.28	18.41	18.52	61.06	39.86	39.09	72.10	57.08	59.34
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.18	6.60	6.52	2.56	10.54	10.26	5.59	2.43	1.39	1.82	6.00	5.68
50th-Percentile Queue Length [ft/ln]	54.55	165.0	162.9	63.89	263.5	256.5	139.8	60.74	34.63	45.43	149.9	141.9
95th-Percentile Queue Length [veh/ln]	3.93	10.81	10.70	4.60	15.87	15.52	9.47	4.37	2.49	3.27	10.02	9.59
95th-Percentile Queue Length [ft/ln]	98.20	270.3	267.5	115.0	396.6	387.9	236.7	109.3	62.33	81.78	250.4	239.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	77.55	15.89	15.90	74.28	18.46	18.52	61.06	39.86	39.09	72.10	57.60	59.34
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	19.99			21.67			48.40			59.86		
Approach LOS	B			C			D			E		
d_I, Intersection Delay [s/veh]	30.38											
Intersection LOS	C											
Intersection V/C	0.573											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.715	2.845	2.604	2.584
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	750	583	367
d_b, Bicycle Delay [s]	24.07	23.44	30.10	40.02
l_b,int, Bicycle LOS Score for Intersection	2.291	2.578	1.908	1.905
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	568	91	33	877	42	50	340	93	134	370	43
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	1	5	0	0	5	12	15	6	2	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	641	102	37	987	59	71	387	106	150	418	48
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	177	28	10	272	16	20	107	29	41	115	13
Total Analysis Volume [veh/h]	72	707	112	41	1088	65	78	427	117	165	461	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	63	0	10	63	0	12	30	0	17	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	44	44	4	42	42	7	43	43	13	49	49
g / C, Green / Cycle	0.05	0.37	0.37	0.03	0.35	0.35	0.06	0.36	0.36	0.11	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.04	0.23	0.23	0.02	0.32	0.32	0.05	0.16	0.16	0.10	0.15	0.15
s, saturation flow rate [veh/h]	1714	1800	1715	1714	1800	1765	1714	1800	1669	1714	1800	1736
c, Capacity [veh/h]	86	666	635	55	634	622	99	641	594	186	732	706
d1, Uniform Delay [s]	56.52	31.04	31.04	57.57	37.19	37.21	55.83	29.49	29.54	52.78	24.70	24.71
k, delay calibration	0.11	0.11	0.11	0.11	0.21	0.22	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.87	0.99	1.04	17.59	10.56	10.84	13.03	2.17	2.38	13.21	1.36	1.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.63	0.63	0.74	0.92	0.92	0.79	0.44	0.44	0.89	0.36	0.36
d, Delay for Lane Group [s/veh]	75.40	32.02	32.08	75.16	47.76	48.06	68.86	31.66	31.92	65.99	26.06	26.13
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.61	10.08	9.62	1.50	17.96	17.68	2.69	6.57	6.19	5.58	5.43	5.27
50th-Percentile Queue Length [ft/ln]	65.31	252.0	240.5	37.62	449.0	442.0	67.24	164.2	154.7	139.5	135.7	131.6
95th-Percentile Queue Length [veh/ln]	4.70	15.29	14.71	2.71	24.91	24.58	4.84	10.77	10.27	9.46	9.25	9.03
95th-Percentile Queue Length [ft/ln]	117.5	382.2	367.6	67.71	622.8	614.3	121.0	269.2	256.7	236.3	231.2	225.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.40	32.04	32.08	75.16	47.90	48.06	68.86	31.75	31.92	65.99	26.09	26.13
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	35.55			48.84			36.44			35.79		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.45											
Intersection LOS	D											
Intersection V/C	0.619											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.836	2.798	2.553	2.561
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	433	517
d_b, Bicycle Delay [s]	15.50	15.50	36.82	33.00
l_b,int, Bicycle LOS Score for Intersection	2.295	2.545	2.073	2.120
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	645	75	23	871	122	103	90	11	74	78	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	0	0	3	2	6	12	0	5	5	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	724	84	26	979	139	121	113	12	88	92	35
Peak Hour Factor	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	196	23	7	265	38	33	31	3	24	25	9
Total Analysis Volume [veh/h]	24	783	91	28	1058	150	131	122	13	95	99	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	47	0	9	47	0	38	26	0	38	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	81	81	3	81	81	11	11	11	8	9	9
g / C, Green / Cycle	0.02	0.68	0.68	0.03	0.68	0.68	0.09	0.10	0.10	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.01	0.25	0.25	0.02	0.34	0.34	0.08	0.07	0.01	0.06	0.06	0.02
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1723	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	40	1215	1171	44	1219	1167	160	172	146	121	131	112
d1, Uniform Delay [s]	58.07	8.43	8.43	57.94	9.51	9.53	53.38	52.64	49.49	54.85	54.57	52.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.02	0.85	0.89	14.72	1.50	1.58	9.70	5.28	0.26	10.44	8.45	1.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.37	0.37	0.64	0.51	0.51	0.82	0.71	0.09	0.78	0.75	0.34
d, Delay for Lane Group [s/veh]	72.09	9.28	9.31	72.65	11.01	11.10	63.09	57.92	49.75	65.29	63.01	54.67
Lane Group LOS	E	A	A	E	B	B	E	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.88	4.97	4.81	1.02	7.86	7.59	4.31	3.82	0.37	3.18	3.24	1.15
50th-Percentile Queue Length [ft/ln]	21.92	124.3	120.1	25.52	196.6	189.6	107.7	95.52	9.20	79.48	81.11	28.69
95th-Percentile Queue Length [veh/ln]	1.58	8.63	8.40	1.84	12.46	12.10	7.72	6.88	0.66	5.72	5.84	2.07
95th-Percentile Queue Length [ft/ln]	39.45	215.8	210.0	45.94	311.6	302.5	192.9	171.9	16.56	143.0	145.9	51.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.09	9.30	9.31	72.65	11.05	11.10	63.09	57.92	49.75	65.29	63.01	54.67
Movement LOS	E	A	A	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	10.98			12.45			60.07			62.58		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	21.18											
Intersection LOS	C											
Intersection V/C	0.489											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.718	2.742	2.278	2.262
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	717	367	367
d_b, Bicycle Delay [s]	24.70	24.70	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.300	2.579	1.999	1.942
Bicycle LOS	B	B	A	A

Sequence

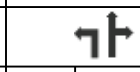
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.648

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	838	104	156	1207	9	0	1	0	214	0	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120	1.120	1.000
In-Process Volume [veh/h]	117	0	0	0	0	0	0	123	96	0	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	128	838	116	156	1207	9	0	124	96	240	97	109
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	229	32	43	330	2	0	34	26	66	27	30
Total Analysis Volume [veh/h]	140	916	127	170	1319	10	0	136	105	262	106	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	22	45	0	12	33	0	27	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	51	51	14	53	53	0	19	20	40
g / C, Green / Cycle	0.09	0.42	0.42	0.11	0.44	0.44	0.00	0.16	0.17	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.20	0.20	0.10	0.27	0.01	0.00	0.14	0.15	0.14
s, saturation flow rate [veh/h]	1714	3427	1690	1714	4903	1530	1714	1671	1714	1646
c, Capacity [veh/h]	157	1443	712	197	2180	680	2	271	289	542
d1, Uniform Delay [s]	53.91	25.25	25.26	52.15	25.32	18.63	0.00	49.22	48.98	31.25
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.17	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.39	1.16	2.36	10.49	1.26	0.04	0.00	10.42	14.92	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.48	0.48	0.86	0.61	0.01	0.00	0.89	0.91	0.41
d, Delay for Lane Group [s/veh]	69.29	26.41	27.62	62.64	26.58	18.67	0.00	59.64	63.90	31.76
Lane Group LOS	E	C	C	E	C	B	A	E	E	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.85	7.42	7.57	5.60	9.65	0.16	0.00	7.84	8.88	5.15
50th-Percentile Queue Length [ft/ln]	121.2	185.4	189.3	139.9	241.2	4.12	0.00	195.98	221.95	128.71
95th-Percentile Queue Length [veh/ln]	8.46	11.89	12.09	9.48	14.74	0.30	0.00	12.43	13.76	8.87
95th-Percentile Queue Length [ft/ln]	211.4	297.1	302.1	236.9	368.5	7.41	0.00	310.78	344.11	221.74

Movement, Approach, & Intersection Results

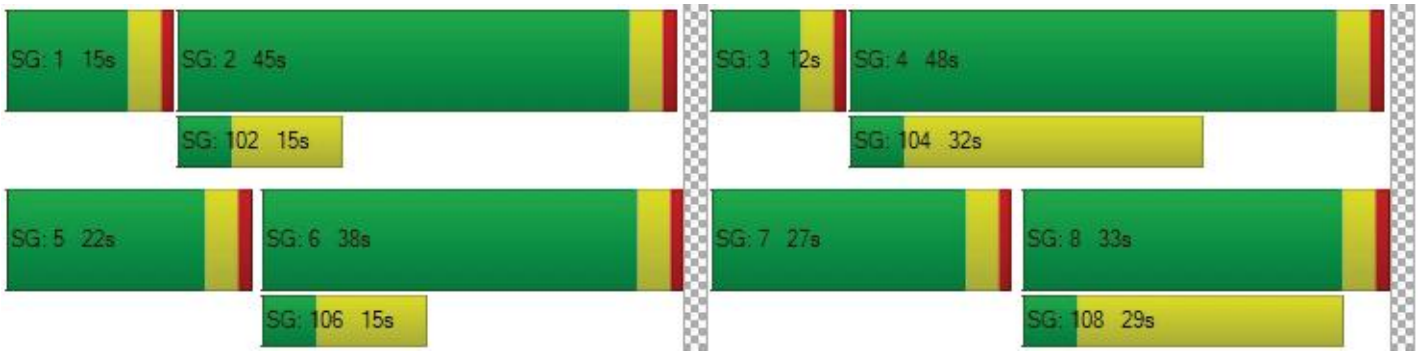
d_M, Delay for Movement [s/veh]	69.29	26.70	27.62	62.64	26.58	18.67	0.00	59.64	59.64	63.90	31.76	31.76
Movement LOS	E	C	C	E	C	B	A	E	E	E	C	C
d_A, Approach Delay [s/veh]	31.84			30.62			59.64			49.05		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.73											
Intersection LOS	D											
Intersection V/C	0.648											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.009	3.229	2.117	2.254
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	683	483	733
d_b, Bicycle Delay [s]	30.82	26.00	34.50	24.07
l_b,int, Bicycle LOS Score for Intersection	2.210	2.384	1.957	2.363
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	85.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.133

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	193	42	6	194	82	55	115	18	31	173	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	4	0	0	0	0	3	4	129	8	0	102	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	216	47	7	217	95	66	258	28	35	296	44
Peak Hour Factor	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	64	14	2	65	28	20	77	8	10	88	13
Total Analysis Volume [veh/h]	27	257	56	8	258	113	79	307	33	42	352	52
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	384	396	419	446
Degree of Utilization, x	0.88	0.96	1.07	1.13

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.86	10.91	14.35	16.61
95th-Percentile Queue Length [ft]	221.52	272.71	358.64	415.29
Approach Delay [s/veh]	52.82	65.77	96.06	116.62
Approach LOS	F	F	F	F
Intersection Delay [s/veh]	85.32			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.867

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	43	60	69	61	1	41	86	14	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	48	67	77	68	1	46	96	16	10
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	18	20	18	0	12	25	4	3
Total Analysis Volume [veh/h]	4	50	70	81	71	1	48	101	17	11
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	453	423
Degree of Utilization, x	0.61	0.42

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.96	2.05
95th-Percentile Queue Length [ft]	99.04	51.18
Approach Delay [s/veh]	22.54	17.59
Approach LOS	C	C
Intersection Delay [s/veh]	30.07	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	46	6	95	57	0	27	55	146	14	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	17	105	0	0	0	0	89	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	24	211	64	0	30	62	253	16	4
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	6	55	17	0	8	16	66	4	1
Total Analysis Volume [veh/h]	55	25	222	67	0	32	65	266	17	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	444	443
Degree of Utilization, x	0.83	0.87

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.96	8.87
95th-Percentile Queue Length [ft]	199.11	221.69
Approach Delay [s/veh]	39.93	44.95
Approach LOS	E	E
Intersection Delay [s/veh]	30.07	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	13	66	23	1	13	45	123	26	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	15	74	26	1	15	50	138	36	7
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	19	7	0	4	13	36	9	2
Total Analysis Volume [veh/h]	2	16	78	27	1	16	53	145	38	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	430	427	477
Degree of Utilization, x	0.29	0.50	0.09

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.18	2.74	0.31
95th-Percentile Queue Length [ft]	29.52	68.44	7.78
Approach Delay [s/veh]	14.74	17.89	
Approach LOS	B	C	
Intersection Delay [s/veh]	30.07		
Intersection LOS	D		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.594

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	591	196	103	849	50	80	110	135	123	108	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	39	0	0	0	0	8	2	60	42	0	42	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	662	220	115	951	64	92	183	193	138	163	75
Peak Hour Factor	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	167	55	29	240	16	23	46	49	35	41	19
Total Analysis Volume [veh/h]	167	667	222	116	959	65	93	184	195	139	164	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	45	0	22	40	0	27	37	0	16	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	65	65	10	61	61	8	18	18	11	21	21
g / C, Green / Cycle	0.11	0.54	0.54	0.08	0.51	0.51	0.07	0.15	0.15	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.26	0.07	0.29	0.29	0.05	0.05	0.13	0.08	0.09	0.05
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1760	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	196	970	889	143	914	894	119	510	227	164	315	268
d1, Uniform Delay [s]	52.13	17.17	17.17	54.09	20.39	20.40	54.94	45.95	49.84	53.40	44.94	42.98
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.89	1.69	1.84	10.55	2.54	2.60	10.56	0.43	9.00	11.32	1.33	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.48	0.48	0.81	0.57	0.57	0.78	0.36	0.86	0.85	0.52	0.28
d, Delay for Lane Group [s/veh]	62.02	18.86	19.02	64.65	22.93	23.00	65.51	46.38	58.84	64.72	46.27	43.55
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.47	8.24	7.59	3.86	10.45	10.24	3.12	2.51	6.27	4.64	4.56	2.01
50th-Percentile Queue Length [ft/ln]	136.7	205.9	189.6	96.58	261.1	255.9	77.96	62.76	156.7	115.9	113.9	50.27
95th-Percentile Queue Length [veh/ln]	9.30	12.94	12.10	6.95	15.75	15.49	5.61	4.52	10.38	8.17	8.06	3.62
95th-Percentile Queue Length [ft/ln]	232.6	323.6	302.5	173.8	393.6	387.1	140.3	112.9	259.3	204.2	201.4	90.49

Movement, Approach, & Intersection Results

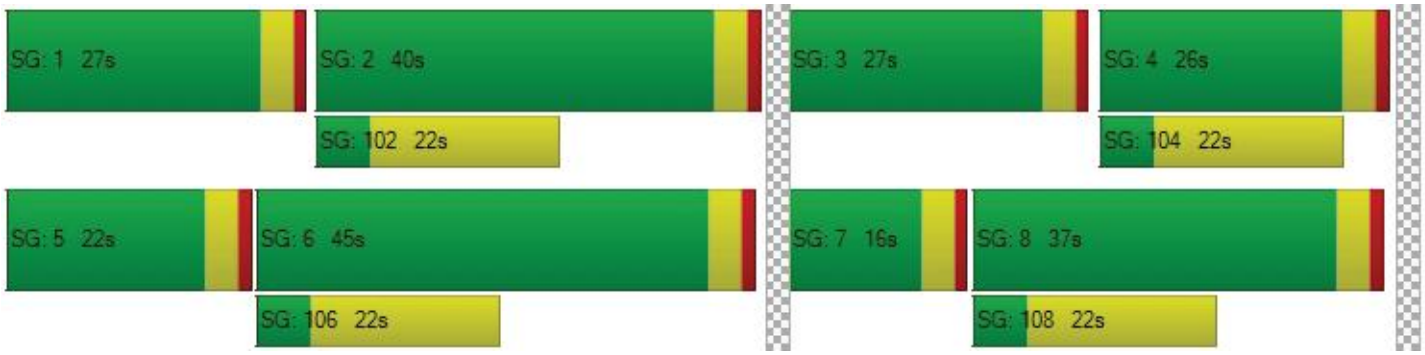
d_M, Delay for Movement [s/veh]	62.02	18.91	19.02	64.65	22.96	23.00	65.51	46.38	58.84	64.72	46.27	43.55
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	25.75			27.20			55.30			52.49		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	34.20											
Intersection LOS	C											
Intersection V/C	0.594											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.773	2.700	2.484	2.615
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	600	550	367
d_b, Bicycle Delay [s]	26.00	29.40	31.54	40.02
l_b,int, Bicycle LOS Score for Intersection	2.431	2.500	1.949	2.185
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	725	49	22	1043	36	57	200	93	134	203	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	20	0	0	0	0	8	9	6	32	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	812	55	25	1168	48	73	230	136	150	231	56
Peak Hour Factor	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	211	14	6	303	12	19	60	35	39	60	15
Total Analysis Volume [veh/h]	57	842	57	26	1212	50	76	239	141	156	240	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	54	0	9	54	0	19	34	0	23	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	72	72	3	70	70	7	16	16	13	22	22
g / C, Green / Cycle	0.04	0.60	0.60	0.02	0.58	0.58	0.06	0.14	0.14	0.11	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.25	0.02	0.35	0.35	0.04	0.11	0.11	0.09	0.08	0.09
s, saturation flow rate [veh/h]	1714	1800	1760	1714	1800	1775	1714	1800	1583	1714	1800	1682
c, Capacity [veh/h]	71	1078	1054	42	1047	1032	98	245	216	184	336	314
d1, Uniform Delay [s]	57.00	12.93	12.93	57.98	16.24	16.25	55.83	50.32	50.54	52.61	43.38	43.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.96	1.21	1.24	14.06	2.61	2.66	12.42	6.32	8.44	10.29	0.96	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.42	0.42	0.62	0.61	0.61	0.78	0.81	0.84	0.85	0.45	0.46
d, Delay for Lane Group [s/veh]	74.96	14.14	14.17	72.04	18.85	18.91	68.26	56.64	58.98	62.90	44.34	44.52
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.07	6.73	6.59	0.95	11.60	11.47	2.61	6.23	5.81	5.14	4.13	3.95
50th-Percentile Queue Length [ft/ln]	51.74	168.1	164.6	23.65	289.8	286.7	65.22	155.7	145.1	128.4	103.3	98.72
95th-Percentile Queue Length [veh/ln]	3.73	10.98	10.80	1.70	17.18	17.03	4.70	10.32	9.76	8.86	7.44	7.11
95th-Percentile Queue Length [ft/ln]	93.14	274.5	269.8	42.57	429.4	425.6	117.3	258.0	243.9	221.4	185.9	177.6

Movement, Approach, & Intersection Results

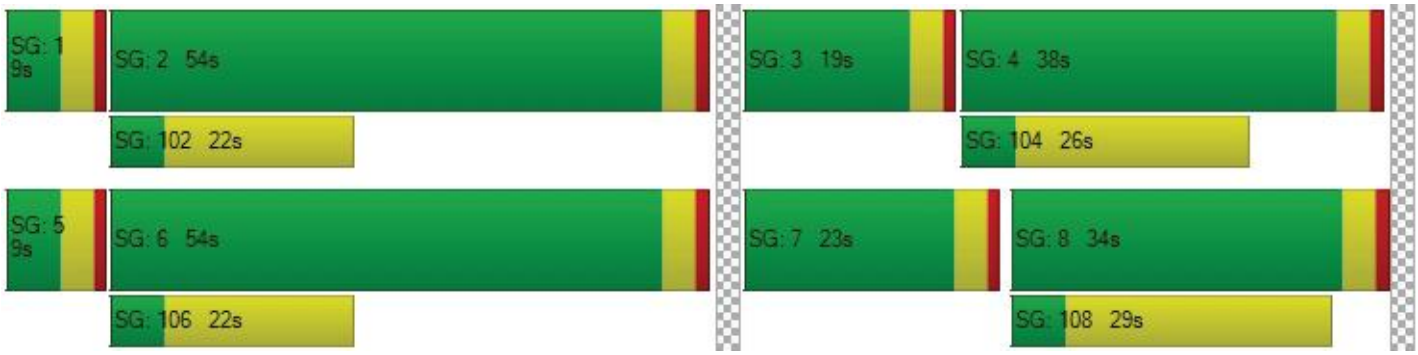
d_M, Delay for Movement [s/veh]	74.96	14.15	14.17	72.04	18.88	18.91	68.26	57.04	58.98	62.90	44.41	44.52
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	17.78			19.96			59.51			50.78		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	29.45											
Intersection LOS	C											
Intersection V/C	0.592											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.952	2.836	2.472	2.466
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	833	500	567
d_b, Bicycle Delay [s]	20.42	20.42	33.75	30.82
l_b,int, Bicycle LOS Score for Intersection	2.348	2.622	1.936	1.934
Bicycle LOS	B	B	A	A

Sequence

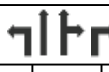
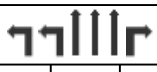
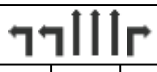
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	48.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.819

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	86	48	77	136	246	885	267	400	59	134	1190	220
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	4	0	0	6	47
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	54	86	152	276	991	299	452	66	150	1339	293
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	15	24	42	76	273	82	125	18	41	369	81
Total Analysis Volume [veh/h]	106	60	95	168	304	1093	330	498	73	165	1476	323
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	12	0	49	49	0	17	48	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	39	39	14	45	45	45	13	44	44	7	38	38
g / C, Green / Cycle	0.07	0.33	0.33	0.12	0.38	0.38	0.38	0.11	0.37	0.37	0.06	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.10	0.17	0.36	0.36	0.10	0.10	0.05	0.05	0.30	0.21
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	114	1119	500	199	677	576	576	361	1792	559	194	1547	483
d1, Uniform Delay [s]	55.71	27.70	29.02	51.9	28.1	36.3	36.3	52.95	26.88	25.36	55.98	40.22	35.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.75	0.09	0.84	9.22	2.15	26.9	26.9	9.33	0.08	0.10	9.87	4.32	3.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.05	0.19	0.84	0.45	0.95	0.95	0.91	0.28	0.13	0.85	0.95	0.67
d, Delay for Lane Group [s/veh]	80.46	27.79	29.86	61.1	30.2	63.2	63.2	62.28	26.97	25.47	65.85	44.54	38.77
Lane Group LOS	F	C	C	E	C	E	E	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.98	0.61	2.10	5.46	6.96	19.5	19.5	5.38	3.39	1.42	2.74	14.65	8.58
50th-Percentile Queue Length [ft/ln]	99.38	15.28	52.43	136.	173.	488.	488.	134.5	84.72	35.41	68.52	366.2	214.5
95th-Percentile Queue Length [veh/ln]	7.16	1.10	3.78	9.30	11.2	26.7	26.7	9.19	6.10	2.55	4.93	20.93	13.39
95th-Percentile Queue Length [ft/ln]	178.8	27.50	94.38	232.	282.	669.	669.	229.7	152.4	63.74	123.3	523.1	334.6

Movement, Approach, & Intersection Results

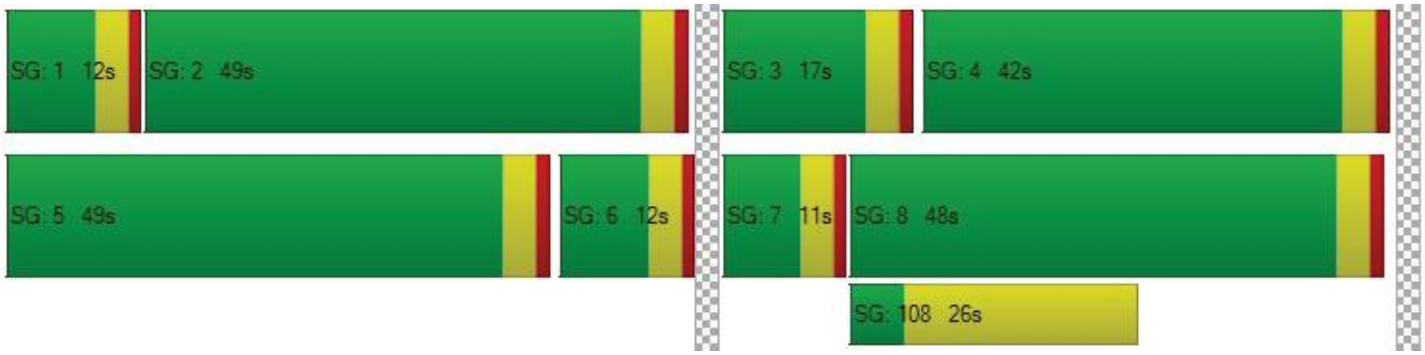
d_M, Delay for Movement [s/veh]	80.46	27.79	29.86	61.16	30.24	63.26	62.28	26.97	25.47	65.85	44.54	38.77
Movement LOS	F	C	C	E	C	E	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	49.94			56.62			39.78			45.38		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	48.31											
Intersection LOS	D											
Intersection V/C	0.819											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.599	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	750	733	633
d_b, Bicycle Delay [s]	52.27	23.44	24.07	28.02
l_b,int, Bicycle LOS Score for Intersection	1.775	2.851	2.055	2.640
Bicycle LOS	A	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	61.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	25	34	338	49	955	255	331	25	30	552	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	45	0	0	0	4	0	0	53	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	28	38	424	55	1070	286	375	28	34	671	106
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	8	10	114	15	287	77	101	8	9	180	28
Total Analysis Volume [veh/h]	53	30	41	455	59	1148	307	402	30	36	720	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	44	44	44	13	51	51	4	41	41
g / C, Green / Cycle	0.05	0.05	0.05	0.37	0.37	0.37	0.11	0.42	0.42	0.03	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.03	0.15	0.15	0.42	0.09	0.08	0.02	0.02	0.16	0.16
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1733	2708	3329	4903	1530	1714	3427	1678
c, Capacity [veh/h]	83	87	74	629	636	993	372	2070	646	50	1164	570
d1, Uniform Delay [s]	56.04	55.23	55.81	28.31	28.26	38.00	52.15	21.82	20.43	57.75	31.25	31.32
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.15	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.80	2.30	6.24	0.43	0.41	74.07	4.65	0.21	0.14	17.35	1.41	2.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.34	0.55	0.41	0.40	1.16	0.83	0.19	0.05	0.72	0.48	0.48
d, Delay for Lane Group [s/veh]	63.85	57.54	62.05	28.74	28.67	112.0	56.80	22.03	20.57	75.11	32.66	34.25
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.76	0.94	1.34	5.59	5.57	24.50	4.76	2.43	0.53	1.33	6.61	6.79
50th-Percentile Queue Length [ft/ln]	43.94	23.39	33.59	139.6	139.3	612.5	118.8	60.74	13.13	33.14	165.1	169.8
95th-Percentile Queue Length [veh/ln]	3.16	1.68	2.42	9.46	9.44	35.81	8.33	4.37	0.95	2.39	10.82	11.07
95th-Percentile Queue Length [ft/ln]	79.09	42.11	60.47	236.5	236.1	895.2	208.2	109.3	23.64	59.66	270.5	276.7

Movement, Approach, & Intersection Results

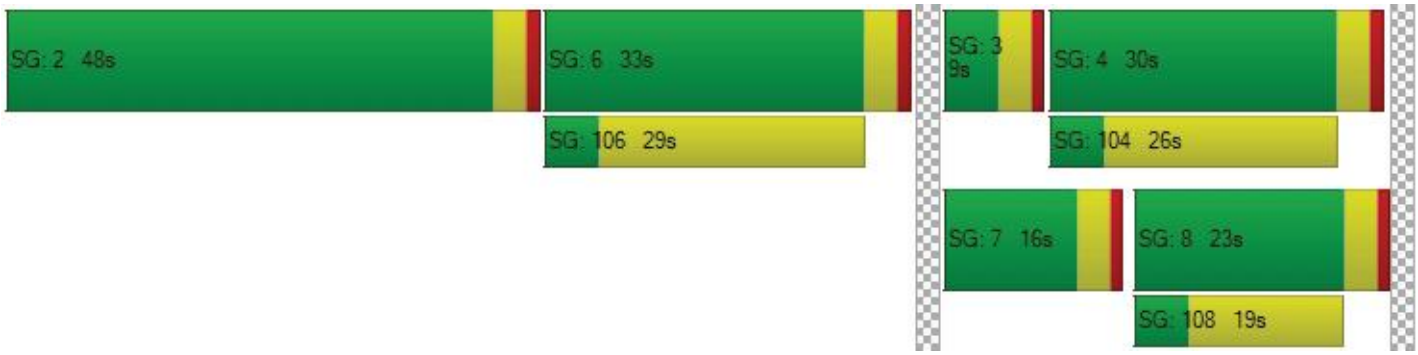
d_M, Delay for Movement [s/veh]	63.85	57.54	62.05	28.71	28.67	112.0	56.80	22.03	20.57	75.11	33.02	34.25
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	61.73			86.28			36.42			34.92		
Approach LOS	E			F			D			C		
d_I, Intersection Delay [s/veh]	61.37											
Intersection LOS	E											
Intersection V/C	0.712											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.207	2.811	0.000	2.855
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.662	4.302	1.966	2.038
Bicycle LOS	A	E	A	B

Sequence

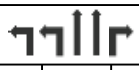
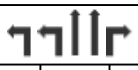
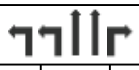
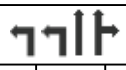
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	34.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	228	643	85	59	766	139	149	155	92	143	309	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	7	2	0	1	2	27	22	0	12	51	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	255	727	97	66	859	158	194	196	103	172	397	82
Peak Hour Factor	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	69	196	26	18	232	43	52	53	28	46	107	22
Total Analysis Volume [veh/h]	275	784	105	71	927	170	209	211	111	186	428	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	47	0	9	36	0	14	36	0	28	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	70	5	62	62	9	21	21	9	21	21
g / C, Green / Cycle	0.10	0.58	0.04	0.52	0.52	0.08	0.17	0.17	0.08	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.02	0.27	0.11	0.06	0.06	0.07	0.06	0.15	0.15
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1695
c, Capacity [veh/h]	335	1983	126	1768	789	262	597	267	253	309	291
d1, Uniform Delay [s]	52.91	13.82	56.76	19.29	15.83	54.34	43.60	44.11	54.25	48.28	48.32
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.02	0.59	3.92	1.12	0.63	5.53	0.36	1.04	4.10	6.87	7.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.40	0.56	0.52	0.22	0.80	0.35	0.42	0.73	0.86	0.86
d, Delay for Lane Group [s/veh]	57.93	14.41	60.67	20.40	16.45	59.88	43.95	45.15	58.35	55.15	55.77
Lane Group LOS	E	B	E	C	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.30	5.83	1.13	8.68	2.67	3.30	2.80	3.03	2.90	8.29	7.89
50th-Percentile Queue Length [ft/ln]	107.39	145.67	28.18	217.0	66.69	82.60	69.98	75.64	72.40	207.1	197.2
95th-Percentile Queue Length [veh/ln]	7.69	9.79	2.03	13.51	4.80	5.95	5.04	5.45	5.21	13.01	12.49
95th-Percentile Queue Length [ft/ln]	192.36	244.64	50.73	337.8	120.0	148.6	125.9	136.1	130.3	325.1	312.3

Movement, Approach, & Intersection Results

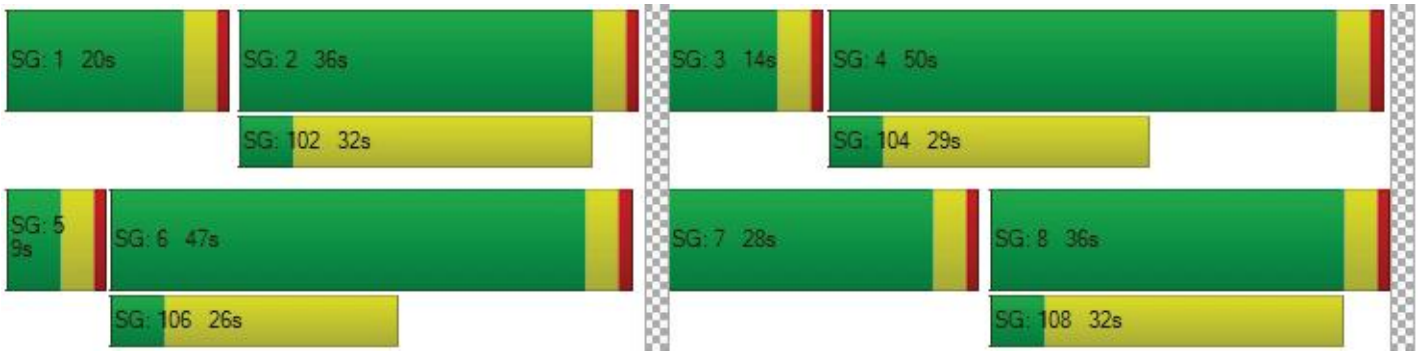
d_M, Delay for Movement [s/veh]	57.93	14.41	0.00	60.67	20.40	16.45	59.88	43.95	45.15	58.35	55.38	55.77
Movement LOS	E	B		E	C	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	25.71			22.28			50.47			56.22		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	34.54											
Intersection LOS	C											
Intersection V/C	0.564											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.019	2.922	2.912	2.628
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	533	533	767
d_b, Bicycle Delay [s]	24.70	32.27	32.27	22.82
l_b,int, Bicycle LOS Score for Intersection	2.433	2.523	1.998	2.139
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.542

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	220	4	8	0	1	182	33	263	473	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	35	0	39	0	0	0	0	24	0	86	62	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	285	4	9	0	1	228	37	381	592	2
Peak Hour Factor	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	1	80	1	3	0	0	64	10	106	165	1
Total Analysis Volume [veh/h]	97	3	318	4	10	0	1	255	41	426	661	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	9	33	0	47	26	0	52	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	27	34	0	42	42	32	74	74
g / C, Green / Cycle	0.29	0.29	0.22	0.29	0.00	0.35	0.35	0.27	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.21	0.01	0.00	0.07	0.03	0.25	0.18	0.18
s, saturation flow rate [veh/h]	1427	1365	1530	1438	1714	3427	1530	1714	1800	1798
c, Capacity [veh/h]	383	507	344	462	4	1189	531	458	1102	1101
d1, Uniform Delay [s]	32.22	32.25	45.50	30.90	59.79	27.65	26.30	42.85	11.06	11.06
k, delay calibration	0.12	0.28	0.31	0.11	0.11	0.50	0.50	0.15	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	0.25	23.61	0.03	38.70	0.41	0.28	11.47	0.70	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.11	0.92	0.03	0.28	0.21	0.08	0.93	0.30	0.30
d, Delay for Lane Group [s/veh]	32.37	32.50	69.11	30.92	98.49	28.06	26.58	54.32	11.76	11.76
Lane Group LOS	C	C	E	C	F	C	C	D	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.96	1.29	11.47	0.30	0.07	2.67	0.84	13.67	4.29	4.29
50th-Percentile Queue Length [ft/ln]	24.10	32.27	286.7	7.47	1.71	66.73	20.93	341.7	107.2	107.1
95th-Percentile Queue Length [veh/ln]	1.74	2.32	17.02	0.54	0.12	4.80	1.51	19.73	7.69	7.68
95th-Percentile Queue Length [ft/ln]	43.38	58.08	425.6	13.44	3.08	120.1	37.68	493.3	192.1	192.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.37	32.50	69.11	30.92	30.92	30.92	98.49	28.06	26.58	54.32	11.76	11.76
Movement LOS	C	C	E	C	C	C	F	C	C	D	B	B
d_A, Approach Delay [s/veh]	60.34			30.92			28.10			28.41		
Approach LOS	E			C			C			C		
d_I, Intersection Delay [s/veh]	35.72											
Intersection LOS	D											
Intersection V/C	0.542											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.490	0.000	2.898	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	367	450
d_b, Bicycle Delay [s]	28.02	28.02	40.02	36.04
l_b,int, Bicycle LOS Score for Intersection	2.249	1.583	1.805	2.458
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.298

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	3	0	397	746	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.0000	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	146	0	60	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	149	0	505	839	1
Peak Hour Factor	0.9060	0.9060	1.0000	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	41	0	139	232	0
Total Analysis Volume [veh/h]	0	164	0	557	926	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.30	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	27.83	14.28	9.91	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.24	1.24	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	31.01	31.01	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.28		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.650

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	854	95	88	904	383	181	80	118	143	332	79
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	88	0	12	131	3	60	0	0	0	0	10
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	1044	106	111	1143	432	263	90	132	160	372	98
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	285	29	30	312	118	72	25	36	44	102	27
Total Analysis Volume [veh/h]	136	1141	116	121	1249	472	287	98	144	175	407	107
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	14	37	37	32	40	0	28	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	51	51	10	50	77	23	29	14	20	20
g / C, Green / Cycle	0.09	0.42	0.42	0.08	0.41	0.64	0.19	0.24	0.12	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.24	0.24	0.07	0.25	0.31	0.17	0.03	0.10	0.15	0.15
s, saturation flow rate [veh/h]	1714	3427	1716	1714	4903	1530	1714	3427	1714	1800	1673
c, Capacity [veh/h]	157	1442	722	143	2023	975	328	835	204	308	286
d1, Uniform Delay [s]	53.77	26.63	26.63	54.25	27.79	11.40	47.09	35.34	51.87	48.39	48.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.21	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.09	1.71	3.39	12.72	1.42	1.72	12.87	0.06	10.00	7.17	7.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.58	0.58	0.85	0.62	0.48	0.87	0.12	0.86	0.86	0.87
d, Delay for Lane Group [s/veh]	66.86	28.35	30.03	66.97	29.21	13.12	59.97	35.40	61.87	55.56	56.39
Lane Group LOS	E	C	C	E	C	B	E	D	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.62	9.43	9.79	4.11	9.58	6.74	9.47	1.13	5.73	8.33	7.85
50th-Percentile Queue Length [ft/ln]	115.4	235.8	244.6	102.6	239.6	168.5	236.86	28.36	143.2	208.1	196.3
95th-Percentile Queue Length [veh/ln]	8.14	14.47	14.92	7.39	14.66	11.00	14.52	2.04	9.65	13.06	12.45
95th-Percentile Queue Length [ft/ln]	203.5	361.7	372.9	184.8	366.5	275.0	363.06	51.04	241.3	326.5	311.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.86	28.79	30.03	66.97	29.21	13.12	59.97	35.40	0.00	61.87	55.85	56.39
Movement LOS	E	C	C	E	C	B	E	D		E	E	E
d_A, Approach Delay [s/veh]	32.61			27.57			53.71			57.46		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	36.31											
Intersection LOS	D											
Intersection V/C	0.650											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.170	3.152	2.696	2.515
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	550	600	533
d_b, Bicycle Delay [s]	30.82	31.54	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	2.326	2.573	1.877	2.128
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	32.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	29	126	6	43	129	75	30	216	16	7	341	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	2	0	0	0	6	0	0	6	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	141	7	50	144	84	34	248	18	8	388	74
Peak Hour Factor	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	46	2	16	47	27	11	81	6	3	126	24
Total Analysis Volume [veh/h]	42	184	9	65	188	109	44	323	23	10	505	96
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	26	0	0	26	0	9	85	0	9	85	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	68	68	4	39	1	36	36
g / C, Green / Cycle	0.57	0.57	0.03	0.32	0.01	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.15	0.23	0.03	0.19	0.01	0.28	0.06
s, saturation flow rate [veh/h]	1595	1607	1714	1779	1714	1800	1530
c, Capacity [veh/h]	936	943	56	574	22	545	463
d1, Uniform Delay [s]	13.08	14.40	57.62	34.19	58.82	40.57	31.14
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.64	1.18	20.86	1.02	14.20	7.43	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.38	0.79	0.60	0.46	0.93	0.21
d, Delay for Lane Group [s/veh]	13.73	15.59	78.48	35.22	73.02	48.01	31.36
Lane Group LOS	B	B	E	D	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.30	5.63	1.65	8.63	0.39	15.44	2.12
50th-Percentile Queue Length [ft/ln]	82.61	140.67	41.27	215.76	9.71	385.8	52.91
95th-Percentile Queue Length [veh/ln]	5.95	9.52	2.97	13.45	0.70	21.88	3.81
95th-Percentile Queue Length [ft/ln]	148.70	237.92	74.28	336.21	17.48	546.9	95.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.73	13.73	13.73	15.59	15.59	15.59	78.48	35.22	35.22	73.02	48.01	31.36
Movement LOS	B	B	B	B	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	13.73			15.59			40.10			45.80		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	32.85											
Intersection LOS	C											
Intersection V/C	0.532											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.952	2.065	2.461	0.000
Crosswalk LOS	A	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1350	1350
d_b, Bicycle Delay [s]	40.02	40.02	6.34	6.34
l_b,int, Bicycle LOS Score for Intersection	1.947	2.157	2.203	2.568
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	32.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.344

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	21	14	9	8	0	42	34	21	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	6	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	30	16	10	9	0	47	38	24	17
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	10	5	3	3	0	15	12	8	5
Total Analysis Volume [veh/h]	1	38	20	13	11	0	60	48	31	22
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	34	0	0	0	0	34	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	14	14
g / C, Green / Cycle	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.06	0.10
s, saturation flow rate [veh/h]	1355	1595
c, Capacity [veh/h]	204	230
d1, Uniform Delay [s]	49.36	51.74
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	1.30	3.87
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.70
d, Delay for Lane Group [s/veh]	50.66	55.61
Lane Group LOS	D	E
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	2.41	4.99
50th-Percentile Queue Length [ft/ln]	60.31	124.80
95th-Percentile Queue Length [veh/ln]	4.34	8.66
95th-Percentile Queue Length [ft/ln]	108.56	216.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.66	50.66	50.66	50.66	50.66	55.61	55.61	55.61	55.61	55.61
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	50.66					55.61				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.43									
Intersection LOS	C									
Intersection V/C	0.344									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.863	1.924
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500
d_b, Bicycle Delay [s]	33.75	33.75
l_b,int, Bicycle LOS Score for Intersection	1.616	1.690
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	42	159	11	5	1	9	169	11	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	1	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	47	179	19	6	1	10	189	12	7
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	15	57	6	2	0	3	60	4	2
Total Analysis Volume [veh/h]	13	60	228	24	8	1	13	241	15	9
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	46	0	0	9	0	46	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	81	75	81	72	72
g / C, Green / Cycle	0.67	0.62	0.67	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.06	0.15	0.01	0.13	0.02
s, saturation flow rate [veh/h]	1180	1762	1166	1800	1530
c, Capacity [veh/h]	783	1095	765	1079	918
d1, Uniform Delay [s]	7.25	10.09	7.06	11.10	9.77
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.51	0.01	0.48	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.24	0.02	0.22	0.03
d, Delay for Lane Group [s/veh]	7.49	10.60	7.07	11.58	9.82
Lane Group LOS	A	B	A	B	A
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.67	3.12	0.12	3.05	0.27
50th-Percentile Queue Length [ft/ln]	16.66	77.92	2.90	76.26	6.70
95th-Percentile Queue Length [veh/ln]	1.20	5.61	0.21	5.49	0.48
95th-Percentile Queue Length [ft/ln]	29.99	140.25	5.21	137.26	12.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.49	7.49	10.60	10.60	10.60	7.07	7.07	11.58	9.82	9.82
Movement LOS	A	A	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	9.92					11.20				
Approach LOS	A					B				
d_I, Intersection Delay [s/veh]	32.43									
Intersection LOS	C									
Intersection V/C	0.344									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.273	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700
d_b, Bicycle Delay [s]	25.35	25.35
l_b,int, Bicycle LOS Score for Intersection	1.997	1.984
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	10	36	12	1	3	14	94	78	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	40	13	1	3	16	105	87	2
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	13	4	0	1	5	33	28	1
Total Analysis Volume [veh/h]	0	14	51	17	1	4	20	134	111	3
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	31	0	0	0	0	31	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	13
g / C, Green / Cycle	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.08	0.09	0.07
s, saturation flow rate [veh/h]	1001	1712	1530
c, Capacity [veh/h]	146	224	169
d1, Uniform Delay [s]	49.97	52.17	51.27
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.46	4.03	4.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.71	0.67
d, Delay for Lane Group [s/veh]	53.43	56.21	55.86
Lane Group LOS	D	E	E
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.47	4.91	3.51
50th-Percentile Queue Length [ft/ln]	61.80	122.64	87.76
95th-Percentile Queue Length [veh/ln]	4.45	8.54	6.32
95th-Percentile Queue Length [ft/ln]	111.23	213.45	157.97

Movement, Approach, & Intersection Results

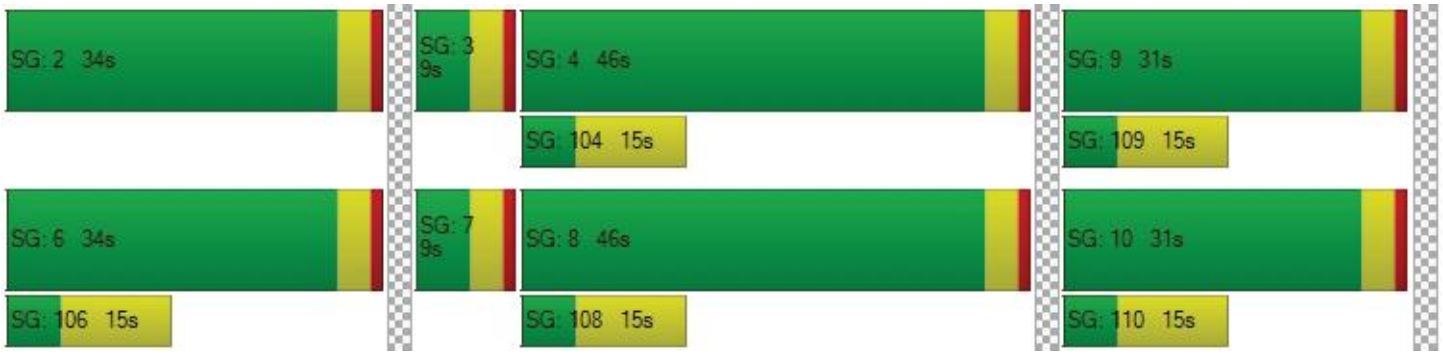
d_M, Delay for Movement [s/veh]	53.43	53.43	53.43	53.43	53.43	56.21	56.21	56.21	55.86	55.86
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	53.43					56.06				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.43									
Intersection LOS	C									
Intersection V/C	0.344									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.930	2.236
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	450
d_b, Bicycle Delay [s]	36.04	36.04
l_b,int, Bicycle LOS Score for Intersection	1.645	1.997
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.682

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	589	159	100	785	63	135	118	67	107	130	261
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	31	0	10	32	0	0	1	0	0	0	8
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	691	178	122	911	71	151	133	75	120	146	300
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	185	48	33	244	19	41	36	20	32	39	80
Total Analysis Volume [veh/h]	139	741	191	131	977	76	162	143	80	129	157	322
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	44	0	15	44	0	17	38	0	23	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	52	52	11	52	52	13	30	30	11	28	28
g / C, Green / Cycle	0.09	0.44	0.44	0.09	0.44	0.44	0.11	0.25	0.25	0.09	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.27	0.08	0.30	0.30	0.09	0.06	0.07	0.08	0.09	0.21
s, saturation flow rate [veh/h]	1714	1800	1674	1714	1800	1755	1714	1800	1590	1714	1800	1530
c, Capacity [veh/h]	157	785	730	156	783	764	186	446	394	158	417	354
d1, Uniform Delay [s]	53.87	26.08	26.08	53.71	27.20	27.21	52.68	36.28	36.39	53.49	38.82	44.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.76	3.59	3.86	11.47	4.74	4.87	11.86	0.31	0.37	9.87	0.56	14.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.61	0.62	0.84	0.68	0.68	0.87	0.26	0.27	0.82	0.38	0.91
d, Delay for Lane Group [s/veh]	68.64	29.66	29.94	65.18	31.93	32.08	64.54	36.59	36.76	63.36	39.38	59.01
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.79	11.27	10.55	4.39	13.09	12.81	5.41	2.79	2.58	4.26	3.98	10.67
50th-Percentile Queue Length [ft/ln]	119.7	281.7	263.6	109.6	327.2	320.2	135.3	69.68	64.62	106.3	99.44	266.6
95th-Percentile Queue Length [veh/ln]	8.38	16.77	15.87	7.82	19.02	18.68	9.23	5.02	4.65	7.64	7.16	16.02
95th-Percentile Queue Length [ft/ln]	209.4	419.3	396.8	195.5	475.5	466.9	230.7	125.4	116.3	190.9	178.9	400.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.64	29.76	29.94	65.18	32.00	32.08	64.54	36.62	36.76	63.36	39.38	59.01
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	34.84			35.68			48.40			54.87		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	40.50											
Intersection LOS	D											
Intersection V/C	0.682											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.755	2.785	2.463	2.642
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	567	667
d_b, Bicycle Delay [s]	26.67	26.67	30.82	26.67
l_b,int, Bicycle LOS Score for Intersection	2.443	2.536	1.877	2.061
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	731	162	10	1158	67	27	177	83	258	306	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	1	13	0	4	22	0	0	2	2	0	1	3
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	832	181	15	1319	75	30	200	95	289	344	46
Peak Hour Factor	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	218	47	4	346	20	8	52	25	76	90	12
Total Analysis Volume [veh/h]	59	873	190	16	1384	79	31	210	100	303	361	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	26	0	9	26	0	32	36	0	49	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	65	65	2	62	62	3	14	14	23	34	34
g / C, Green / Cycle	0.04	0.54	0.54	0.02	0.52	0.52	0.03	0.11	0.11	0.20	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.12	0.01	0.40	0.05	0.02	0.09	0.09	0.18	0.12	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1610	1714	1800	1727
c, Capacity [veh/h]	71	1849	826	30	1766	788	49	206	184	335	506	486
d1, Uniform Delay [s]	57.07	17.07	14.52	58.47	23.64	14.86	57.68	51.67	51.91	47.18	35.06	35.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.49	0.87	0.65	14.10	3.56	0.25	12.89	6.27	8.46	9.06	0.54	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.47	0.23	0.54	0.78	0.10	0.64	0.78	0.82	0.90	0.41	0.41
d, Delay for Lane Group [s/veh]	77.55	17.93	15.17	72.57	27.20	15.11	70.57	57.94	60.37	56.24	35.60	35.64
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.18	7.51	2.85	0.60	16.26	1.16	1.11	5.04	4.84	9.65	5.04	4.86
50th-Percentile Queue Length [ft/ln]	54.55	187.7	71.22	14.98	406.4	29.00	27.67	126.0	120.9	241.3	126.0	121.4
95th-Percentile Queue Length [veh/ln]	3.93	12.01	5.13	1.08	22.87	2.09	1.99	8.72	8.44	14.75	8.72	8.47
95th-Percentile Queue Length [ft/ln]	98.20	300.1	128.2	26.97	571.8	52.19	49.81	218.1	211.1	368.7	218.0	211.7

Movement, Approach, & Intersection Results

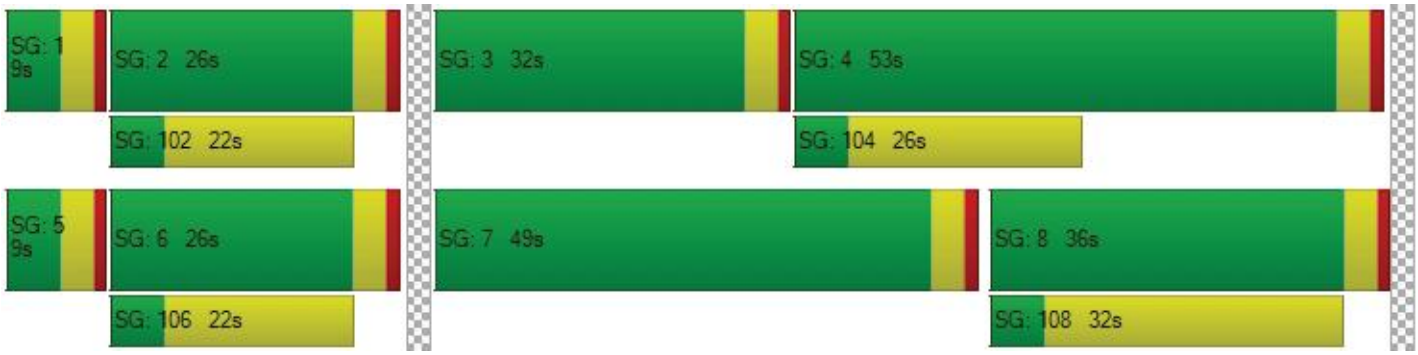
d_M, Delay for Movement [s/veh]	77.55	17.93	15.17	72.57	27.20	15.11	70.57	58.52	60.37	56.24	35.61	35.64
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	20.60			27.05			60.16			44.39		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	31.54											
Intersection LOS	C											
Intersection V/C	0.708											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.095	2.863	2.479	2.535
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	533	817
d_b, Bicycle Delay [s]	40.02	40.02	32.27	21.00
l_b,int, Bicycle LOS Score for Intersection	2.485	2.780	1.841	2.147
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	102	8	8	123	45	21	43	2	21	147	7
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	114	9	9	138	50	24	48	2	24	165	8
Peak Hour Factor	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	33	3	3	40	15	7	14	1	7	48	2
Total Analysis Volume [veh/h]	8	133	11	11	162	59	28	56	2	28	193	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	707	739	663	635	736
Degree of Utilization, x	0.22	0.31	0.13	0.35	0.01

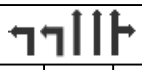
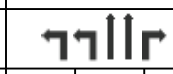
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.81	1.35	0.44	1.55	0.04
95th-Percentile Queue Length [ft]	20.31	33.63	11.12	38.84	0.93
Approach Delay [s/veh]	9.48	10.09	9.24	11.21	
Approach LOS	A	B	A	B	
Intersection Delay [s/veh]	10.22				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	27.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.488

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	292	941	78	41	857	43	25	45	128	165	161	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	9	0	0	13	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	327	1063	87	46	973	48	28	50	143	185	180	76
Peak Hour Factor	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	90	292	24	13	267	13	8	14	39	51	49	21
Total Analysis Volume [veh/h]	359	1167	95	50	1068	53	31	55	157	203	198	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	60	0	13	46	0	14	31	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	76	76	4	65	65	3	15	15	9	21	21
g / C, Green / Cycle	0.13	0.63	0.63	0.04	0.54	0.54	0.03	0.12	0.12	0.08	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.11	0.24	0.24	0.03	0.22	0.22	0.02	0.02	0.10	0.06	0.06	0.05
s, saturation flow rate [veh/h]	3329	3427	1731	1714	3427	1757	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	427	2158	1090	64	1847	947	48	416	186	259	588	263
d1, Uniform Delay [s]	51.09	10.89	10.90	57.24	16.28	16.28	57.76	47.06	51.60	54.33	43.69	43.53
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.50	0.53	1.05	17.73	0.65	1.27	14.08	0.14	9.95	5.13	0.33	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.39	0.39	0.78	0.40	0.40	0.65	0.13	0.84	0.78	0.34	0.32
d, Delay for Lane Group [s/veh]	55.59	11.42	11.94	74.98	16.93	17.55	71.85	47.20	61.56	59.46	44.03	44.21
Lane Group LOS	E	B	B	E	B	B	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.53	5.39	5.61	1.82	6.06	6.38	1.12	0.75	5.14	3.20	2.63	2.22
50th-Percentile Queue Length [ft/ln]	138.3	134.8	140.2	45.54	151.3	159.4	27.96	18.66	128.3	79.89	65.64	55.50
95th-Percentile Queue Length [veh/ln]	9.39	9.20	9.49	3.28	10.09	10.52	2.01	1.34	8.85	5.75	4.73	4.00
95th-Percentile Queue Length [ft/ln]	234.8	230.0	237.3	81.98	252.2	262.9	50.33	33.59	221.2	143.8	118.1	99.91

Movement, Approach, & Intersection Results

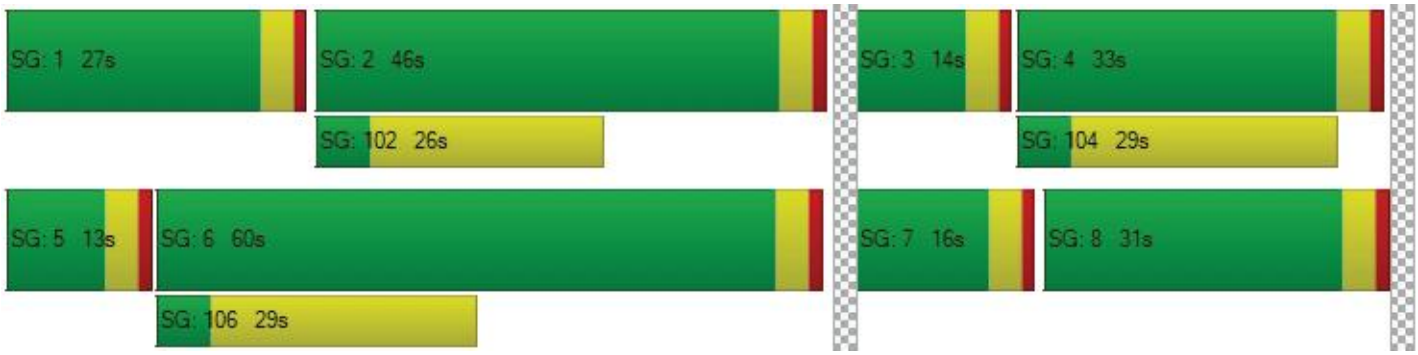
d_M, Delay for Movement [s/veh]	55.59	11.57	11.94	74.98	17.12	17.55	71.85	47.20	61.56	59.46	44.03	44.21
Movement LOS	E	B	B	E	B	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	21.34			19.61			59.62			50.53		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	27.42											
Intersection LOS	C											
Intersection V/C	0.488											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.951	2.607	2.704
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	700	450	483
d_b, Bicycle Delay [s]	17.07	25.35	36.04	34.50
l_b,int, Bicycle LOS Score for Intersection	2.451	2.204	1.760	1.959
Bicycle LOS	B	B	A	A

Sequence

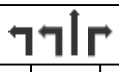
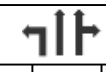
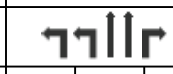
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	215	398	8	307	42	18	107	21	394	320	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	74	0	0	86	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	315	446	9	430	47	20	120	24	441	358	34
Peak Hour Factor	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	80	114	2	110	12	5	31	6	112	91	9
Total Analysis Volume [veh/h]	64	321	455	9	438	48	20	122	24	450	365	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	56	0	9	56	0	9	9	0	46	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	77	77	1	74	74	2	6	6	19	23	23
g / C, Green / Cycle	0.04	0.64	0.64	0.01	0.62	0.62	0.02	0.05	0.05	0.16	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.02	0.18	0.30	0.01	0.14	0.14	0.01	0.04	0.02	0.14	0.11	0.02
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1739	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	123	1156	983	19	1110	1072	35	182	81	533	660	294
d1, Uniform Delay [s]	56.76	9.34	10.93	58.96	10.21	10.22	58.23	55.80	54.67	48.94	43.79	40.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.42	0.60	1.57	16.39	0.46	0.48	13.44	4.26	2.00	3.76	0.73	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.28	0.46	0.47	0.22	0.22	0.57	0.67	0.30	0.84	0.55	0.12
d, Delay for Lane Group [s/veh]	60.17	9.94	12.49	75.35	10.67	10.70	71.67	60.06	56.67	52.70	44.52	40.22
Lane Group LOS	E	A	B	E	B	B	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	3.71	6.27	0.36	2.96	2.89	0.73	1.92	0.74	6.82	4.98	0.88
50th-Percentile Queue Length [ft/ln]	25.29	92.85	156.6	9.00	73.96	72.25	18.36	48.03	18.61	170.4	124.4	21.89
95th-Percentile Queue Length [veh/ln]	1.82	6.69	10.37	0.65	5.33	5.20	1.32	3.46	1.34	11.10	8.64	1.58
95th-Percentile Queue Length [ft/ln]	45.52	167.1	259.3	16.21	133.1	130.0	33.04	86.46	33.50	277.4	215.9	39.41

Movement, Approach, & Intersection Results

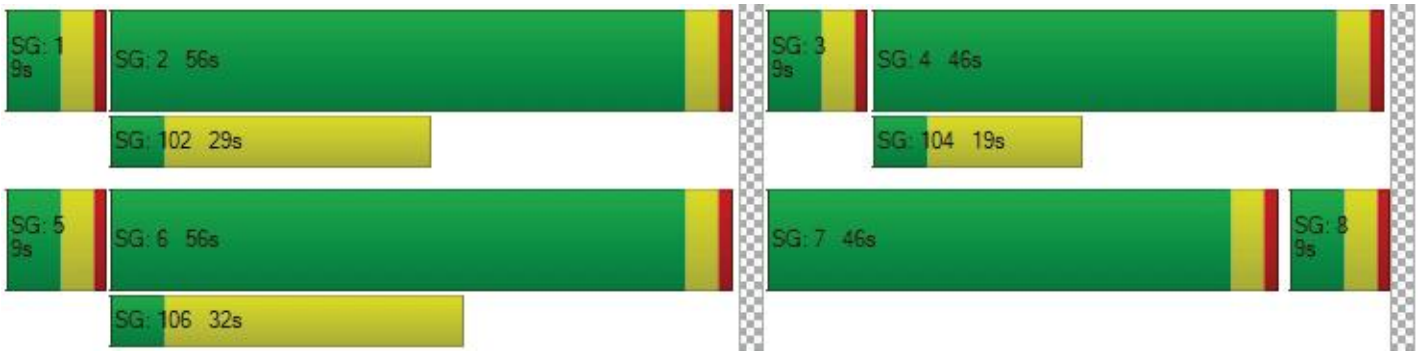
d_M, Delay for Movement [s/veh]	60.17	9.94	12.49	75.35	10.68	10.70	71.67	60.06	56.67	52.70	44.52	40.22
Movement LOS	E	A	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	15.15			11.86			60.97			48.67		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	29.81											
Intersection LOS	C											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.359	2.699	2.916
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	83	700
d_b, Bicycle Delay [s]	19.27	19.27	55.10	25.35
l_b,int, Bicycle LOS Score for Intersection	2.946	1.968	1.697	2.261
Bicycle LOS	C	A	A	B

Sequence

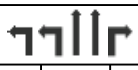
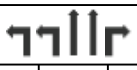
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	49.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	466	1012	370	91	1138	69	86	116	267	506	305	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	88	0	1	130	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	522	1221	414	103	1405	77	96	130	299	567	342	80
Peak Hour Factor	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	137	321	109	27	369	20	25	34	79	149	90	21
Total Analysis Volume [veh/h]	549	1284	435	108	1477	81	101	137	314	596	360	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	44	0	13	36	0	13	40	40	23	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	64	64	9	56	56	5	12	33	19	25	25
g / C, Green / Cycle	0.14	0.53	0.53	0.08	0.47	0.47	0.05	0.10	0.27	0.16	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.16	0.37	0.28	0.06	0.30	0.05	0.03	0.04	0.21	0.18	0.13	0.13
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1684
c, Capacity [veh/h]	472	1833	818	129	2295	716	154	338	418	527	379	355
d1, Uniform Delay [s]	51.50	20.76	18.14	54.79	24.29	17.92	56.29	50.79	39.84	50.50	42.85	42.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.32	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	79.27	2.26	2.47	13.39	1.40	0.32	4.69	0.78	7.73	64.62	1.56	1.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.16	0.70	0.53	0.84	0.64	0.11	0.66	0.41	0.75	1.13	0.60	0.61
d, Delay for Lane Group [s/veh]	130.7	23.02	20.61	68.18	25.69	18.24	60.98	51.58	47.57	115.1	44.40	44.51
Lane Group LOS	F	C	C	E	C	B	E	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.26	13.53	8.23	3.70	10.76	1.33	1.61	1.97	9.33	12.61	6.32	5.92
50th-Percentile Queue Length [ft/ln]	306.5	338.3	205.8	92.49	268.9	33.34	40.16	49.37	233.1	315.3	157.9	148.0
95th-Percentile Queue Length [veh/ln]	19.22	19.57	12.94	6.66	16.14	2.40	2.89	3.55	14.33	19.50	10.44	9.91
95th-Percentile Queue Length [ft/ln]	480.4	489.2	323.4	166.4	403.4	60.00	72.29	88.87	358.3	487.6	261.0	247.8

Movement, Approach, & Intersection Results

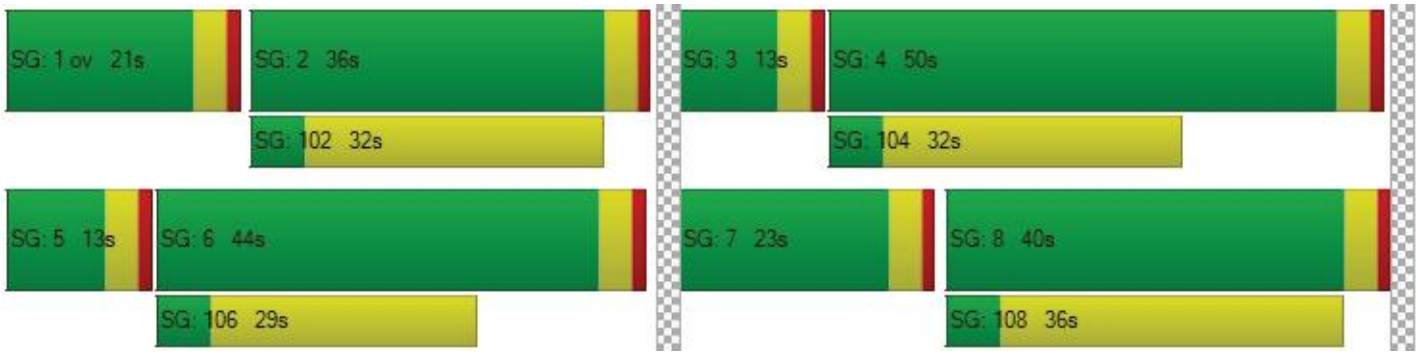
d_M, Delay for Movement [s/veh]	130.7	23.02	20.61	68.18	25.69	18.24	60.98	51.58	47.57	115.1	44.44	44.51
Movement LOS	F	C	C	E	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	48.64			28.08			51.02			84.95		
Approach LOS	D			C			D			F		
d_I, Intersection Delay [s/veh]	49.51											
Intersection LOS	D											
Intersection V/C	0.777											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.369	3.123	2.929	2.849
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	600	767
d_b, Bicycle Delay [s]	26.67	32.27	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	3.431	2.476	2.015	2.418
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	8	9	4	23	1	73	5	50	26	56	314	11
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	10	4	26	1	82	6	56	29	63	353	12
Peak Hour Factor	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	3	1	7	0	23	2	16	8	18	101	3
Total Analysis Volume [veh/h]	10	11	5	30	1	94	7	64	33	72	403	14
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	70	63	63
g / C, Green / Cycle	0.12	0.12	0.58	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.03	0.11	0.13	0.12	0.12
s, saturation flow rate [veh/h]	1641	1466	804	1800	1779
c, Capacity [veh/h]	240	230	442	946	934
d1, Uniform Delay [s]	47.58	51.73	13.09	15.30	15.31
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	4.21	1.26	0.54	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.72	0.24	0.22	0.22
d, Delay for Lane Group [s/veh]	48.07	55.94	14.35	15.84	15.86
Lane Group LOS	D	E	B	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.56	5.19	1.40	3.20	3.18
50th-Percentile Queue Length [ft/ln]	38.93	129.69	34.92	80.12	79.44
95th-Percentile Queue Length [veh/ln]	2.80	8.92	2.51	5.77	5.72
95th-Percentile Queue Length [ft/ln]	70.08	223.07	62.86	144.21	143.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.07	48.07	48.07	48.07	55.94	55.94	55.94	55.94	14.35	14.35	15.85	15.86
Movement LOS	D	D	D	D	E	E	E	E	B	B	B	B
d_A, Approach Delay [s/veh]	48.07				55.94				15.55			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	28.72											
Intersection LOS	C											
Intersection V/C	0.553											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.783	0.000	2.732
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	650
d_b, Bicycle Delay [s]	45.94	45.94	27.34
l_b,int, Bicycle LOS Score for Intersection	1.603	1.678	1.931
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	16	545	49	18	10	9	194	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	610	55	20	11	10	217	1
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	174	16	6	3	3	62	0
Total Analysis Volume [veh/h]	21	696	63	23	13	11	247	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	44	0	0	0	48	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	61	61	61	23
g / C, Green / Cycle	0.02	0.51	0.51	0.51	0.19
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.23	0.06	0.18
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1547
c, Capacity [veh/h]	37	909	909	773	302
d1, Uniform Delay [s]	58.17	17.34	19.21	15.58	47.18
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.22	0.85	1.70	0.29	9.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.30	0.46	0.11	0.90
d, Delay for Lane Group [s/veh]	71.39	18.20	20.91	15.87	56.87
Lane Group LOS	E	B	C	B	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.77	4.61	7.93	1.30	8.72
50th-Percentile Queue Length [ft/ln]	19.18	115.29	198.21	32.55	218.01
95th-Percentile Queue Length [veh/ln]	1.38	8.13	12.55	2.34	13.56
95th-Percentile Queue Length [ft/ln]	34.53	203.34	313.65	58.59	339.08

Movement, Approach, & Intersection Results

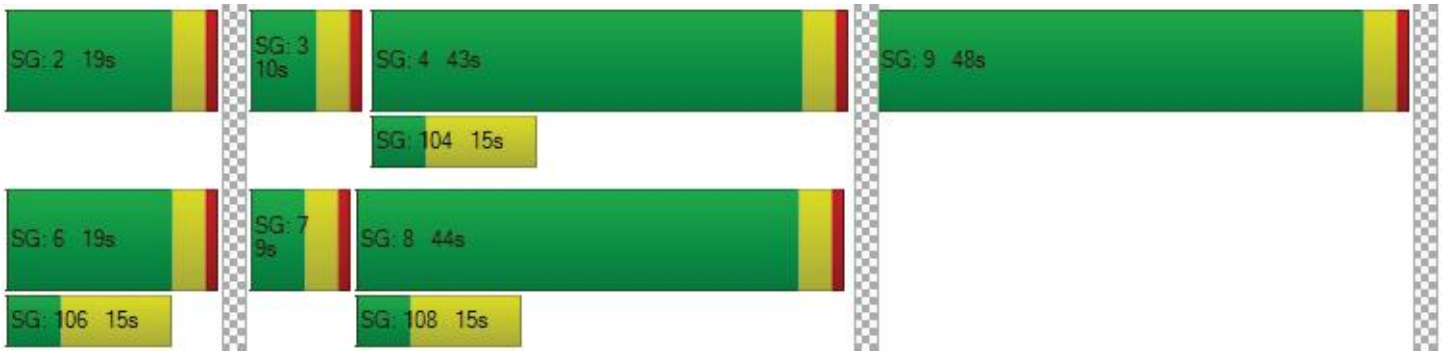
d_M, Delay for Movement [s/veh]	71.39	19.84	20.91	15.87	56.87	56.87	56.87	56.87
Movement LOS	E	B	C	B	E	E	E	E
d_A, Approach Delay [s/veh]	20.76				56.87			
Approach LOS	C				E			
d_I, Intersection Delay [s/veh]	28.72							
Intersection LOS	C							
Intersection V/C	0.553							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.125
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	733
d_b, Bicycle Delay [s]	26.67	24.07
l_b,int, Bicycle LOS Score for Intersection	2.203	2.007
Bicycle LOS	B	B

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	91.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	1	21	92	3	29	14	399	8	14	605	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	1	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1	24	103	3	32	16	448	9	16	678	81
Peak Hour Factor	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	0	7	29	1	9	5	127	3	5	192	23
Total Analysis Volume [veh/h]	8	1	27	116	3	36	18	506	10	18	766	92
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

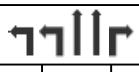
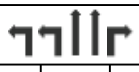
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.04	0.79	0.02	0.06	0.02	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	24.84	33.81	10.63	89.69	91.77	11.62	9.65	0.00	0.00	8.45	0.00	0.00
Movement LOS	C	D	B	F	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.28	0.28	0.28	5.14	5.14	0.20	0.07	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.03	7.03	7.03	128.4	128.4	4.95	1.74	0.00	0.00	1.29	0.00	0.00
d_A, Approach Delay [s/veh]	14.43			71.60			0.33			0.17		
Approach LOS	B			F			A			A		
d_I, Intersection Delay [s/veh]	7.46											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	58.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.871

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	439	581	136	84	759	31	35	281	464	265	376	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	30	0	0	32	0	0	1	0	0	0	1
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	492	681	152	94	882	35	39	316	520	297	421	93
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	129	178	40	25	230	9	10	83	136	78	110	24
Total Analysis Volume [veh/h]	514	712	159	98	922	37	41	330	543	310	440	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	46	0	13	36	0	11	46	0	15	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	43	43	8	32	32	4	42	42	11	49	49
g / C, Green / Cycle	0.16	0.35	0.35	0.07	0.27	0.27	0.03	0.35	0.35	0.09	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.15	0.21	0.10	0.06	0.27	0.27	0.01	0.10	0.35	0.09	0.15	0.15
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1776	3329	3427	1530	3329	1800	1689
c, Capacity [veh/h]	527	1215	543	121	480	474	106	1200	536	305	738	692
d1, Uniform Delay [s]	50.26	31.55	27.89	54.99	44.00	44.00	56.93	28.05	39.00	54.50	24.70	24.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.47	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.25	2.07	1.37	12.18	42.50	42.81	2.28	0.12	41.45	27.96	0.32	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.59	0.29	0.81	1.01	1.01	0.39	0.28	1.01	1.02	0.38	0.38
d, Delay for Lane Group [s/veh]	63.51	33.62	29.26	67.17	86.50	86.81	59.22	28.17	80.45	82.46	25.02	25.05
Lane Group LOS	E	C	C	E	F	F	E	C	F	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.62	8.72	3.51	3.33	19.78	19.55	0.64	3.45	21.64	5.79	5.55	5.22
50th-Percentile Queue Length [ft/ln]	215.5	218.0	87.79	83.24	494.4	488.8	16.10	86.25	540.9	144.6	138.8	130.5
95th-Percentile Queue Length [veh/ln]	13.43	13.56	6.32	5.99	27.17	26.90	1.16	6.21	29.55	9.79	9.42	8.97
95th-Percentile Queue Length [ft/ln]	335.8	339.0	158.0	149.8	679.2	672.5	28.98	155.2	738.8	244.6	235.5	224.2

Movement, Approach, & Intersection Results

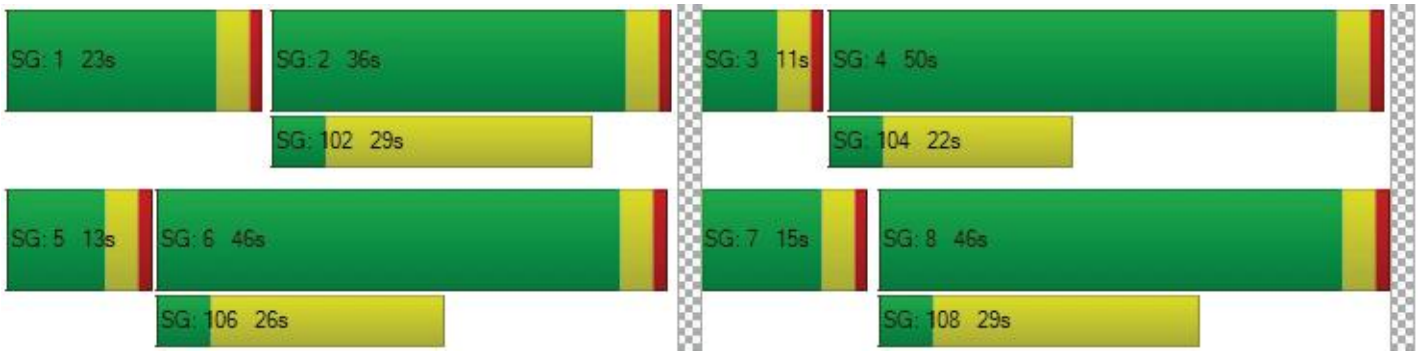
d_M, Delay for Movement [s/veh]	63.51	33.62	29.26	67.17	86.65	86.81	59.22	28.17	80.45	82.46	25.03	25.05
Movement LOS	E	C	C	E	F	F	E	C	F	F	C	C
d_A, Approach Delay [s/veh]	44.21			84.85			60.62			46.05		
Approach LOS	D			F			E			D		
d_I, Intersection Delay [s/veh]	58.37											
Intersection LOS	E											
Intersection V/C	0.871											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.049	2.687	2.874	2.915
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	533	700	767
d_b, Bicycle Delay [s]	25.35	32.27	25.35	22.82
l_b,int, Bicycle LOS Score for Intersection	2.702	2.432	2.314	2.258
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	180	1217	675	109	1386	98	170	259	151	546	419	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	1	10	0	6	18	0	0	0	1	0	0	4
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	203	1373	756	128	1570	110	190	290	170	612	469	109
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	367	202	34	419	29	51	77	45	163	125	29
Total Analysis Volume [veh/h]	217	1467	808	137	1677	118	203	310	182	654	501	116
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	9	36	0	35	43	0	28	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	58	86	5	54	54	10	17	17	24	31	40
g / C, Green / Cycle	0.08	0.48	0.72	0.04	0.45	0.45	0.08	0.14	0.14	0.20	0.26	0.34
(v / s)_i Volume / Saturation Flow Rate	0.07	0.30	0.53	0.04	0.35	0.35	0.06	0.09	0.12	0.20	0.15	0.04
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1740	3329	3427	1530	3329	3427	2708
c, Capacity [veh/h]	250	2367	1095	139	1540	782	271	488	218	666	894	910
d1, Uniform Delay [s]	54.92	22.91	10.26	57.47	27.86	27.91	53.91	48.52	50.09	47.79	38.39	27.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.97	1.23	4.45	32.63	3.82	7.38	4.11	1.38	8.18	12.56	0.55	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.62	0.74	0.99	0.77	0.77	0.75	0.64	0.84	0.98	0.56	0.13
d, Delay for Lane Group [s/veh]	63.89	24.15	14.71	90.10	31.68	35.30	58.02	49.90	58.28	60.35	38.95	27.71
Lane Group LOS	E	C	B	F	C	D	E	D	E	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.56	10.28	12.61	2.70	14.89	15.98	3.15	4.48	5.81	10.84	6.45	1.17
50th-Percentile Queue Length [ft/ln]	88.88	257.0	315.2	67.62	372.3	399.4	78.86	111.8	145.1	270.9	161.2	29.36
95th-Percentile Queue Length [veh/ln]	6.40	15.54	18.43	4.87	21.22	22.53	5.68	7.95	9.76	16.24	10.61	2.11
95th-Percentile Queue Length [ft/ln]	159.9	388.5	460.7	121.7	530.5	563.2	141.9	198.6	243.9	405.9	265.3	52.84

Movement, Approach, & Intersection Results

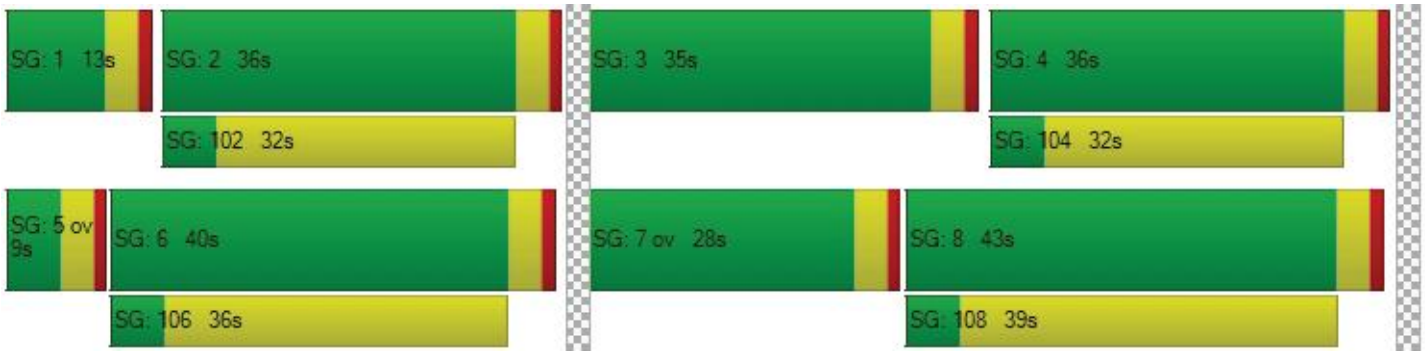
d_M, Delay for Movement [s/veh]	63.89	24.15	14.71	90.10	32.73	35.30	58.02	49.90	58.28	60.35	38.95	27.71
Movement LOS	E	C	B	F	C	D	E	D	E	E	D	C
d_A, Approach Delay [s/veh]	24.55			36.96			54.47			48.93		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	36.40											
Intersection LOS	D											
Intersection V/C	0.770											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.470	3.194	2.927	3.138
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.930	2.622	1.942	2.608
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.542

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	762	445	0	774	408	0	0	0	490	0	531
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	9	0	0	6	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	862	445	0	873	464	0	0	0	549	0	595
Peak Hour Factor	1.000	0.924	1.000	1.000	0.924	0.924	1.000	1.000	1.000	0.924	1.000	0.924
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	233	111	0	236	126	0	0	0	149	0	161
Total Analysis Volume [veh/h]	0	933	445	0	945	502	0	0	0	594	0	644
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	33	0	0	33	0	0	0	0	87	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	75	75		37	37	37
g / C, Green / Cycle	0.63	0.63		0.31	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.27	0.19		0.24	0.26	0.27
s, saturation flow rate [veh/h]	3427	4903		1714	1606	1530
c, Capacity [veh/h]	2151	3077		524	491	468
d1, Uniform Delay [s]	11.44	10.31		38.08	38.91	39.59
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.64	0.26		2.67	3.95	5.61
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.31		0.79	0.84	0.88
d, Delay for Lane Group [s/veh]	12.08	10.57		40.75	42.86	45.20
Lane Group LOS	B	B		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.28	3.78		11.41	11.80	12.19
50th-Percentile Queue Length [ft/ln]	157.10	94.57		285.3	295.0	304.7
95th-Percentile Queue Length [veh/ln]	10.40	6.81		16.95	17.44	17.92
95th-Percentile Queue Length [ft/ln]	259.88	170.22		423.8	435.9	447.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.08	0.00	0.00	10.57	0.00	0.00	0.00	0.00	41.39	0.00	44.36
Movement LOS		B			B					D		D
d_A, Approach Delay [s/veh]	12.08			10.57			0.00			42.94		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	23.88											
Intersection LOS	C											
Intersection V/C	0.542											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	0	1383
d_b, Bicycle Delay [s]	34.50	34.50	60.00	5.70
l_b,int, Bicycle LOS Score for Intersection	2.329	2.079	4.132	3.602
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	993	543	0	1748	0	0	0	0	738	0	637
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	26	0	0	124	0	0	0	0	0	0	62
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1138	608	0	2082	0	0	0	0	827	0	775
Peak Hour Factor	1.000	0.910	0.910	1.000	0.910	0.910	0.910	0.910	0.910	0.910	1.000	0.910
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	313	167	0	572	0	0	0	0	227	0	213
Total Analysis Volume [veh/h]	0	1251	668	0	2288	0	0	0	0	909	0	852
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	46	0	0	46	0	0	0	0	74	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	43	43		69	69
g / C, Green / Cycle	0.36	0.36		0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.26	0.35		0.27	0.56
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	1768	2357		1907	876
d1, Uniform Delay [s]	32.94	37.75		15.06	24.71
k, delay calibration	0.50	0.50		0.11	0.44
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.42	12.83		0.19	22.66
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.97		0.48	0.97
d, Delay for Lane Group [s/veh]	35.36	50.58		15.25	47.37
Lane Group LOS	D	D		B	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	10.71	18.31		7.16	27.37
50th-Percentile Queue Length [ft/ln]	267.73	457.77		178.88	684.20
95th-Percentile Queue Length [veh/ln]	16.08	25.33		11.54	35.95
95th-Percentile Queue Length [ft/ln]	401.90	633.21		288.55	898.69

Movement, Approach, & Intersection Results

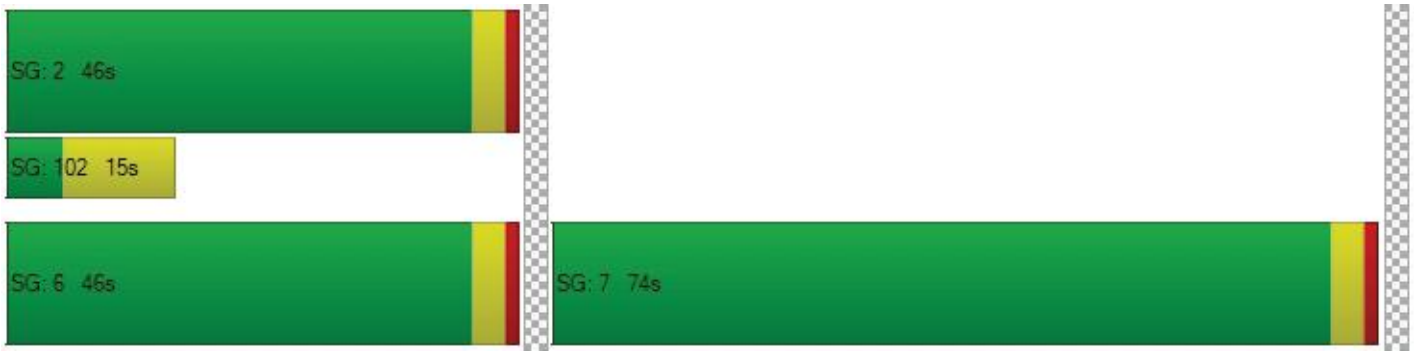
d_M, Delay for Movement [s/veh]	0.00	35.36	0.00	0.00	50.58	0.00	0.00	0.00	0.00	15.25	0.00	47.37
Movement LOS		D			D					B		D
d_A, Approach Delay [s/veh]	35.36			50.58			0.00			30.79		
Approach LOS	D			D			A			C		
d_I, Intersection Delay [s/veh]	40.41											
Intersection LOS	D											
Intersection V/C	0.907											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	0	1167
d_b, Bicycle Delay [s]	25.35	25.35	60.00	10.42
l_b,int, Bicycle LOS Score for Intersection	2.248	2.503	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	654	272	0	983	466	0	0	0	363	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	4	0	0	32	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	736	272	0	1133	466	0	0	0	407	0	528
Peak Hour Factor	1.000	0.960	0.868	1.000	0.960	1.000	1.000	1.000	1.000	0.960	1.000	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	192	78	0	295	117	0	0	0	106	0	138
Total Analysis Volume [veh/h]	0	767	313	0	1180	466	0	0	0	424	0	550
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	48	0	0	48	0	0	0	0	72	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	79	79		33	33
g / C, Green / Cycle	0.66	0.66		0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.16	0.34		0.25	0.20
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3208	2242		478	756
d1, Uniform Delay [s]	8.50	10.93		41.44	39.14
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.18	0.89		5.71	1.36
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.53		0.89	0.73
d, Delay for Lane Group [s/veh]	8.68	11.82		47.15	40.50
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.66	8.02		12.69	7.45
50th-Percentile Queue Length [ft/ln]	66.55	200.62		317.20	186.26
95th-Percentile Queue Length [veh/ln]	4.79	12.67		18.53	11.93
95th-Percentile Queue Length [ft/ln]	119.80	316.76		463.24	298.17

Movement, Approach, & Intersection Results

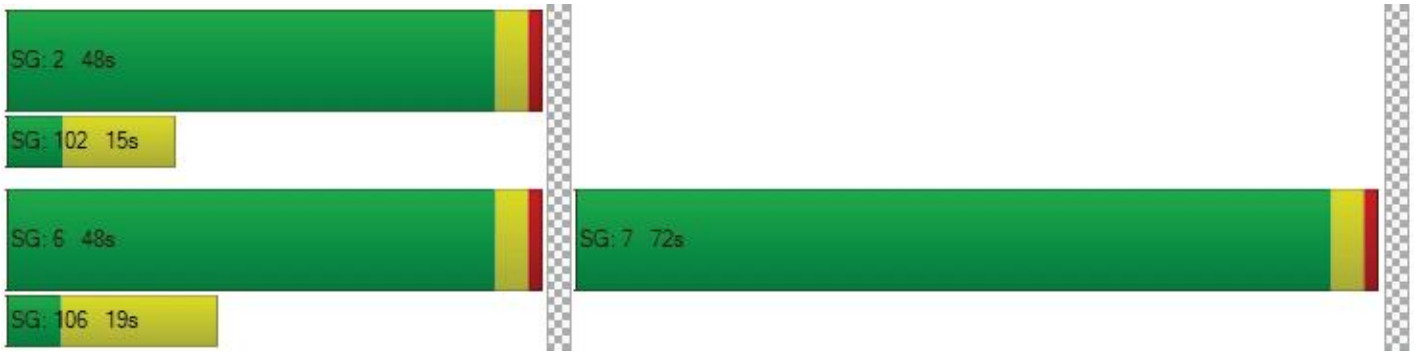
d_M, Delay for Movement [s/veh]	0.00	8.68	0.00	0.00	11.82	0.00	0.00	0.00	0.00	47.15	0.00	40.50
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	8.68			11.82			0.00			43.39		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	21.52											
Intersection LOS	C											
Intersection V/C	0.592											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.384
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	0	1133
d_b, Bicycle Delay [s]	24.07	24.07	60.00	11.27
l_b,int, Bicycle LOS Score for Intersection	1.981	2.533	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1074	381	0	966	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1207	381	0	1088	238	308	0	671	0	0	0
Peak Hour Factor	1.000	0.927	1.000	1.000	0.927	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	326	95	0	293	60	83	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1302	381	0	1174	238	332	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	60	60	
g / C, Green / Cycle	0.43	0.43	0.50	0.50	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.34	0.10	0.47	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	2129	1488	1662	764	
d1, Uniform Delay [s]	26.16	29.22	16.72	28.57	
k, delay calibration	0.50	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.32	4.33	0.06	9.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.79	0.20	0.95	
d, Delay for Lane Group [s/veh]	27.48	33.55	16.78	38.55	
Lane Group LOS	C	C	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.69	15.14	2.56	21.13	
50th-Percentile Queue Length [ft/ln]	242.15	378.40	64.12	528.33	
95th-Percentile Queue Length [veh/ln]	14.79	21.52	4.62	28.67	
95th-Percentile Queue Length [ft/ln]	369.75	537.91	115.41	716.81	

Movement, Approach, & Intersection Results

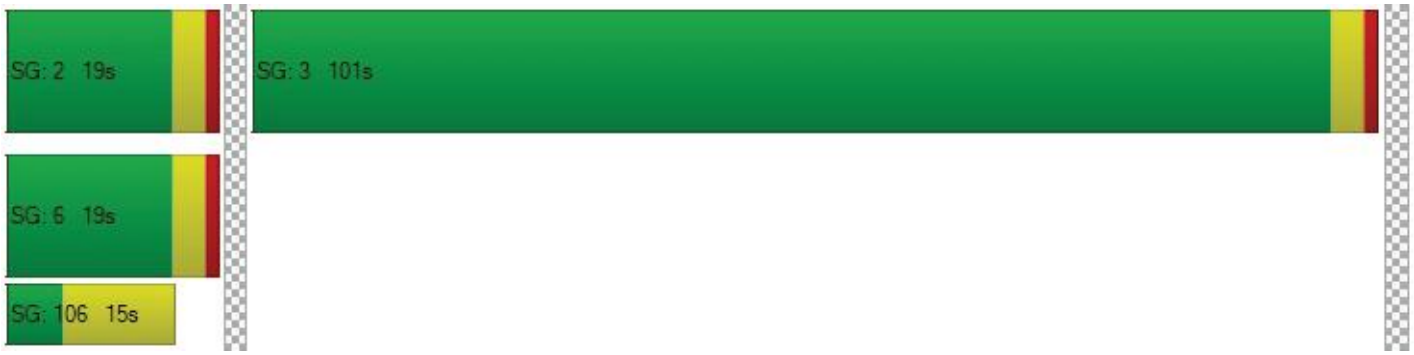
d_M, Delay for Movement [s/veh]	0.00	27.48	0.00	0.00	33.55	0.00	16.78	0.00	38.55	0.00	0.00	0.00
Movement LOS		C			C		B		D			
d_A, Approach Delay [s/veh]	27.48			33.55			31.70			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	30.76											
Intersection LOS	C											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.276	2.528	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.861

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1234	483	460	1488	0	401	6	617	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	21	0	92	32	0	5	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1403	541	607	1699	0	454	7	691	0	0	0
Peak Hour Factor	1.000	0.914	0.914	0.914	0.914	1.000	0.914	0.914	0.914	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	384	148	166	465	0	124	2	189	0	0	0
Total Analysis Volume [veh/h]	0	1535	592	664	1859	0	497	8	756	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	29	81	0	0	39	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	25	77	35	35	35	
g / C, Green / Cycle	0.40	0.40	0.21	0.64	0.29	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.31	0.39	0.20	0.38	0.25	0.27	0.27	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1565	1530	
c, Capacity [veh/h]	1972	615	694	3157	496	453	443	
d1, Uniform Delay [s]	31.21	34.97	46.97	12.25	40.14	41.42	41.77	
k, delay calibration	0.50	0.50	0.11	0.50	0.34	0.40	0.41	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.11	28.02	8.67	0.81	11.68	23.63	28.22	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.78	0.96	0.96	0.59	0.85	0.93	0.95	
d, Delay for Lane Group [s/veh]	34.31	62.98	55.64	13.06	51.82	65.05	69.99	
Lane Group LOS	C	E	E	B	D	E	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.25	21.24	10.58	9.20	13.20	14.93	15.53	
50th-Percentile Queue Length [ft/ln]	331.32	530.89	264.58	229.90	329.9	373.3	388.3	
95th-Percentile Queue Length [veh/ln]	19.22	28.79	15.92	14.17	19.16	21.27	22.00	
95th-Percentile Queue Length [ft/ln]	480.58	719.83	397.96	354.23	478.9	531.7	549.8	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	34.31	62.98	55.64	13.06	0.00	53.86	65.05	67.80	0.00	0.00	0.00
Movement LOS		C	E	E	B		D	E	E			
d_A, Approach Delay [s/veh]	42.29			24.27			62.29			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	38.87											
Intersection LOS	D											
Intersection V/C	0.861											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.454	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	1283	583	0
d_b, Bicycle Delay [s]	21.60	7.70	30.10	60.00
l_b,int, Bicycle LOS Score for Intersection	2.729	2.947	3.640	4.132
Bicycle LOS	B	C	D	D

Sequence

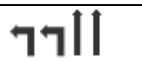
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.776

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	651	332	534	851	0	304	8	427	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	26	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	733	372	624	959	0	340	9	478	0	0	0
Peak Hour Factor	1.000	0.964	0.964	0.964	0.964	1.000	0.964	0.964	0.964	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	190	96	162	249	0	88	2	124	0	0	0
Total Analysis Volume [veh/h]	0	760	386	647	995	0	353	9	496	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	20	0	31	51	0	0	69	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	40	40	25	69	43	43	
g / C, Green / Cycle	0.33	0.33	0.21	0.58	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.25	0.19	0.29	0.11	0.33	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1534	
c, Capacity [veh/h]	1138	508	705	1979	1185	546	
d1, Uniform Delay [s]	34.38	35.79	46.27	15.10	27.83	37.09	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.18	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.11	10.22	5.36	0.92	0.14	10.91	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.67	0.76	0.92	0.50	0.30	0.92	
d, Delay for Lane Group [s/veh]	37.50	46.01	51.63	16.02	27.97	48.00	
Lane Group LOS	D	D	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.94	11.43	9.92	8.09	3.70	15.66	
50th-Percentile Queue Length [ft/ln]	248.50	285.80	247.98	202.32	92.39	391.47	
95th-Percentile Queue Length [veh/ln]	15.11	16.98	15.08	12.76	6.65	22.15	
95th-Percentile Queue Length [ft/ln]	377.76	424.42	377.11	318.96	166.30	553.71	

Movement, Approach, & Intersection Results

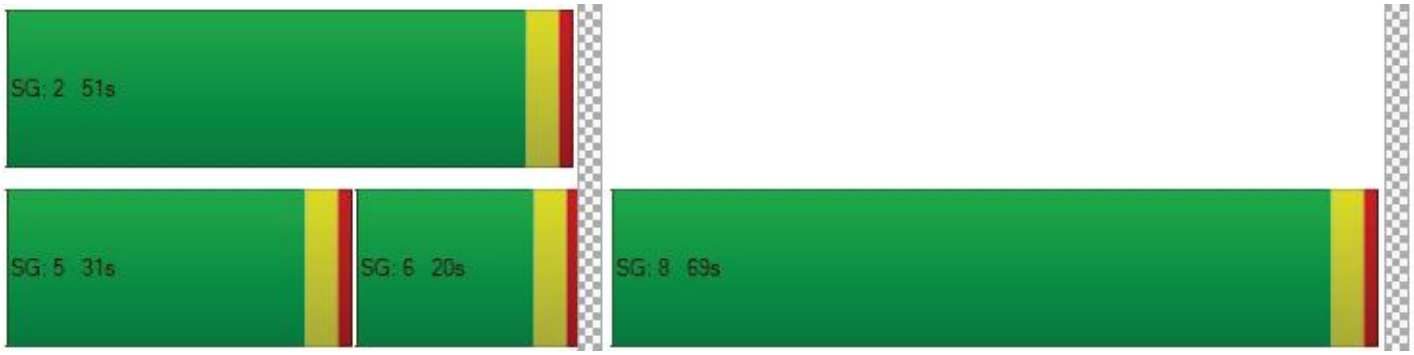
d_M, Delay for Movement [s/veh]	0.00	37.50	46.01	51.63	16.02	0.00	27.97	48.00	48.00	0.00	0.00	0.00
Movement LOS		D	D	D	B		C	D	D			
d_A, Approach Delay [s/veh]	40.36			30.05			39.76			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	35.58											
Intersection LOS	D											
Intersection V/C	0.776											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	267	783	1083	0
d_b, Bicycle Delay [s]	45.07	22.20	12.60	60.00
l_b,int, Bicycle LOS Score for Intersection	2.190	2.914	2.975	4.132
Bicycle LOS	B	C	C	D

Sequence

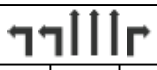
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.768

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	420	718	357	500	741	821	855	0	501	428	0	550
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	4	0	13	6	0	0	0	0	0	0	7
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	470	808	400	573	836	920	958	0	561	479	0	623
Peak Hour Factor	0.955	0.955	0.955	0.955	0.955	0.955	0.955	1.000	0.955	0.955	1.000	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	123	212	105	150	219	241	251	0	147	125	0	163
Total Analysis Volume [veh/h]	492	846	419	600	875	963	1003	0	587	502	0	652
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	56	0	0	56	0	64	0	0	64	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	72	72	72	72	40	40
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.39	0.17	0.47	0.18	0.30	0.15
s, saturation flow rate [veh/h]	1250	4903	1284	4903	3329	3329
c, Capacity [veh/h]	653	2940	674	2940	1111	1111
d1, Uniform Delay [s]	27.37	11.62	30.71	11.70	38.13	31.37
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.89	0.25	16.34	0.26	3.04	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.29	0.89	0.30	0.90	0.45
d, Delay for Lane Group [s/veh]	35.26	11.87	47.05	11.96	41.17	31.66
Lane Group LOS	D	B	D	B	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.65	3.62	9.69	3.77	14.36	5.77
50th-Percentile Queue Length [ft/ln]	166.16	90.57	242.25	94.36	359.03	144.13
95th-Percentile Queue Length [veh/ln]	10.87	6.52	14.80	6.79	20.58	9.70
95th-Percentile Queue Length [ft/ln]	271.86	163.03	369.88	169.85	514.40	242.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.26	11.87	0.00	47.05	11.96	0.00	41.17	0.00	0.00	31.66	0.00	0.00
Movement LOS	D	B		D	B		D			C		
d_A, Approach Delay [s/veh]	20.47			26.23			41.17			31.66		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.55											
Intersection LOS	C											
Intersection V/C	0.768											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.306	3.383
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	1000	1000
d_b, Bicycle Delay [s]	19.27	19.27	15.00	15.00
l_b,int, Bicycle LOS Score for Intersection	2.296	2.371	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	39.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	333	80	108	705	218	77	409	118	156	1102	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	4	4	0	0	0	4	0	6	6	6
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	373	94	125	790	244	86	462	132	181	1240	121
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	109	27	36	230	71	25	135	38	53	361	35
Total Analysis Volume [veh/h]	230	435	110	146	921	284	100	538	154	211	1445	141
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	32	0	11	29	0	12	55	0	22	65	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	34	34	7	31	31	8	46	46	17	55	55
g / C, Green / Cycle	0.08	0.28	0.28	0.06	0.26	0.26	0.07	0.39	0.39	0.14	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.07	0.04	0.19	0.19	0.06	0.16	0.10	0.12	0.42	0.09
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	277	1384	432	194	1261	393	114	1327	592	238	1575	703
d1, Uniform Delay [s]	54.16	33.93	33.31	55.64	40.77	40.65	55.50	26.74	25.06	50.71	30.31	19.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.28	0.60	1.42	5.77	3.75	10.92	18.04	0.20	0.23	10.44	2.57	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.31	0.25	0.75	0.73	0.72	0.88	0.41	0.26	0.88	0.92	0.20
d, Delay for Lane Group [s/veh]	60.44	34.52	34.73	61.41	44.52	51.57	73.54	26.94	25.29	61.15	32.88	19.45
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.66	3.42	2.66	2.33	8.70	8.82	3.57	5.64	3.04	6.91	19.49	2.38
50th-Percentile Queue Length [ft/ln]	91.51	85.55	66.56	58.30	217.5	220.4	89.25	140.8	76.06	172.6	487.1	59.50
95th-Percentile Queue Length [veh/ln]	6.59	6.16	4.79	4.20	13.54	13.69	6.43	9.53	5.48	11.22	26.73	4.28
95th-Percentile Queue Length [ft/ln]	164.7	153.9	119.8	104.9	338.4	342.1	160.6	238.2	136.9	280.4	668.1	107.1

Movement, Approach, & Intersection Results

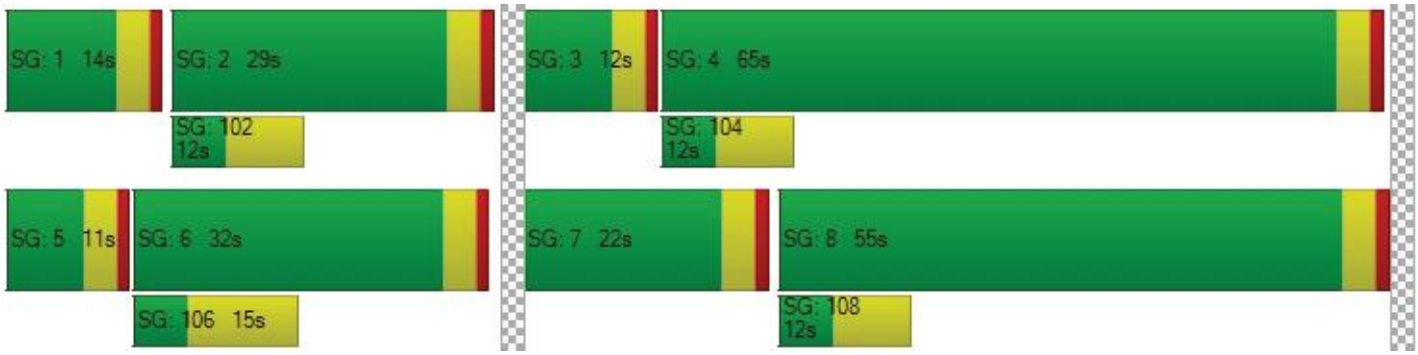
d_M, Delay for Movement [s/veh]	60.44	34.52	34.73	61.41	44.52	51.57	73.54	26.94	25.29	61.15	32.88	19.45
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	B
d_A, Approach Delay [s/veh]	42.24			47.83			32.50			35.14		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	39.50											
Intersection LOS	D											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.088	3.084	2.915	2.889
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	417	850	1017
d_b, Bicycle Delay [s]	35.27	37.60	19.84	14.50
l_b,int, Bicycle LOS Score for Intersection	1.986	2.303	2.213	3.042
Bicycle LOS	A	B	B	C

Sequence

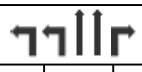
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	170	66	105	390	270	118	333	69	166	1013	134
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	12	0	0	18	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	190	74	118	437	302	132	385	77	186	1153	150
Peak Hour Factor	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	56	22	35	129	89	39	114	23	55	340	44
Total Analysis Volume [veh/h]	65	224	87	139	515	356	156	454	91	219	1360	177
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	10	33	0	15	38	38	16	55	0	17	56	56
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	31	31	11	36	52	12	52	52	10	50	65
g / C, Green / Cycle	0.05	0.26	0.26	0.09	0.30	0.43	0.10	0.44	0.44	0.08	0.42	0.54
(v / s)_i Volume / Saturation Flow Rate	0.04	0.07	0.06	0.08	0.15	0.23	0.09	0.16	0.16	0.07	0.40	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1697	3329	3427	1530
c, Capacity [veh/h]	82	875	391	157	1025	661	171	784	739	279	1438	833
d1, Uniform Delay [s]	56.51	35.59	35.27	53.87	34.70	25.20	53.47	22.63	22.65	53.90	33.51	14.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.17	0.71	1.31	14.76	1.76	3.12	16.34	0.28	0.29	4.81	4.05	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.26	0.22	0.88	0.50	0.54	0.91	0.36	0.36	0.78	0.95	0.21
d, Delay for Lane Group [s/veh]	71.68	36.29	36.58	68.64	36.46	28.32	69.81	22.90	22.94	58.70	37.56	14.20
Lane Group LOS	E	D	D	E	D	C	E	C	C	E	D	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.30	2.71	2.17	4.79	6.46	8.01	5.43	5.33	5.06	3.43	19.37	2.49
50th-Percentile Queue Length [ft/ln]	57.41	67.85	54.14	119.7	161.3	200.3	135.7	133.3	126.4	85.75	484.3	62.28
95th-Percentile Queue Length [veh/ln]	4.13	4.88	3.90	8.38	10.62	12.65	9.25	9.12	8.75	6.17	26.59	4.48
95th-Percentile Queue Length [ft/ln]	103.3	122.1	97.46	209.4	265.5	316.3	231.3	228.0	218.6	154.3	664.7	112.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.68	36.29	36.58	68.64	36.46	28.32	69.81	22.92	22.94	58.70	37.56	14.20
Movement LOS	E	D	D	E	D	C	E	C	C	E	D	B
d_A, Approach Delay [s/veh]	42.48			38.02			33.36			37.84		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.52											
Intersection LOS	D											
Intersection V/C	0.731											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.663	2.723	2.799	2.948
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	567	850	867
d_b, Bicycle Delay [s]	34.50	30.82	19.84	19.27
l_b,int, Bicycle LOS Score for Intersection	1.870	2.393	2.138	3.008
Bicycle LOS	A	B	B	C

Sequence

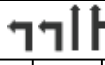
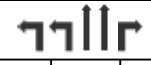
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	36.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.726

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	937	55	409	1110	522	407	220	42	53	258	351
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	17	0	0	26	6	4	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	1066	62	458	1269	591	460	246	47	59	289	393
Peak Hour Factor	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	297	17	128	353	165	128	68	13	16	80	109
Total Analysis Volume [veh/h]	35	1187	69	510	1413	658	512	274	52	66	322	438
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	33	0	22	41	41	22	56	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	51	51	18	65	87	18	31	31	4	17	39
g / C, Green / Cycle	0.03	0.42	0.42	0.15	0.54	0.73	0.15	0.26	0.26	0.04	0.14	0.33
(v / s)_i Volume / Saturation Flow Rate	0.02	0.24	0.24	0.15	0.29	0.43	0.15	0.09	0.09	0.02	0.09	0.29
s, saturation flow rate [veh/h]	1714	3427	1750	3329	4903	1530	3329	1800	1701	3329	3427	1530
c, Capacity [veh/h]	51	1451	741	499	2666	1113	499	461	436	124	491	500
d1, Uniform Delay [s]	57.68	26.34	26.34	51.00	17.54	7.84	51.00	36.60	36.60	56.75	48.60	38.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.37
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.46	1.65	3.21	24.30	0.76	2.31	25.48	0.48	0.51	3.55	1.49	15.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.57	0.57	1.02	0.53	0.59	1.03	0.36	0.36	0.53	0.66	0.88
d, Delay for Lane Group [s/veh]	73.14	27.99	29.55	75.30	18.30	10.15	76.48	37.08	37.11	60.30	50.09	53.11
Lane Group LOS	E	C	C	F	B	B	F	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.27	9.30	9.82	9.16	8.33	7.87	9.24	4.11	3.89	1.04	4.66	14.09
50th-Percentile Queue Length [ft/ln]	31.77	232.4	245.5	229.0	208.2	196.7	231.0	102.6	97.27	26.11	116.5	352.1
95th-Percentile Queue Length [veh/ln]	2.29	14.30	14.96	14.26	13.06	12.47	14.39	7.39	7.00	1.88	8.21	20.24
95th-Percentile Queue Length [ft/ln]	57.18	357.5	374.0	356.5	326.6	311.7	359.8	184.8	175.0	47.00	205.1	506.0

Movement, Approach, & Intersection Results

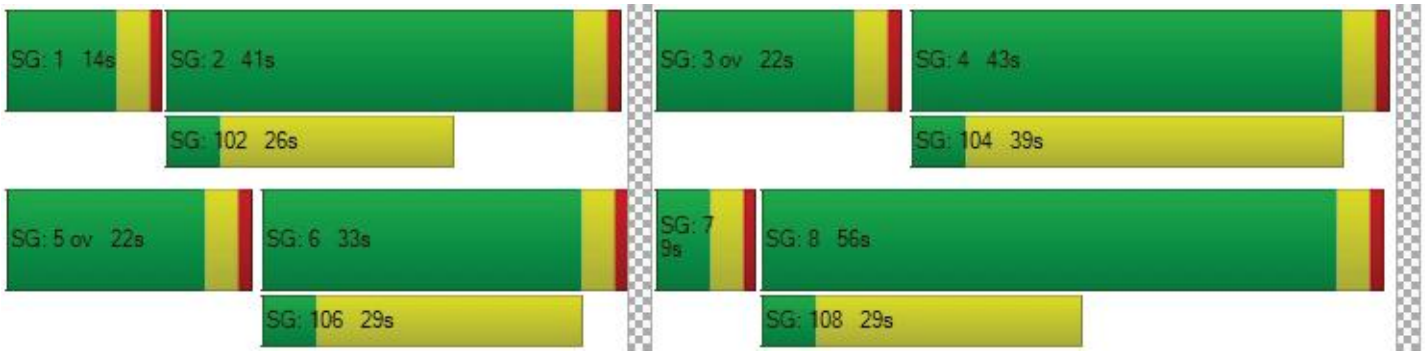
d_M, Delay for Movement [s/veh]	73.14	28.46	29.55	75.30	18.30	10.15	76.48	37.09	37.11	60.30	50.09	53.11
Movement LOS	E	C	C	F	B	B	F	D	D	E	D	D
d_A, Approach Delay [s/veh]	29.73			27.49			61.16			52.51		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	36.84											
Intersection LOS	D											
Intersection V/C	0.726											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.085	3.442	2.769	2.843
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	617	867	650
d_b, Bicycle Delay [s]	34.50	28.70	19.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.270	2.979	2.251	2.241
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	713.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	40.580

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	762	11	114	720	331	245	39	80	9	21	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	14	6	6	4	0	0	0	0	9
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	857	12	142	812	377	278	44	90	10	24	83
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	235	3	39	222	103	76	12	25	3	7	23
Total Analysis Volume [veh/h]	44	939	13	156	889	413	304	48	99	11	26	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	12	12	5	13	13	91	91	91	91
g / C, Green / Cycle	0.03	0.10	0.10	0.04	0.11	0.11	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.03	0.18	0.18	0.09	0.26	0.27	40.28	0.06	0.39	0.06
s, saturation flow rate [veh/h]	1714	3427	1787	1714	3427	1530	9	1530	95	1530
c, Capacity [veh/h]	56	347	181	71	378	169	63	1158	111	1158
d1, Uniform Delay [s]	57.65	53.93	53.93	57.50	53.37	53.37	54.18	3.78	34.52	3.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.58	372.8	383.2	542.6	615.1	667.4	2117.83	0.03	1.75	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	1.80	1.80	2.18	2.35	2.44	5.63	0.09	0.33	0.08
d, Delay for Lane Group [s/veh]	79.23	426.7	437.1	600.1	668.4	720.8	2172.01	3.82	36.27	3.79
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.66	23.19	24.71	12.93	38.03	36.42	38.69	0.56	0.94	0.51
50th-Percentile Queue Length [ft/ln]	41.49	579.7	617.7	323.3	950.8	910.3	967.16	13.99	23.50	12.79
95th-Percentile Queue Length [veh/ln]	2.99	36.96	39.12	21.61	59.71	57.52	69.64	1.01	1.69	0.92
95th-Percentile Queue Length [ft/ln]	74.68	923.9	978.0	540.1	1492.	1438.	1740.88	25.18	42.29	23.02

Movement, Approach, & Intersection Results

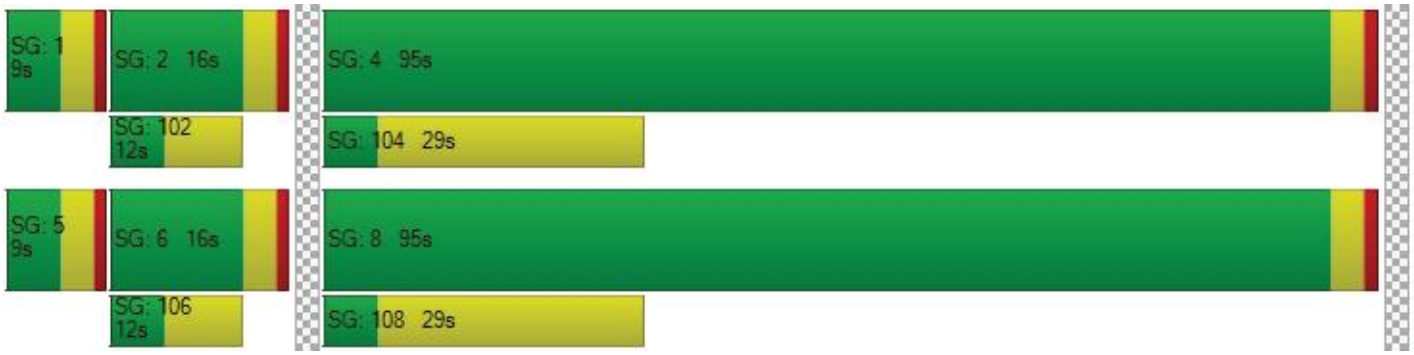
d_M, Delay for Movement [s/veh]	79.23	430.2	437.1	600.1	668.4	720.8	2172.	2172.	3.82	36.27	36.27	3.79
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	414.84			676.00			1696.07			13.18		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	713.94											
Intersection LOS	F											
Intersection V/C	40.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.903	3.430	2.259	2.068
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.107	2.362	2.304	1.771
Bicycle LOS	B	B	B	A

Sequence

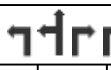
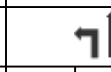
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1772	2665	1687	1772
c, Capacity [veh/h]	1	2920	1533	1	2919	1405	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

Vistro File: K:\...\Speedway CC PM.vistro
Report File: K:\...\5 OY 2027 CUM PM.pdf

Scenario 5 OY 2027 CUM PM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Left	0.581	31.1	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.675	27.3	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.459	16.9	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.600	24.1	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.753	31.5	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.499	14.7	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.405	34.9	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.713	40.4	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	EB Left	0.868	55.1	E
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.479	40.1	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.361	15.1	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.501	34.1	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.704	39.6	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.490	43.2	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.556	40.0	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.547	35.7	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.557	44.7	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.926	24.6	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.582	22.8	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.702	44.4	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.677	47.0	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	4.660	2,188.6	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.837	57.3	E
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	SB Left	0.761	44.2	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.728	40.5	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.870	62.1	E
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.596	23.9	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.744	45.0	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.588	37.2	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.796	28.8	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.873	54.4	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.549	48.5	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.643	28.4	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.746	27.9	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	EB Thru	1.054	50.3	F
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.590	31.3	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	WB Left	0.649	43.1	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.491	23.6	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.673	33.9	C
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	0.915	32.9	D
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	0.865	34.8	D
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.516	28.1	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.619	31.9	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Right	0.911	58.2	E
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.638	35.6	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.561	37.3	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Thru	0.858	62.0	E
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.209	10.9	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.814	48.4	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.516	34.9	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	NB Thru	0.498	28.2	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.538	31.6	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.761	42.4	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	EB Thru	0.362	10.2	B
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.624	35.6	D
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	NB Right	0.933	61.8	E
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.966	53.2	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.509	16.0	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Left	1.411	369.5	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.779	48.1	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	WB Left	0.910	60.3	E
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.542	19.3	B
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.785	28.2	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.549	19.1	B
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.605	18.6	B
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	NB Right	0.828	39.6	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.751	32.1	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	1.130	69.7	E
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.793	42.6	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.744	40.5	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.702	37.8	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	33.040	573.5	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.581

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	302	571	0	0	461	146	0	0	0	287	0	135
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	15	5	0	0	8	0	0	0	0	26	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	353	645	0	0	524	164	0	0	0	347	0	151
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	93	170	0	0	138	43	0	0	0	91	0	40
Total Analysis Volume [veh/h]	372	679	0	0	552	173	0	0	0	365	0	159
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	46	78	0	0	32	0	0	0	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	28	84	52	52		28	28
g / C, Green / Cycle	0.24	0.70	0.43	0.43		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.22	0.20	0.14	0.15		0.21	0.10
s, saturation flow rate [veh/h]	1714	3427	3427	1598		1714	1530
c, Capacity [veh/h]	405	2397	1474	688		401	358
d1, Uniform Delay [s]	44.73	6.76	22.68	22.95		44.75	39.31
k, delay calibration	0.18	0.50	0.50	0.50		0.22	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	13.37	0.30	0.59	1.41		14.56	0.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.28	0.33	0.35		0.91	0.44
d, Delay for Lane Group [s/veh]	58.10	7.05	23.27	24.36		59.32	40.17
Lane Group LOS	E	A	C	C		E	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	12.24	3.11	4.65	4.85		12.13	4.11
50th-Percentile Queue Length [ft/ln]	305.99	77.83	116.15	121.21		303.34	102.71
95th-Percentile Queue Length [veh/ln]	17.98	5.60	8.18	8.46		17.85	7.39
95th-Percentile Queue Length [ft/ln]	449.42	140.09	204.53	211.49		446.15	184.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.10	7.05	0.00	0.00	23.41	24.36	0.00	0.00	0.00	59.32	59.32	40.17
Movement LOS	E	A			C	C				E	E	D
d_A, Approach Delay [s/veh]	25.12			23.64			0.00			53.51		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	31.12											
Intersection LOS	C											
Intersection V/C	0.581											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.970	2.126
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1233	467	0	633
d_b, Bicycle Delay [s]	8.82	35.27	60.00	28.02
l_b,int, Bicycle LOS Score for Intersection	2.427	1.958	4.132	2.424
Bicycle LOS	B	A	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	323	1038	0	0	732	395	0	0	0	341	0	332
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	7	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	362	1168	0	0	828	442	0	0	0	389	0	372
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	95	307	0	0	218	116	0	0	0	102	0	98
Total Analysis Volume [veh/h]	381	1229	0	0	872	465	0	0	0	409	0	392
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	26	56	0	0	30	0	0	0	0	0	64	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	16	78	58	58		34	34	34
g / C, Green / Cycle	0.13	0.65	0.48	0.48		0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.11	0.36	0.25	0.30		0.12	0.12	0.26
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1714	1530
c, Capacity [veh/h]	447	2231	1656	739		484	484	432
d1, Uniform Delay [s]	50.77	11.39	21.48	23.01		35.09	35.09	41.55
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.67	0.98	1.20	4.03		0.59	0.59	7.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.55	0.53	0.63		0.42	0.42	0.91
d, Delay for Lane Group [s/veh]	55.44	12.38	22.68	27.04		35.68	35.68	49.04
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.88	8.68	8.65	10.40		4.97	4.97	11.99
50th-Percentile Queue Length [ft/ln]	146.95	217.01	216.35	259.92		124.1	124.1	299.7
95th-Percentile Queue Length [veh/ln]	9.85	13.51	13.48	15.69		8.62	8.62	17.67
95th-Percentile Queue Length [ft/ln]	246.35	337.81	336.96	392.13		215.5	215.5	441.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.44	12.38	0.00	0.00	22.68	27.04	0.00	0.00	0.00	35.68	35.68	49.04
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	22.57			24.20			0.00			42.22		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	27.35											
Intersection LOS	C											
Intersection V/C	0.675											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.143	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	433	0	1000
d_b, Bicycle Delay [s]	19.27	36.82	60.00	15.00
l_b,int, Bicycle LOS Score for Intersection	2.888	2.663	4.132	2.881
Bicycle LOS	C	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.459

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1132	0	0	1172	0	0	0	0	297	0	400
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	4	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1273	0	0	1321	0	0	0	0	337	0	448
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	335	0	0	348	0	0	0	0	89	0	118
Total Analysis Volume [veh/h]	0	1340	0	0	1391	0	0	0	0	355	0	472
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	48	0	0	0	0	0	72	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	87	87		25	25	25
g / C, Green / Cycle	0.73	0.73		0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.27	0.28		0.17	0.17	0.18
s, saturation flow rate [veh/h]	4903	4903		1714	1573	1530
c, Capacity [veh/h]	3565	3565		354	325	316
d1, Uniform Delay [s]	6.15	6.24		45.35	45.72	45.85
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.32		4.39	5.84	6.42
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.39		0.81	0.84	0.85
d, Delay for Lane Group [s/veh]	6.46	6.57		49.74	51.56	52.27
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.90	4.11		8.52	8.31	8.25
50th-Percentile Queue Length [ft/ln]	97.60	102.81		212.9	207.8	206.3
95th-Percentile Queue Length [veh/ln]	7.03	7.40		13.30	13.04	12.97
95th-Percentile Queue Length [ft/ln]	175.68	185.05		332.5	326.0	324.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.46	0.00	0.00	6.57	0.00	0.00	0.00	0.00	50.13	51.56	51.97
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	6.46			6.57			0.00			51.16		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.89											
Intersection LOS	B											
Intersection V/C	0.459											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	0	1133
d_b, Bicycle Delay [s]	24.07	24.07	60.00	11.27
l_b,int, Bicycle LOS Score for Intersection	2.297	2.325	4.132	2.924
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	687	307	72	673	0	193	2	359	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	34	0	0	0	16	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	789	366	81	788	0	216	2	418	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	208	96	21	207	0	57	1	110	0	0	0
Total Analysis Volume [veh/h]	0	831	385	85	829	0	227	2	440	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	12	0	12	24	0	0	96	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	63	63	7	75	37	37	
g / C, Green / Cycle	0.53	0.53	0.06	0.62	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.26	0.05	0.24	0.13	0.29	
s, saturation flow rate [veh/h]	3427	1542	1714	3427	1715	1530	
c, Capacity [veh/h]	1803	811	106	2130	535	477	
d1, Uniform Delay [s]	17.64	18.27	55.56	11.34	32.79	39.88	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.81	2.19	12.91	0.54	0.54	7.88	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.45	0.50	0.80	0.39	0.43	0.92	
d, Delay for Lane Group [s/veh]	18.45	20.47	68.47	11.88	33.33	47.75	
Lane Group LOS	B	C	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	7.04	7.58	2.92	5.47	5.39	13.44	
50th-Percentile Queue Length [ft/ln]	176.05	189.45	72.98	136.69	134.68	336.11	
95th-Percentile Queue Length [veh/ln]	11.39	12.09	5.25	9.30	9.19	19.46	
95th-Percentile Queue Length [ft/ln]	284.86	302.32	131.37	232.55	229.84	486.45	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	18.50	20.47	68.47	11.88	0.00	33.33	33.33	47.75	0.00	0.00	0.00
Movement LOS		B	C	E	B		C	C	D			
d_A, Approach Delay [s/veh]	19.12			17.14			42.82			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	24.14											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.173	1.899
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	333	1533	0
d_b, Bicycle Delay [s]	52.27	41.67	3.27	60.00
l_b,int, Bicycle LOS Score for Intersection	2.228	2.314	2.663	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.753

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1043	269	204	682	0	496	3	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	7	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1173	308	228	779	0	556	3	385	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	309	81	60	205	0	146	1	101	0	0	0
Total Analysis Volume [veh/h]	0	1235	324	240	820	0	585	3	405	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	65	0	14	79	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	69	69	10	83	29	29	29	
g / C, Green / Cycle	0.57	0.57	0.08	0.69	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.43	0.46	0.07	0.24	0.19	0.20	0.22	
s, saturation flow rate [veh/h]	1800	1677	3329	3427	1714	1670	1530	
c, Capacity [veh/h]	1029	959	277	2360	420	409	375	
d1, Uniform Delay [s]	19.40	20.55	54.33	7.65	42.41	42.68	43.67	
k, delay calibration	0.50	0.50	0.11	0.50	0.18	0.19	0.24	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.21	7.48	7.95	0.41	5.51	6.74	13.77	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.76	0.81	0.87	0.35	0.79	0.81	0.88	
d, Delay for Lane Group [s/veh]	24.60	28.03	62.28	8.06	47.92	49.42	57.44	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	17.11	18.54	3.88	4.16	9.80	9.98	10.86	
50th-Percentile Queue Length [ft/ln]	427.69	463.49	97.12	103.99	244.9	249.4	271.4	
95th-Percentile Queue Length [veh/ln]	23.89	25.60	6.99	7.49	14.93	15.16	16.26	
95th-Percentile Queue Length [ft/ln]	597.27	640.02	174.82	187.18	373.2	378.9	406.5	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	25.87	28.03	62.28	8.06	0.00	48.57	49.42	55.97	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	26.32			20.33			51.59			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.51											
Intersection LOS	C											
Intersection V/C	0.753											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.388	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1250	617	0
d_b, Bicycle Delay [s]	14.50	8.44	28.70	60.00
l_b,int, Bicycle LOS Score for Intersection	2.846	2.434	3.198	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.499

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1417	643	0	1189	41	193	0	409	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1592	720	0	1344	41	216	0	458	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	419	189	0	354	11	57	0	121	0	0	0
Total Analysis Volume [veh/h]	0	1676	758	0	1415	43	227	0	482	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	80	0	0	80	0	0	40	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	90	90	22	22	22	
g / C, Green / Cycle	0.75	0.75	0.18	0.18	0.18	
(v / s)_i Volume / Saturation Flow Rate	0.34	0.29	0.13	0.16	0.16	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3668	3668	318	284	284	
d1, Uniform Delay [s]	5.79	5.36	45.90	47.26	47.26	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.41	0.31	2.99	7.03	7.03	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.39	0.71	0.85	0.85	
d, Delay for Lane Group [s/veh]	6.20	5.66	48.89	54.30	54.30	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	Yes	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	4.80	3.74	6.62	7.50	7.50	
50th-Percentile Queue Length [ft/ln]	120.00	93.61	165.5	187.6	187.6	
95th-Percentile Queue Length [veh/ln]	8.39	6.74	10.84	12.00	12.00	
95th-Percentile Queue Length [ft/ln]	209.83	168.50	271.0	299.9	299.9	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.20	0.00	0.00	5.66	0.00	48.89	54.30	54.30	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	6.20			5.66			52.57			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	14.65											
Intersection LOS	B											
Intersection V/C	0.499											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.319	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1267	1267	600	0
d_b, Bicycle Delay [s]	8.07	8.07	29.40	60.00
l_b,int, Bicycle LOS Score for Intersection	2.481	2.338	2.729	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.405

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	384	87	100	386	54	65	324	60	68	185	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	430	97	112	432	60	73	363	67	76	207	92
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	113	26	29	114	16	19	96	18	20	54	24
Total Analysis Volume [veh/h]	31	453	102	118	455	63	77	382	71	80	218	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	35	0	17	33	0	42	55	0	13	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	69	69	10	75	75	7	18	18	7	18	18
g / C, Green / Cycle	0.03	0.57	0.57	0.08	0.63	0.63	0.06	0.15	0.15	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.16	0.07	0.15	0.15	0.04	0.13	0.13	0.05	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1687	1714	1800	1725	1714	1800	1704	1714	1800	1618
c, Capacity [veh/h]	47	1030	965	143	1130	1083	101	275	260	100	274	247
d1, Uniform Delay [s]	57.78	13.06	13.09	54.14	9.74	9.75	55.64	49.43	49.51	55.78	47.40	47.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.29	0.67	0.72	11.29	0.48	0.51	11.18	6.87	7.68	13.22	2.05	2.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.28	0.28	0.83	0.23	0.23	0.76	0.84	0.85	0.80	0.59	0.62
d, Delay for Lane Group [s/veh]	72.06	13.73	13.81	65.43	10.23	10.26	66.81	56.30	57.19	69.00	49.45	50.07
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.12	4.04	3.85	3.95	3.09	2.98	2.61	7.26	7.02	2.76	4.70	4.42
50th-Percentile Queue Length [ft/ln]	28.01	101.0	96.15	98.87	77.23	74.59	65.31	181.5	175.3	69.01	117.5	110.6
95th-Percentile Queue Length [veh/ln]	2.02	7.27	6.92	7.12	5.56	5.37	4.70	11.68	11.36	4.97	8.26	7.87
95th-Percentile Queue Length [ft/ln]	50.42	181.8	173.0	177.9	139.0	134.2	117.5	292.1	283.9	124.2	206.4	196.8

Movement, Approach, & Intersection Results

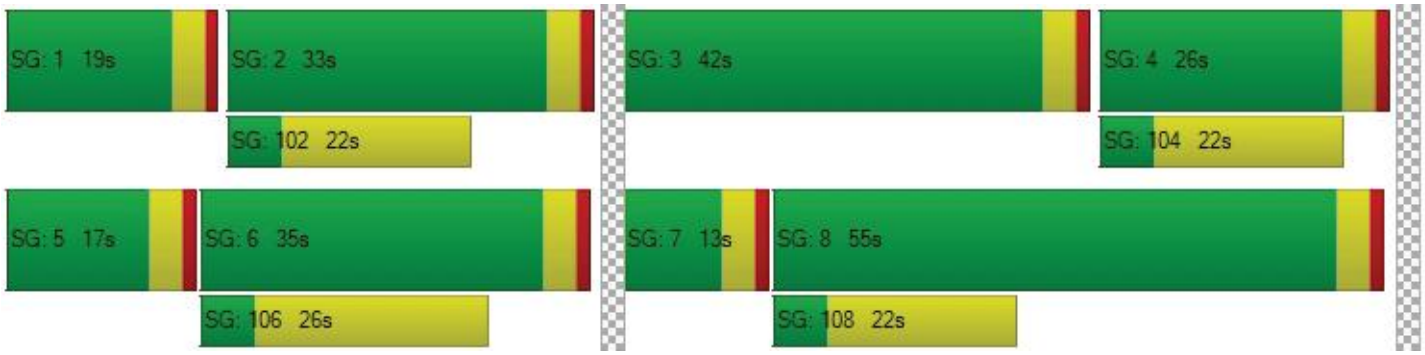
d_M, Delay for Movement [s/veh]	72.06	13.76	13.81	65.43	10.24	10.26	66.81	56.65	57.19	69.00	49.61	50.07
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	16.85			20.48			58.20			53.65		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	34.90											
Intersection LOS	C											
Intersection V/C	0.405											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.548	2.561	2.479	2.630
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	483	850	367
d_b, Bicycle Delay [s]	33.00	34.50	19.84	40.02
l_b,int, Bicycle LOS Score for Intersection	2.043	2.084	1.997	1.885
Bicycle LOS	B	B	A	A

Sequence

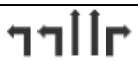
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	750	75	294	625	106	192	300	54	124	296	363
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	12	0	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	852	84	329	715	119	215	336	60	139	332	407
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	224	22	87	188	31	57	88	16	37	87	107
Total Analysis Volume [veh/h]	73	897	88	346	753	125	226	354	63	146	349	428
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	26	0	19	30	0	14	50	0	25	61	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	43	43	14	51	51	10	34	34	12	37	37
g / C, Green / Cycle	0.05	0.36	0.36	0.12	0.42	0.42	0.08	0.29	0.29	0.10	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.06	0.10	0.22	0.08	0.07	0.10	0.04	0.09	0.19	0.28
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	94	1230	549	398	1453	648	277	978	437	176	548	466
d1, Uniform Delay [s]	55.99	33.39	26.16	51.89	25.53	21.69	54.09	34.16	31.95	52.83	35.98	40.27
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.78	3.82	0.62	5.87	1.33	0.66	5.76	0.23	0.15	9.63	1.23	10.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.73	0.16	0.87	0.52	0.19	0.81	0.36	0.14	0.83	0.64	0.92
d, Delay for Lane Group [s/veh]	68.77	37.21	26.78	57.77	26.85	22.35	59.85	34.39	32.10	62.46	37.22	51.12
Lane Group LOS	E	D	C	E	C	C	E	C	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.52	11.87	1.82	5.43	8.13	2.34	3.58	4.16	1.39	4.79	8.98	13.47
50th-Percentile Queue Length [ft/ln]	62.93	296.8	45.49	135.8	203.2	58.43	89.42	103.9	34.82	119.7	224.4	336.7
95th-Percentile Queue Length [veh/ln]	4.53	17.52	3.28	9.26	12.81	4.21	6.44	7.49	2.51	8.38	13.89	19.49
95th-Percentile Queue Length [ft/ln]	113.2	438.1	81.89	231.4	320.1	105.1	160.9	187.1	62.67	209.4	347.3	487.1

Movement, Approach, & Intersection Results

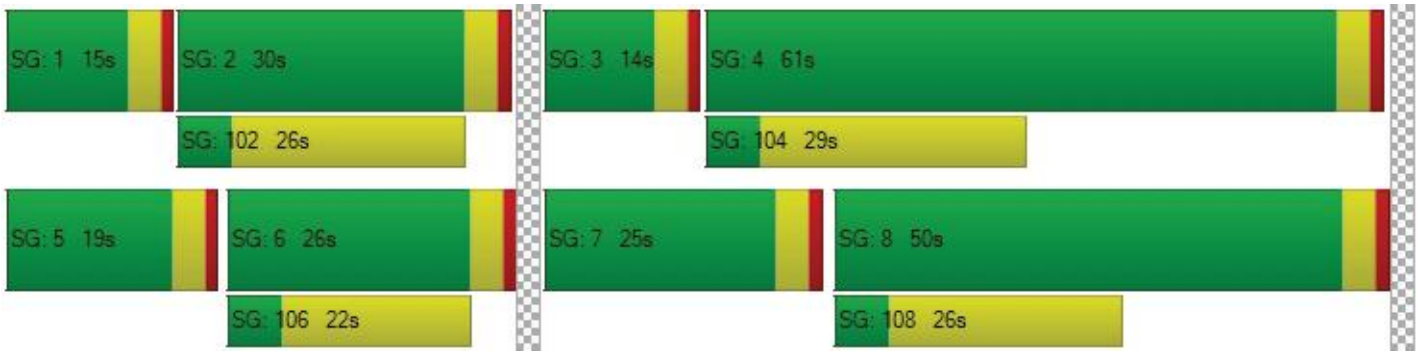
d_M, Delay for Movement [s/veh]	68.77	37.21	26.78	57.77	26.85	22.35	59.85	34.39	32.10	62.46	37.22	51.12
Movement LOS	E	D	C	E	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	38.52			35.13			43.11			47.65		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.40											
Intersection LOS	D											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.796	2.996	2.775	2.746
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	433	767	950
d_b, Bicycle Delay [s]	40.02	36.82	22.82	16.54
l_b,int, Bicycle LOS Score for Intersection	2.432	2.569	2.090	3.083
Bicycle LOS	B	B	B	C

Sequence

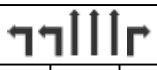
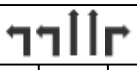
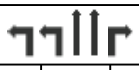
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	55.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.868

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1316	65	357	973	241	426	251	51	69	171	354
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	8	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	1482	73	400	1102	270	477	281	57	77	192	396
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	390	19	105	290	71	126	74	15	20	51	104
Total Analysis Volume [veh/h]	69	1560	77	421	1160	284	502	296	60	81	202	417
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	40	0	19	37	0	21	40	0	21	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	38	38	15	48	48	17	47	47	5	34	34
g / C, Green / Cycle	0.04	0.31	0.31	0.13	0.40	0.40	0.14	0.39	0.39	0.04	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.32	0.05	0.13	0.24	0.19	0.15	0.09	0.04	0.02	0.06	0.27
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	128	1533	478	416	1958	611	472	1334	596	132	985	440
d1, Uniform Delay [s]	56.66	41.24	29.84	52.50	28.36	26.58	51.50	24.49	23.29	56.71	32.39	41.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.39
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.52	27.44	0.72	23.42	1.33	2.53	39.08	0.08	0.07	4.55	0.10	27.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	1.02	0.16	1.01	0.59	0.46	1.06	0.22	0.10	0.61	0.21	0.95
d, Delay for Lane Group [s/veh]	60.18	68.68	30.56	75.92	29.68	29.11	90.58	24.58	23.36	61.27	32.49	69.07
Lane Group LOS	E	F	C	F	C	C	F	C	C	E	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.09	18.79	1.72	7.60	8.91	6.40	9.63	2.84	1.10	1.29	2.25	15.28
50th-Percentile Queue Length [ft/ln]	27.26	469.6	42.98	190.0	222.8	160.0	240.7	71.09	27.56	32.33	56.35	382.0
95th-Percentile Queue Length [veh/ln]	1.96	26.19	3.09	12.19	13.81	10.55	15.13	5.12	1.98	2.33	4.06	21.69
95th-Percentile Queue Length [ft/ln]	49.08	654.7	77.37	304.6	345.2	263.7	378.2	127.9	49.61	58.19	101.4	542.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.18	68.68	30.56	75.92	29.68	29.11	90.58	24.58	23.36	61.27	32.49	69.07
Movement LOS	E	F	C	F	C	C	F	C	C	E	C	E
d_A, Approach Delay [s/veh]	66.61			40.03			63.11			57.61		
Approach LOS	E			D			E			E		
d_I, Intersection Delay [s/veh]	55.13											
Intersection LOS	E											
Intersection V/C	0.868											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.190	3.335	2.806	2.817
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	550	600	600
d_b, Bicycle Delay [s]	29.40	31.54	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.498	2.585	2.267	2.137
Bicycle LOS	B	B	B	B

Sequence

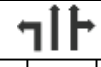
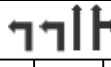
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	163	206	49	94	61	74	991	115	128	620	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	5	5	0	0	8	0	0	0	8	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	188	231	55	113	68	83	1110	137	143	694	52
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	31	49	61	14	30	18	22	292	36	38	183	14
Total Analysis Volume [veh/h]	125	198	243	58	119	72	87	1168	144	151	731	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	36	36	11	30	0	24	60	0	13	49	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	55	68	5	53	53	8	35	35	9	36	36
g / C, Green / Cycle	0.05	0.46	0.57	0.04	0.45	0.45	0.06	0.29	0.29	0.08	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.16	0.03	0.05	0.06	0.05	0.26	0.26	0.05	0.22	0.22
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1583	1714	3427	1701	3329	1800	1756
c, Capacity [veh/h]	182	822	864	74	801	705	112	1001	497	250	543	530
d1, Uniform Delay [s]	55.72	19.91	13.51	56.86	19.54	19.63	55.25	40.42	40.42	53.78	37.53	37.53
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.57	0.69	0.81	16.32	0.31	0.39	11.11	2.63	6.07	2.35	1.92	1.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.24	0.28	0.78	0.12	0.13	0.78	0.88	0.88	0.60	0.73	0.73
d, Delay for Lane Group [s/veh]	60.29	20.61	14.32	73.17	19.86	20.01	66.36	43.04	46.48	56.13	39.46	39.50
Lane Group LOS	E	C	B	E	B	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.98	3.55	3.55	2.08	1.69	1.61	2.94	12.57	12.95	2.29	10.69	10.44
50th-Percentile Queue Length [ft/ln]	49.38	88.63	88.75	51.93	42.31	40.27	73.45	314.3	323.8	57.30	267.3	261.0
95th-Percentile Queue Length [veh/ln]	3.56	6.38	6.39	3.74	3.05	2.90	5.29	18.39	18.86	4.13	16.06	15.74
95th-Percentile Queue Length [ft/ln]	88.88	159.5	159.7	93.47	76.15	72.49	132.2	459.7	471.4	103.1	401.4	393.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.29	20.61	14.32	73.17	19.89	20.01	66.36	43.90	46.48	56.13	39.48	39.50
Movement LOS	E	C	B	E	B	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.67			32.33			45.56			42.16		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.11											
Intersection LOS	D											
Intersection V/C	0.479											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.627	2.430	2.846	3.034
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	433	933	750
d_b, Bicycle Delay [s]	32.27	36.82	17.07	23.44
l_b,int, Bicycle LOS Score for Intersection	2.494	1.765	2.329	2.333
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	15.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.361

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	258	0	250	0	1047	169	0	558	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	289	0	280	0	1173	189	0	625	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	76	0	74	0	309	50	0	164	0
Total Analysis Volume [veh/h]	0	0	0	304	0	295	0	1235	199	0	658	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	45	0	0	0	75	0	0	75	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		16	16	96	96
g / C, Green / Cycle		0.14	0.14	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate		0.09	0.11	0.25	0.13
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		458	373	3901	3901
d1, Uniform Delay [s]		49.10	50.07	3.35	2.89
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.65	3.80	0.21	0.09
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.66	0.79	0.32	0.17
d, Delay for Lane Group [s/veh]		50.75	53.87	3.56	2.99
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		4.44	4.48	2.22	1.02
50th-Percentile Queue Length [ft/ln]		110.89	112.05	55.58	25.54
95th-Percentile Queue Length [veh/ln]		7.89	7.95	4.00	1.84
95th-Percentile Queue Length [ft/ln]		197.24	198.85	100.04	45.98

Movement, Approach, & Intersection Results

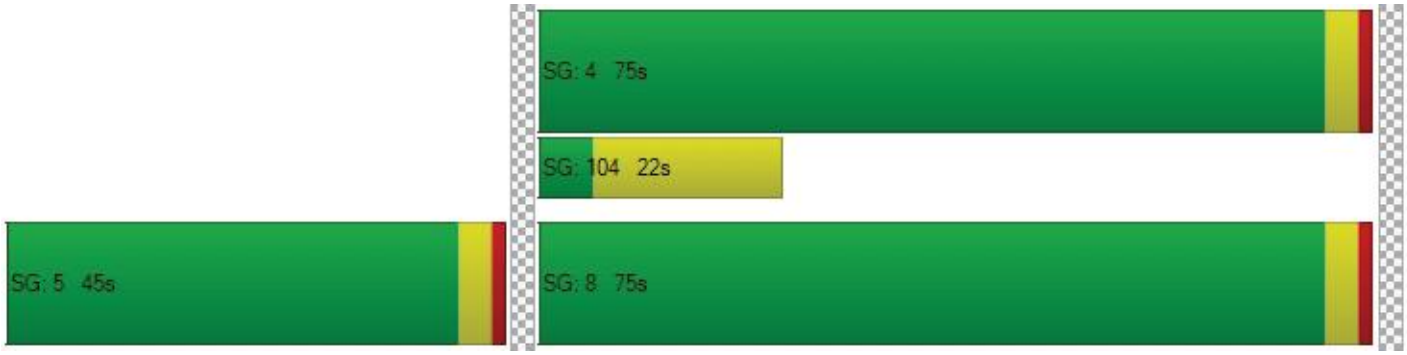
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	50.75	0.00	53.87	0.00	3.56	0.00	0.00	2.99	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			52.29			3.56			2.99		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	15.12											
Intersection LOS	B											
Intersection V/C	0.361											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.432	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	683	1183	1183
d_b, Bicycle Delay [s]	60.00	26.00	10.00	10.00
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.239	1.922
Bicycle LOS	D	A	B	A

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	276	0	514	0	0	0	439	912	0	0	798	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	309	0	576	0	0	0	492	1021	0	0	894	181
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	81	0	152	0	0	0	129	269	0	0	235	48
Total Analysis Volume [veh/h]	325	0	606	0	0	0	518	1075	0	0	941	191
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	0	0	62	90	0	0	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65		22	47	22
g / C, Green / Cycle	0.54	0.54	0.54		0.18	0.40	0.18
(v / s)_i Volume / Saturation Flow Rate	0.18	0.20	0.20		0.16	0.22	0.14
s, saturation flow rate [veh/h]	1714	1536	1530		3329	4903	6538
c, Capacity [veh/h]	920	824	821		606	1944	1184
d1, Uniform Delay [s]	15.77	16.11	16.12		47.53	27.99	47.01
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.01	1.30	1.31		3.56	0.25	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.37	0.38		0.85	0.55	0.80
d, Delay for Lane Group [s/veh]	16.78	17.41	17.43		51.09	28.23	48.27
Lane Group LOS	B	B	B		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.08	5.13	5.13		7.79	7.97	6.81
50th-Percentile Queue Length [ft/ln]	127.1	128.2	128.3		194.64	199.14	170.31
95th-Percentile Queue Length [veh/ln]	8.78	8.85	8.85		12.36	12.59	11.09
95th-Percentile Queue Length [ft/ln]	219.5	221.1	221.2		309.04	314.85	277.33

Movement, Approach, & Intersection Results

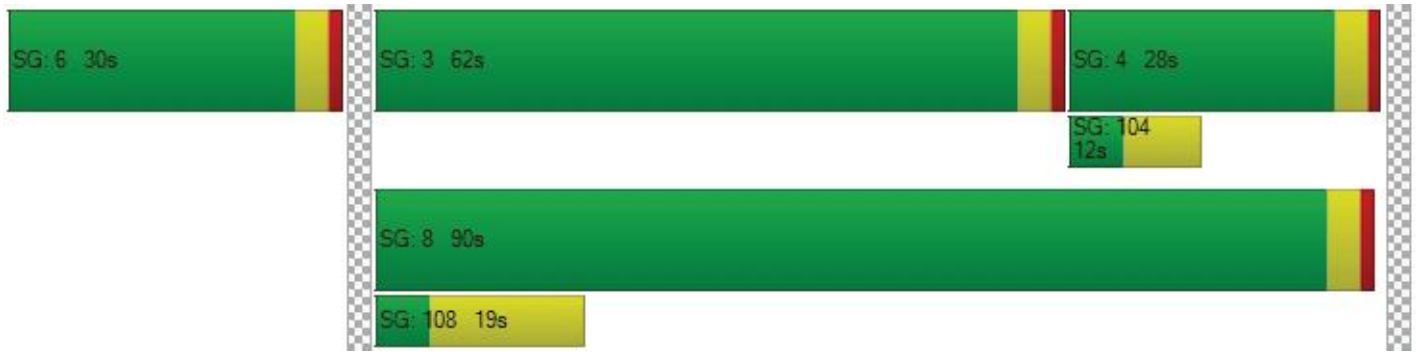
d_M, Delay for Movement [s/veh]	16.81	17.41	17.42	0.00	0.00	0.00	51.09	28.23	0.00	0.00	48.27	0.00
Movement LOS	B	B	B				D	C			D	
d_A, Approach Delay [s/veh]	17.20			0.00			35.66			48.27		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	34.13											
Intersection LOS	C											
Intersection V/C	0.501											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.373	1.983	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	0	1433	400
d_b, Bicycle Delay [s]	36.82	60.00	4.82	38.40
l_b,int, Bicycle LOS Score for Intersection	3.096	4.132	2.436	1.948
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	154	926	338	107	435	86	305	1060	81	292	590	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	42	39	0	50	0	0	0	0	63	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	172	1079	418	120	537	96	342	1187	91	390	661	68
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	284	110	32	141	25	90	312	24	103	174	18
Total Analysis Volume [veh/h]	181	1136	440	126	565	101	360	1249	96	411	696	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	43	0	10	40	0	27	43	0	24	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	46	46	6	43	43	15	35	35	17	37	37
g / C, Green / Cycle	0.07	0.38	0.38	0.05	0.36	0.36	0.13	0.29	0.29	0.14	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.05	0.23	0.29	0.04	0.12	0.07	0.11	0.25	0.06	0.12	0.14	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	234	1875	585	166	1775	554	430	1434	448	472	1496	467
d1, Uniform Delay [s]	54.84	29.79	32.13	56.28	27.60	26.15	51.01	40.30	32.04	50.41	33.77	30.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.38	1.46	8.67	6.85	0.47	0.72	4.37	1.77	0.24	5.10	0.23	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.61	0.75	0.76	0.32	0.18	0.84	0.87	0.21	0.87	0.47	0.15
d, Delay for Lane Group [s/veh]	60.23	31.26	40.80	63.13	28.07	26.87	55.37	42.07	32.28	55.51	34.00	30.56
Lane Group LOS	E	C	D	E	C	C	E	D	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.87	8.98	12.34	2.04	3.99	2.10	5.54	11.80	2.15	6.37	5.51	1.55
50th-Percentile Queue Length [ft/ln]	71.63	224.4	308.4	51.07	99.72	52.45	138.5	294.9	53.73	159.1	137.7	38.77
95th-Percentile Queue Length [veh/ln]	5.16	13.89	18.10	3.68	7.18	3.78	9.40	17.43	3.87	10.50	9.36	2.79
95th-Percentile Queue Length [ft/ln]	128.9	347.2	452.5	91.93	179.4	94.42	235.0	435.7	96.72	262.6	234.0	69.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.23	31.26	40.80	63.13	28.07	26.87	55.37	42.07	32.28	55.51	34.00	30.56
Movement LOS	E	C	D	E	C	C	E	D	C	E	C	C
d_A, Approach Delay [s/veh]	36.63			33.50			44.33			41.29		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.60											
Intersection LOS	D											
Intersection V/C	0.704											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.171	3.120	3.331	3.274
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	600	650	600
d_b, Bicycle Delay [s]	27.34	29.40	27.34	29.40
l_b,int, Bicycle LOS Score for Intersection	2.526	1.995	2.497	2.208
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	43.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	94	250	24	131	191	90	211	979	73	65	552	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	33	0	0	54	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	280	27	147	214	101	236	1129	82	73	672	136
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	74	7	39	56	27	62	297	22	19	177	36
Total Analysis Volume [veh/h]	111	295	28	155	225	106	248	1188	86	77	707	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	0	17	40	0	37	56	0	11	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	48	48	13	52	52	20	36	36	7	24	24
g / C, Green / Cycle	0.08	0.40	0.40	0.11	0.43	0.43	0.16	0.30	0.30	0.06	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.06	0.09	0.02	0.09	0.10	0.10	0.14	0.24	0.06	0.05	0.17	0.17
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1585	1714	4903	1506	1687	3427	1650
c, Capacity [veh/h]	129	1379	616	180	766	685	279	1481	455	96	673	324
d1, Uniform Delay [s]	54.89	23.45	21.83	52.82	21.40	21.47	49.16	38.57	30.99	55.90	46.52	46.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.30	0.35	0.14	11.25	0.68	0.79	9.34	1.05	0.20	14.00	3.13	6.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.21	0.05	0.86	0.23	0.23	0.89	0.80	0.19	0.80	0.85	0.86
d, Delay for Lane Group [s/veh]	70.19	23.80	21.97	64.07	22.09	22.26	58.50	39.62	31.19	69.91	49.65	53.26
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.86	2.82	0.51	5.15	3.21	2.97	7.98	10.80	1.88	2.68	8.49	8.60
50th-Percentile Queue Length [ft/ln]	96.59	70.39	12.73	128.8	80.17	74.28	199.5	270.0	47.12	66.94	212.3	215.0
95th-Percentile Queue Length [veh/ln]	6.95	5.07	0.92	8.88	5.77	5.35	12.62	16.19	3.39	4.82	13.27	13.41
95th-Percentile Queue Length [ft/ln]	173.8	126.7	22.92	221.9	144.3	133.7	315.4	404.7	84.82	120.5	331.8	335.3

Movement, Approach, & Intersection Results

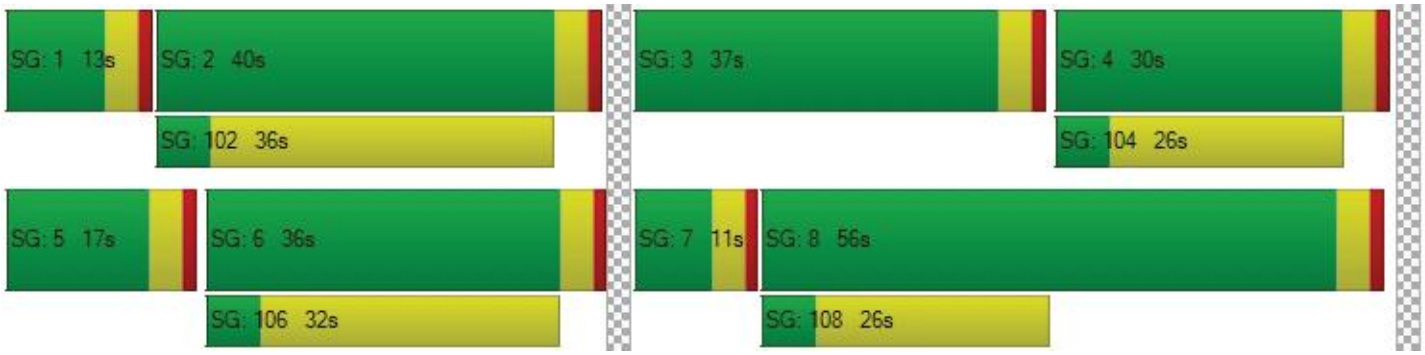
d_M, Delay for Movement [s/veh]	70.19	23.80	21.97	64.07	22.13	22.26	58.50	39.62	31.19	69.91	50.34	53.26
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	35.55			35.53			42.22			52.41		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.20											
Intersection LOS	D											
Intersection V/C	0.490											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.602	2.659	3.129	3.021
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	867	433
d_b, Bicycle Delay [s]	32.27	29.40	19.27	36.82
l_b,int, Bicycle LOS Score for Intersection	1.918	1.961	2.397	2.069
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	40.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	607	69	127	443	106	299	720	115	160	526	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	2	0	0	15	10	18	0	1	30	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	682	79	142	496	134	345	824	129	180	619	65
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	179	21	37	131	35	91	217	34	47	163	17
Total Analysis Volume [veh/h]	112	718	83	149	522	141	363	867	136	189	652	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	18	40	0	21	43	0	29	46	0	13	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	57	57	12	59	59	16	26	26	9	19	36
g / C, Green / Cycle	0.08	0.47	0.47	0.10	0.50	0.50	0.13	0.22	0.22	0.07	0.16	0.30
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.23	0.09	0.15	0.09	0.11	0.18	0.09	0.06	0.13	0.04
s, saturation flow rate [veh/h]	1714	1800	1735	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	137	848	817	177	1694	756	434	1078	336	241	794	457
d1, Uniform Delay [s]	54.33	21.71	21.71	52.82	18.10	16.90	50.94	44.37	40.09	54.72	48.60	30.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.11	1.95	2.02	10.12	0.47	0.54	4.34	1.46	0.78	5.50	2.19	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.48	0.48	0.84	0.31	0.19	0.84	0.80	0.40	0.78	0.82	0.15
d, Delay for Lane Group [s/veh]	65.44	23.66	23.74	62.94	18.57	17.44	55.28	45.83	40.87	60.22	50.79	31.03
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.75	8.23	7.95	4.91	4.41	2.28	5.58	8.27	3.53	2.99	6.44	1.48
50th-Percentile Queue Length [ft/ln]	93.83	205.6	198.7	122.6	110.1	57.02	139.5	206.7	88.18	74.82	161.0	36.95
95th-Percentile Queue Length [veh/ln]	6.76	12.93	12.57	8.54	7.85	4.11	9.46	12.99	6.35	5.39	10.60	2.66
95th-Percentile Queue Length [ft/ln]	168.9	323.2	314.2	213.4	196.2	102.6	236.4	324.6	158.7	134.6	265.0	66.50

Movement, Approach, & Intersection Results

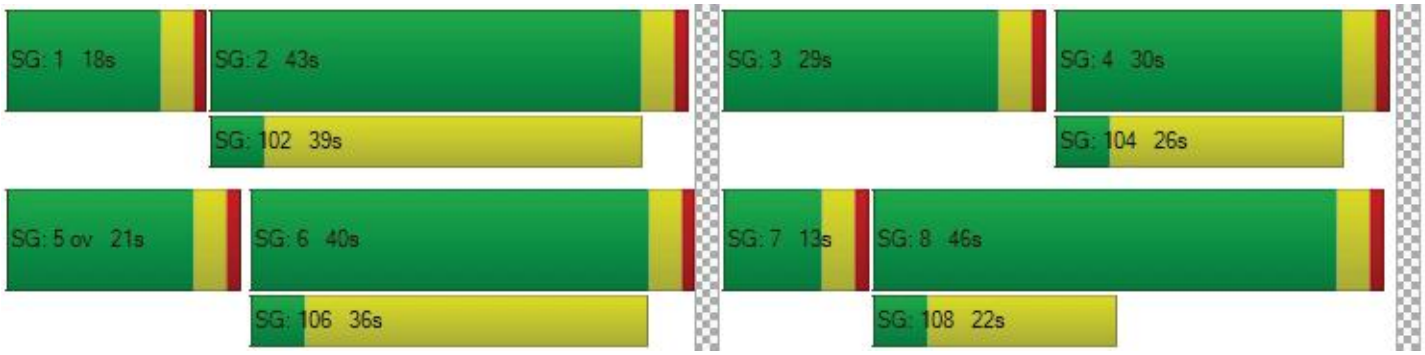
d_M, Delay for Movement [s/veh]	65.44	23.70	23.74	62.94	18.57	17.44	55.28	45.83	40.87	60.22	50.79	31.03
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	28.82			26.51			47.85			51.27		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.95											
Intersection LOS	D											
Intersection V/C	0.556											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.658	2.787	3.110	3.177
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	700	433
d_b, Bicycle Delay [s]	29.40	27.34	25.35	36.82
l_b,int, Bicycle LOS Score for Intersection	2.313	2.230	2.311	2.060
Bicycle LOS	B	B	B	B

Sequence

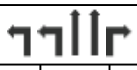
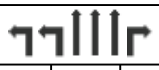
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	104	974	61	226	510	55	136	597	90	92	640	235
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	6	14	9	5	0	0	8	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	1095	68	253	577	76	161	674	101	103	725	263
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	31	288	18	67	152	20	42	177	27	27	191	69
Total Analysis Volume [veh/h]	122	1153	72	266	607	80	169	709	106	108	763	277
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	40	0	17	43	0	12	54	0	9	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	58	58	12	64	64	8	29	29	5	26	26
g / C, Green / Cycle	0.05	0.49	0.49	0.10	0.53	0.53	0.07	0.24	0.24	0.04	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.05	0.08	0.18	0.05	0.05	0.14	0.07	0.03	0.16	0.18
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	176	2387	745	321	1818	811	221	1186	370	139	1064	332
d1, Uniform Delay [s]	55.87	20.65	16.58	53.25	16.08	13.97	55.10	40.32	37.06	56.95	43.55	44.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.81	0.70	0.26	5.51	0.50	0.24	5.45	0.49	0.42	9.04	0.92	5.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.48	0.10	0.83	0.33	0.10	0.76	0.60	0.29	0.78	0.72	0.83
d, Delay for Lane Group [s/veh]	60.68	21.36	16.84	58.76	16.58	14.21	60.54	40.81	37.48	65.99	44.47	50.39
Lane Group LOS	E	C	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.93	7.29	1.13	4.18	4.83	1.13	2.68	6.24	2.59	1.80	7.09	8.36
50th-Percentile Queue Length [ft/ln]	48.36	182.3	28.17	104.5	120.7	28.28	67.02	156.0	64.87	44.90	177.1	209.0
95th-Percentile Queue Length [veh/ln]	3.48	11.72	2.03	7.53	8.43	2.04	4.83	10.34	4.67	3.23	11.45	13.10
95th-Percentile Queue Length [ft/ln]	87.06	293.0	50.70	188.2	210.8	50.90	120.6	258.5	116.7	80.82	286.2	327.5

Movement, Approach, & Intersection Results

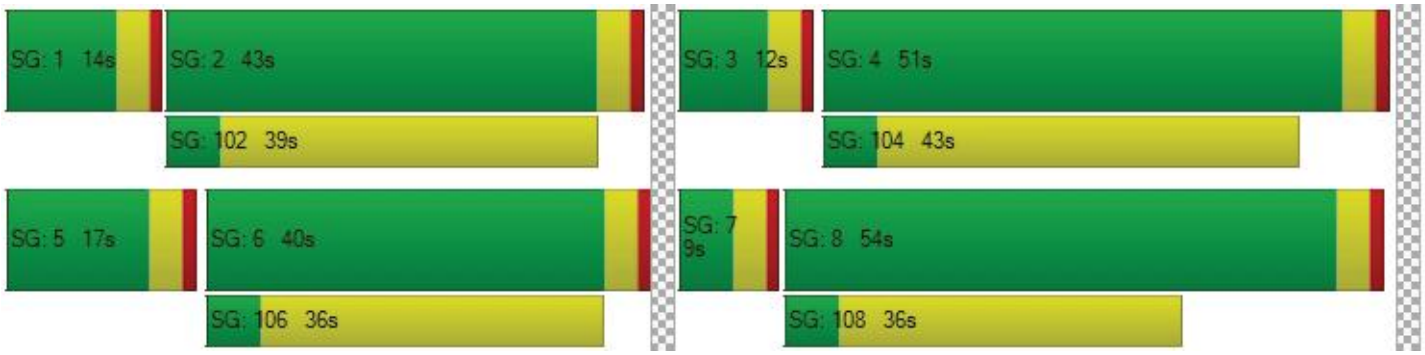
d_M, Delay for Movement [s/veh]	60.68	21.36	16.84	58.76	16.58	14.21	60.54	40.81	37.48	65.99	44.47	50.39
Movement LOS	E	C	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.68			28.15			43.84			47.92		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.70											
Intersection LOS	D											
Intersection V/C	0.547											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.099	3.320	3.172	3.102
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	833	783
d_b, Bicycle Delay [s]	29.40	27.34	20.42	22.20
l_b,int, Bicycle LOS Score for Intersection	2.300	2.346	2.101	2.191
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	44.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	256	98	23	224	93	137	439	167	42	256	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	10	0	0	16	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	297	110	26	267	104	153	492	187	48	287	34
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	78	29	7	70	27	40	129	49	13	76	9
Total Analysis Volume [veh/h]	157	313	116	27	281	109	161	518	197	51	302	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	26	0	14	23	23	0	50	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	49	49	3	40	40	35	35	16	16
g / C, Green / Cycle	0.11	0.41	0.41	0.03	0.33	0.33	0.29	0.29	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.09	0.12	0.13	0.02	0.08	0.07	0.27	0.27	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1637	1714	3427	1530	1770	1508	1778	1583
c, Capacity [veh/h]	182	740	673	44	1133	506	519	442	243	216
d1, Uniform Delay [s]	52.76	23.74	23.79	57.87	29.29	28.95	40.89	40.90	50.57	50.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.27	1.05	1.17	13.10	0.52	0.97	8.87	10.21	7.84	9.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.30	0.31	0.61	0.25	0.22	0.91	0.91	0.84	0.85
d, Delay for Lane Group [s/veh]	64.03	24.79	24.97	70.97	29.81	29.92	49.76	51.11	58.41	59.69
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.22	4.47	4.16	0.97	3.05	2.42	14.62	12.63	6.53	5.94
50th-Percentile Queue Length [ft/ln]	130.5	111.8	103.8	24.30	76.35	60.39	365.48	315.75	163.33	148.46
95th-Percentile Queue Length [veh/ln]	8.97	7.94	7.48	1.75	5.50	4.35	20.89	18.46	10.72	9.93
95th-Percentile Queue Length [ft/ln]	224.1	198.5	187.0	43.75	137.4	108.7	522.25	461.46	268.12	248.37

Movement, Approach, & Intersection Results

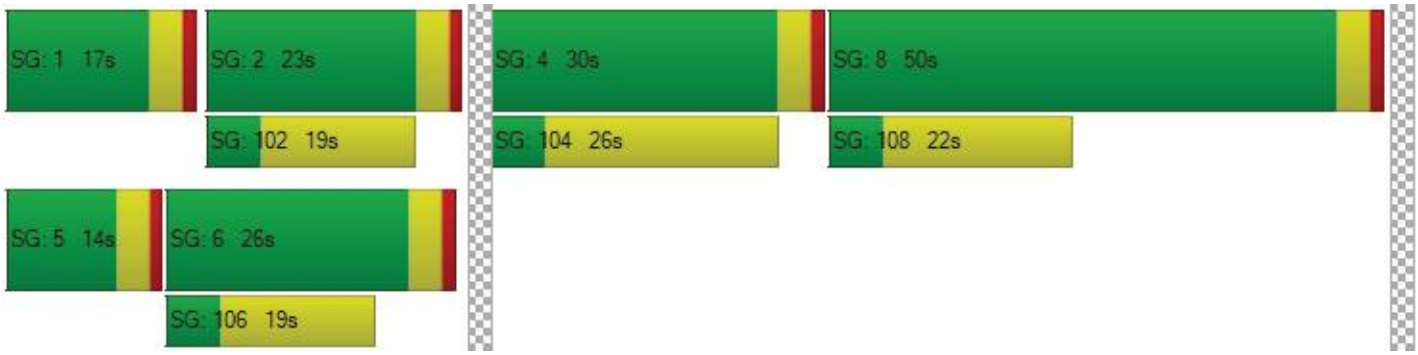
d_M, Delay for Movement [s/veh]	64.03	24.84	24.97	70.97	29.81	29.92	49.76	50.30	51.11	58.41	59.04	59.69
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	35.36			32.51			50.38			59.02		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	44.70											
Intersection LOS	D											
Intersection V/C	0.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.533	2.619	2.498	2.402
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	317	767	433
d_b, Bicycle Delay [s]	40.02	42.50	22.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.043	1.904	2.282	1.881
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.926

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	167	0	536	0	1898	934	0	1348	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	42	0	0	0	16	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	229	0	600	0	2142	1046	0	1526	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	60	0	158	0	564	275	0	402	0
Total Analysis Volume [veh/h]	0	0	0	241	0	632	0	2255	1101	0	1606	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	29	0	0	0	91	0	0	91	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		25	25	25	87	87	87
g / C, Green / Cycle		0.21	0.21	0.21	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate		0.14	0.21	0.21	0.46	0.72	0.33
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		357	319	319	3555	1109	3555
d1, Uniform Delay [s]		43.76	47.39	47.39	8.40	16.18	6.75
k, delay calibration		0.13	0.32	0.32	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.66	38.46	38.46	0.87	25.30	0.42
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.67	0.99	0.99	0.63	0.99	0.45
d, Delay for Lane Group [s/veh]		46.41	85.85	85.85	9.28	41.48	7.16
Lane Group LOS		D	F	F	A	D	A
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		6.85	12.77	12.77	9.03	32.46	5.14
50th-Percentile Queue Length [ft/ln]		171.3	319.1	319.1	225.78	811.62	128.46
95th-Percentile Queue Length [veh/ln]		11.15	18.63	18.63	13.96	41.81	8.86
95th-Percentile Queue Length [ft/ln]		278.7	465.6	465.6	348.99	1045.23	221.40

Movement, Approach, & Intersection Results

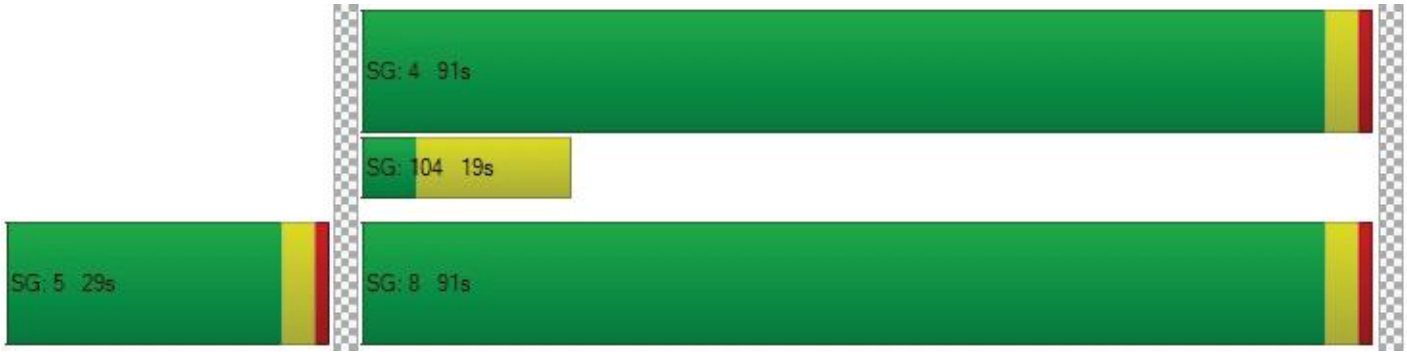
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	46.41	0.00	85.85	0.00	9.28	41.48	0.00	7.16	0.00
Movement LOS				D		F		A	D		A	
d_A, Approach Delay [s/veh]	0.00			74.97			19.84			7.16		
Approach LOS	A			E			B			A		
d_I, Intersection Delay [s/veh]	24.60											
Intersection LOS	C											
Intersection V/C	0.926											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.359	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	417	1450	1450
d_b, Bicycle Delay [s]	60.00	37.60	4.54	4.54
l_b,int, Bicycle LOS Score for Intersection	4.132	3.000	3.405	2.443
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.582

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	731	0	465	0	0	0	0	1092	0	0	1114	292
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	58	0	0	16	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	819	0	521	0	0	0	0	1281	0	0	1264	362
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	216	0	137	0	0	0	0	337	0	0	333	95
Total Analysis Volume [veh/h]	862	0	548	0	0	0	0	1348	0	0	1331	381
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	67	0	0	0	0	0	0	53	0	0	53	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	41	41	41		71	71	71
g / C, Green / Cycle	0.34	0.34	0.34		0.59	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.27	0.28	0.31		0.27	0.27	0.25
s, saturation flow rate [veh/h]	1714	1681	1530		4903	4903	1530
c, Capacity [veh/h]	590	579	527		2888	2888	901
d1, Uniform Delay [s]	35.53	35.80	37.23		13.98	13.91	13.50
k, delay calibration	0.11	0.12	0.16		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.61	3.13	7.81		0.54	0.53	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.81	0.89		0.47	0.46	0.42
d, Delay for Lane Group [s/veh]	38.15	38.93	45.04		14.52	14.45	14.95
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.73	12.90	14.03		6.83	6.71	5.84
50th-Percentile Queue Length [ft/ln]	318.2	322.4	350.7		170.80	167.82	145.95
95th-Percentile Queue Length [veh/ln]	18.58	18.79	20.17		11.12	10.96	9.80
95th-Percentile Queue Length [ft/ln]	464.5	469.7	504.3		277.96	274.05	245.02

Movement, Approach, & Intersection Results

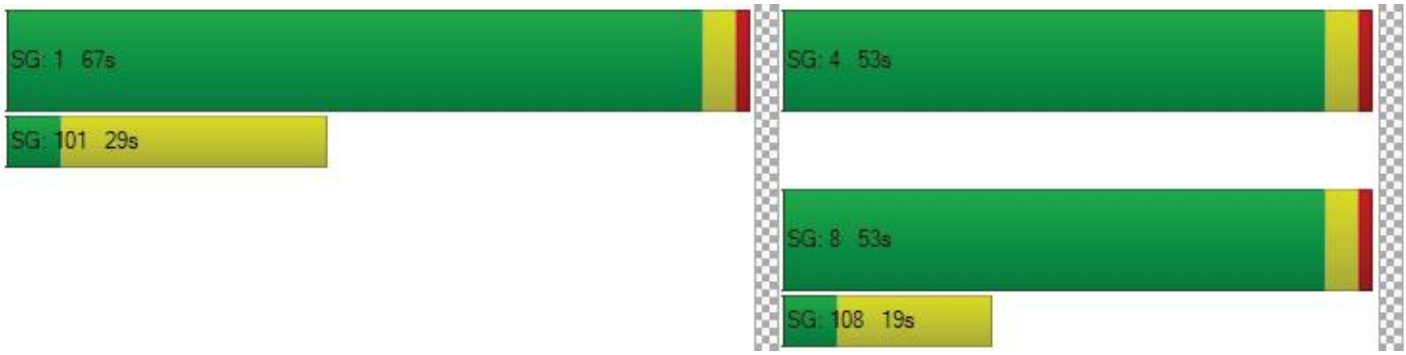
d_M, Delay for Movement [s/veh]	38.50	0.00	44.17	0.00	0.00	0.00	0.00	14.52	0.00	0.00	14.45	14.95
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	40.71			0.00			14.52			14.56		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	22.80											
Intersection LOS	C											
Intersection V/C	0.582											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.490	0.000	0.000	3.112
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	0	817	817
d_b, Bicycle Delay [s]	13.54	60.00	21.00	21.00
l_b,int, Bicycle LOS Score for Intersection	3.886	4.132	2.301	2.501
Bicycle LOS	D	D	B	B

Sequence

Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	260	348	189	62	209	155	236	931	176	104	748	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	51	10	0	0	17	0	0	0	58	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	342	400	212	69	251	174	264	1043	255	117	838	53
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	90	105	56	18	66	46	69	274	67	31	221	14
Total Analysis Volume [veh/h]	360	421	223	73	264	183	278	1098	268	123	882	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	31	56	0	11	36	0	15	44	44	9	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	53	53	6	32	32	11	40	71	5	34	34
g / C, Green / Cycle	0.22	0.44	0.44	0.05	0.27	0.27	0.09	0.33	0.59	0.04	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.21	0.23	0.15	0.04	0.13	0.14	0.08	0.32	0.18	0.04	0.26	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1561	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	384	788	670	94	483	419	305	1140	902	139	969	432
d1, Uniform Delay [s]	45.76	24.77	22.21	56.00	36.95	37.11	54.01	39.32	12.24	57.22	41.57	32.05
k, delay calibration	0.33	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.23	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.04	2.59	1.34	12.91	3.50	4.26	10.36	6.42	0.39	16.56	3.74	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.53	0.33	0.78	0.49	0.50	0.91	0.96	0.30	0.89	0.91	0.13
d, Delay for Lane Group [s/veh]	70.80	27.36	23.55	68.91	40.45	41.38	64.37	45.73	12.63	73.78	45.31	32.18
Lane Group LOS	E	C	C	E	D	D	E	D	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.15	9.27	4.38	2.52	6.31	5.74	4.59	16.66	3.61	2.17	12.99	1.24
50th-Percentile Queue Length [ft/ln]	328.6	231.7	109.5	63.01	157.7	143.3	114.8	416.4	90.14	54.37	324.7	30.96
95th-Percentile Queue Length [veh/ln]	19.09	14.26	7.82	4.54	10.43	9.66	8.11	23.35	6.49	3.91	18.90	2.23
95th-Percentile Queue Length [ft/ln]	477.3	356.6	195.4	113.4	260.7	241.5	202.7	583.7	162.2	97.87	472.5	55.73

Movement, Approach, & Intersection Results

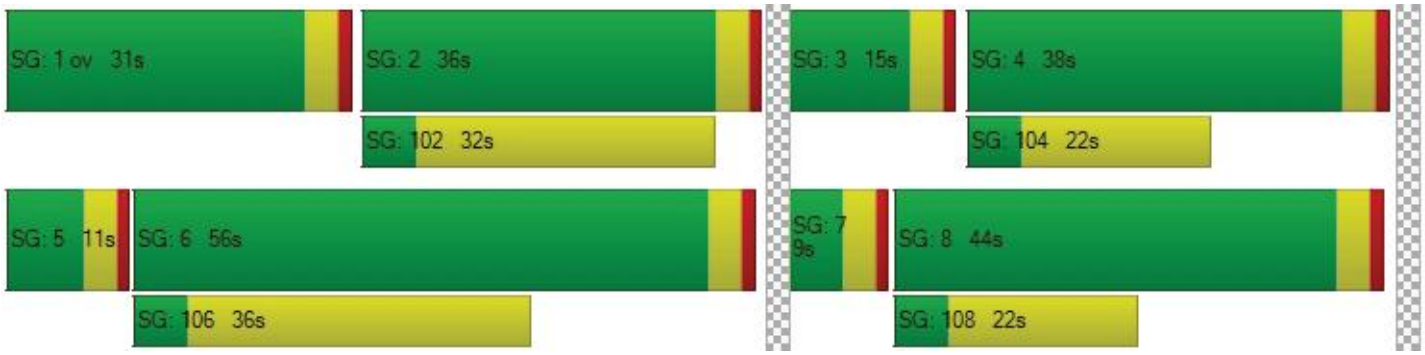
d_M, Delay for Movement [s/veh]	70.80	27.36	23.55	68.91	40.55	41.38	64.37	45.73	12.63	73.78	45.31	32.18
Movement LOS	E	C	C	E	D	D	E	D	B	E	D	C
d_A, Approach Delay [s/veh]	42.09			44.82			43.49			47.92		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.43											
Intersection LOS	D											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.639	2.564	3.115	3.130
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	533	667	567
d_b, Bicycle Delay [s]	19.27	32.27	26.67	30.82
l_b,int, Bicycle LOS Score for Intersection	3.216	1.989	2.916	2.435
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	47.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	276	828	230	281	634	195	247	860	100	135	567	123
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	87	26	0	120	1	0	0	0	36	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	309	1014	284	315	830	219	277	963	112	187	635	138
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	81	267	75	83	218	58	73	253	29	49	167	36
Total Analysis Volume [veh/h]	325	1067	299	332	874	231	292	1014	118	197	668	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	26	40	0	26	40	40	14	42	0	12	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	22	45	45	22	45	59	10	29	29	8	27	53
g / C, Green / Cycle	0.18	0.38	0.38	0.18	0.38	0.49	0.08	0.24	0.24	0.07	0.22	0.44
(v / s)_i Volume / Saturation Flow Rate	0.19	0.22	0.20	0.19	0.18	0.15	0.09	0.21	0.08	0.06	0.14	0.09
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	314	1837	573	314	1837	752	277	1187	370	222	1105	676
d1, Uniform Delay [s]	49.00	29.99	29.16	49.00	28.55	18.29	55.00	43.46	37.35	55.55	41.68	20.64
k, delay calibration	0.27	0.50	0.50	0.29	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	46.61	1.35	3.37	54.09	0.89	1.06	40.17	1.87	0.49	11.31	0.54	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.58	0.52	1.06	0.48	0.31	1.05	0.85	0.32	0.89	0.60	0.21
d, Delay for Lane Group [s/veh]	95.61	31.34	32.54	103.0	29.44	19.35	95.17	45.33	37.84	66.86	42.22	20.79
Lane Group LOS	F	C	C	F	C	B	F	D	D	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.44	8.39	7.21	14.09	6.51	4.05	5.74	9.75	2.91	3.30	5.97	2.55
50th-Percentile Queue Length [ft/ln]	335.8	209.7	180.1	352.2	162.8	101.1	143.3	243.7	72.85	82.60	149.2	63.72
95th-Percentile Queue Length [veh/ln]	19.79	13.14	11.61	20.82	10.70	7.28	9.83	14.87	5.24	5.95	9.98	4.59
95th-Percentile Queue Length [ft/ln]	494.7	328.4	290.2	520.6	267.4	182.0	245.8	371.7	131.1	148.6	249.4	114.6

Movement, Approach, & Intersection Results

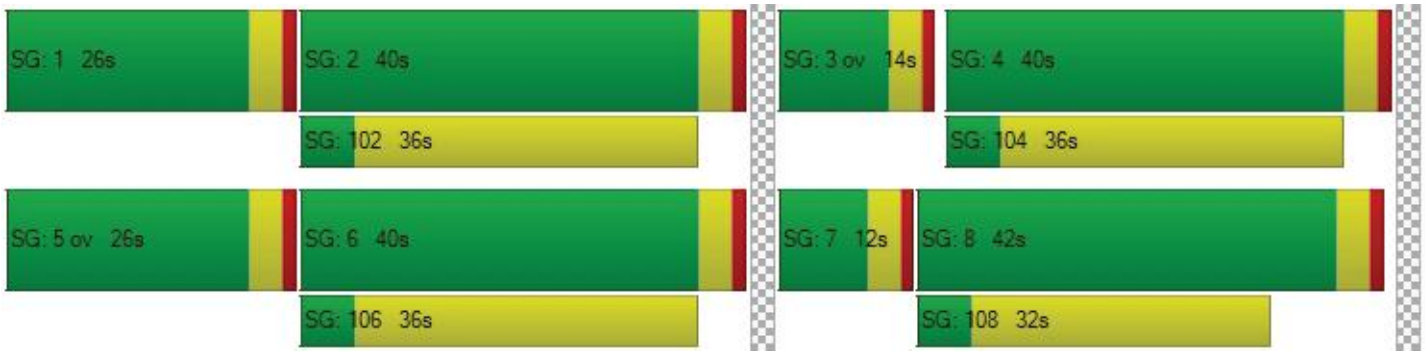
d_M, Delay for Movement [s/veh]	95.61	31.34	32.54	103.0	29.44	19.35	95.17	45.33	37.84	66.86	42.22	20.79
Movement LOS	F	C	C	F	C	B	F	D	D	E	D	C
d_A, Approach Delay [s/veh]	43.90			44.83			54.93			43.95		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	46.97											
Intersection LOS	D											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.092	3.183	3.151	3.152
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	633	600
d_b, Bicycle Delay [s]	29.40	29.40	28.02	29.40
l_b,int, Bicycle LOS Score for Intersection	2.490	2.350	2.343	2.115
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	2,188.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	4.660

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	60	0	118	0	0	0	0	1326	54	104	760	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	1	0	0	0	0	26	0	1	36	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	0	133	0	0	0	0	1511	60	117	887	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	0	35	0	0	0	0	398	16	31	233	0
Total Analysis Volume [veh/h]	71	0	140	0	0	0	0	1591	63	123	934	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	4.66	0.00	0.44	0.00	0.00	0.00	0.00	0.02	0.00	0.31	0.01	0.00
d_M, Delay for Movement [s/veh]	2188.	2233.	1963.	228.8	299.4	11.57	9.86	0.00	0.00	18.17	0.00	0.00
Movement LOS	F	F	F	F	F	B	A	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	24.44	24.44	24.44	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.00	0.00
95th-Percentile Queue Length [ft/ln]	611.0	611.0	611.0	0.00	0.00	0.00	0.00	0.00	0.00	32.63	0.00	0.00
d_A, Approach Delay [s/veh]	2039.31			179.97			0.00			2.11		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	148.02											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	57.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.837

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	673	87	131	551	71	256	837	177	287	553	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	1	0	0	21	0	0	28	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	758	97	147	618	80	287	958	198	321	647	133
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	199	26	39	163	21	76	252	52	84	170	35
Total Analysis Volume [veh/h]	163	798	102	155	651	84	302	1008	208	338	681	140
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	36	0	16	36	0	29	40	0	28	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	32	32	12	32	32	23	36	36	24	37	37
g / C, Green / Cycle	0.10	0.27	0.27	0.10	0.27	0.27	0.19	0.30	0.30	0.20	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.26	0.09	0.21	0.21	0.18	0.29	0.14	0.20	0.20	0.09
s, saturation flow rate [veh/h]	1714	1800	1729	1714	1800	1729	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	171	480	461	171	480	461	330	1028	459	343	1055	471
d1, Uniform Delay [s]	53.71	43.31	43.31	53.43	40.75	40.76	47.52	41.65	34.03	47.83	35.88	31.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.23	0.11	0.11	0.30	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.00	31.48	32.33	15.69	11.93	12.38	18.71	9.24	0.70	34.06	0.67	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.96	0.96	0.90	0.78	0.78	0.92	0.98	0.45	0.99	0.65	0.30
d, Delay for Lane Group [s/veh]	75.71	74.79	75.65	69.12	52.68	53.14	66.23	50.89	34.73	81.89	36.55	32.00
Lane Group LOS	E	E	E	E	D	D	E	D	C	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.93	17.48	16.91	5.37	11.80	11.39	10.53	15.92	5.01	13.26	8.67	3.15
50th-Percentile Queue Length [ft/ln]	148.3	436.9	422.6	134.2	294.9	284.8	263.3	398.0	125.3	331.4	216.7	78.84
95th-Percentile Queue Length [veh/ln]	9.93	24.33	23.65	9.17	17.43	16.93	15.86	22.46	8.68	19.23	13.50	5.68
95th-Percentile Queue Length [ft/ln]	248.1	608.3	591.2	229.1	435.7	423.2	396.4	561.5	217.0	480.6	337.4	141.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.71	75.16	75.65	69.12	52.87	53.14	66.23	50.89	34.73	81.89	36.55	32.00
Movement LOS	E	E	E	E	D	D	E	D	C	F	D	C
d_A, Approach Delay [s/veh]	75.29			55.73			51.73			49.22		
Approach LOS	E			E			D			D		
d_I, Intersection Delay [s/veh]	57.28											
Intersection LOS	E											
Intersection V/C	0.837											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.756	2.730	2.866	2.862
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	600	583
d_b, Bicycle Delay [s]	32.27	32.27	29.40	30.10
l_b,int, Bicycle LOS Score for Intersection	2.437	2.294	2.812	2.516
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	44.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	798	135	153	488	119	200	689	134	200	501	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	7	3	0	10	5	3	13	0	1	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	901	154	171	557	138	227	785	150	225	576	181
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	237	41	45	147	36	60	207	39	59	152	48
Total Analysis Volume [veh/h]	121	948	162	180	586	145	239	826	158	237	606	191
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	39	0	18	33	0	27	39	0	24	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	40	40	14	43	43	19	32	32	18	32	32
g / C, Green / Cycle	0.09	0.33	0.33	0.12	0.36	0.36	0.16	0.26	0.26	0.15	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.07	0.28	0.11	0.11	0.17	0.09	0.14	0.24	0.10	0.14	0.18	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	148	1137	508	200	1240	554	267	908	405	263	900	402
d1, Uniform Delay [s]	53.86	37.04	29.96	52.31	29.47	26.99	49.71	42.72	36.16	49.91	39.63	37.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.13	0.11	0.11	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.28	7.24	1.65	13.47	1.29	1.15	11.72	3.94	0.61	12.07	0.88	0.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.83	0.32	0.90	0.47	0.26	0.90	0.91	0.39	0.90	0.67	0.48
d, Delay for Lane Group [s/veh]	64.14	44.27	31.62	65.78	30.77	28.14	61.43	46.67	36.77	61.97	40.51	38.15
Lane Group LOS	E	D	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.01	13.85	3.75	6.09	6.72	3.12	7.89	12.26	3.88	7.85	8.10	4.83
50th-Percentile Queue Length [ft/ln]	100.3	346.1	93.65	152.2	167.8	77.99	197.1	306.5	96.96	196.2	202.3	120.7
95th-Percentile Queue Length [veh/ln]	7.23	19.95	6.74	10.14	10.97	5.62	12.49	18.00	6.98	12.44	12.76	8.44
95th-Percentile Queue Length [ft/ln]	180.6	498.7	168.5	253.4	274.1	140.3	312.2	450.1	174.5	311.1	319.0	210.9

Movement, Approach, & Intersection Results

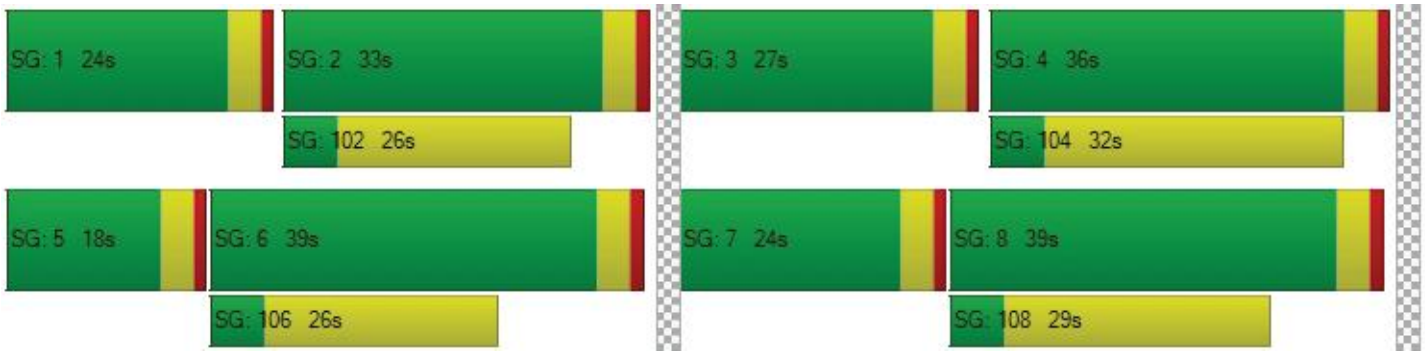
d_M, Delay for Movement [s/veh]	64.14	44.27	31.62	65.78	30.77	28.14	61.43	46.67	36.77	61.97	40.51	38.15
Movement LOS	E	D	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	44.56			37.27			48.27			45.00		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.18											
Intersection LOS	D											
Intersection V/C	0.761											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.917	3.020	2.809	2.826
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	483	583	533
d_b, Bicycle Delay [s]	30.10	34.50	30.10	32.27
l_b,int, Bicycle LOS Score for Intersection	2.575	2.311	2.569	2.413
Bicycle LOS	B	B	B	B

Sequence

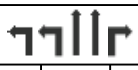
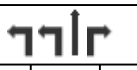
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	163	520	116	127	235	114	349	622	387	100	360	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	15	61	0	0	76	0	0	0	24	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	198	643	130	142	339	128	391	697	457	112	403	161
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	169	34	37	89	34	103	183	120	29	106	42
Total Analysis Volume [veh/h]	208	677	137	149	357	135	412	734	481	118	424	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	16	30	30	16	30	30	44	65	65	9	30	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	35	44	12	35	57	18	52	68	5	39	39
g / C, Green / Cycle	0.10	0.29	0.37	0.10	0.29	0.48	0.15	0.43	0.57	0.04	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.20	0.09	0.09	0.10	0.09	0.12	0.41	0.31	0.04	0.17	0.17
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1628
c, Capacity [veh/h]	333	1001	562	171	1001	729	503	779	866	139	582	527
d1, Uniform Delay [s]	51.84	37.46	26.39	53.23	33.56	18.04	49.36	32.59	16.47	57.13	33.17	33.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.32	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.92	3.66	1.03	12.44	0.99	0.56	3.38	15.37	2.56	13.33	0.76	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.68	0.24	0.87	0.36	0.19	0.82	0.94	0.56	0.85	0.53	0.54
d, Delay for Lane Group [s/veh]	53.76	41.12	27.42	65.67	34.55	18.60	52.74	47.96	19.03	70.46	33.93	34.07
Lane Group LOS	D	D	C	E	C	B	D	D	B	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.10	9.25	2.90	5.02	4.26	2.27	6.22	23.18	8.74	2.03	7.49	6.84
50th-Percentile Queue Length [ft/ln]	77.42	231.1	72.52	125.4	106.6	56.84	155.4	579.5	218.4	50.86	187.2	171.0
95th-Percentile Queue Length [veh/ln]	5.57	14.23	5.22	8.69	7.65	4.09	10.31	31.08	13.59	3.66	11.98	11.13
95th-Percentile Queue Length [ft/ln]	139.3	355.7	130.5	217.2	191.2	102.3	257.6	776.9	339.6	91.54	299.4	278.3

Movement, Approach, & Intersection Results

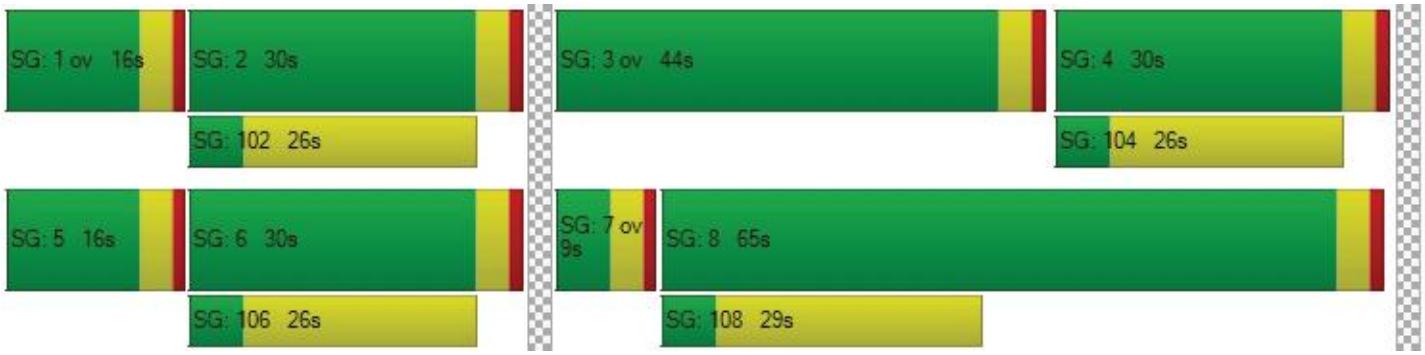
d_M, Delay for Movement [s/veh]	53.76	41.12	27.42	65.67	34.55	18.60	52.74	47.96	19.03	70.46	33.97	34.07
Movement LOS	D	D	C	E	C	B	D	D	B	E	C	C
d_A, Approach Delay [s/veh]	41.86			38.42			40.62			40.05		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.48											
Intersection LOS	D											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.885	2.777	2.943	2.749
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1017	433
d_b, Bicycle Delay [s]	36.82	36.82	14.50	36.82
l_b,int, Bicycle LOS Score for Intersection	2.403	2.088	4.244	2.146
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	62.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.870

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	1069	219	69	777	93	84	606	98	116	542	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	113	18	0	156	0	0	0	0	30	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	1310	263	77	1026	104	94	679	110	160	607	66
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	345	69	20	270	27	25	179	29	42	160	17
Total Analysis Volume [veh/h]	163	1379	277	81	1080	109	99	715	116	168	639	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	43	0	10	37	0	21	51	0	16	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	39	39	6	33	33	9	47	47	12	50	50
g / C, Green / Cycle	0.10	0.33	0.33	0.05	0.28	0.28	0.07	0.39	0.39	0.10	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.10	0.33	0.33	0.05	0.23	0.23	0.06	0.40	0.08	0.10	0.36	0.05
s, saturation flow rate [veh/h]	1714	3427	1651	1714	3427	1717	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	171	1114	536	86	942	472	124	705	599	171	755	641
d1, Uniform Delay [s]	53.71	40.50	40.50	56.84	41.02	41.03	54.79	36.50	24.03	53.88	31.37	21.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.48	0.11	0.11	0.36	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.00	27.40	40.57	33.26	8.94	16.40	11.01	36.74	0.16	27.45	8.36	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	1.00	1.01	0.95	0.84	0.84	0.80	1.01	0.19	0.98	0.85	0.11
d, Delay for Lane Group [s/veh]	75.71	67.90	81.07	90.10	49.95	57.43	65.80	73.24	24.18	81.33	39.73	21.26
Lane Group LOS	E	F	F	F	D	E	E	F	C	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.93	20.42	21.64	3.24	12.13	13.14	3.33	27.35	2.21	6.36	18.06	1.20
50th-Percentile Queue Length [ft/ln]	148.3	510.5	540.8	80.97	303.2	328.5	83.17	683.8	55.23	158.9	451.5	30.06
95th-Percentile Queue Length [veh/ln]	9.93	27.87	29.40	5.83	17.84	19.09	5.99	36.31	3.98	10.49	25.03	2.16
95th-Percentile Queue Length [ft/ln]	248.1	696.7	735.0	145.7	446.0	477.2	149.7	907.7	99.41	262.3	625.7	54.11

Movement, Approach, & Intersection Results

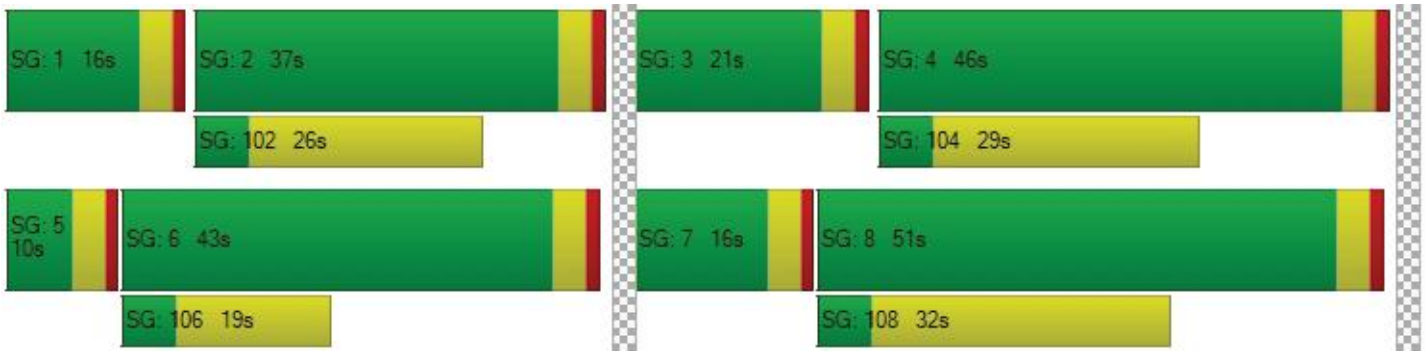
d_M, Delay for Movement [s/veh]	75.71	70.41	81.07	90.10	51.95	57.43	65.80	73.24	24.18	81.33	39.73	21.26
Movement LOS	E	E	F	F	D	E	E	F	C	F	D	C
d_A, Approach Delay [s/veh]	72.51			54.85			66.33			46.26		
Approach LOS	E			D			E			D		
d_I, Intersection Delay [s/veh]	62.06											
Intersection LOS	E											
Intersection V/C	0.870											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.129	3.002	2.767	2.621
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	550	783	700
d_b, Bicycle Delay [s]	27.34	31.54	22.20	25.35
l_b,int, Bicycle LOS Score for Intersection	2.560	2.258	3.094	3.005
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	23.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	96	151	218	18	141	22	31	636	65	90	429	27
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	1	2	0	1	0	0	18	0	3	30	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	170	246	20	159	25	35	730	73	104	510	30
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	45	65	5	42	7	9	192	19	27	134	8
Total Analysis Volume [veh/h]	114	179	259	21	167	26	37	768	77	109	537	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	29	0	0	29	0	0	91	0	0	91	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	44	44	44	44	44	44	68	68	68	68	68	68
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.36	0.36	0.57	0.57	0.57	0.57	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.09	0.10	0.17	0.02	0.09	0.02	0.04	0.43	0.05	0.16	0.30	0.02
s, saturation flow rate [veh/h]	1209	1800	1530	966	1800	1530	856	1800	1530	662	1800	1530
c, Capacity [veh/h]	423	652	554	345	652	554	353	1028	874	189	1028	874
d1, Uniform Delay [s]	32.47	27.09	29.37	30.48	26.89	24.82	27.15	19.26	11.63	46.56	15.74	11.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.17	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.57	1.04	2.81	0.34	0.95	0.16	0.13	1.70	0.04	2.76	0.41	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.27	0.47	0.06	0.26	0.05	0.10	0.75	0.09	0.58	0.52	0.04
d, Delay for Lane Group [s/veh]	34.03	28.13	32.18	30.82	27.84	24.98	27.28	20.97	11.67	49.33	16.15	11.30
Lane Group LOS	C	C	C	C	C	C	C	C	B	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.75	3.83	6.15	0.47	3.55	0.51	0.75	15.82	0.94	3.27	8.88	0.38
50th-Percentile Queue Length [ft/ln]	68.87	95.87	153.8	11.86	88.71	12.74	18.76	395.3	23.46	81.86	221.8	9.45
95th-Percentile Queue Length [veh/ln]	4.96	6.90	10.22	0.85	6.39	0.92	1.35	22.34	1.69	5.89	13.76	0.68
95th-Percentile Queue Length [ft/ln]	123.9	172.5	255.5	21.35	159.6	22.94	33.76	558.4	42.22	147.3	344.0	17.01

Movement, Approach, & Intersection Results

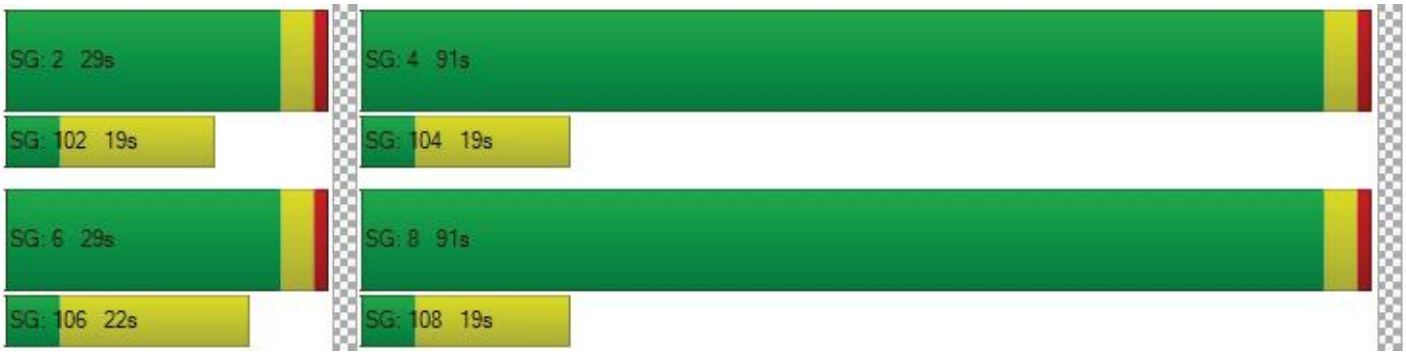
d_M, Delay for Movement [s/veh]	34.03	28.13	32.18	30.82	27.84	24.98	27.28	20.97	11.67	49.33	16.15	11.30
Movement LOS	C	C	C	C	C	C	C	C	B	D	B	B
d_A, Approach Delay [s/veh]	31.25			27.78			20.42			21.26		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	23.91											
Intersection LOS	C											
Intersection V/C	0.596											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.522	2.312	2.688	2.682
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	417	1450	1450
d_b, Bicycle Delay [s]	37.60	37.60	4.54	4.54
l_b,int, Bicycle LOS Score for Intersection	2.470	1.913	3.015	2.678
Bicycle LOS	B	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	45.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	175	861	169	138	729	67	78	565	168	144	309	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	2	0	1	0	0	10	0	3	17	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	196	968	191	155	817	75	87	643	188	164	363	103
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	255	50	41	215	20	23	169	49	43	96	27
Total Analysis Volume [veh/h]	206	1019	201	163	860	79	92	677	198	173	382	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	50	0	17	44	0	21	35	0	18	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	51	51	13	47	47	8	26	26	14	32	32
g / C, Green / Cycle	0.14	0.42	0.42	0.11	0.39	0.39	0.07	0.22	0.22	0.12	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.35	0.35	0.10	0.26	0.26	0.05	0.20	0.13	0.10	0.21	0.07
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1747	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	233	760	717	186	710	690	116	756	338	198	483	410
d1, Uniform Delay [s]	50.93	30.66	30.87	52.72	29.90	29.90	55.08	45.42	41.87	52.20	40.78	34.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.23	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.66	9.70	10.82	12.29	4.99	5.14	11.25	4.06	1.62	11.26	6.13	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.82	0.83	0.88	0.67	0.67	0.79	0.90	0.59	0.87	0.79	0.26
d, Delay for Lane Group [s/veh]	61.59	40.37	41.68	65.00	34.88	35.04	66.34	49.48	43.49	63.46	46.91	34.90
Lane Group LOS	E	D	D	E	C	D	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.76	17.68	17.19	5.47	12.18	11.86	3.11	10.17	5.41	5.74	11.24	2.54
50th-Percentile Queue Length [ft/ln]	168.9	442.0	429.8	136.7	304.5	296.5	77.63	254.2	135.1	143.4	281.1	63.41
95th-Percentile Queue Length [veh/ln]	11.02	24.58	23.99	9.30	17.91	17.51	5.59	15.40	9.22	9.67	16.74	4.57
95th-Percentile Queue Length [ft/ln]	275.5	614.5	599.8	232.5	447.6	437.8	139.7	384.9	230.4	241.6	418.6	114.1

Movement, Approach, & Intersection Results

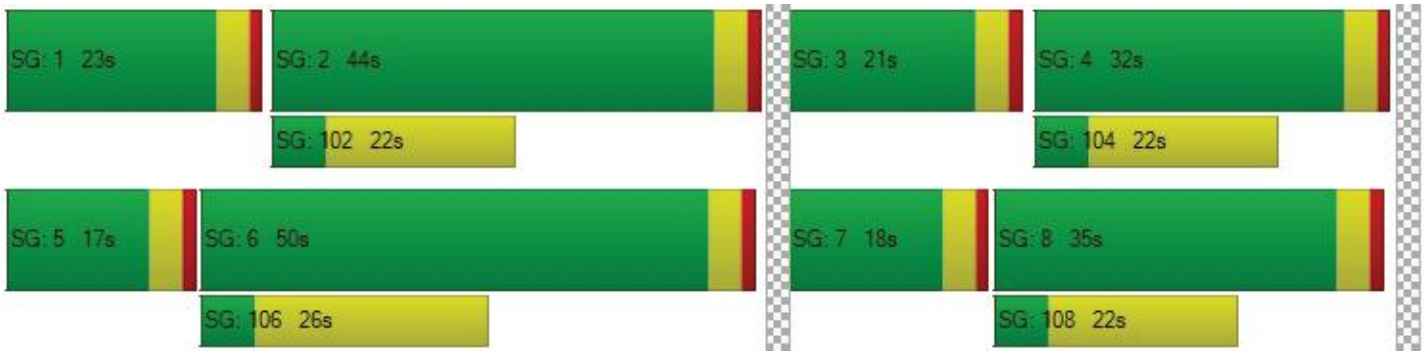
d_M, Delay for Movement [s/veh]	61.59	40.88	41.68	65.00	34.96	35.04	66.34	49.48	43.49	63.46	46.91	34.90
Movement LOS	E	D	D	E	C	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	43.98			39.41			49.86			49.27		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.98											
Intersection LOS	D											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.833	2.768	2.634	2.745
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	667	517	467
d_b, Bicycle Delay [s]	22.82	26.67	33.00	35.27
l_b,int, Bicycle LOS Score for Intersection	2.736	2.469	2.357	2.654
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.588

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	85	770	56	108	507	77	101	475	89	64	311	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	10	2	0	11	0	0	3	0	3	5	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	872	65	121	579	86	113	535	100	75	353	59
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	229	17	32	152	23	30	141	26	20	93	16
Total Analysis Volume [veh/h]	100	918	68	127	609	91	119	563	105	79	372	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	47	0	16	50	0	15	46	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	61	61	11	63	63	10	26	26	7	23	23
g / C, Green / Cycle	0.07	0.51	0.51	0.09	0.52	0.52	0.08	0.22	0.22	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.28	0.07	0.20	0.20	0.07	0.19	0.19	0.05	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1757	1714	1800	1719	1714	1800	1703	1714	1800	1712
c, Capacity [veh/h]	123	908	886	152	939	897	144	388	367	99	342	325
d1, Uniform Delay [s]	54.92	20.39	20.39	53.81	17.14	17.15	54.13	45.59	45.61	55.85	44.91	44.98
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.13	2.39	2.45	11.21	1.18	1.23	11.44	7.52	8.05	13.53	2.07	2.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.55	0.55	0.83	0.38	0.38	0.83	0.88	0.88	0.80	0.65	0.65
d, Delay for Lane Group [s/veh]	67.05	22.78	22.84	65.01	18.32	18.38	65.57	53.11	53.66	69.37	46.98	47.22
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.39	10.00	9.77	4.24	6.13	5.88	3.99	10.67	10.17	2.73	6.29	6.07
50th-Percentile Queue Length [ft/ln]	84.85	249.8	244.3	106.1	153.2	146.9	99.83	266.8	254.3	68.35	157.1	151.7
95th-Percentile Queue Length [veh/ln]	6.11	15.18	14.90	7.62	10.19	9.85	7.19	16.03	15.41	4.92	10.40	10.11
95th-Percentile Queue Length [ft/ln]	152.7	379.5	372.5	190.5	254.7	246.3	179.7	400.7	385.1	123.0	259.9	252.6

Movement, Approach, & Intersection Results

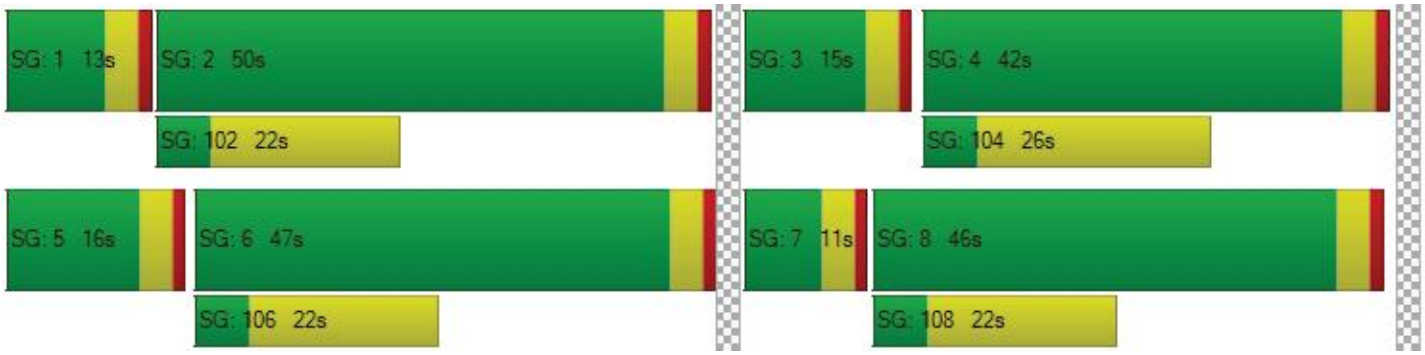
d_M, Delay for Movement [s/veh]	67.05	22.81	22.84	65.01	18.34	18.38	65.57	53.32	53.66	69.37	47.08	47.22
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.88			25.51			55.22			50.53		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	37.25											
Intersection LOS	D											
Intersection V/C	0.588											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.681	2.781	2.578	2.563
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	767	700	633
d_b, Bicycle Delay [s]	24.70	22.82	25.35	28.02
l_b,int, Bicycle LOS Score for Intersection	2.456	2.242	2.209	1.983
Bicycle LOS	B	B	B	A

Sequence

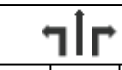
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.796

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	664	283	196	515	0	0	0	0	201	0	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	76	0	0	100	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	820	317	220	677	0	0	0	0	225	0	99
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	216	83	58	178	0	0	0	0	59	0	26
Total Analysis Volume [veh/h]	0	863	334	232	713	0	0	0	0	237	0	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	30	46	0	48	64	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	68	68	18	86	86	22	22	22	22
g / C, Green / Cycle	0.00	0.56	0.56	0.15	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.48	0.22	0.14	0.40	0.00	0.00	0.00	0.18	0.07
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1637	1530	1309	1530
c, Capacity [veh/h]	1	1013	861	263	1288	1095	330	281	300	281
d1, Uniform Delay [s]	0.00	22.01	14.66	49.71	8.02	0.00	0.00	0.00	49.88	42.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	8.98	1.32	9.30	1.72	0.00	0.00	0.00	10.13	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.85	0.39	0.88	0.55	0.00	0.00	0.00	0.79	0.37
d, Delay for Lane Group [s/veh]	0.00	30.99	15.97	59.01	9.74	0.00	0.00	0.00	60.01	43.75
Lane Group LOS	A	C	B	E	A	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	21.89	5.30	7.48	8.38	0.00	0.00	0.00	7.91	2.78
50th-Percentile Queue Length [ft/ln]	0.00	547.1	132.6	186.9	209.4	0.00	0.00	0.00	197.66	69.48
95th-Percentile Queue Length [veh/ln]	0.00	29.56	9.08	11.96	13.12	0.00	0.00	0.00	12.52	5.00
95th-Percentile Queue Length [ft/ln]	0.00	739.0	227.0	299.0	328.0	0.00	0.00	0.00	312.94	125.07

Movement, Approach, & Intersection Results

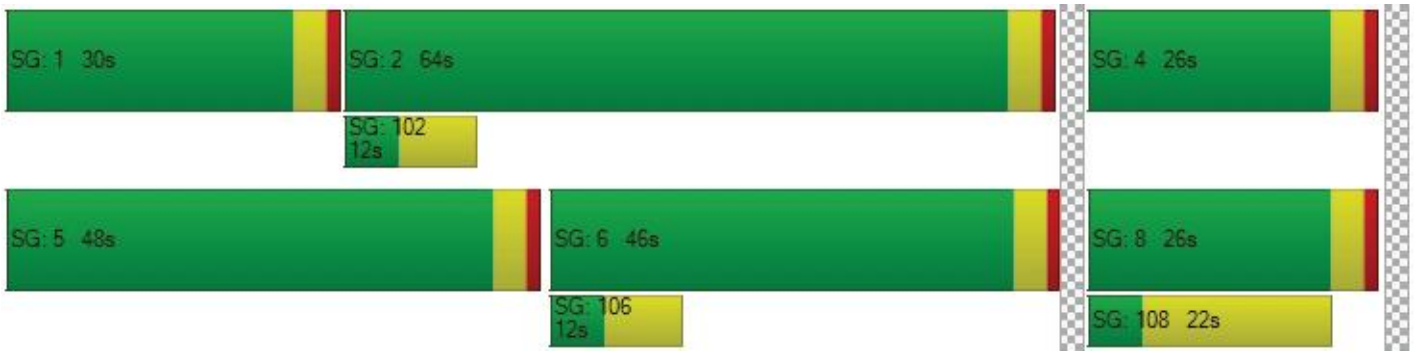
d_M, Delay for Movement [s/veh]	0.00	30.99	15.97	59.01	9.74	0.00	0.00	0.00	0.00	60.01	60.01	43.75
Movement LOS	A	C	B	E	A	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	26.80			21.84			0.00			55.05		
Approach LOS	C			C			A			E		
d_I, Intersection Delay [s/veh]	28.79											
Intersection LOS	C											
Intersection V/C	0.796											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.071	0.000	1.955	2.250
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	1000	367	367
d_b, Bicycle Delay [s]	25.35	15.00	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	3.535	3.119	1.560	2.122
Bicycle LOS	D	C	A	B

Sequence

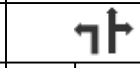
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	54.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.873

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	1366	112	38	688	56	87	141	294	122	67	73
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	131	0	0	186	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	1661	125	43	957	63	97	158	329	139	75	82
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	437	33	11	252	17	26	42	87	37	20	22
Total Analysis Volume [veh/h]	168	1748	132	45	1007	66	102	166	346	146	79	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	37	65	0	10	38	0	12	31	0	14	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	63	63	4	53	53	8	27	27	10	29
g / C, Green / Cycle	0.12	0.53	0.53	0.03	0.44	0.44	0.07	0.23	0.23	0.08	0.24
(v / s)_i Volume / Saturation Flow Rate	0.10	0.52	0.54	0.03	0.29	0.04	0.06	0.09	0.23	0.09	0.10
s, saturation flow rate [veh/h]	1714	1800	1756	1714	3427	1530	1714	1800	1530	1714	1648
c, Capacity [veh/h]	200	945	922	57	1515	676	114	405	344	143	398
d1, Uniform Delay [s]	51.94	28.35	28.51	57.56	26.46	19.53	55.57	39.70	46.50	55.00	38.34
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.38	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.20	28.09	34.66	20.42	2.32	0.29	19.99	0.67	43.60	40.68	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.99	1.02	0.78	0.66	0.10	0.89	0.41	1.01	1.02	0.41
d, Delay for Lane Group [s/veh]	61.14	56.44	63.17	77.99	28.78	19.82	75.56	40.36	90.10	95.68	39.03
Lane Group LOS	E	E	F	E	C	B	E	D	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.46	32.85	34.00	1.68	11.68	1.14	3.70	4.27	14.36	5.93	4.18
50th-Percentile Queue Length [ft/ln]	136.5	821.1	850.0	42.03	291.9	28.41	92.40	106.7	359.0	148.17	104.55
95th-Percentile Queue Length [veh/ln]	9.30	42.25	44.28	3.03	17.28	2.05	6.65	7.66	20.64	10.00	7.53
95th-Percentile Queue Length [ft/ln]	232.4	1056.	1106.	75.65	432.0	51.15	166.3	191.5	515.9	249.88	188.20

Movement, Approach, & Intersection Results

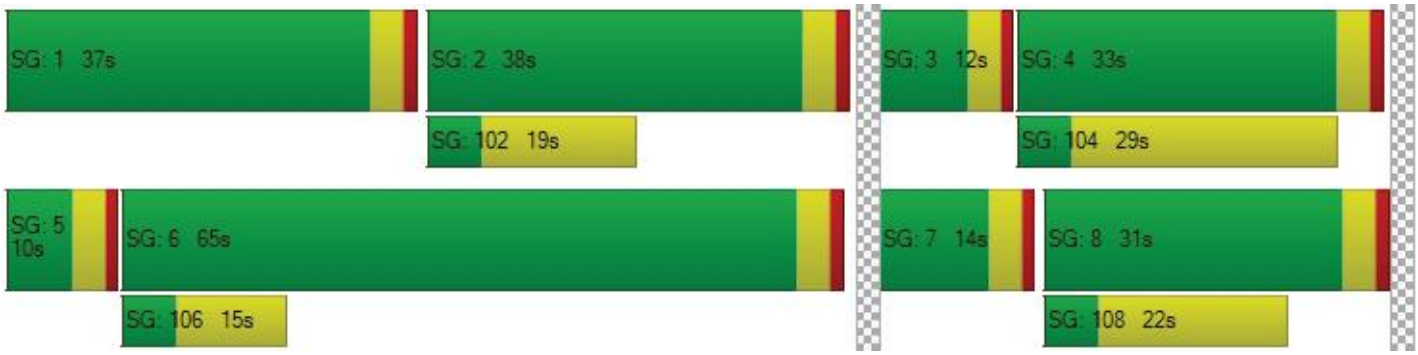
d_M, Delay for Movement [s/veh]	61.14	59.55	63.17	77.99	28.78	19.82	75.56	40.36	90.10	95.68	39.03	39.03
Movement LOS	E	E	E	E	C	B	E	D	F	F	D	D
d_A, Approach Delay [s/veh]	59.91			30.23			74.24			65.62		
Approach LOS	E			C			E			E		
d_I, Intersection Delay [s/veh]	54.38											
Intersection LOS	D											
Intersection V/C	0.873											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.044	3.035	2.372	2.168
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	567	450	483
d_b, Bicycle Delay [s]	14.50	30.82	36.04	34.50
l_b,int, Bicycle LOS Score for Intersection	3.249	2.482	2.573	2.073
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	48.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.549

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	88	400	0	0	314	39	80	0	165	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.120	1.000	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	3	0	0	2	2	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	451	0	0	354	46	90	0	185	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	119	0	0	93	12	24	0	49	0	0	0
Total Analysis Volume [veh/h]	104	475	0	0	373	48	95	0	195	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.30	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.44	0.00	0.00	0.00	0.00	0.00	48.52	0.00	12.78	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.00	0.00	0.00	0.00	2.83	0.00	1.24	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.45	7.45	0.00	0.00	0.00	0.00	70.70	0.00	31.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.52			0.00			24.49			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	6.19											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	907	60	95	571	0	5	0	30	191	0	49
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	88	100	0	0	0	0	0	9	0	76
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1016	155	206	640	0	6	0	34	223	0	131
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	267	41	54	168	0	2	0	9	59	0	34
Total Analysis Volume [veh/h]	0	1069	163	217	674	0	6	0	36	235	0	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	50	0	31	54	0	0	9	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	64	64	17	81	81	4	4	19	19
g / C, Green / Cycle	0.00	0.53	0.53	0.14	0.68	0.68	0.03	0.03	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.35	0.35	0.13	0.19	0.19	0.00	0.03	0.14	0.09
s, saturation flow rate [veh/h]	1714	1800	1718	1714	1800	1800	1714	1392	1687	1530
c, Capacity [veh/h]	1	959	915	246	1216	1216	55	45	267	242
d1, Uniform Delay [s]	0.00	20.13	20.17	50.38	7.76	7.76	56.41	57.70	49.41	46.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	3.50	3.70	9.89	0.57	0.57	0.86	27.42	10.50	2.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.66	0.66	0.88	0.28	0.28	0.11	0.81	0.88	0.57
d, Delay for Lane Group [s/veh]	0.00	23.63	23.87	60.27	8.33	8.33	57.27	85.12	59.92	48.86
Lane Group LOS	A	C	C	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	13.21	12.71	7.05	3.47	3.47	0.19	1.43	7.65	3.96
50th-Percentile Queue Length [ft/ln]	0.00	330.1	317.8	176.3	86.77	86.77	4.75	35.65	191.34	99.04
95th-Percentile Queue Length [veh/ln]	0.00	19.17	18.56	11.41	6.25	6.25	0.34	2.57	12.19	7.13
95th-Percentile Queue Length [ft/ln]	0.00	479.1	464.0	285.2	156.1	156.1	8.55	64.18	304.76	178.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	23.73	23.87	60.27	8.33	8.33	57.27	71.19	85.12	59.92	59.92	48.86
Movement LOS	A	C	C	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	23.75			20.98			81.14			55.83		
Approach LOS	C			C			F			E		
d_I, Intersection Delay [s/veh]	28.44											
Intersection LOS	C											
Intersection V/C	0.643											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	833	83	433
d_b, Bicycle Delay [s]	22.82	20.42	55.10	36.82
l_b,int, Bicycle LOS Score for Intersection	2.576	2.295	1.594	2.175
Bicycle LOS	B	B	A	B

Sequence

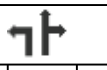
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	199	841	1	0	1	0	107	0	206
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1458	200	223	841	1	0	1	0	107	0	231
Peak Hour Factor	0.946	0.946	0.946	0.950	0.946	0.950	0.950	0.950	0.946	0.946	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	385	53	59	222	0	0	0	0	28	0	61
Total Analysis Volume [veh/h]	1	1541	211	235	889	1	0	1	0	113	0	243
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	38	54	0	21	37	0	26	30	0	15	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	66	66	17	83	83	0	12	10	21
g / C, Green / Cycle	0.00	0.55	0.55	0.14	0.69	0.69	0.00	0.10	0.08	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.45	0.14	0.14	0.26	0.00	0.00	0.00	0.07	0.16
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	4	1879	839	243	2356	1052	1	174	137	269
d1, Uniform Delay [s]	59.74	22.26	14.21	51.23	7.92	5.87	0.00	48.96	54.38	48.41
k, delay calibration	0.11	0.50	0.50	0.12	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	26.43	4.16	0.72	21.38	0.46	0.00	0.00	0.01	11.64	10.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.82	0.25	0.97	0.38	0.00	0.00	0.01	0.82	0.90
d, Delay for Lane Group [s/veh]	86.17	26.42	14.93	72.61	8.38	5.87	0.00	48.97	66.02	59.08
Lane Group LOS	F	C	B	E	A	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.06	18.14	3.15	8.45	4.67	0.01	0.00	0.03	3.80	7.89
50th-Percentile Queue Length [ft/ln]	1.54	453.4	78.72	211.2	116.6	0.20	0.00	0.70	95.11	197.36
95th-Percentile Queue Length [veh/ln]	0.11	25.12	5.67	13.22	8.21	0.01	0.00	0.05	6.85	12.50
95th-Percentile Queue Length [ft/ln]	2.77	628.0	141.6	330.3	205.1	0.36	0.00	1.25	171.20	312.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	86.17	26.42	14.93	72.61	8.38	5.87	0.00	48.97	48.97	66.02	59.08	59.08
Movement LOS	F	C	B	E	A	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	25.07			21.80			48.97			61.28		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	27.92											
Intersection LOS	C											
Intersection V/C	0.746											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.993	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	550	433	250
d_b, Bicycle Delay [s]	20.42	31.54	36.82	45.94
l_b,int, Bicycle LOS Score for Intersection	3.006	2.488	1.561	2.147
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	50.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.054

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	215	48	118	172	40	129	224	33	32	148	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	3	0	0	2	0	0	10	0	0	17	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	244	54	132	195	45	144	261	37	36	183	144
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	64	14	35	51	12	38	69	10	9	48	38
Total Analysis Volume [veh/h]	36	257	57	139	205	47	152	275	39	38	193	152
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	402	439	417	427	451	396	433
Degree of Utilization, x	0.73	0.13	0.94	1.05	0.09	0.58	0.35

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.70	0.44	10.57	14.10	0.28	3.58	1.55
95th-Percentile Queue Length [ft]	142.38	11.10	264.28	352.48	7.05	89.45	38.81
Approach Delay [s/veh]	29.01		59.35	83.28		20.45	
Approach LOS	D		F	F		C	
Intersection Delay [s/veh]	50.31						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.590

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	922	34	78	735	100	139	250	53	29	195	136
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	6	1	0	4	0	0	10	0	1	17	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	1039	39	87	827	112	156	290	59	33	235	152
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	273	10	23	218	29	41	76	16	9	62	40
Total Analysis Volume [veh/h]	53	1094	41	92	871	118	164	305	62	35	247	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	59	0	14	63	0	21	34	0	13	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	65	65	8	69	69	13	27	27	4	17	17
g / C, Green / Cycle	0.04	0.55	0.55	0.07	0.57	0.57	0.11	0.23	0.23	0.03	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.32	0.05	0.28	0.28	0.10	0.09	0.04	0.02	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1777	1714	1800	1726	1714	3427	1530	1714	1800	1571
c, Capacity [veh/h]	68	980	968	115	1029	987	192	772	345	52	259	226
d1, Uniform Delay [s]	57.12	18.24	18.24	55.20	15.29	15.29	52.35	39.54	37.54	57.61	49.92	50.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.47	2.53	2.57	12.07	1.67	1.74	10.42	0.33	0.25	14.38	6.57	9.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.58	0.58	0.80	0.49	0.49	0.86	0.40	0.18	0.68	0.83	0.86
d, Delay for Lane Group [s/veh]	74.58	20.77	20.81	67.27	16.96	17.04	62.77	39.87	37.79	72.00	56.49	59.31
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.92	10.95	10.83	3.13	8.45	8.13	5.40	3.88	1.51	1.26	6.69	6.24
50th-Percentile Queue Length [ft/ln]	48.06	273.8	270.8	78.22	211.2	203.1	135.0	96.88	37.65	31.48	167.1	156.0
95th-Percentile Queue Length [veh/ln]	3.46	16.38	16.23	5.63	13.22	12.80	9.21	6.98	2.71	2.27	10.93	10.34
95th-Percentile Queue Length [ft/ln]	86.51	409.5	405.7	140.8	330.4	320.0	230.3	174.3	67.77	56.67	273.2	258.4

Movement, Approach, & Intersection Results

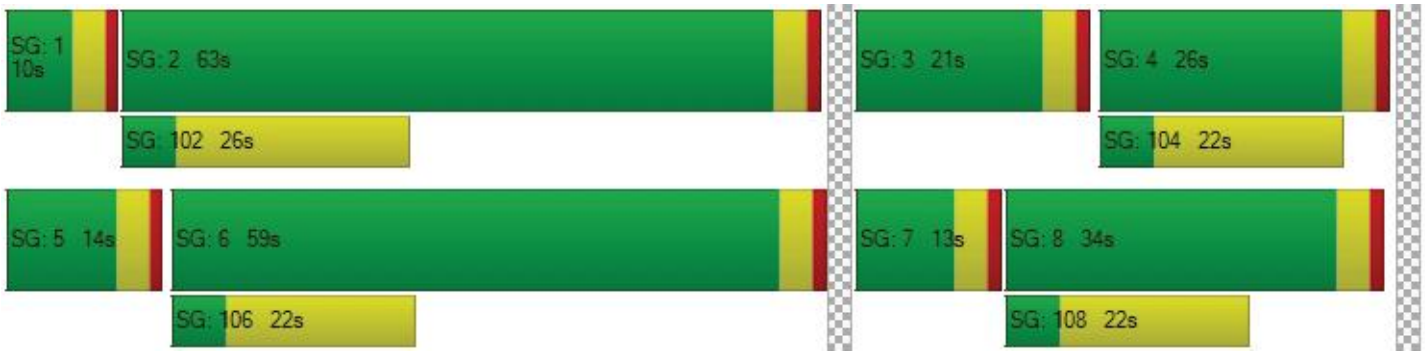
d_M, Delay for Movement [s/veh]	74.58	20.79	20.81	67.27	16.99	17.04	62.77	39.87	37.79	72.00	56.88	59.31
Movement LOS	E	C	C	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	23.19			21.28			46.70			58.96		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	31.28											
Intersection LOS	C											
Intersection V/C	0.590											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.736	2.874	2.622	2.611
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	983	500	367
d_b, Bicycle Delay [s]	17.60	15.50	33.75	40.02
l_b,int, Bicycle LOS Score for Intersection	2.540	2.451	1.998	1.924
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	833	164	64	696	56	75	453	101	111	270	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	4	5	0	0	5	17	12	5	2	0	8	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	938	184	72	785	80	96	512	115	124	310	52
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	247	48	19	207	21	25	135	30	33	82	14
Total Analysis Volume [veh/h]	138	987	194	76	826	84	101	539	121	131	326	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	65	0	11	61	0	14	30	0	14	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	44	44	7	40	40	9	43	43	10	45	45
g / C, Green / Cycle	0.09	0.37	0.37	0.06	0.33	0.33	0.07	0.36	0.36	0.08	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.08	0.34	0.34	0.04	0.26	0.26	0.06	0.19	0.19	0.08	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1742	1714	1800	1687	1714	1800	1711
c, Capacity [veh/h]	157	662	625	96	597	578	125	648	607	143	666	633
d1, Uniform Delay [s]	53.84	36.14	36.27	55.97	36.04	36.04	54.81	30.33	30.35	54.59	26.68	26.71
k, delay calibration	0.11	0.22	0.22	0.11	0.13	0.13	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.18	9.98	11.22	13.68	2.53	2.61	11.61	3.03	3.25	19.69	1.11	1.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.91	0.92	0.79	0.77	0.77	0.81	0.53	0.53	0.92	0.29	0.29
d, Delay for Lane Group [s/veh]	68.01	46.12	47.49	69.65	38.56	38.65	66.42	33.36	33.60	74.28	27.78	27.90
Lane Group LOS	E	D	D	E	D	D	E	C	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.73	18.44	17.79	2.64	12.49	12.10	3.41	8.28	7.83	4.71	4.14	4.00
50th-Percentile Queue Length [ft/ln]	118.2	461.0	444.8	65.93	312.3	302.6	85.28	207.0	195.6	117.6	103.5	99.97
95th-Percentile Queue Length [veh/ln]	8.30	25.49	24.71	4.75	18.29	17.81	6.14	13.00	12.41	8.26	7.46	7.20
95th-Percentile Queue Length [ft/ln]	207.4	637.1	617.7	118.6	457.2	445.2	153.5	325.0	310.3	206.6	186.4	179.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.01	46.65	47.49	69.65	38.60	38.65	66.42	33.45	33.60	74.28	27.83	27.90
Movement LOS	E	D	D	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	49.01			41.00			37.85			39.72		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.10											
Intersection LOS	D											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.858	2.814	2.570	2.573
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	950	433	433
d_b, Bicycle Delay [s]	14.50	16.54	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.648	2.373	2.187	1.982
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.491

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	868	69	34	681	106	136	178	9	42	83	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	0	0	4	1	5	9	0	10	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	974	77	38	767	120	157	208	10	57	95	22
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	256	20	10	202	32	41	55	3	15	25	6
Total Analysis Volume [veh/h]	21	1025	81	40	807	126	165	219	11	60	100	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	52	0	9	46	0	33	49	0	10	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	78	78	4	79	79	14	17	17	5	9	9
g / C, Green / Cycle	0.02	0.65	0.65	0.03	0.66	0.66	0.11	0.14	0.14	0.04	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.01	0.31	0.31	0.02	0.27	0.27	0.10	0.12	0.01	0.04	0.06	0.02
s, saturation flow rate [veh/h]	1714	1800	1754	1714	1800	1716	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	37	1169	1140	53	1186	1131	195	255	217	76	131	111
d1, Uniform Delay [s]	58.16	10.69	10.69	57.71	9.50	9.50	52.16	50.31	44.51	56.78	54.63	52.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.04	1.41	1.44	19.60	1.02	1.07	9.72	8.16	0.10	16.23	8.92	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.48	0.48	0.76	0.40	0.40	0.85	0.86	0.05	0.79	0.76	0.21
d, Delay for Lane Group [s/veh]	71.19	12.10	12.14	77.31	10.52	10.57	61.88	58.47	44.60	73.00	63.55	53.30
Lane Group LOS	E	B	B	E	B	B	E	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.77	7.59	7.41	1.49	5.83	5.58	5.39	7.00	0.29	2.14	3.29	0.68
50th-Percentile Queue Length [ft/ln]	19.15	189.7	185.3	37.31	145.8	139.4	134.8	174.9	7.27	53.61	82.31	17.07
95th-Percentile Queue Length [veh/ln]	1.38	12.11	11.88	2.69	9.80	9.45	9.20	11.33	0.52	3.86	5.93	1.23
95th-Percentile Queue Length [ft/ln]	34.47	302.6	296.9	67.16	244.9	236.3	230.1	283.3	13.09	96.50	148.1	30.73

Movement, Approach, & Intersection Results

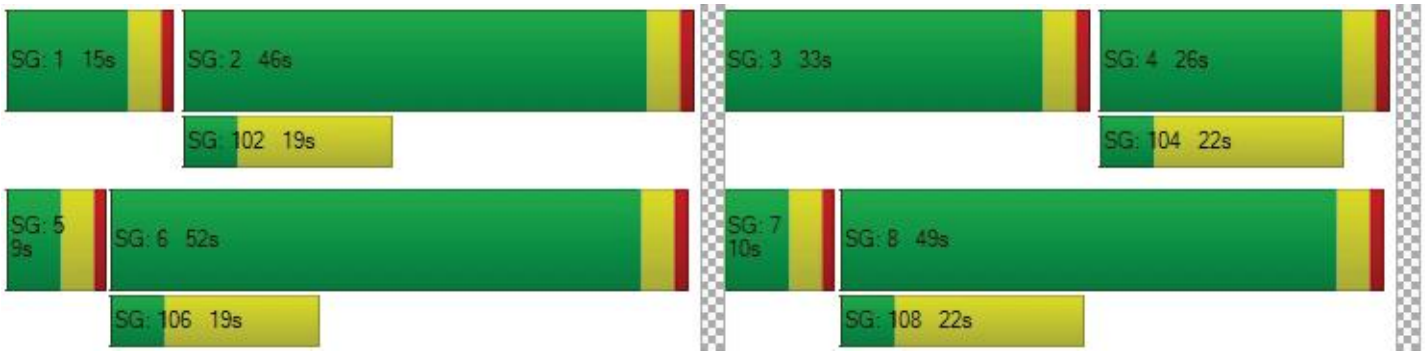
d_M, Delay for Movement [s/veh]	71.19	12.11	12.14	77.31	10.54	10.57	61.88	58.47	44.60	73.00	63.55	53.30
Movement LOS	E	B	B	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	13.22			13.29			59.51			65.36		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	23.63											
Intersection LOS	C											
Intersection V/C	0.491											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.706	2.741	2.303	2.274
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	700	750	367
d_b, Bicycle Delay [s]	21.60	25.35	23.44	40.02
l_b,int, Bicycle LOS Score for Intersection	2.489	2.362	2.211	1.862
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	16	1461	163	160	882	2	5	2	5	165	0	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120	1.120	1.000
In-Process Volume [veh/h]	144	0	0	0	0	0	0	106	93	0	116	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	1461	183	160	882	2	5	108	99	185	116	124
Peak Hour Factor	0.950	0.972	0.950	0.972	0.972	0.972	0.972	0.950	0.950	0.950	0.950	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	43	376	48	41	227	1	1	28	26	49	31	32
Total Analysis Volume [veh/h]	171	1503	193	165	907	2	5	114	104	195	122	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	39	49	0	20	30	0	9	33	0	18	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	59	59	13	58	58	1	18	14	31
g / C, Green / Cycle	0.12	0.49	0.49	0.11	0.48	0.48	0.01	0.15	0.12	0.26
(v / s)_i Volume / Saturation Flow Rate	0.10	0.33	0.33	0.10	0.18	0.00	0.00	0.13	0.11	0.15
s, saturation flow rate [veh/h]	1714	3427	1697	1714	4903	1530	1714	1660	1714	1651
c, Capacity [veh/h]	202	1678	831	191	2372	740	11	247	200	427
d1, Uniform Delay [s]	51.89	23.34	23.39	52.40	19.63	16.02	59.38	50.05	52.83	38.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.47	2.19	4.42	10.83	0.47	0.01	24.11	9.98	24.12	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.67	0.68	0.86	0.38	0.00	0.44	0.88	0.98	0.59
d, Delay for Lane Group [s/veh]	61.36	25.53	27.82	63.23	20.10	16.02	83.49	60.04	76.95	40.13
Lane Group LOS	E	C	C	E	C	B	F	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.57	12.45	12.93	5.46	5.41	0.03	0.23	7.08	7.18	6.58
50th-Percentile Queue Length [ft/ln]	139.2	311.3	323.2	136.4	135.2	0.75	5.71	177.08	179.60	164.54
95th-Percentile Queue Length [veh/ln]	9.44	18.24	18.83	9.29	9.23	0.05	0.41	11.45	11.58	10.79
95th-Percentile Queue Length [ft/ln]	236.0	456.0	470.7	232.1	230.6	1.35	10.27	286.19	289.49	269.72

Movement, Approach, & Intersection Results

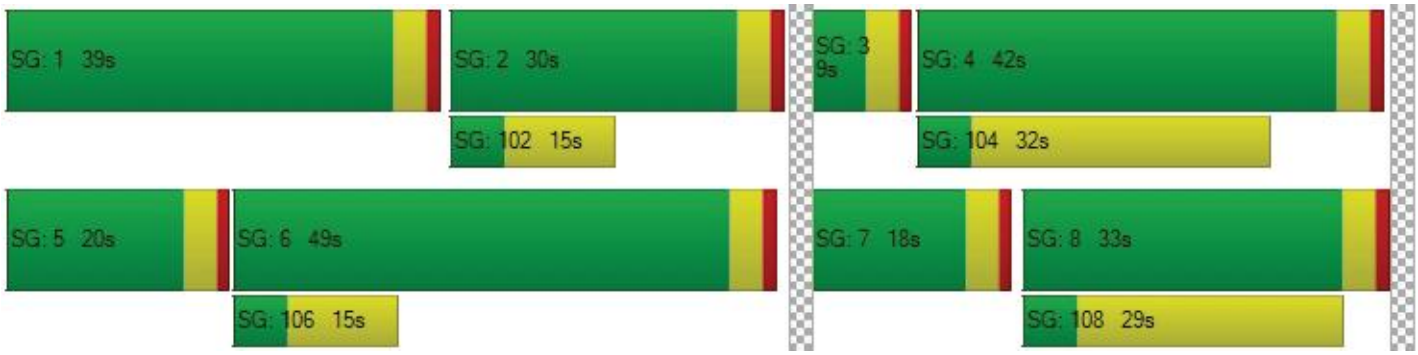
d_M, Delay for Movement [s/veh]	61.36	26.10	27.82	63.23	20.10	16.02	83.49	60.04	60.04	76.95	40.13	40.13
Movement LOS	E	C	C	E	C	B	F	E	E	E	D	D
d_A, Approach Delay [s/veh]	29.50			26.71			60.56			56.26		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	33.89											
Intersection LOS	C											
Intersection V/C	0.673											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.037	3.246	2.124	2.253
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	433	483	633
d_b, Bicycle Delay [s]	23.44	36.82	34.50	28.02
l_b,int, Bicycle LOS Score for Intersection	2.586	2.150	1.928	2.294
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	32.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.915

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	213	12	34	162	31	62	171	22	10	113	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	8	0	0	0	0	2	3	135	6	0	144	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	239	13	38	181	37	72	327	31	11	271	47
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	63	3	10	48	10	19	86	8	3	71	12
Total Analysis Volume [veh/h]	26	252	14	40	191	39	76	344	33	12	285	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	456	453	495	478
Degree of Utilization, x	0.64	0.60	0.91	0.72

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.41	3.80	10.66	5.82
95th-Percentile Queue Length [ft]	110.20	95.04	266.61	145.39
Approach Delay [s/veh]	23.97	22.03	49.09	27.86
Approach LOS	C	C	E	D
Intersection Delay [s/veh]	32.94			
Intersection LOS	D			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	34.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.865

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	33	51	48	20	4	12	42	7	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	37	57	54	22	4	13	47	8	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	10	15	14	6	1	3	12	2	0
Total Analysis Volume [veh/h]	0	39	60	57	23	4	14	49	8	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	453	425
Degree of Utilization, x	0.39	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.86	0.64
95th-Percentile Queue Length [ft]	46.39	16.10
Approach Delay [s/veh]	16.02	13.31
Approach LOS	C	B
Intersection Delay [s/veh]	34.76	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	39	2	143	22	4	12	39	142	7	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	13	115	0	0	0	0	132	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	15	275	25	4	13	44	291	8	6
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	4	72	7	1	3	12	77	2	2
Total Analysis Volume [veh/h]	46	16	289	26	4	14	46	306	8	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	440	439
Degree of Utilization, x	0.86	0.87

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.80	8.80
95th-Percentile Queue Length [ft]	220.00	219.94
Approach Delay [s/veh]	44.85	44.99
Approach LOS	E	E
Intersection Delay [s/veh]	34.76	
Intersection LOS	D	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	16	240	40	0	5	39	95	31	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	18	269	45	0	6	44	106	38	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	71	12	0	2	12	28	10	2
Total Analysis Volume [veh/h]	3	19	283	47	0	6	46	112	40	8
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	436	392	435
Degree of Utilization, x	0.81	0.42	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.38	2.01	0.37
95th-Percentile Queue Length [ft]	184.53	50.28	9.24
Approach Delay [s/veh]	37.75	16.87	
Approach LOS	E	C	
Intersection Delay [s/veh]	34.76		
Intersection LOS	D		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.516

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	874	82	66	634	13	20	165	39	57	148	63
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	49	0	0	0	0	14	2	54	60	0	69	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	979	92	74	710	29	24	239	104	64	235	71
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	258	24	19	187	8	6	63	27	17	62	19
Total Analysis Volume [veh/h]	111	1031	97	78	747	31	25	252	109	67	247	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	40	67	0	11	38	0	9	26	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	76	76	7	73	73	3	16	16	6	19	19
g / C, Green / Cycle	0.08	0.63	0.63	0.06	0.61	0.61	0.02	0.13	0.13	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.06	0.32	0.32	0.05	0.22	0.22	0.01	0.07	0.07	0.04	0.14	0.05
s, saturation flow rate [veh/h]	1714	1800	1746	1714	1800	1775	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	139	1133	1100	98	1090	1075	41	445	199	86	281	239
d1, Uniform Delay [s]	54.16	12.06	12.07	55.89	11.93	11.93	58.04	49.03	48.91	56.35	49.51	44.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	1.61	1.66	13.63	0.92	0.94	14.15	1.13	2.35	14.22	8.63	0.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.50	0.51	0.80	0.36	0.36	0.62	0.57	0.55	0.78	0.88	0.31
d, Delay for Lane Group [s/veh]	64.08	13.66	13.73	69.52	12.85	12.87	72.19	50.16	51.25	70.57	58.15	45.66
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.68	8.43	8.22	2.70	5.41	5.34	0.91	3.62	3.20	2.35	7.90	2.04
50th-Percentile Queue Length [ft/ln]	91.96	210.7	205.5	67.58	135.1	133.3	22.81	90.56	79.88	58.64	197.5	51.01
95th-Percentile Queue Length [veh/ln]	6.62	13.19	12.92	4.87	9.22	9.12	1.64	6.52	5.75	4.22	12.51	3.67
95th-Percentile Queue Length [ft/ln]	165.5	329.7	323.0	121.6	230.4	228.0	41.05	163.0	143.7	105.5	312.8	91.81

Movement, Approach, & Intersection Results

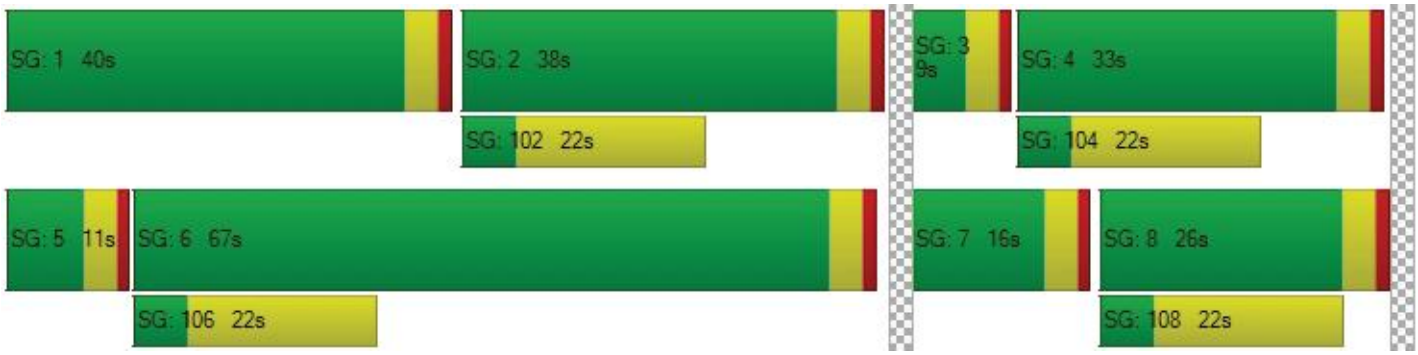
d_M, Delay for Movement [s/veh]	64.08	13.69	13.73	69.52	12.86	12.87	72.19	50.16	51.25	70.57	58.15	45.66
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	D
d_A, Approach Delay [s/veh]	18.21			18.02			51.89			57.88		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	28.06											
Intersection LOS	C											
Intersection V/C	0.516											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.737	2.703	2.466	2.601
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	567	367	483
d_b, Bicycle Delay [s]	13.54	30.82	40.02	34.50
l_b,int, Bicycle LOS Score for Intersection	2.582	2.266	1.878	2.201
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	1025	112	64	785	62	76	231	66	117	164	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	35	0	0	0	0	9	8	5	30	0	8	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	1148	125	72	879	78	93	264	104	131	192	65
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	302	33	19	231	21	24	69	27	34	51	17
Total Analysis Volume [veh/h]	117	1208	132	76	925	82	98	278	109	138	202	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	57	0	11	48	0	22	34	0	18	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	70	70	7	66	66	9	16	16	11	19	19
g / C, Green / Cycle	0.08	0.58	0.58	0.06	0.55	0.55	0.07	0.14	0.14	0.10	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.07	0.38	0.38	0.04	0.28	0.28	0.06	0.11	0.11	0.08	0.08	0.08
s, saturation flow rate [veh/h]	1714	1800	1739	1714	1800	1749	1714	1800	1632	1714	1800	1649
c, Capacity [veh/h]	143	1043	1008	95	993	965	123	245	222	164	287	263
d1, Uniform Delay [s]	54.09	17.03	17.12	55.98	16.83	16.83	54.81	50.43	50.58	53.37	45.93	46.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.78	3.15	3.34	13.80	1.90	1.96	10.93	6.72	8.29	10.96	1.26	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.65	0.66	0.80	0.51	0.51	0.79	0.82	0.84	0.84	0.48	0.50
d, Delay for Lane Group [s/veh]	64.87	20.18	20.46	69.79	18.73	18.79	65.74	57.15	58.87	64.33	47.19	47.50
Lane Group LOS	E	C	C	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.90	13.02	12.79	2.64	9.10	8.86	3.29	6.32	5.97	4.59	3.89	3.68
50th-Percentile Queue Length [ft/ln]	97.59	325.5	319.8	66.00	227.5	221.5	82.29	157.8	149.1	114.7	97.15	92.10
95th-Percentile Queue Length [veh/ln]	7.03	18.94	18.66	4.75	14.05	13.74	5.92	10.44	9.97	8.11	7.00	6.63
95th-Percentile Queue Length [ft/ln]	175.6	473.5	466.4	118.8	351.2	343.6	148.1	260.9	249.2	202.6	174.8	165.7

Movement, Approach, & Intersection Results

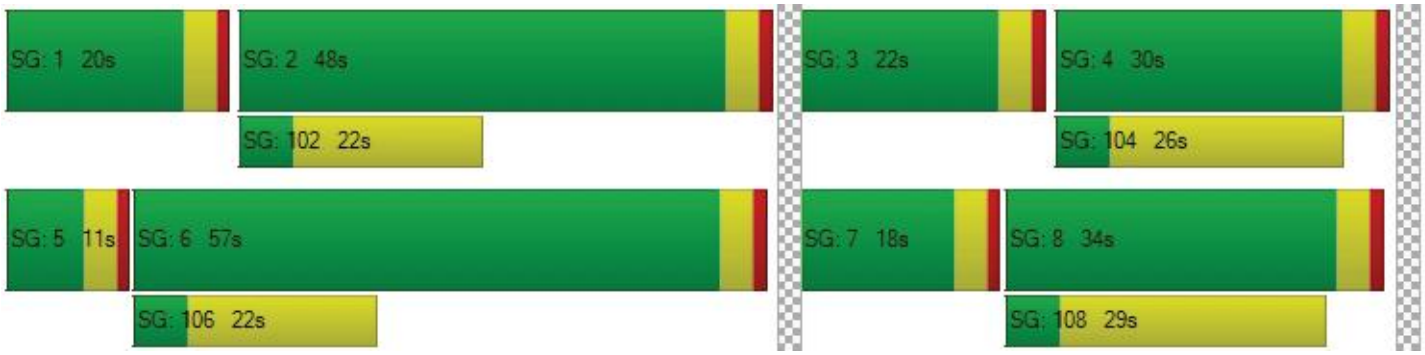
d_M, Delay for Movement [s/veh]	64.87	20.30	20.46	69.79	18.76	18.79	65.74	57.63	58.87	64.33	47.29	47.50
Movement LOS	E	C	C	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	23.90			22.34			59.55			53.09		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	31.91											
Intersection LOS	C											
Intersection V/C	0.619											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.975	2.867	2.488	2.489
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	733	500	433
d_b, Bicycle Delay [s]	18.70	24.07	33.75	36.82
l_b,int, Bicycle LOS Score for Intersection	2.762	2.453	1.960	1.896
Bicycle LOS	C	B	A	A

Sequence

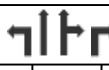
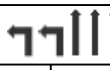
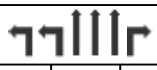
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	58.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.911

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	119	208	360	107	282	534	817	1020	94	152	605	306
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	8	0	0	5	51
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	233	403	120	316	598	915	1150	105	170	683	394
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	61	106	32	83	157	241	303	28	45	180	104
Total Analysis Volume [veh/h]	140	245	424	126	333	629	963	1211	111	179	719	415
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	35	0	13	28	0	37	60	0	12	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	31	31	9	28	28	28	33	56	56	8	31	31
g / C, Green / Cycle	0.10	0.26	0.26	0.08	0.24	0.24	0.24	0.28	0.47	0.47	0.07	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.28	0.07	0.19	0.21	0.21	0.29	0.25	0.07	0.05	0.15	0.27
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	167	885	395	129	424	361	361	916	2288	714	222	1267	395
d1, Uniform Delay [s]	53.20	35.55	44.50	55.4	43.0	44.1	44.1	43.50	22.66	18.40	55.24	38.68	44.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.49
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.41	0.78	66.03	32.3	13.5	24.0	24.0	30.04	0.19	0.10	6.78	0.40	58.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.28	1.07	0.98	0.78	0.87	0.87	1.05	0.53	0.16	0.81	0.57	1.05
d, Delay for Lane Group [s/veh]	63.61	36.32	110.5	87.7	56.5	68.1	68.1	73.54	22.86	18.50	62.01	39.08	102.9
Lane Group LOS	E	D	F	F	E	E	E	F	C	B	E	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.63	2.98	18.89	4.95	10.8	11.3	11.3	17.26	8.02	1.80	2.88	6.18	18.06
50th-Percentile Queue Length [ft/ln]	115.8	74.41	472.1	123.	270.	283.	283.	431.4	200.6	45.06	71.97	154.5	451.4
95th-Percentile Queue Length [veh/ln]	8.16	5.36	27.12	8.60	16.2	16.8	16.8	24.82	12.67	3.24	5.18	10.26	25.77
95th-Percentile Queue Length [ft/ln]	204.0	133.9	678.0	215.	405.	421.	421.	620.4	316.7	81.11	129.5	256.4	644.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.61	36.32	110.5	87.71	56.58	68.13	73.54	22.86	18.50	62.01	39.08	102.9
Movement LOS	E	D	F	F	E	E	F	C	B	E	D	F
d_A, Approach Delay [s/veh]	79.94			66.86			44.00			62.40		
Approach LOS	E			E			D			E		
d_I, Intersection Delay [s/veh]	58.22											
Intersection LOS	E											
Intersection V/C	0.911											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.701	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	400	933	517
d_b, Bicycle Delay [s]	33.00	38.40	17.07	33.00
l_b,int, Bicycle LOS Score for Intersection	2.227	2.457	2.816	2.282
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	48	43	114	42	359	674	752	63	37	631	140
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	51	0	0	0	8	0	0	56	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	54	48	179	47	402	755	850	71	41	763	157
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	14	13	47	12	106	199	224	19	11	201	41
Total Analysis Volume [veh/h]	87	57	51	188	49	423	795	895	75	43	803	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	29	0	28	23	0	35	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	21	21	21	32	70	70	4	42	42
g / C, Green / Cycle	0.07	0.07	0.07	0.18	0.18	0.18	0.27	0.59	0.59	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.07	0.07	0.16	0.24	0.18	0.05	0.03	0.19	0.19
s, saturation flow rate [veh/h]	1714	1800	1536	1714	1748	2708	3329	4903	1530	1714	3427	1648
c, Capacity [veh/h]	120	126	108	303	309	479	888	2877	898	57	1210	582
d1, Uniform Delay [s]	54.64	53.52	53.70	43.66	43.65	48.20	42.39	12.54	10.78	57.54	31.01	31.07
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.92	2.40	3.36	0.81	0.79	5.59	3.49	0.28	0.18	18.51	1.72	3.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.44	0.49	0.39	0.39	0.88	0.90	0.31	0.08	0.76	0.54	0.54
d, Delay for Lane Group [s/veh]	62.57	55.92	57.06	44.47	44.45	53.79	45.88	12.82	10.96	76.05	32.73	34.68
Lane Group LOS	E	E	E	D	D	D	D	B	B	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.84	1.70	1.63	3.17	3.22	6.53	11.69	4.04	0.90	1.59	7.81	7.89
50th-Percentile Queue Length [ft/ln]	71.04	42.45	40.63	79.14	80.47	163.1	292.1	101.0	22.57	39.65	195.2	197.1
95th-Percentile Queue Length [veh/ln]	5.12	3.06	2.93	5.70	5.79	10.72	17.29	7.28	1.63	2.86	12.39	12.49
95th-Percentile Queue Length [ft/ln]	127.8	76.41	73.13	142.4	144.8	267.9	432.3	181.9	40.63	71.38	309.7	312.3

Movement, Approach, & Intersection Results

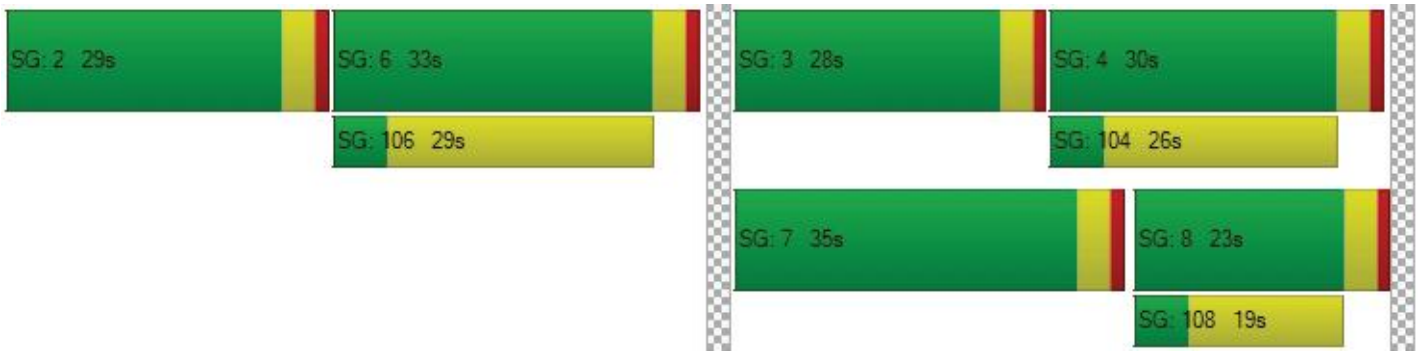
d_M, Delay for Movement [s/veh]	62.57	55.95	57.06	44.46	44.45	53.79	45.88	12.82	10.96	76.05	33.10	34.68
Movement LOS	E	E	E	D	D	D	D	B	B	E	C	C
d_A, Approach Delay [s/veh]	59.19			50.44			27.63			35.19		
Approach LOS	E			D			C			D		
d_I, Intersection Delay [s/veh]	35.58											
Intersection LOS	D											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.235	2.741	0.000	2.908
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	417	317	433
d_b, Bicycle Delay [s]	34.50	37.60	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.720	2.649	2.530	2.116
Bicycle LOS	A	B	B	B

Sequence

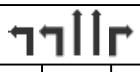
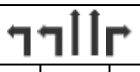
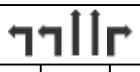
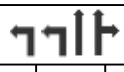
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	37.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.561

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	754	90	148	608	171	182	575	229	108	268	65
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	10	6	0	2	2	35	24	0	9	54	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	177	854	107	166	683	194	239	668	256	130	354	108
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	225	28	44	180	51	63	176	67	34	93	28
Total Analysis Volume [veh/h]	186	899	113	175	719	204	252	703	269	137	373	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	52	0	14	51	0	18	42	0	12	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	61	8	60	60	11	28	28	7	24	24
g / C, Green / Cycle	0.07	0.51	0.07	0.50	0.50	0.09	0.23	0.23	0.06	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.05	0.21	0.13	0.08	0.21	0.18	0.04	0.14	0.14
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1658
c, Capacity [veh/h]	242	1735	230	1722	769	310	803	358	190	357	329
d1, Uniform Delay [s]	54.63	19.84	54.88	18.79	17.14	53.37	44.26	42.68	55.63	44.86	44.94
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.05	1.11	5.12	0.75	0.84	5.10	3.22	3.46	5.08	2.58	2.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.52	0.76	0.42	0.27	0.81	0.88	0.75	0.72	0.71	0.71
d, Delay for Lane Group [s/veh]	59.69	20.95	60.00	19.54	17.98	58.48	47.47	46.15	60.71	47.45	47.84
Lane Group LOS	E	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.93	8.53	2.76	6.40	3.40	3.95	10.38	7.74	2.17	7.25	6.79
50th-Percentile Queue Length [ft/ln]	73.28	213.18	69.09	160.0	84.98	98.71	259.3	193.4	54.34	181.3	169.6
95th-Percentile Queue Length [veh/ln]	5.28	13.32	4.97	10.55	6.12	7.11	15.66	12.30	3.91	11.67	11.06
95th-Percentile Queue Length [ft/ln]	131.90	332.90	124.3	263.7	152.9	177.6	391.4	307.5	97.82	291.7	276.4

Movement, Approach, & Intersection Results

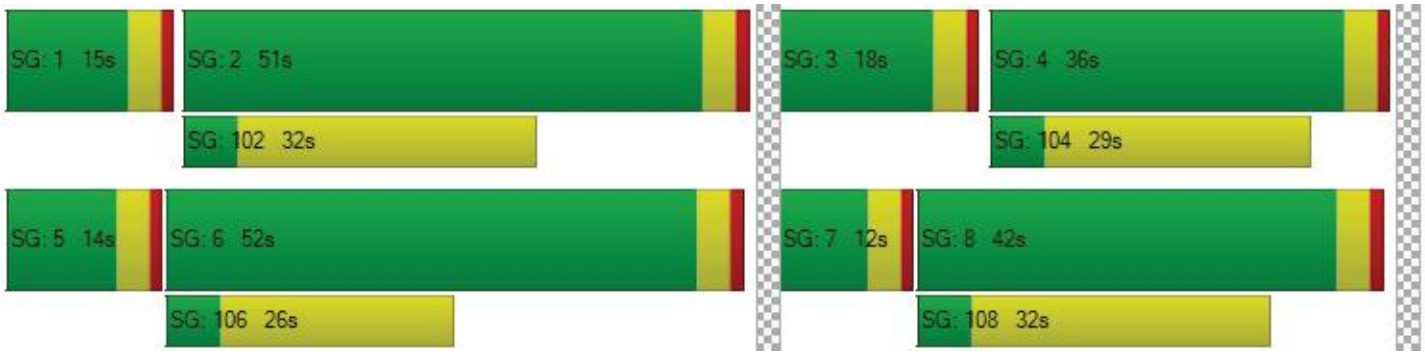
d_M, Delay for Movement [s/veh]	59.69	20.95	0.00	60.00	19.54	17.98	58.48	47.47	46.15	60.71	47.57	47.84
Movement LOS	E	C		E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	27.59			25.70			49.45			50.51		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.26											
Intersection LOS	D											
Intersection V/C	0.561											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.010	2.938	2.983	2.712
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	783	633	533
d_b, Bicycle Delay [s]	21.60	22.20	28.02	32.27
l_b,int, Bicycle LOS Score for Intersection	2.455	2.465	2.569	2.074
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	62.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.858

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	492	3	0	1	0	791	45	140	261	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	35	0	61	0	0	0	0	29	0	90	64	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	612	3	0	1	0	915	50	247	356	2
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	161	1	0	0	0	241	13	65	94	1
Total Analysis Volume [veh/h]	92	3	644	3	0	1	0	963	53	260	375	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	52	0	9	52	0	9	37	0	22	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	52	57	0	33	33	18	51	51
g / C, Green / Cycle	0.47	0.47	0.43	0.47	0.00	0.27	0.27	0.15	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.42	0.00	0.00	0.28	0.03	0.15	0.10	0.10
s, saturation flow rate [veh/h]	1439	1484	1530	839	1714	3427	1530	1714	1800	1797
c, Capacity [veh/h]	708	816	660	486	0	938	419	265	771	769
d1, Uniform Delay [s]	17.35	17.29	33.49	16.86	0.00	43.58	32.79	50.53	21.91	21.91
k, delay calibration	0.13	0.17	0.45	0.11	0.11	0.50	0.50	0.16	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.05	27.69	0.01	0.00	36.36	0.62	26.98	0.75	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.06	0.98	0.01	0.00	1.03	0.13	0.98	0.24	0.24
d, Delay for Lane Group [s/veh]	17.40	17.34	61.19	16.87	0.00	79.94	33.41	77.51	22.66	22.67
Lane Group LOS	B	B	E	B	A	F	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.69	0.78	22.94	0.06	0.00	18.49	1.24	9.75	3.57	3.56
50th-Percentile Queue Length [ft/ln]	17.14	19.53	573.5	1.50	0.00	462.3	31.05	243.6	89.23	89.09
95th-Percentile Queue Length [veh/ln]	1.23	1.41	30.80	0.11	0.00	25.97	2.24	14.87	6.42	6.41
95th-Percentile Queue Length [ft/ln]	30.86	35.16	769.9	2.70	0.00	649.2	55.88	371.6	160.6	160.3

Movement, Approach, & Intersection Results

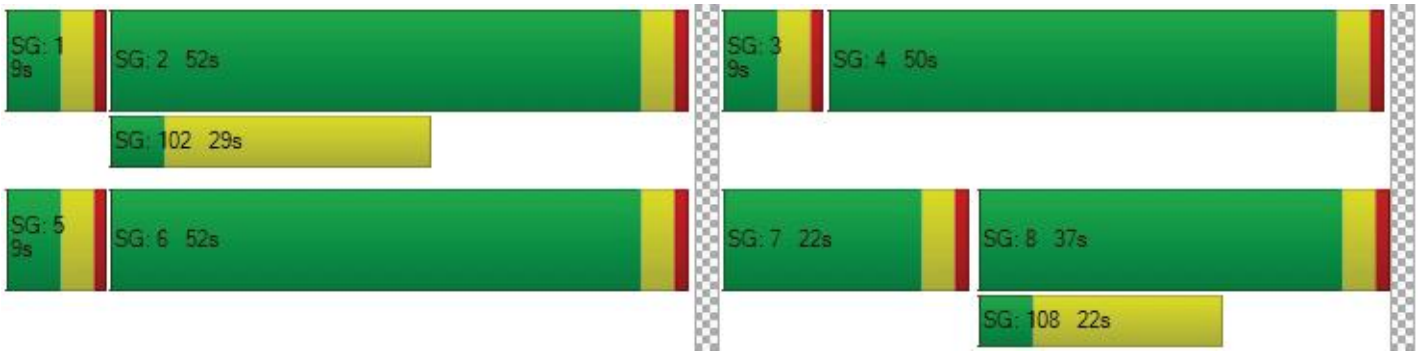
d_M, Delay for Movement [s/veh]	17.40	17.34	61.19	16.87	16.87	16.87	0.00	79.94	33.41	77.51	22.66	22.67
Movement LOS	B	B	E	B	B	B	A	F	C	E	C	C
d_A, Approach Delay [s/veh]	55.55			16.87			77.51			45.05		
Approach LOS	E			B			E			D		
d_I, Intersection Delay [s/veh]	62.01											
Intersection LOS	E											
Intersection V/C	0.858											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.520	0.000	2.951	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	950	550	767
d_b, Bicycle Delay [s]	16.54	16.54	31.54	22.82
l_b,int, Bicycle LOS Score for Intersection	2.779	1.566	2.398	2.085
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.209

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1295	400	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.0000	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	153	0	82	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	153	0	1532	449	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	403	118	0
Total Analysis Volume [veh/h]	0	161	0	1613	473	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.21	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	28.68	10.90	8.32	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.78	0.78	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	19.59	19.59	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.90		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.78					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	48.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	1021	140	76	775	225	468	667	302	75	184	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	130	0	10	159	1	82	0	0	0	0	18
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	1274	157	95	1027	253	606	747	338	84	206	83
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	335	41	25	270	67	159	197	89	22	54	22
Total Analysis Volume [veh/h]	77	1341	165	100	1081	266	638	786	356	88	217	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	28	0	11	30	30	45	55	0	26	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	43	43	7	45	90	41	46	8	13	13
g / C, Green / Cycle	0.04	0.36	0.36	0.06	0.37	0.75	0.34	0.39	0.07	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.04	0.29	0.29	0.06	0.22	0.17	0.37	0.23	0.05	0.09	0.09
s, saturation flow rate [veh/h]	1714	3427	1701	1714	4903	1530	1714	3427	1714	1800	1630
c, Capacity [veh/h]	71	1217	604	100	1823	1142	586	1327	113	201	182
d1, Uniform Delay [s]	57.50	35.33	35.34	56.50	30.38	4.66	39.50	29.23	55.17	51.88	52.05
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	71.86	6.52	12.33	41.83	1.43	0.48	63.79	0.42	10.85	6.49	8.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	0.83	0.83	1.00	0.59	0.23	1.09	0.59	0.78	0.78	0.81
d, Delay for Lane Group [s/veh]	129.3	41.86	47.66	98.33	31.81	5.14	103.29	29.65	66.03	58.36	60.29
Lane Group LOS	F	D	D	F	C	A	F	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.59	14.35	15.22	4.19	8.58	1.93	27.34	9.02	2.96	4.96	4.74
50th-Percentile Queue Length [ft/ln]	89.79	358.6	380.4	104.7	214.4	48.34	683.39	225.57	74.09	124.0	118.5
95th-Percentile Queue Length [veh/ln]	6.47	20.56	21.62	7.54	13.38	3.48	38.03	13.95	5.33	8.61	8.31
95th-Percentile Queue Length [ft/ln]	161.6	513.9	540.4	188.5	334.5	87.00	950.72	348.73	133.3	215.3	207.7

Movement, Approach, & Intersection Results

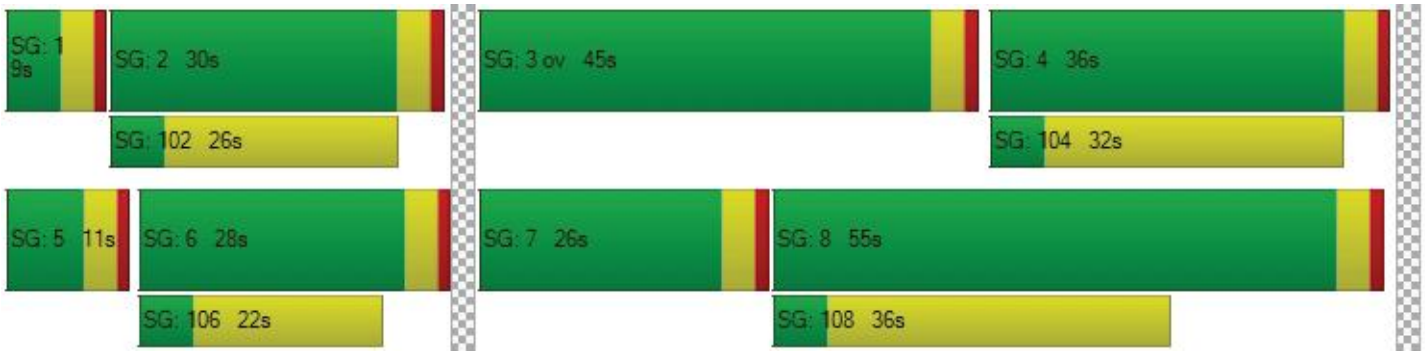
d_M, Delay for Movement [s/veh]	129.3	43.31	47.66	98.33	31.81	5.14	103.2	29.65	0.00	66.03	58.90	60.29
Movement LOS	F	D	D	F	C	A	F	C		E	E	E
d_A, Approach Delay [s/veh]	47.95			31.50			62.64			60.81		
Approach LOS	D			C			E			E		
d_I, Intersection Delay [s/veh]	48.40											
Intersection LOS	D											
Intersection V/C	0.814											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.163	3.169	2.791	2.596
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	433	850	533
d_b, Bicycle Delay [s]	38.40	36.82	19.84	32.27
l_b,int, Bicycle LOS Score for Intersection	2.430	2.355	2.734	1.883
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.516

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	17	158	25	39	100	35	68	546	12	13	227	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	1	0	0	0	5	0	0	10	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	177	28	45	112	39	76	617	13	15	264	39
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	47	7	12	29	10	20	162	3	4	69	10
Total Analysis Volume [veh/h]	20	186	29	47	118	41	80	649	14	16	278	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	81	88	0	9	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	59	59	7	47	2	42	42
g / C, Green / Cycle	0.49	0.49	0.06	0.39	0.02	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.14	0.13	0.05	0.37	0.01	0.15	0.03
s, saturation flow rate [veh/h]	1720	1590	1714	1793	1714	1800	1530
c, Capacity [veh/h]	881	821	105	698	30	622	528
d1, Uniform Delay [s]	17.78	17.48	55.46	35.49	58.49	30.40	26.42
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.74	0.73	10.73	7.79	14.32	0.50	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.25	0.76	0.95	0.54	0.45	0.08
d, Delay for Lane Group [s/veh]	18.52	18.21	66.19	43.28	72.81	30.91	26.48
Lane Group LOS	B	B	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.98	3.44	2.70	19.89	0.60	6.30	0.81
50th-Percentile Queue Length [ft/ln]	99.48	85.99	67.48	497.17	15.01	157.6	20.14
95th-Percentile Queue Length [veh/ln]	7.16	6.19	4.86	27.20	1.08	10.42	1.45
95th-Percentile Queue Length [ft/ln]	179.06	154.79	121.46	680.01	27.03	260.5	36.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.52	18.52	18.52	18.21	18.21	18.21	66.19	43.28	43.28	72.81	30.91	26.48
Movement LOS	B	B	B	B	B	B	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	18.52			18.21			45.75			32.37		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	34.85											
Intersection LOS	C											
Intersection V/C	0.516											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.917	1.980	2.439	0.000
Crosswalk LOS	A	A	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	200
d_b, Bicycle Delay [s]	42.50	42.50	5.40	48.60
l_b,int, Bicycle LOS Score for Intersection	1.947	1.900	2.786	2.112
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	5	19	54	26	3	0	14	23	8	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	9	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	30	60	29	3	0	16	26	9	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	8	16	8	1	0	4	7	2	3
Total Analysis Volume [veh/h]	6	32	63	31	3	0	17	27	9	14
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	11	11
g / C, Green / Cycle	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.08	0.04
s, saturation flow rate [veh/h]	1676	1604
c, Capacity [veh/h]	198	191
d1, Uniform Delay [s]	53.25	51.11
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	4.05	1.10
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.35
d, Delay for Lane Group [s/veh]	57.31	52.21
Lane Group LOS	E	D
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	4.22	1.96
50th-Percentile Queue Length [ft/ln]	105.58	49.03
95th-Percentile Queue Length [veh/ln]	7.59	3.53
95th-Percentile Queue Length [ft/ln]	189.83	88.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.31	57.31	57.31	57.31	57.31	52.21	52.21	52.21	52.21	52.21
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	57.31					52.21				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	28.22									
Intersection LOS	C									
Intersection V/C	0.498									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.867	1.991
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.725	1.619
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	8	128	402	18	1	6	12	184	18	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	6	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	143	450	26	1	7	13	207	20	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	38	118	7	0	2	3	54	5	3
Total Analysis Volume [veh/h]	9	151	474	27	1	7	14	218	21	11
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	63	0	0	9	0	63	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	79	72	79	69	69
g / C, Green / Cycle	0.66	0.60	0.66	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.13	0.28	0.02	0.12	0.02
s, saturation flow rate [veh/h]	1207	1782	957	1800	1530
c, Capacity [veh/h]	807	1074	563	1029	875
d1, Uniform Delay [s]	8.07	13.21	8.90	12.52	11.24
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	1.46	0.03	0.47	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.47	0.04	0.21	0.04
d, Delay for Lane Group [s/veh]	8.62	14.67	8.93	12.99	11.32
Lane Group LOS	A	B	A	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.63	7.67	0.19	2.96	0.39
50th-Percentile Queue Length [ft/ln]	40.71	191.70	4.64	73.93	9.77
95th-Percentile Queue Length [veh/ln]	2.93	12.21	0.33	5.32	0.70
95th-Percentile Queue Length [ft/ln]	73.28	305.24	8.35	133.07	17.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.62	8.62	14.67	14.67	14.67	8.93	8.93	12.99	11.32	11.32
Movement LOS	A	A	B	B	B	A	A	B	B	B
d_A, Approach Delay [s/veh]	13.21					12.48				
Approach LOS	B					B				
d_I, Intersection Delay [s/veh]	28.22									
Intersection LOS	C									
Intersection V/C	0.498									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.375	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983
d_b, Bicycle Delay [s]	15.50	15.50
l_b,int, Bicycle LOS Score for Intersection	2.401	1.966
Bicycle LOS	B	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	7	16	152	12	4	4	7	52	62	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	18	170	13	4	4	8	58	69	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	5	45	3	1	1	2	15	18	1
Total Analysis Volume [veh/h]	8	19	179	14	4	4	8	61	73	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	29	0	0	0	0	29	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	18
g / C, Green / Cycle	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.13	0.04	0.05
s, saturation flow rate [veh/h]	1707	1652	1530
c, Capacity [veh/h]	285	278	225
d1, Uniform Delay [s]	50.14	45.48	45.89
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	4.78	0.50	0.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.26	0.33
d, Delay for Lane Group [s/veh]	54.92	45.98	46.75
Lane Group LOS	D	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.96	1.98	2.07
50th-Percentile Queue Length [ft/ln]	174.00	49.54	51.70
95th-Percentile Queue Length [veh/ln]	11.29	3.57	3.72
95th-Percentile Queue Length [ft/ln]	282.17	89.17	93.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.92	54.92	54.92	54.92	54.92	45.98	45.98	45.98	46.75	46.75
Movement LOS	D	D	D	D	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	54.92					46.37				
Approach LOS	D					D				
d_I, Intersection Delay [s/veh]	28.22									
Intersection LOS	C									
Intersection V/C	0.498									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.956	2.283
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	417
d_b, Bicycle Delay [s]	37.60	37.60
l_b,int, Bicycle LOS Score for Intersection	1.875	1.794
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	956	47	48	575	25	53	305	64	44	212	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	37	0	10	50	0	0	0	0	0	1	12
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	1108	53	64	694	28	59	342	72	49	238	92
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	292	14	17	183	7	16	90	19	13	63	24
Total Analysis Volume [veh/h]	204	1166	56	67	731	29	62	360	76	52	251	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	38	67	0	15	44	0	12	28	0	10	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	76	76	6	65	65	6	17	17	5	17	17
g / C, Green / Cycle	0.14	0.63	0.63	0.05	0.55	0.55	0.05	0.15	0.15	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.12	0.34	0.34	0.04	0.21	0.21	0.04	0.12	0.13	0.03	0.10	0.10
s, saturation flow rate [veh/h]	1714	1800	1771	1714	1800	1776	1714	1800	1693	1714	1800	1634
c, Capacity [veh/h]	236	1138	1119	86	980	967	79	263	247	66	249	226
d1, Uniform Delay [s]	50.66	12.34	12.37	56.33	15.80	15.80	56.63	49.96	50.06	57.19	49.48	49.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.21	1.85	1.89	13.99	1.17	1.19	15.34	7.52	8.62	18.04	3.91	4.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.54	0.54	0.78	0.39	0.39	0.78	0.85	0.86	0.78	0.72	0.74
d, Delay for Lane Group [s/veh]	59.87	14.19	14.26	70.32	16.97	16.99	71.97	57.49	58.68	75.22	53.39	54.48
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.60	9.33	9.24	2.34	6.28	6.20	2.20	7.07	6.82	1.90	5.43	5.15
50th-Percentile Queue Length [ft/ln]	164.9	233.2	230.9	58.53	156.9	155.0	54.93	176.6	170.5	47.40	135.6	128.8
95th-Percentile Queue Length [veh/ln]	10.81	14.34	14.22	4.21	10.39	10.28	3.96	11.43	11.11	3.41	9.25	8.88
95th-Percentile Queue Length [ft/ln]	270.2	358.4	355.6	105.3	259.6	257.1	98.88	285.6	277.6	85.32	231.1	221.9

Movement, Approach, & Intersection Results

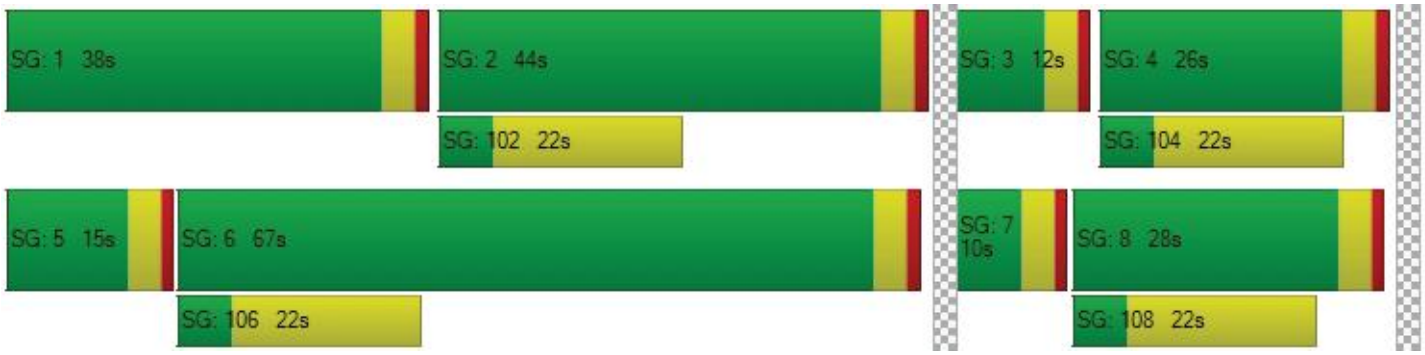
d_M, Delay for Movement [s/veh]	59.87	14.22	14.26	70.32	16.98	16.99	71.97	57.94	58.68	75.22	53.70	54.48
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	20.75			21.30			59.80			56.69		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	31.63											
Intersection LOS	C											
Intersection V/C	0.538											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.761	2.735	2.507	2.612
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	667	400	367
d_b, Bicycle Delay [s]	13.54	26.67	38.40	40.02
l_b,int, Bicycle LOS Score for Intersection	2.736	2.242	1.970	1.890
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	182	958	368	67	880	54	92	340	135	232	281	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	2	21	0	4	21	0	0	1	3	0	2	6
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	1094	412	79	1007	60	103	382	154	260	317	90
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	288	108	21	265	16	27	101	41	68	83	24
Total Analysis Volume [veh/h]	217	1152	434	83	1060	63	108	402	162	274	334	95
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	44	0	11	34	0	18	41	0	24	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	54	54	7	44	44	9	23	23	20	33	33
g / C, Green / Cycle	0.14	0.45	0.45	0.06	0.37	0.37	0.08	0.19	0.19	0.17	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.34	0.28	0.05	0.31	0.04	0.06	0.16	0.17	0.16	0.12	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1627	1714	1800	1665
c, Capacity [veh/h]	242	1550	692	100	1267	566	134	341	308	286	500	463
d1, Uniform Delay [s]	50.68	27.10	25.12	55.91	34.52	24.87	54.43	47.16	47.25	49.59	35.69	35.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.19	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.28	3.26	4.26	15.75	6.68	0.40	10.84	6.81	8.13	23.88	0.62	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.74	0.63	0.83	0.84	0.11	0.81	0.87	0.87	0.96	0.44	0.45
d, Delay for Lane Group [s/veh]	61.96	30.37	29.38	71.66	41.19	25.26	65.27	53.97	55.38	73.48	36.31	36.40
Lane Group LOS	E	C	C	E	D	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.15	14.02	10.12	2.92	15.07	1.25	3.61	9.17	8.49	10.01	5.46	5.09
50th-Percentile Queue Length [ft/ln]	178.8	350.4	252.9	73.09	376.6	31.30	90.36	229.1	212.1	250.3	136.5	127.2
95th-Percentile Queue Length [veh/ln]	11.54	20.16	15.33	5.26	21.43	2.25	6.51	14.13	13.26	15.20	9.29	8.79
95th-Percentile Queue Length [ft/ln]	288.5	503.9	383.3	131.5	535.7	56.34	162.6	353.3	331.5	380.0	232.3	219.7

Movement, Approach, & Intersection Results

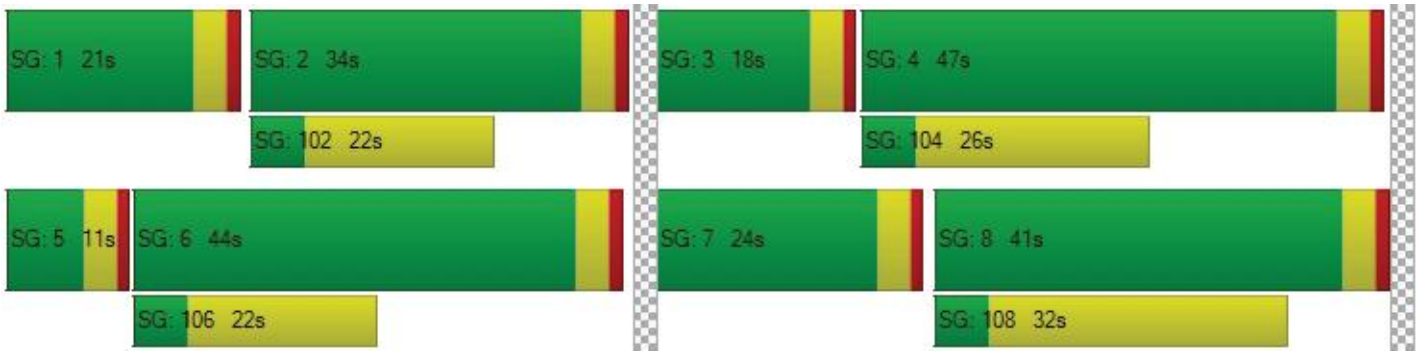
d_M, Delay for Movement [s/veh]	61.96	30.37	29.38	71.66	41.19	25.26	65.27	54.35	55.38	73.48	36.34	36.40
Movement LOS	E	C	C	E	D	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	33.93			42.46			56.35			50.82		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	42.42											
Intersection LOS	D											
Intersection V/C	0.761											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.143	2.884	2.566	2.631
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	500	617	717
d_b, Bicycle Delay [s]	26.67	33.75	28.70	24.70
l_b,int, Bicycle LOS Score for Intersection	3.047	2.555	2.114	2.140
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.362

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	164	64	4	101	23	42	130	1	7	77	12
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	184	72	4	113	26	47	146	1	8	86	13
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	48	19	1	30	7	12	38	0	2	23	3
Total Analysis Volume [veh/h]	0	194	76	4	119	27	49	154	1	8	91	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	746	711	677	611	700
Degree of Utilization, x	0.36	0.21	0.30	0.16	0.02

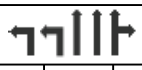
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.66	0.79	1.27	0.58	0.06
95th-Percentile Queue Length [ft]	41.42	19.82	31.66	14.38	1.53
Approach Delay [s/veh]	10.54	9.41	10.59	9.51	
Approach LOS	B	A	B	A	
Intersection Delay [s/veh]	10.17				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.624

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	937	121	64	940	30	75	256	340	136	91	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	16	0	0	11	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	1065	136	72	1064	34	84	287	381	152	102	99
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	76	280	36	19	280	9	22	76	100	40	27	26
Total Analysis Volume [veh/h]	303	1121	143	76	1120	36	88	302	401	160	107	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	38	0	11	33	0	19	60	0	11	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	56	56	7	51	51	8	34	34	7	33	33
g / C, Green / Cycle	0.10	0.47	0.47	0.06	0.42	0.42	0.06	0.29	0.29	0.06	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.25	0.25	0.04	0.22	0.22	0.05	0.09	0.26	0.05	0.03	0.07
s, saturation flow rate [veh/h]	3329	3427	1698	1714	3427	1771	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	333	1599	792	96	1447	748	113	981	438	194	955	426
d1, Uniform Delay [s]	53.47	22.67	22.67	55.98	25.76	25.76	55.20	33.53	41.44	55.89	32.22	33.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.57	1.26	2.52	13.76	1.37	2.65	11.04	0.18	10.02	8.46	0.05	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.53	0.53	0.80	0.53	0.53	0.78	0.31	0.92	0.82	0.11	0.24
d, Delay for Lane Group [s/veh]	63.03	23.92	25.19	69.74	27.13	28.40	66.25	33.71	51.46	64.36	32.28	33.79
Lane Group LOS	E	C	C	E	C	C	E	C	D	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.96	8.63	8.83	2.64	8.29	8.84	2.97	3.49	12.59	2.62	1.17	2.39
50th-Percentile Queue Length [ft/ln]	124.0	215.6	220.7	65.98	207.2	220.9	74.24	87.23	314.7	65.60	29.37	59.87
95th-Percentile Queue Length [veh/ln]	8.61	13.44	13.70	4.75	13.01	13.72	5.34	6.28	18.41	4.72	2.11	4.31
95th-Percentile Queue Length [ft/ln]	215.3	336.1	342.5	118.7	325.3	342.8	133.6	157.0	460.2	118.0	52.86	107.7

Movement, Approach, & Intersection Results

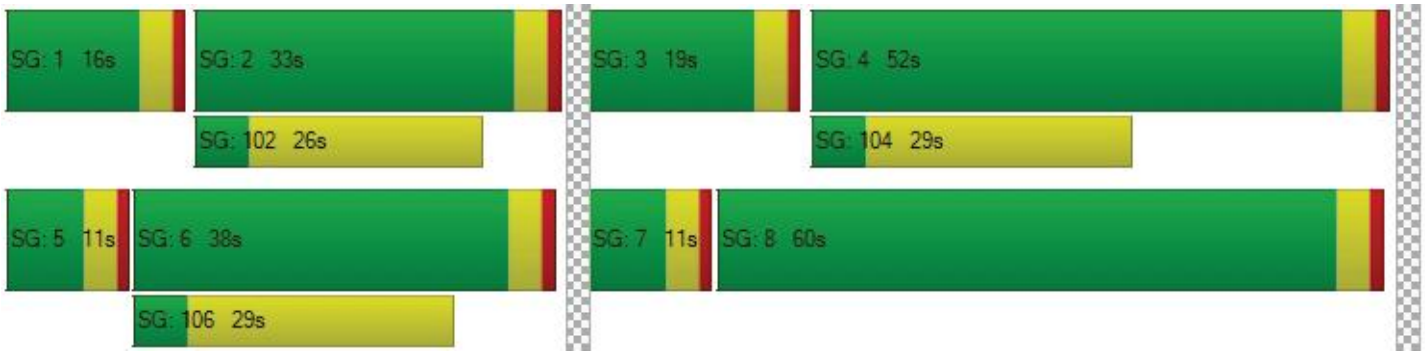
d_M, Delay for Movement [s/veh]	63.03	24.24	25.19	69.74	27.54	28.40	66.25	33.71	51.46	64.36	32.28	33.79
Movement LOS	E	C	C	E	C	C	E	C	D	E	C	C
d_A, Approach Delay [s/veh]	31.82			30.17			46.33			46.53		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.58											
Intersection LOS	D											
Intersection V/C	0.624											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.964	2.669	2.733
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	483	933	800
d_b, Bicycle Delay [s]	30.82	34.50	17.07	21.60
l_b,int, Bicycle LOS Score for Intersection	2.421	2.237	2.212	1.866
Bicycle LOS	B	B	B	A

Sequence

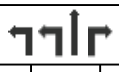
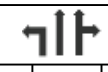
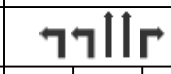
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	61.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	371	673	11	254	25	40	443	23	718	443	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	96	0	0	90	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	512	754	12	374	28	45	496	26	804	496	80
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	135	198	3	98	7	12	131	7	212	131	21
Total Analysis Volume [veh/h]	38	539	794	13	394	29	47	522	27	846	522	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	56	0	9	44	0	13	22	0	33	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	55	55	2	53	53	4	18	18	29	43	43
g / C, Green / Cycle	0.03	0.46	0.46	0.01	0.44	0.44	0.03	0.15	0.15	0.24	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.52	0.01	0.12	0.12	0.03	0.15	0.02	0.25	0.15	0.05
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1757	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	103	828	704	25	800	781	60	514	230	805	1222	546
d1, Uniform Delay [s]	57.01	24.96	32.39	58.67	21.03	21.05	57.44	51.00	44.13	45.50	29.30	26.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.22	3.95	74.86	14.89	0.82	0.85	19.32	22.38	0.23	30.65	0.24	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.65	1.13	0.51	0.27	0.27	0.78	1.02	0.12	1.05	0.43	0.15
d, Delay for Lane Group [s/veh]	59.23	28.91	107.2	73.57	21.84	21.89	76.75	73.38	44.35	76.15	29.54	26.41
Lane Group LOS	E	C	F	E	C	C	E	F	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.60	12.53	34.34	0.50	3.96	3.90	1.74	9.29	0.71	15.30	5.75	1.67
50th-Percentile Queue Length [ft/ln]	14.93	313.3	858.5	12.45	99.06	97.62	43.45	232.3	17.85	382.6	143.8	41.73
95th-Percentile Queue Length [veh/ln]	1.08	18.34	48.00	0.90	7.13	7.03	3.13	14.40	1.28	22.35	9.69	3.00
95th-Percentile Queue Length [ft/ln]	26.88	458.4	1200.	22.40	178.3	175.7	78.20	359.8	32.12	558.8	242.2	75.11

Movement, Approach, & Intersection Results

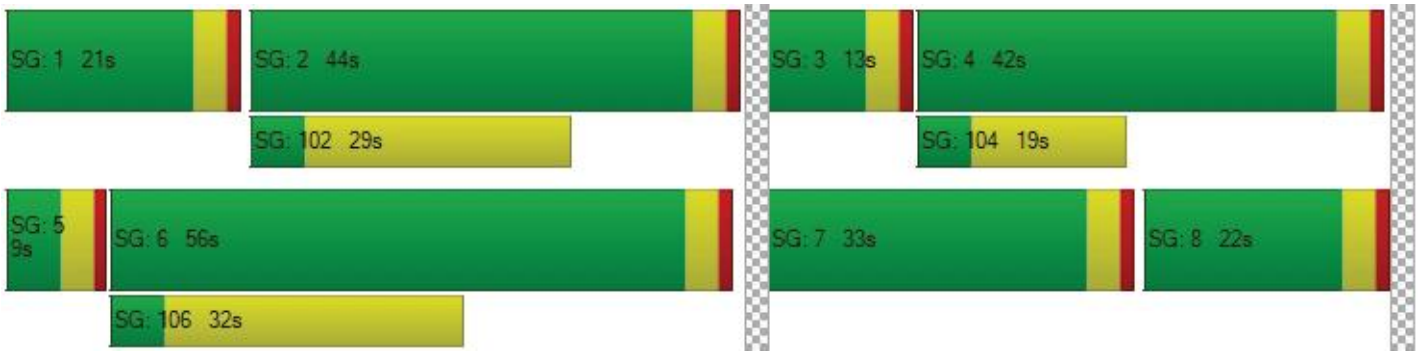
d_M, Delay for Movement [s/veh]	59.23	28.91	107.2	73.57	21.87	21.89	76.75	73.38	44.35	76.15	29.54	26.41
Movement LOS	E	C	F	E	C	C	E	F	D	F	C	C
d_A, Approach Delay [s/veh]	75.12			23.41			72.33			56.52		
Approach LOS	E			C			E			E		
d_I, Intersection Delay [s/veh]	61.83											
Intersection LOS	E											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.416	2.774	3.080
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	667	300	633
d_b, Bicycle Delay [s]	19.27	26.67	43.35	28.02
l_b,int, Bicycle LOS Score for Intersection	3.822	1.919	2.051	2.758
Bicycle LOS	D	A	B	C

Sequence

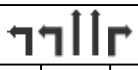
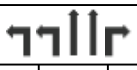
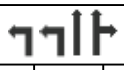
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	53.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	247	951	696	98	948	67	178	452	354	395	240	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	129	0	2	157	0	0	0	0	0	0	1
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	277	1194	780	112	1219	75	199	506	396	442	269	93
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	73	314	205	29	321	20	52	133	104	116	71	24
Total Analysis Volume [veh/h]	292	1257	821	118	1283	79	209	533	417	465	283	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	20	51	0	11	42	0	22	40	40	18	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	61	61	7	52	52	10	22	42	14	27	27
g / C, Green / Cycle	0.13	0.50	0.50	0.06	0.43	0.43	0.08	0.19	0.35	0.12	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.09	0.37	0.54	0.07	0.26	0.05	0.06	0.16	0.27	0.14	0.11	0.11
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1644
c, Capacity [veh/h]	444	1728	771	100	2104	657	275	643	542	388	399	364
d1, Uniform Delay [s]	49.40	23.30	29.75	56.50	26.48	20.62	53.88	46.90	34.40	53.00	40.88	40.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.67	2.72	50.94	101.3	1.33	0.37	4.30	2.83	10.10	94.46	0.97	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.73	1.06	1.18	0.61	0.12	0.76	0.83	0.77	1.20	0.50	0.50
d, Delay for Lane Group [s/veh]	51.07	26.02	80.69	157.8	27.81	20.99	58.18	49.73	44.50	147.4	41.84	41.94
Lane Group LOS	D	C	F	F	C	C	E	D	D	F	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.26	14.17	32.10	5.84	9.60	1.41	3.26	7.90	12.22	10.93	5.27	4.83
50th-Percentile Queue Length [ft/ln]	106.6	354.2	802.4	146.0	239.8	35.28	81.38	197.4	305.5	273.3	131.6	120.6
95th-Percentile Queue Length [veh/ln]	7.65	20.34	43.48	10.27	14.68	2.54	5.86	12.51	17.96	17.54	9.03	8.43
95th-Percentile Queue Length [ft/ln]	191.2	508.6	1087.	256.8	366.8	63.50	146.4	312.6	448.8	438.5	225.7	210.7

Movement, Approach, & Intersection Results

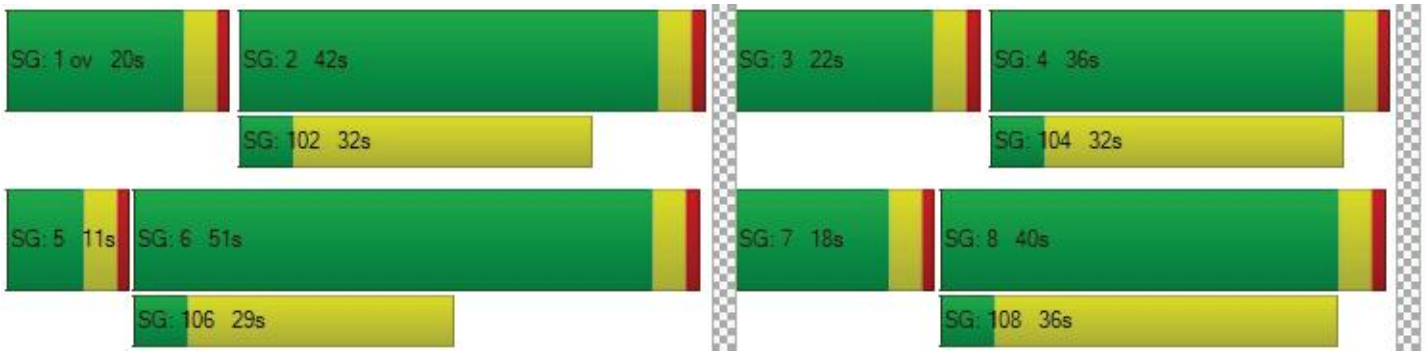
d_M, Delay for Movement [s/veh]	51.07	26.02	80.69	157.8	27.81	20.99	58.18	49.73	44.50	147.4	41.87	41.94
Movement LOS	D	C	F	F	C	C	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	48.04			37.82			49.37			99.92		
Approach LOS	D			D			D			F		
d_I, Intersection Delay [s/veh]	53.22											
Intersection LOS	D											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.356	3.112	2.962	2.932
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	633	600	533
d_b, Bicycle Delay [s]	22.20	28.02	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	3.515	2.374	2.516	2.258
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	5	4	23	3	46	4	21	43	157	1081	15
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	6	4	26	3	52	4	24	48	176	1213	17
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	2	1	7	1	14	1	6	13	46	319	4
Total Analysis Volume [veh/h]	18	6	4	27	3	55	4	25	51	185	1277	18
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	9	9	88	82	82
g / C, Green / Cycle	0.07	0.07	0.73	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.27	0.36	0.36
s, saturation flow rate [veh/h]	1655	1446	885	1800	1791
c, Capacity [veh/h]	157	153	657	1229	1223
d1, Uniform Delay [s]	53.59	55.08	5.93	9.45	9.46
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.33	3.33	1.53	1.63	1.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.57	0.36	0.53	0.53
d, Delay for Lane Group [s/veh]	54.91	58.41	7.46	11.08	11.10
Lane Group LOS	D	E	A	B	B
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.65	2.74	1.95	8.35	8.34
50th-Percentile Queue Length [ft/ln]	41.36	68.46	48.84	208.83	208.41
95th-Percentile Queue Length [veh/ln]	2.98	4.93	3.52	13.09	13.07
95th-Percentile Queue Length [ft/ln]	74.45	123.23	87.92	327.32	326.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.91	54.91	54.91	54.91	58.41	58.41	58.41	58.41	7.46	7.46	11.09	11.10
Movement LOS	D	D	D	D	E	E	E	E	A	A	B	B
d_A, Approach Delay [s/veh]	54.91				58.41				10.53			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	16.05											
Intersection LOS	B											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.777	0.000	2.861
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	467
d_b, Bicycle Delay [s]	45.94	45.94	35.27
l_b,int, Bicycle LOS Score for Intersection	1.606	1.612	2.670
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	10	487	53	23	5	6	94	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	546	59	26	6	7	105	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	144	16	7	2	2	28	1
Total Analysis Volume [veh/h]	12	575	62	27	6	7	111	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	32	0	0	0	60	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	76	76	76	12
g / C, Green / Cycle	0.01	0.63	0.63	0.63	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.13	0.19	0.06	0.08
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1551
c, Capacity [veh/h]	24	1141	1141	970	154
d1, Uniform Delay [s]	58.75	9.24	9.94	8.54	52.99
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.32	0.40	0.68	0.19	10.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.20	0.30	0.09	0.82
d, Delay for Lane Group [s/veh]	74.06	9.64	10.62	8.73	63.15
Lane Group LOS	E	A	B	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.46	2.60	4.16	0.93	4.16
50th-Percentile Queue Length [ft/ln]	11.60	65.11	103.89	23.24	104.01
95th-Percentile Queue Length [veh/ln]	0.84	4.69	7.48	1.67	7.49
95th-Percentile Queue Length [ft/ln]	20.89	117.21	187.01	41.82	187.21

Movement, Approach, & Intersection Results

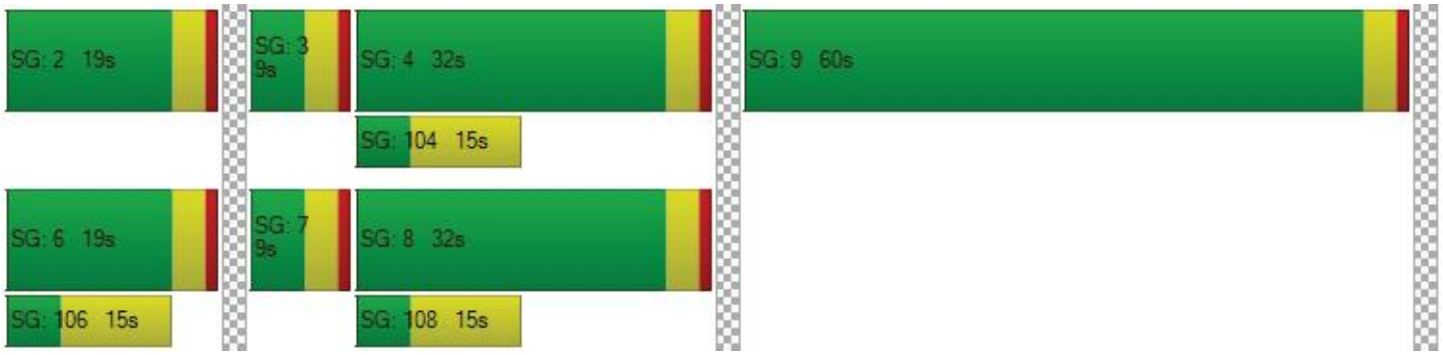
d_M, Delay for Movement [s/veh]	74.06	10.22	10.62	8.73	63.15	63.15	63.15	63.15
Movement LOS	E	B	B	A	E	E	E	E
d_A, Approach Delay [s/veh]	11.16				63.15			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	16.05							
Intersection LOS	B							
Intersection V/C	0.509							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.199
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	933
d_b, Bicycle Delay [s]	35.27	17.07
l_b,int, Bicycle LOS Score for Intersection	2.095	1.764
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	369.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.411

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	2	18	74	0	20	117	1003	7	7	509	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	2	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	2	20	83	0	22	131	1125	8	8	571	140
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	1	5	22	0	6	34	296	2	2	150	37
Total Analysis Volume [veh/h]	4	2	21	87	0	23	138	1184	8	8	601	147
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

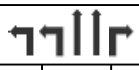
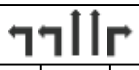
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.06	0.05	1.41	0.00	0.04	0.16	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	92.08	110.5	18.95	369.4	401.0	10.94	9.92	0.00	0.00	11.16	0.00	0.00
Movement LOS	F	F	C	F	F	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.68	0.68	0.68	7.51	7.51	0.11	0.56	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	17.00	17.00	17.00	187.7	187.7	2.84	14.06	0.00	0.00	1.03	0.00	0.00
d_A, Approach Delay [s/veh]	36.57			294.51			1.03			0.12		
Approach LOS	E			F			A			A		
d_I, Intersection Delay [s/veh]	15.67											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	48.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.779

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	553	970	285	96	540	41	70	663	405	158	753	183
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	34	0	0	50	0	0	2	0	0	1	3
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	619	1120	319	108	655	46	78	745	454	177	844	208
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	163	295	84	28	172	12	21	196	119	47	222	55
Total Analysis Volume [veh/h]	652	1179	336	114	689	48	82	784	478	186	888	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	49	0	13	33	0	12	46	0	12	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	47	47	9	31	31	5	40	40	8	43	43
g / C, Green / Cycle	0.21	0.39	0.39	0.08	0.26	0.26	0.04	0.33	0.33	0.07	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.20	0.34	0.22	0.07	0.21	0.21	0.02	0.23	0.31	0.06	0.32	0.32
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1759	3329	3427	1530	3329	1800	1679
c, Capacity [veh/h]	694	1344	600	129	466	455	133	1141	509	222	647	604
d1, Uniform Delay [s]	46.76	33.79	28.40	54.99	41.56	41.56	56.71	34.63	38.85	55.36	36.03	36.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.38	0.11	0.35	0.35
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.99	8.31	3.75	17.59	13.42	13.72	4.63	0.75	22.79	8.16	11.84	13.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.88	0.56	0.89	0.80	0.80	0.62	0.69	0.94	0.84	0.88	0.89
d, Delay for Lane Group [s/veh]	53.75	42.09	32.15	72.59	54.98	55.28	61.34	35.38	61.64	63.51	47.87	49.41
Lane Group LOS	D	D	C	E	D	E	E	D	E	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.20	17.16	8.10	4.04	11.99	11.76	1.31	9.96	16.68	3.03	17.55	16.76
50th-Percentile Queue Length [ft/ln]	255.0	429.0	202.6	101.0	299.7	294.0	32.75	248.9	417.0	75.80	438.6	419.0
95th-Percentile Queue Length [veh/ln]	15.44	23.96	12.77	7.27	17.67	17.38	2.36	15.13	23.38	5.46	24.42	23.47
95th-Percentile Queue Length [ft/ln]	385.9	598.9	319.3	181.8	441.7	434.6	58.95	378.3	584.4	136.4	610.4	586.8

Movement, Approach, & Intersection Results

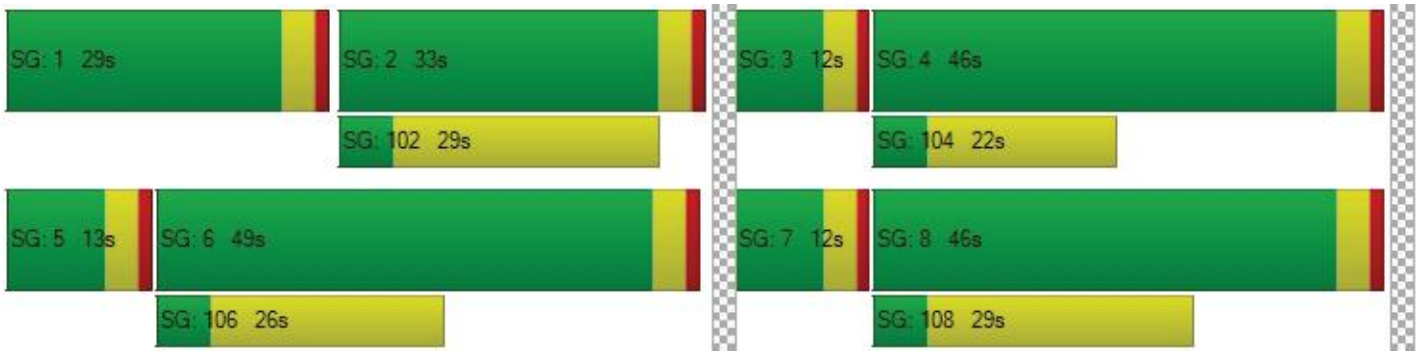
d_M, Delay for Movement [s/veh]	53.75	42.09	32.15	72.59	55.12	55.28	61.34	35.38	61.64	63.51	48.42	49.41
Movement LOS	D	D	C	E	E	E	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	44.06			57.47			46.30			50.76		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	48.14											
Intersection LOS	D											
Intersection V/C	0.779											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.099	2.770	3.018	3.049
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	483	700	700
d_b, Bicycle Delay [s]	23.44	34.50	25.35	25.35
l_b,int, Bicycle LOS Score for Intersection	3.347	2.262	2.668	2.626
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	60.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.910

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	236	1176	727	154	1201	87	267	863	219	633	638	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	4	15	0	5	18	0	0	0	2	0	0	8
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	1332	814	177	1363	97	299	967	247	709	715	127
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	71	351	214	47	359	26	79	254	65	187	188	33
Total Analysis Volume [veh/h]	282	1402	857	186	1435	102	315	1018	260	746	753	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	40	40	10	36	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	41	68	6	37	37	14	34	34	23	43	53
g / C, Green / Cycle	0.08	0.34	0.57	0.05	0.31	0.31	0.12	0.28	0.28	0.19	0.36	0.44
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.56	0.06	0.30	0.30	0.09	0.25	0.25	0.22	0.22	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1740	3329	3427	1619	3329	3427	2708
c, Capacity [veh/h]	277	1682	869	166	1061	539	389	966	456	638	1223	1192
d1, Uniform Delay [s]	55.00	36.26	25.45	57.00	40.69	40.71	51.68	41.42	41.44	48.50	31.82	19.79
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.30	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.30	5.02	27.34	69.69	19.54	30.27	4.05	3.31	15.54	80.11	0.51	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.83	0.99	1.12	0.96	0.96	0.81	0.90	0.90	1.17	0.62	0.11
d, Delay for Lane Group [s/veh]	84.30	41.28	52.79	126.6	60.23	70.98	55.73	44.73	56.97	128.6	32.33	19.83
Lane Group LOS	F	D	D	F	E	E	E	D	E	F	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.32	13.22	29.03	4.13	17.48	19.37	4.84	12.67	13.54	16.60	9.03	1.12
50th-Percentile Queue Length [ft/ln]	132.9	330.6	725.7	103.3	436.8	484.2	121.0	316.8	338.4	414.8	225.8	27.95
95th-Percentile Queue Length [veh/ln]	9.15	19.19	37.86	7.44	24.33	26.59	8.45	18.51	19.57	25.14	13.96	2.01
95th-Percentile Queue Length [ft/ln]	228.7	479.7	946.6	185.9	608.2	664.6	211.2	462.8	489.3	628.5	349.0	50.31

Movement, Approach, & Intersection Results

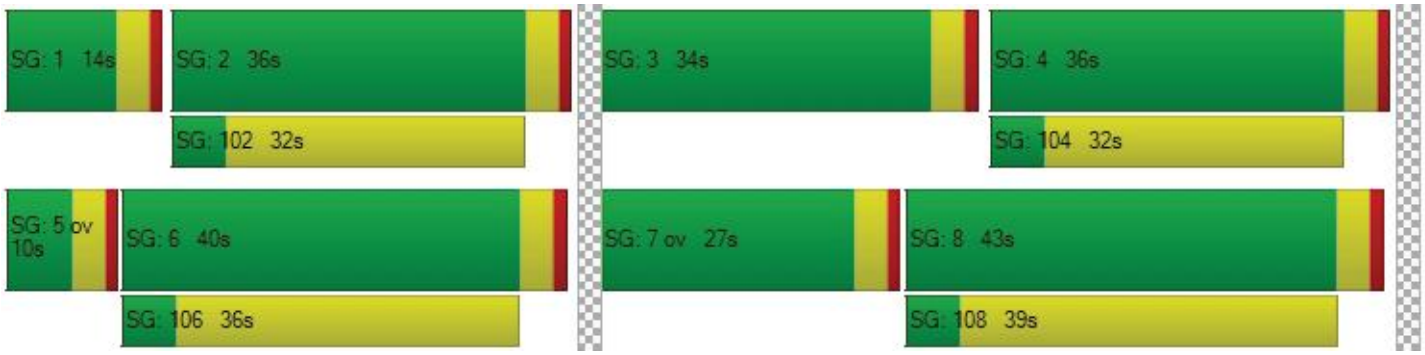
d_M, Delay for Movement [s/veh]	84.30	41.28	52.79	126.6	63.35	70.98	55.73	46.54	56.97	128.6	32.33	19.83
Movement LOS	F	D	D	F	E	E	E	D	E	F	C	B
d_A, Approach Delay [s/veh]	49.94			70.64			50.06			75.29		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	60.25											
Intersection LOS	E											
Intersection V/C	0.910											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.467	3.176	3.073	3.265
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.957	2.507	2.436	2.907
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.542

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	986	622	0	1033	422	0	0	0	347	0	432
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	16	0	0	5	6	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1120	622	0	1162	479	0	0	0	389	0	484
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	295	164	0	306	126	0	0	0	102	0	127
Total Analysis Volume [veh/h]	0	1179	655	0	1223	504	0	0	0	409	0	509
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	68	0	0	68	0	0	0	0	52	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85		27	27	27
g / C, Green / Cycle	0.71	0.71		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.34	0.25		0.18	0.19	0.20
s, saturation flow rate [veh/h]	3427	4903		1714	1585	1530
c, Capacity [veh/h]	2414	3453		393	363	351
d1, Uniform Delay [s]	8.00	6.99		43.54	44.15	44.44
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	0.29		3.60	5.24	6.33
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.35		0.79	0.84	0.86
d, Delay for Lane Group [s/veh]	8.71	7.28		47.15	49.39	50.77
Lane Group LOS	A	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.48	3.86		9.05	9.16	9.23
50th-Percentile Queue Length [ft/ln]	162.03	96.62		226.3	228.8	230.6
95th-Percentile Queue Length [veh/ln]	10.66	6.96		13.99	14.12	14.21
95th-Percentile Queue Length [ft/ln]	266.41	173.91		349.7	352.9	355.2

Movement, Approach, & Intersection Results

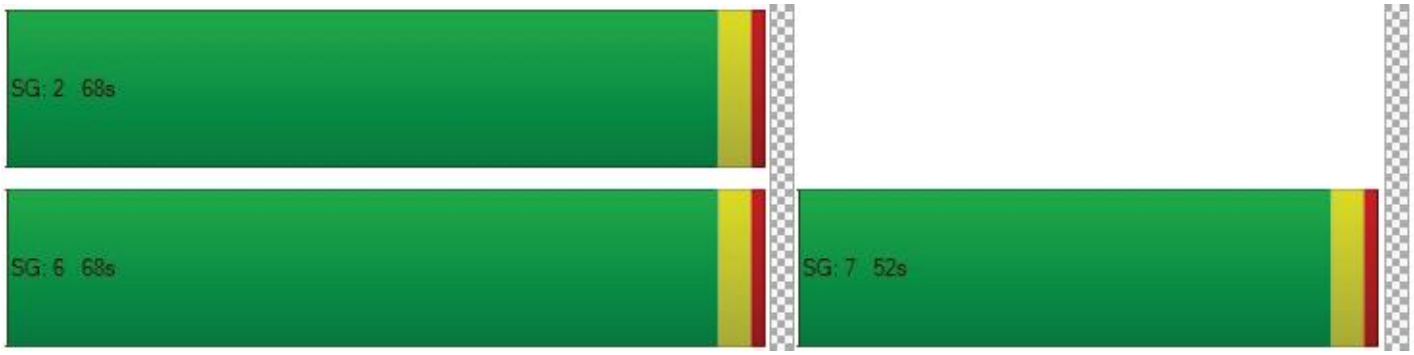
d_M, Delay for Movement [s/veh]	0.00	8.71	0.00	0.00	7.28	0.00	0.00	0.00	0.00	47.70	0.00	50.22
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	8.71			7.28			0.00			49.09		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.35											
Intersection LOS	B											
Intersection V/C	0.542											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	1067	0	800
d_b, Bicycle Delay [s]	13.07	13.07	60.00	21.60
l_b,int, Bicycle LOS Score for Intersection	2.532	2.232	4.132	3.074
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1339	389	0	1805	0	0	0	0	518	0	492
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	47	0	0	150	0	0	0	0	0	0	82
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1547	436	0	2172	0	0	0	0	580	0	633
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	407	115	0	572	0	0	0	0	153	0	167
Total Analysis Volume [veh/h]	0	1628	459	0	2286	0	0	0	0	611	0	666
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	19	0	0	19	0	0	0	0	101	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	56	56		56	56
g / C, Green / Cycle	0.47	0.47		0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.33	0.35		0.18	0.44
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	2288	3050		1554	714
d1, Uniform Delay [s]	25.56	26.25		20.90	30.21
k, delay calibration	0.50	0.50		0.11	0.13
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.91	1.74		0.16	7.29
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.75		0.39	0.93
d, Delay for Lane Group [s/veh]	27.47	27.99		21.06	37.51
Lane Group LOS	C	C		C	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	12.49	13.45		5.61	19.03
50th-Percentile Queue Length [ft/ln]	312.37	336.13		140.31	475.67
95th-Percentile Queue Length [veh/ln]	18.29	19.46		9.50	26.18
95th-Percentile Queue Length [ft/ln]	457.30	486.47		237.44	654.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	27.47	0.00	0.00	27.99	0.00	0.00	0.00	0.00	21.06	0.00	37.51
Movement LOS		C			C					C		D
d_A, Approach Delay [s/veh]	27.47			27.99			0.00			29.64		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	28.23											
Intersection LOS	C											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	0	1617
d_b, Bicycle Delay [s]	45.94	45.94	60.00	2.20
l_b,int, Bicycle LOS Score for Intersection	2.455	2.503	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.549

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1075	256	0	892	474	0	0	0	240	0	498
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	8	0	0	50	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1212	256	0	1049	474	0	0	0	269	0	584
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	319	67	0	276	125	0	0	0	71	0	154
Total Analysis Volume [veh/h]	0	1276	269	0	1104	499	0	0	0	283	0	615
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	58	0	0	58	0	0	0	0	62	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	81	81		31	31
g / C, Green / Cycle	0.68	0.68		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.26	0.32		0.17	0.23
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3309	2313		443	700
d1, Uniform Delay [s]	8.57	9.36		39.52	42.69
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.34	0.71		1.54	3.77
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.48		0.64	0.88
d, Delay for Lane Group [s/veh]	8.91	10.06		41.06	46.45
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	4.66	6.68		7.60	9.06
50th-Percentile Queue Length [ft/ln]	116.54	167.04		189.98	226.59
95th-Percentile Queue Length [veh/ln]	8.20	10.92		12.12	14.00
95th-Percentile Queue Length [ft/ln]	205.06	273.02		303.01	350.02

Movement, Approach, & Intersection Results

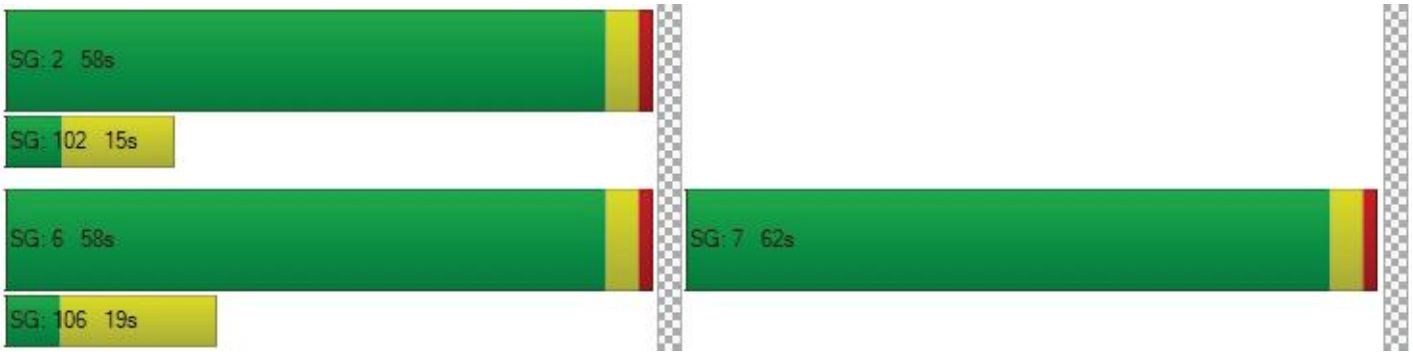
d_M, Delay for Movement [s/veh]	0.00	8.91	0.00	0.00	10.06	0.00	0.00	0.00	0.00	41.06	0.00	46.45
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	8.91			10.06			0.00			44.75		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	19.12											
Intersection LOS	B											
Intersection V/C	0.549											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.365
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	0	967
d_b, Bicycle Delay [s]	18.15	18.15	60.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.261	2.470	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1287	562	0	969	394	298	0	392	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	0	5	0	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1449	562	0	1090	394	306	0	392	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	381	148	0	287	104	81	0	103	0	0	0
Total Analysis Volume [veh/h]	0	1525	592	0	1147	415	322	0	413	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	34	0	0	34	0	86	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	76	76	36	36	
g / C, Green / Cycle	0.64	0.64	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.31	0.33	0.10	0.27	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	3120	2181	989	454	
d1, Uniform Delay [s]	11.52	11.93	32.83	40.61	
k, delay calibration	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.55	0.91	0.19	7.25	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.49	0.53	0.33	0.91	
d, Delay for Lane Group [s/veh]	12.07	12.84	33.02	47.86	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	6.96	8.22	3.69	12.55	
50th-Percentile Queue Length [ft/ln]	173.88	205.40	92.34	313.87	
95th-Percentile Queue Length [veh/ln]	11.28	12.92	6.65	18.37	
95th-Percentile Queue Length [ft/ln]	282.00	322.92	166.21	459.15	

Movement, Approach, & Intersection Results

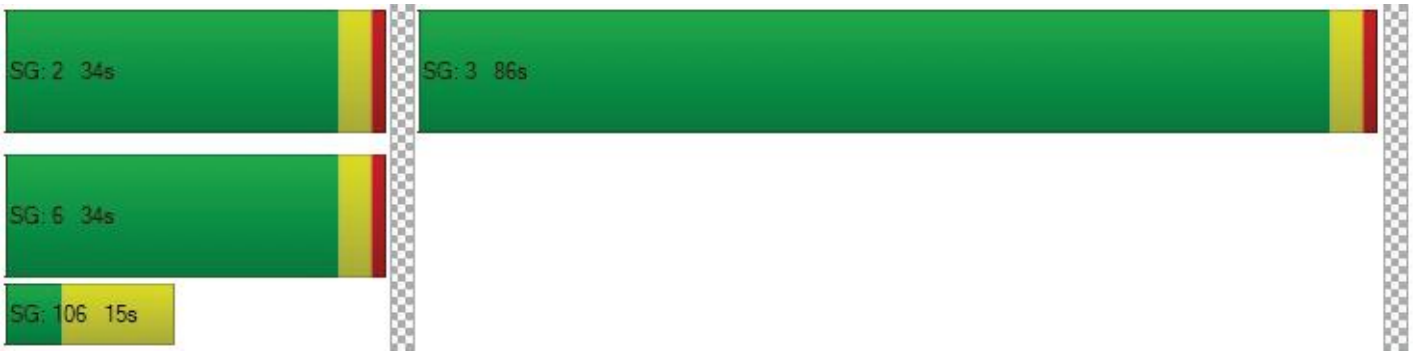
d_M, Delay for Movement [s/veh]	0.00	12.07	0.00	0.00	12.84	0.00	33.02	0.00	47.86	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	12.07			12.84			41.36			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	18.65											
Intersection LOS	B											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	1367	0
d_b, Bicycle Delay [s]	33.75	33.75	6.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.398	2.506	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.828

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1236	419	513	1182	0	509	43	548	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	39	0	123	28	0	7	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1423	469	698	1352	0	577	48	614	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	374	123	184	356	0	152	13	162	0	0	0
Total Analysis Volume [veh/h]	0	1498	494	735	1423	0	607	51	646	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	35	76	0	0	44	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	29	75	37	37	37	
g / C, Green / Cycle	0.35	0.35	0.24	0.63	0.31	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.31	0.32	0.22	0.29	0.25	0.27	0.28	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1628	1530	
c, Capacity [veh/h]	1725	538	798	3064	529	502	472	
d1, Uniform Delay [s]	36.31	37.24	44.50	11.90	38.44	39.14	40.08	
k, delay calibration	0.50	0.50	0.11	0.50	0.28	0.31	0.35	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.24	23.04	4.97	0.51	8.11	12.08	20.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.87	0.92	0.92	0.46	0.82	0.87	0.92	
d, Delay for Lane Group [s/veh]	42.54	60.27	49.47	12.40	46.55	51.22	60.12	
Lane Group LOS	D	E	D	B	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	14.45	17.09	11.15	6.57	12.94	13.65	14.88	
50th-Percentile Queue Length [ft/ln]	361.16	427.29	278.64	164.19	323.4	341.2	371.9	
95th-Percentile Queue Length [veh/ln]	20.68	23.87	16.62	10.77	18.84	19.71	21.20	
95th-Percentile Queue Length [ft/ln]	517.00	596.79	415.52	269.26	470.9	492.7	530.0	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	42.54	60.27	49.47	12.40	0.00	47.88	51.22	57.21	0.00	0.00	0.00
Movement LOS		D	E	D	B		D	D	E			
d_A, Approach Delay [s/veh]	46.94			25.03			52.63			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	39.63											
Intersection LOS	D											
Intersection V/C	0.828											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.464	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	1200	667	0
d_b, Bicycle Delay [s]	28.70	9.60	26.67	60.00
l_b,int, Bicycle LOS Score for Intersection	2.655	2.747	3.711	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	893	509	501	647	0	451	7	212	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	45	5	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1008	570	606	730	0	505	8	237	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	265	150	159	192	0	133	2	62	0	0	0
Total Analysis Volume [veh/h]	0	1061	600	638	768	0	532	8	249	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	58	0	33	91	0	0	29	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	60	60	25	89	23	23	
g / C, Green / Cycle	0.50	0.50	0.21	0.75	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.31	0.39	0.19	0.22	0.16	0.17	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1537	
c, Capacity [veh/h]	1711	764	707	2553	627	290	
d1, Uniform Delay [s]	21.79	24.76	46.04	5.03	47.04	47.46	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.21	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.70	7.97	4.60	0.30	3.30	15.56	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.62	0.79	0.90	0.30	0.85	0.89	
d, Delay for Lane Group [s/veh]	23.50	32.73	50.64	5.33	50.34	63.01	
Lane Group LOS	C	C	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.99	15.30	9.68	2.88	7.94	8.71	
50th-Percentile Queue Length [ft/ln]	274.83	382.38	242.00	72.04	198.59	217.85	
95th-Percentile Queue Length [veh/ln]	16.43	21.71	14.78	5.19	12.57	13.56	
95th-Percentile Queue Length [ft/ln]	410.77	542.72	369.56	129.68	314.15	338.88	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	23.50	32.73	50.64	5.33	0.00	50.34	63.01	63.01	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	E	E			
d_A, Approach Delay [s/veh]	26.83			25.89			54.47			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	32.14											
Intersection LOS	C											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	1450	417	0
d_b, Bicycle Delay [s]	18.15	4.54	37.60	60.00
l_b,int, Bicycle LOS Score for Intersection	2.473	2.720	2.861	4.132
Bicycle LOS	B	B	C	D

Sequence

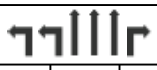
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	69.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.130

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	512	1223	467	480	861	796	914	0	457	463	0	566
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	8	0	16	5	0	0	0	0	0	0	11
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	573	1378	523	554	969	892	1024	0	512	519	0	645
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	151	363	138	146	255	235	269	0	135	137	0	170
Total Analysis Volume [veh/h]	603	1451	551	583	1020	939	1078	0	539	546	0	679
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	86	0	0	86	0	34	0	0	34	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	82	82	82	82	30	30
g / C, Green / Cycle	0.68	0.68	0.68	0.68	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.55	0.30	0.81	0.21	0.32	0.16
s, saturation flow rate [veh/h]	1091	4903	724	4903	3329	3329
c, Capacity [veh/h]	698	3351	448	3351	832	832
d1, Uniform Delay [s]	23.15	8.55	32.17	7.60	45.00	40.37
k, delay calibration	0.50	0.50	0.50	0.50	0.19	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.47	0.41	151.66	0.23	136.40	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.43	1.30	0.30	1.30	0.66
d, Delay for Lane Group [s/veh]	36.62	8.96	183.83	7.83	181.40	41.26
Lane Group LOS	D	A	F	A	F	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.70	5.40	16.24	3.37	28.04	7.32
50th-Percentile Queue Length [ft/ln]	217.41	134.93	406.08	84.16	700.96	183.11
95th-Percentile Queue Length [veh/ln]	13.53	9.21	27.25	6.06	42.07	11.76
95th-Percentile Queue Length [ft/ln]	338.32	230.17	681.15	151.48	1051.72	294.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.62	8.96	0.00	183.8	7.83	0.00	181.4	0.00	0.00	41.26	0.00	0.00
Movement LOS	D	A		F	A		F			D		
d_A, Approach Delay [s/veh]	17.08			71.84			181.40			41.26		
Approach LOS	B			E			F			D		
d_I, Intersection Delay [s/veh]	69.74											
Intersection LOS	E											
Intersection V/C	1.130											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.501	3.365
Crosswalk LOS	F	F	D	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1367	1367	500	500
d_b, Bicycle Delay [s]	6.02	6.02	33.75	33.75
l_b,int, Bicycle LOS Score for Intersection	2.689	2.441	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	42.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	174	1468	329	62	520	118	237	979	186	107	541	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	8	8	0	0	0	8	0	5	5	5
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	1644	376	77	582	132	265	1104	208	125	611	119
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	433	99	20	153	35	70	291	55	33	161	31
Total Analysis Volume [veh/h]	205	1731	396	81	613	139	279	1162	219	132	643	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	36	46	0	9	19	0	39	51	0	14	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	46	46	5	40	40	22	44	44	10	32	32
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.34	0.34	0.18	0.36	0.36	0.08	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.35	0.26	0.02	0.13	0.09	0.16	0.34	0.14	0.08	0.19	0.08
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	274	1861	581	129	1649	515	310	1250	558	143	917	409
d1, Uniform Delay [s]	53.86	35.69	31.15	56.81	30.20	29.07	48.10	36.63	28.25	54.62	39.64	35.06
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.13	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.09	9.79	6.36	4.88	0.64	1.29	10.98	3.67	0.45	20.64	0.99	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.93	0.68	0.63	0.37	0.27	0.90	0.93	0.39	0.92	0.70	0.31
d, Delay for Lane Group [s/veh]	57.95	45.48	37.51	61.69	30.85	30.36	59.08	40.30	28.70	75.26	40.63	35.48
Lane Group LOS	E	D	D	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.18	17.56	10.53	1.30	4.59	3.12	9.09	16.71	4.74	4.78	8.65	2.98
50th-Percentile Queue Length [ft/ln]	79.60	438.9	263.3	32.45	114.6	78.08	227.1	417.8	118.6	119.4	216.1	74.46
95th-Percentile Queue Length [veh/ln]	5.73	24.43	15.86	2.34	8.10	5.62	14.03	23.42	8.32	8.36	13.47	5.36
95th-Percentile Queue Length [ft/ln]	143.2	610.7	396.3	58.40	202.5	140.5	350.7	585.4	207.9	209.0	336.7	134.0

Movement, Approach, & Intersection Results

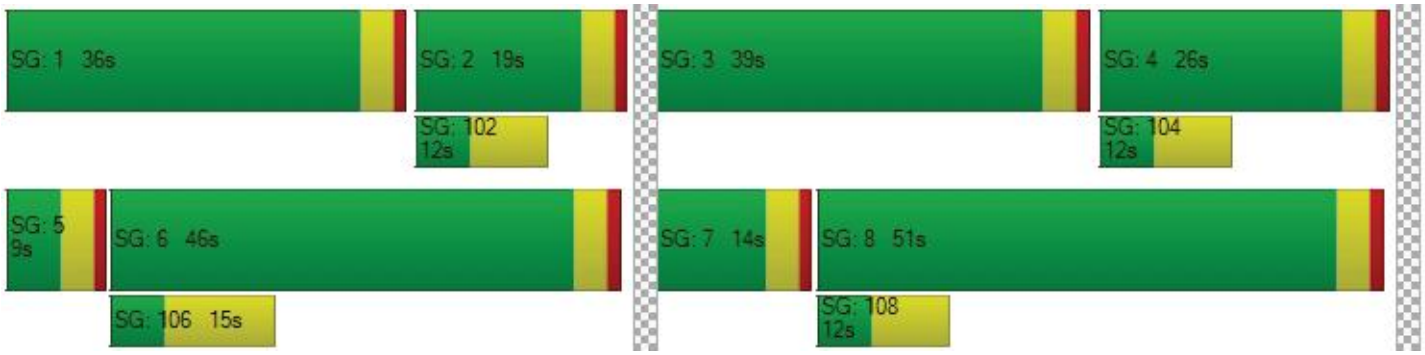
d_M, Delay for Movement [s/veh]	57.95	45.48	37.51	61.69	30.85	30.36	59.08	40.30	28.70	75.26	40.63	35.48
Movement LOS	E	D	D	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	45.22			33.77			41.93			44.99		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	42.56											
Intersection LOS	D											
Intersection V/C	0.793											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.222	3.186	2.898	2.881
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	250	783	367
d_b, Bicycle Delay [s]	25.35	45.94	22.20	40.02
l_b,int, Bicycle LOS Score for Intersection	2.842	2.018	2.929	2.302
Bicycle LOS	C	B	C	B

Sequence

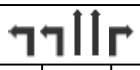
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	791	257	87	219	179	347	879	21	68	490	173
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	24	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	886	288	97	245	200	389	1008	24	76	564	194
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	233	76	26	64	53	102	265	6	20	148	51
Total Analysis Volume [veh/h]	65	933	303	102	258	211	409	1061	25	80	594	204
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	23	37	0	12	26	26	41	62	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	41	41	8	43	78	31	50	50	5	24	36
g / C, Green / Cycle	0.05	0.34	0.34	0.07	0.36	0.65	0.26	0.42	0.42	0.04	0.20	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.27	0.20	0.06	0.08	0.14	0.24	0.30	0.30	0.02	0.17	0.13
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1785	3329	3427	1530
c, Capacity [veh/h]	86	1177	526	114	1235	998	443	752	746	129	679	456
d1, Uniform Delay [s]	56.30	35.53	32.24	55.57	26.55	8.43	43.35	29.17	29.20	56.80	46.67	34.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.29	0.19	0.19	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.88	5.51	4.55	19.99	0.38	0.48	18.60	2.32	2.37	4.76	3.75	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.79	0.58	0.89	0.21	0.21	0.92	0.72	0.73	0.62	0.87	0.45
d, Delay for Lane Group [s/veh]	69.18	41.04	36.79	75.56	26.93	8.91	61.95	31.49	31.58	61.56	50.41	34.79
Lane Group LOS	E	D	D	E	C	A	E	C	C	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.25	13.08	7.84	3.70	2.63	2.26	14.02	13.39	13.34	1.28	8.92	4.92
50th-Percentile Queue Length [ft/ln]	56.31	326.9	196.0	92.40	65.86	56.54	350.4	334.7	333.3	32.01	223.0	122.8
95th-Percentile Queue Length [veh/ln]	4.05	19.01	12.43	6.65	4.74	4.07	20.16	19.39	19.32	2.30	13.82	8.55
95th-Percentile Queue Length [ft/ln]	101.3	475.2	310.8	166.3	118.5	101.7	504.0	484.7	483.1	57.62	345.4	213.7

Movement, Approach, & Intersection Results

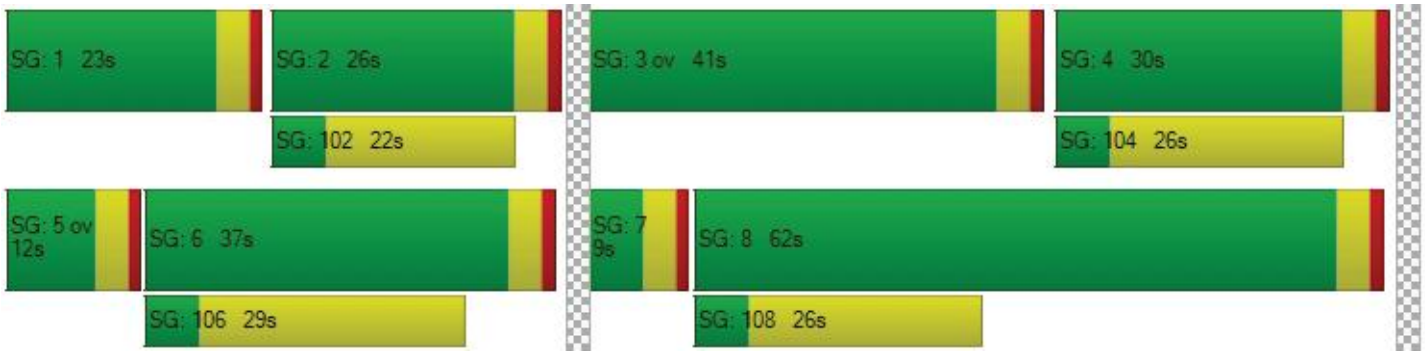
d_M, Delay for Movement [s/veh]	69.18	41.04	36.79	75.56	26.93	8.91	61.95	31.53	31.58	61.56	50.41	34.79
Movement LOS	E	D	D	E	C	A	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	41.46			28.96			39.85			47.80		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.52											
Intersection LOS	D											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.739	2.812	2.776	2.936
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	367	967	433
d_b, Bicycle Delay [s]	31.54	40.02	16.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.633	2.031	2.793	2.284
Bicycle LOS	B	B	C	B

Sequence

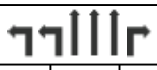
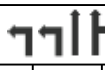
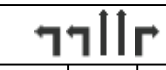
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	37.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	35	857	66	377	983	405	440	672	84	60	177	364
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	31	0	0	23	5	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	991	74	422	1124	459	501	753	94	67	198	408
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	261	19	111	296	121	132	198	25	18	52	107
Total Analysis Volume [veh/h]	41	1043	78	444	1183	483	527	793	99	71	208	429
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	33	0	21	45	45	23	57	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	49	49	17	62	85	19	34	34	5	19	40
g / C, Green / Cycle	0.03	0.41	0.41	0.14	0.52	0.71	0.16	0.28	0.28	0.04	0.16	0.33
(v / s)_i Volume / Saturation Flow Rate	0.02	0.22	0.22	0.13	0.24	0.32	0.16	0.25	0.25	0.02	0.06	0.28
s, saturation flow rate [veh/h]	1714	3427	1737	3329	4903	1530	3329	1800	1731	3329	3427	1530
c, Capacity [veh/h]	54	1394	706	472	2535	1084	527	505	485	126	548	512
d1, Uniform Delay [s]	57.67	26.97	26.98	51.01	18.44	7.44	50.50	41.52	41.63	56.75	45.08	36.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.15	0.11	0.11	0.36
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.60	1.47	2.88	9.69	0.62	1.33	18.17	7.66	8.60	3.90	0.43	11.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.53	0.53	0.94	0.47	0.45	1.00	0.90	0.90	0.56	0.38	0.84
d, Delay for Lane Group [s/veh]	77.27	28.43	29.86	60.70	19.06	8.76	68.67	49.18	50.23	60.65	45.52	48.14
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.53	8.30	8.70	7.23	7.00	5.20	9.21	13.85	13.58	1.13	2.82	13.11
50th-Percentile Queue Length [ft/ln]	38.20	207.4	217.5	180.6	175.0	130.0	230.2	346.3	339.6	28.18	70.40	327.7
95th-Percentile Queue Length [veh/ln]	2.75	13.02	13.54	11.63	11.34	8.94	14.19	19.96	19.63	2.03	5.07	19.05
95th-Percentile Queue Length [ft/ln]	68.76	325.5	338.4	290.8	283.5	223.5	354.6	498.9	490.7	50.72	126.7	476.2

Movement, Approach, & Intersection Results

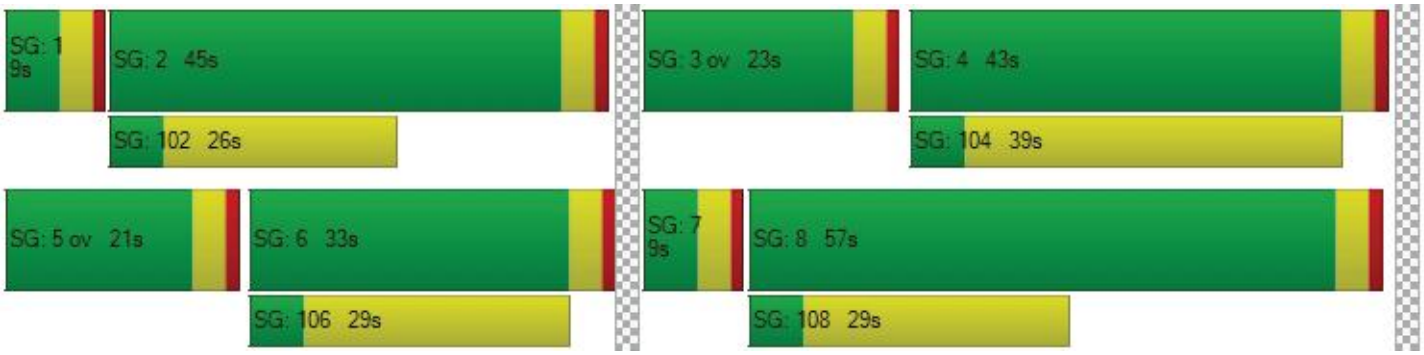
d_M, Delay for Movement [s/veh]	77.27	28.84	29.86	60.70	19.06	8.76	68.67	49.63	50.23	60.65	45.52	48.14
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	30.62			25.47			56.74			48.63		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	37.83											
Intersection LOS	D											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.047	3.382	2.818	2.891
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	683	883	650
d_b, Bicycle Delay [s]	34.50	26.00	18.70	27.34
l_b,int, Bicycle LOS Score for Intersection	2.199	2.720	2.730	2.144
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	573.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	33.040

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	601	29	67	890	130	243	49	30	13	21	83
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	8	0	13	5	5	8	0	0	0	0	15
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	681	32	88	1002	151	280	55	34	15	24	108
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	179	8	23	264	40	74	14	9	4	6	28
Total Analysis Volume [veh/h]	9	717	34	93	1055	159	295	58	36	16	25	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	12	12	5	16	16	91	91	91	91
g / C, Green / Cycle	0.01	0.10	0.10	0.04	0.13	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.15	0.05	0.24	0.24	32.80	0.02	0.65	0.07
s, saturation flow rate [veh/h]	1714	3427	1759	1714	3427	1682	11	1530	63	1530
c, Capacity [veh/h]	19	347	178	71	452	222	63	1158	90	1158
d1, Uniform Delay [s]	59.02	53.93	53.93	57.50	52.08	52.08	51.54	3.62	35.69	3.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.37	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.41	209.0	225.5	156.3	368.4	377.7	2096.75	0.01	11.88	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	1.43	1.44	1.30	1.80	1.80	5.58	0.03	0.46	0.10
d, Delay for Lane Group [s/veh]	77.43	262.9	279.4	213.8	420.5	429.7	2148.29	3.63	47.57	3.86
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.37	15.29	16.51	5.27	29.95	29.97	38.75	0.19	1.30	0.65
50th-Percentile Queue Length [ft/ln]	9.17	382.2	412.6	131.6	748.7	749.1	968.67	4.87	32.41	16.28
95th-Percentile Queue Length [veh/ln]	0.66	24.49	26.21	9.48	47.19	47.22	69.74	0.35	2.33	1.17
95th-Percentile Queue Length [ft/ln]	16.51	612.3	655.3	237.0	1179.	1180.	1743.60	8.77	58.33	29.30

Movement, Approach, & Intersection Results

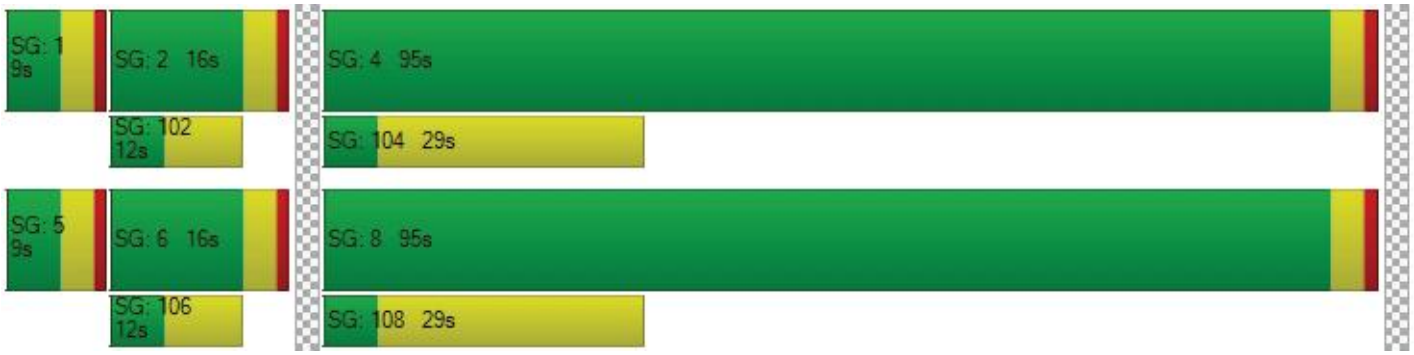
d_M, Delay for Movement [s/veh]	77.43	268.0	279.4	213.8	422.6	429.7	2148.	2148.	3.63	47.57	47.57	3.86
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	266.32			408.66			1949.81			15.42		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	573.50											
Intersection LOS	F											
Intersection V/C	33.040											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.892	3.368	2.145	2.066
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	1.978	2.278	2.201	1.815
Bicycle LOS	A	B	B	A

Sequence

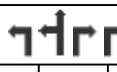
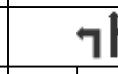
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1772	2665	1687	1772
c, Capacity [veh/h]	1	2920	1533	1	2919	1405	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-5

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2027 PLUS PHASES 1
AND 2

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Report File: K:\...\6 OY 2027 CUM Plus Phases 1 and 2 AM.pdf

Scenario 6 OY 2027 CUM Plus Phases 1 and 2 AM
1/14/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.681	34.7	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.623	26.7	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.513	20.0	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.690	27.6	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.756	31.7	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.526	17.9	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.452	32.1	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.673	38.1	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.632	33.1	C
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.831	61.1	E
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.496	21.8	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.555	27.9	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.777	41.2	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.536	39.9	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.934	56.8	E
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.617	34.2	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.658	49.8	D

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.947	38.9	D
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.702	27.5	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.864	62.6	E
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.770	43.1	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	3.036	1,507.9	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.825	52.9	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.745	44.0	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.787	43.1	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.845	54.5	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.552	29.4	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.799	50.9	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.635	38.2	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.791	28.3	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.920	64.1	E
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.448	45.6	E
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.694	32.1	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.707	26.6	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	0.996	42.7	E
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.582	30.8	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	NB Left	0.635	41.0	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.506	22.4	C

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.938	92.3	F
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	WB Thru	1.656	177.9	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	WB Thru	1.172	57.1	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.619	35.8	D
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.614	30.7	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.819	50.4	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	SB Right	0.735	59.7	E
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.635	36.3	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.715	41.6	D
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.469	18.1	C
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.767	45.4	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.553	32.9	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SB Left	0.369	32.2	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.696	41.7	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	NB Left	0.720	33.1	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Thru	0.348	10.2	B
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.511	27.0	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.473	28.7	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.835	50.3	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.569	28.5	C
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	0.025	120.8	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Right	0.907	65.4	E
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.770	36.5	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.576	23.7	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	1.051	70.5	E
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.602	21.9	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.816	30.5	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.918	46.4	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.787	35.9	D
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	0.783	28.7	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.737	39.6	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	NB Left	0.731	37.4	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	EB Left	0.737	37.5	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	75.638	605.6	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition	NB Left	0.394	36.1	D
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	303	0	0	712	200	0	0	0	360	4	252
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	14	6	0	0	4	0	0	0	0	17	0	0
Site-Generated Trips [veh/h]	34	0	0	0	9	0	0	0	0	85	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	345	0	0	810	224	0	0	0	505	4	282
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	62	91	0	0	213	59	0	0	0	133	1	74
Total Analysis Volume [veh/h]	246	363	0	0	853	236	0	0	0	532	4	297
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	24	56	0	0	32	0	0	0	0	0	64	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	19	72	49	49		40	40
g / C, Green / Cycle	0.16	0.60	0.40	0.40		0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.14	0.11	0.21	0.22		0.31	0.19
s, saturation flow rate [veh/h]	1714	3427	3427	1615		1715	1530
c, Capacity [veh/h]	272	2041	1383	652		580	517
d1, Uniform Delay [s]	49.61	10.99	27.08	27.53		38.26	32.63
k, delay calibration	0.14	0.50	0.50	0.50		0.19	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	13.32	0.19	1.43	3.42		10.99	1.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.18	0.52	0.56		0.92	0.57
d, Delay for Lane Group [s/veh]	62.93	11.18	28.51	30.95		49.24	33.64
Lane Group LOS	E	B	C	C		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	8.23	2.20	8.09	8.56		16.74	7.22
50th-Percentile Queue Length [ft/ln]	205.87	55.05	202.24	214.11		418.61	180.59
95th-Percentile Queue Length [veh/ln]	12.94	3.96	12.75	13.36		23.46	11.63
95th-Percentile Queue Length [ft/ln]	323.53	99.08	318.86	334.09		586.38	290.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.93	11.18	0.00	0.00	28.87	30.95	0.00	0.00	0.00	49.24	49.24	33.64
Movement LOS	E	B			C	C				D	D	C
d_A, Approach Delay [s/veh]	32.08			29.32			0.00			43.68		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	34.71											
Intersection LOS	C											
Intersection V/C	0.681											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.912	2.226
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	467	0	1000
d_b, Bicycle Delay [s]	19.27	35.27	60.00	15.00
l_b,int, Bicycle LOS Score for Intersection	2.062	2.159	4.132	2.934
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	302	906	0	0	822	355	0	0	0	421	1	309
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	5	0	0
Site-Generated Trips [veh/h]	0	0	0	0	9	0	0	0	0	9	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	338	1021	0	0	934	398	0	0	0	486	1	346
Peak Hour Factor	0.964	0.964	1.000	1.000	0.964	0.964	1.000	1.000	1.000	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	88	265	0	0	242	103	0	0	0	126	0	90
Total Analysis Volume [veh/h]	351	1059	0	0	969	413	0	0	0	504	1	359
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	20	61	0	0	41	0	0	0	0	0	59	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	81	62	62		31	31	31
g / C, Green / Cycle	0.12	0.67	0.52	0.52		0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.31	0.28	0.27		0.15	0.15	0.23
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1715	1530
c, Capacity [veh/h]	406	2297	1765	788		451	451	402
d1, Uniform Delay [s]	51.71	9.44	19.68	19.33		38.21	38.21	42.57
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.60	0.67	1.23	2.49		1.09	1.09	6.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.46	0.55	0.52		0.56	0.56	0.89
d, Delay for Lane Group [s/veh]	57.31	10.11	20.91	21.82		39.30	39.30	49.55
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.49	6.41	9.26	8.04		6.56	6.56	10.96
50th-Percentile Queue Length [ft/ln]	137.31	160.22	231.45	201.11		164.0	164.0	273.9
95th-Percentile Queue Length [veh/ln]	9.34	10.56	14.25	12.70		10.76	10.76	16.39
95th-Percentile Queue Length [ft/ln]	233.40	264.02	356.20	317.40		269.1	269.1	409.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.31	10.11	0.00	0.00	20.91	21.82	0.00	0.00	0.00	39.30	39.30	49.55
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	21.86			21.18			0.00			43.56		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.73											
Intersection LOS	C											
Intersection V/C	0.623											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.103	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	617	0	917
d_b, Bicycle Delay [s]	16.54	28.70	60.00	17.60
l_b,int, Bicycle LOS Score for Intersection	2.723	2.700	4.132	2.985
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	20.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	792	0	0	1079	0	0	0	0	510	0	291
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	6	0	0	4	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	0	0	0	9	0	0	0	0	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	893	0	0	1221	0	0	0	0	578	0	326
Peak Hour Factor	1.000	0.869	1.000	1.000	0.869	1.000	1.000	1.000	1.000	0.869	0.869	0.869
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	257	0	0	351	0	0	0	0	166	0	94
Total Analysis Volume [veh/h]	0	1028	0	0	1405	0	0	0	0	665	0	375
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	0	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81		31	31	31
g / C, Green / Cycle	0.67	0.67		0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.21	0.29		0.20	0.20	0.23
s, saturation flow rate [veh/h]	4903	4903		1714	1698	1530
c, Capacity [veh/h]	3306	3306		444	440	397
d1, Uniform Delay [s]	8.06	8.93		41.28	41.38	42.58
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	0.40		3.02	3.18	6.15
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.43		0.78	0.79	0.87
d, Delay for Lane Group [s/veh]	8.31	9.33		44.29	44.56	48.73
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.52	5.34		9.86	9.90	10.47
50th-Percentile Queue Length [ft/ln]	88.05	133.54		246.5	247.5	261.6
95th-Percentile Queue Length [veh/ln]	6.34	9.13		15.01	15.06	15.77
95th-Percentile Queue Length [ft/ln]	158.49	228.30		375.2	376.5	394.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	8.31	0.00	0.00	9.33	0.00	0.00	0.00	0.00	44.42	44.56	48.41
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	8.31			9.33			0.00			45.86		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.97											
Intersection LOS	B											
Intersection V/C	0.513											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	0	967
d_b, Bicycle Delay [s]	18.15	18.15	60.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.125	2.332	4.132	3.276
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	427	319	160	805	0	153	5	296	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	21	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	34	74	0	94	0	0	0	48	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	532	453	179	1017	0	171	6	392	0	0	0
Peak Hour Factor	1.000	0.952	0.952	0.952	0.952	1.000	0.952	0.952	0.952	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	140	119	47	267	0	45	2	103	0	0	0
Total Analysis Volume [veh/h]	0	559	476	188	1068	0	180	6	412	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	53	0	21	74	0	0	46	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	58	58	15	77	35	35	
g / C, Green / Cycle	0.49	0.49	0.13	0.64	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.16	0.31	0.11	0.31	0.11	0.27	
s, saturation flow rate [veh/h]	3427	1530	1714	3427	1717	1530	
c, Capacity [veh/h]	1662	742	215	2206	497	443	
d1, Uniform Delay [s]	19.03	23.11	51.53	11.06	33.96	41.44	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.29	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.55	4.23	10.53	0.76	0.47	19.45	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.34	0.64	0.87	0.48	0.37	0.93	
d, Delay for Lane Group [s/veh]	19.57	27.35	62.06	11.83	34.43	60.89	
Lane Group LOS	B	C	E	B	C	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	4.89	10.73	6.18	7.20	4.41	14.13	
50th-Percentile Queue Length [ft/ln]	122.22	268.13	154.45	179.91	110.14	353.20	
95th-Percentile Queue Length [veh/ln]	8.51	16.10	10.25	11.60	7.85	20.29	
95th-Percentile Queue Length [ft/ln]	212.87	402.40	256.36	289.89	196.20	507.30	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	19.57	27.35	62.06	11.83	0.00	34.43	34.43	60.89	0.00	0.00	0.00
Movement LOS		B	C	E	B		C	C	E			
d_A, Approach Delay [s/veh]	23.15			19.35			52.66			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	27.60											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.150	2.092
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	1167	700	0
d_b, Bicycle Delay [s]	21.00	10.42	25.35	60.00
l_b,int, Bicycle LOS Score for Intersection	2.129	2.596	2.546	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.756

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	817	408	302	931	0	411	3	402	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	7	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	921	467	338	1070	0	460	3	450	0	0	0
Peak Hour Factor	1.000	0.966	0.966	0.966	0.966	1.000	0.966	0.966	0.966	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	238	121	87	277	0	119	1	116	0	0	0
Total Analysis Volume [veh/h]	0	953	483	350	1108	0	476	3	466	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	64	0	19	83	0	0	37	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	66	66	14	84	28	28	28	
g / C, Green / Cycle	0.55	0.55	0.12	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.40	0.45	0.11	0.32	0.19	0.19	0.20	
s, saturation flow rate [veh/h]	1800	1609	3329	3427	1714	1620	1530	
c, Capacity [veh/h]	988	883	402	2409	395	373	353	
d1, Uniform Delay [s]	20.33	22.07	51.83	7.83	43.60	44.11	44.66	
k, delay calibration	0.50	0.50	0.11	0.50	0.21	0.24	0.27	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.67	8.10	5.90	0.63	7.31	10.77	16.15	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.73	0.81	0.87	0.46	0.80	0.84	0.89	
d, Delay for Lane Group [s/veh]	25.00	30.16	57.73	8.46	50.90	54.88	60.81	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	15.78	17.72	5.50	5.94	9.67	10.03	10.54	
50th-Percentile Queue Length [ft/ln]	394.40	442.97	137.43	148.57	241.7	250.7	263.5	
95th-Percentile Queue Length [veh/ln]	22.29	24.62	9.34	9.94	14.77	15.22	15.87	
95th-Percentile Queue Length [ft/ln]	557.25	615.55	233.56	248.53	369.2	380.5	396.6	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	26.27	30.16	57.73	8.46	0.00	52.24	54.88	58.88	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	27.58			20.29			55.51			0.00		
Approach LOS	C			C			E			A		
d_I, Intersection Delay [s/veh]	31.69											
Intersection LOS	C											
Intersection V/C	0.756											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.377	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1317	550	0
d_b, Bicycle Delay [s]	15.00	7.00	31.54	60.00
l_b,int, Bicycle LOS Score for Intersection	2.744	2.762	3.119	4.132
Bicycle LOS	B	C	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.526

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	946	463	0	1265	26	160	0	553	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	6	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	0	14	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1066	520	0	1437	26	179	0	619	0	0	0
Peak Hour Factor	1.000	0.942	0.942	1.000	0.942	1.000	0.942	0.942	0.942	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	283	138	0	381	7	48	0	164	0	0	0
Total Analysis Volume [veh/h]	0	1132	552	0	1525	26	190	0	657	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	63	0	0	63	0	0	57	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	83	83	29	29	29	
g / C, Green / Cycle	0.69	0.69	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.31	0.11	0.21	0.21	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3376	3376	420	375	375	
d1, Uniform Delay [s]	7.57	8.45	38.48	43.58	43.58	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.27	0.44	0.76	6.62	6.62	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.34	0.45	0.45	0.88	0.88	
d, Delay for Lane Group [s/veh]	7.84	8.89	39.25	50.19	50.19	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.75	5.65	4.86	10.02	10.02	
50th-Percentile Queue Length [ft/ln]	93.73	141.23	121.4	250.5	250.5	
95th-Percentile Queue Length [veh/ln]	6.75	9.55	8.47	15.22	15.22	
95th-Percentile Queue Length [ft/ln]	168.72	238.69	211.8	380.3	380.3	

Movement, Approach, & Intersection Results

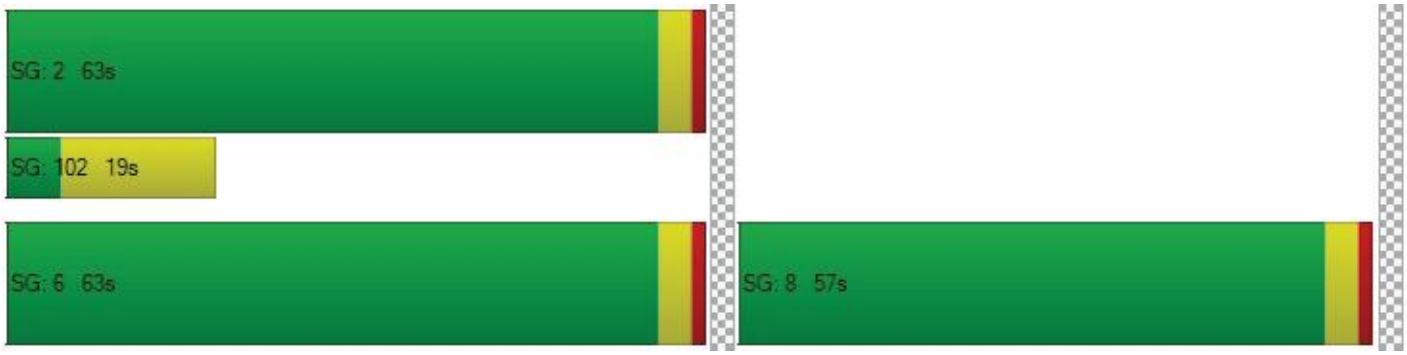
d_M, Delay for Movement [s/veh]	0.00	7.84	0.00	0.00	8.89	0.00	39.25	50.19	50.19	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	7.84			8.89			47.74			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.94											
Intersection LOS	B											
Intersection V/C	0.526											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.353	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	883	0
d_b, Bicycle Delay [s]	15.50	15.50	18.70	60.00
l_b,int, Bicycle LOS Score for Intersection	2.182	2.398	2.957	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.452

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	570	67	55	502	93	117	199	75	90	208	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	638	75	62	562	104	131	223	84	101	233	68
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	179	21	17	158	29	37	63	24	28	65	19
Total Analysis Volume [veh/h]	46	716	84	70	631	117	147	250	94	113	262	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	30	0	14	32	0	48	61	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	71	71	6	73	73	12	17	17	10	14	14
g / C, Green / Cycle	0.03	0.59	0.59	0.05	0.61	0.61	0.10	0.14	0.14	0.08	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.04	0.21	0.21	0.09	0.10	0.10	0.07	0.10	0.10
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1703	1714	1800	1636	1714	1800	1664
c, Capacity [veh/h]	59	1064	1026	89	1096	1037	178	258	235	137	216	199
d1, Uniform Delay [s]	57.50	12.96	12.96	56.23	11.67	11.67	52.72	48.84	48.97	54.37	51.45	51.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.90	1.04	1.08	14.08	0.88	0.94	9.31	3.27	3.85	11.62	6.94	8.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.38	0.38	0.79	0.35	0.35	0.83	0.69	0.71	0.82	0.81	0.82
d, Delay for Lane Group [s/veh]	77.40	14.00	14.04	70.31	12.55	12.61	62.02	52.11	52.82	65.99	58.40	59.84
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.71	5.95	5.75	2.44	5.21	4.96	4.80	5.32	4.99	3.80	5.51	5.28
50th-Percentile Queue Length [ft/ln]	42.75	148.7	143.7	61.10	130.3	123.8	120.0	132.9	124.7	95.09	137.6	131.9
95th-Percentile Queue Length [veh/ln]	3.08	9.95	9.68	4.40	8.96	8.61	8.40	9.10	8.65	6.85	9.35	9.05
95th-Percentile Queue Length [ft/ln]	76.95	248.7	241.9	109.9	223.9	215.1	209.9	227.4	216.2	171.1	233.8	226.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	77.40	14.02	14.04	70.31	12.57	12.61	62.02	52.32	52.82	65.99	58.88	59.84
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	17.47			17.52			55.32			60.83		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	32.12											
Intersection LOS	C											
Intersection V/C	0.452											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.643	2.658	2.494	2.607
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	467	950	400
d_b, Bicycle Delay [s]	36.82	35.27	16.54	38.40
l_b,int, Bicycle LOS Score for Intersection	2.258	2.234	1.965	1.932
Bicycle LOS	B	B	A	A

Sequence

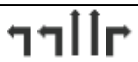
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	38.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	725	72	337	942	150	215	192	53	91	197	246
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	13	0	0	9	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	828	81	377	1082	168	241	215	59	102	221	276
Peak Hour Factor	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	225	22	103	295	46	66	59	16	28	60	75
Total Analysis Volume [veh/h]	92	902	88	411	1179	183	263	234	64	111	241	301
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	21	49	0	15	37	0	22	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	50	50	17	59	59	11	28	28	10	26	26
g / C, Green / Cycle	0.07	0.42	0.42	0.14	0.49	0.49	0.09	0.23	0.23	0.08	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.06	0.12	0.34	0.12	0.08	0.07	0.04	0.06	0.13	0.20
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	114	1429	638	462	1676	748	305	789	352	139	395	336
d1, Uniform Delay [s]	55.26	27.69	21.65	50.79	23.87	17.79	53.75	38.16	37.11	54.19	42.20	45.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.59	2.13	0.45	6.10	2.50	0.78	7.13	0.21	0.24	10.08	1.53	11.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.63	0.14	0.89	0.70	0.24	0.86	0.30	0.18	0.80	0.61	0.90
d, Delay for Lane Group [s/veh]	67.86	29.82	22.10	56.89	26.37	18.56	60.88	38.37	37.35	64.27	43.73	57.12
Lane Group LOS	E	C	C	E	C	B	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.14	10.54	1.62	6.45	13.28	3.10	4.21	2.88	1.54	3.69	6.61	9.76
50th-Percentile Queue Length [ft/ln]	78.58	263.5	40.59	161.1	331.9	77.44	105.3	72.04	38.62	92.13	165.2	243.9
95th-Percentile Queue Length [veh/ln]	5.66	15.87	2.92	10.61	19.25	5.58	7.58	5.19	2.78	6.63	10.83	14.88
95th-Percentile Queue Length [ft/ln]	141.4	396.7	73.07	265.2	481.2	139.4	189.5	129.6	69.51	165.8	270.6	372.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.86	29.82	22.10	56.89	26.37	18.56	60.88	38.37	37.35	64.27	43.73	57.12
Movement LOS	E	C	C	E	C	B	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	32.43			32.64			48.81			53.39		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.14											
Intersection LOS	D											
Intersection V/C	0.673											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.864	3.060	2.759	2.693
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	750	550	667
d_b, Bicycle Delay [s]	29.40	23.44	31.54	26.67
l_b,int, Bicycle LOS Score for Intersection	2.452	3.022	2.022	2.637
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	919	38	219	1191	403	291	252	173	16	252	199
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	9	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	14	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	179	1039	43	245	1354	451	326	282	194	18	282	223
Peak Hour Factor	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938	0.938
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	48	277	11	65	361	120	87	75	52	5	75	59
Total Analysis Volume [veh/h]	191	1108	46	261	1443	481	348	301	207	19	301	238
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	34	0	23	45	0	20	54	0	9	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	56	56	12	60	60	15	34	34	2	21	21
g / C, Green / Cycle	0.07	0.47	0.47	0.10	0.50	0.50	0.12	0.28	0.28	0.02	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.03	0.08	0.29	0.31	0.10	0.09	0.14	0.01	0.09	0.16
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	222	2299	717	325	2451	765	403	960	429	66	614	274
d1, Uniform Delay [s]	55.45	21.87	17.45	53.00	21.26	21.88	51.77	34.08	35.95	57.97	44.33	47.89
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.41	0.73	0.17	4.61	1.05	3.90	5.60	0.18	0.84	2.34	0.61	8.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.48	0.06	0.80	0.59	0.63	0.86	0.31	0.48	0.29	0.49	0.87
d, Delay for Lane Group [s/veh]	64.85	22.59	17.62	57.61	22.31	25.78	57.37	34.27	36.80	60.31	44.94	56.14
Lane Group LOS	E	C	B	E	C	C	E	C	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.15	7.21	0.74	4.06	9.62	10.49	5.45	3.51	5.16	0.31	4.09	7.53
50th-Percentile Queue Length [ft/ln]	78.74	180.3	18.40	101.5	240.5	262.2	136.1	87.73	128.9	7.66	102.3	188.2
95th-Percentile Queue Length [veh/ln]	5.67	11.62	1.32	7.31	14.71	15.80	9.27	6.32	8.88	0.55	7.37	12.03
95th-Percentile Queue Length [ft/ln]	141.7	290.4	33.12	182.7	367.7	394.9	231.8	157.9	222.0	13.78	184.2	300.8

Movement, Approach, & Intersection Results

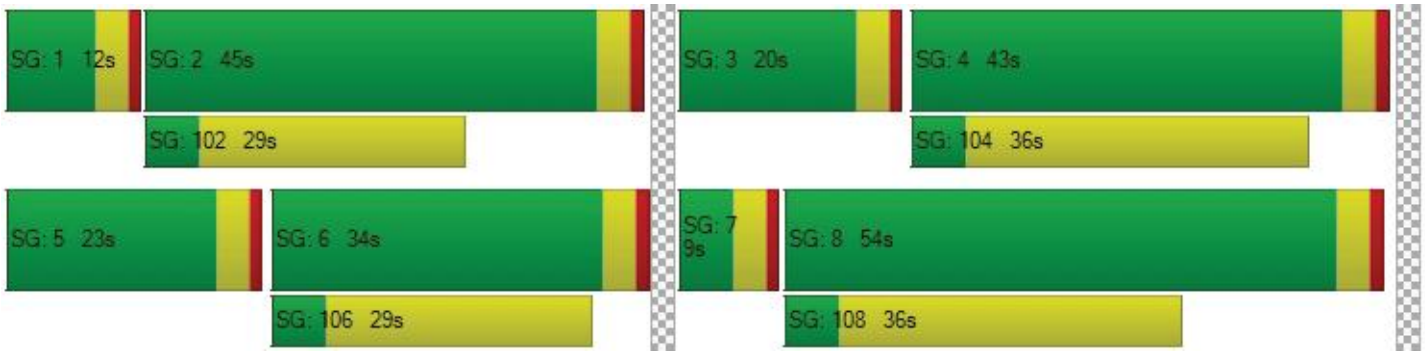
d_M, Delay for Movement [s/veh]	64.85	22.59	17.62	57.61	22.31	25.78	57.37	34.27	36.80	60.31	44.94	56.14
Movement LOS	E	C	B	E	C	C	E	C	D	E	D	E
d_A, Approach Delay [s/veh]	28.43			27.29			44.27			50.24		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.13											
Intersection LOS	C											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.191	3.285	2.864	2.772
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	683	833	650
d_b, Bicycle Delay [s]	33.75	26.00	20.42	27.34
l_b,int, Bicycle LOS Score for Intersection	2.299	2.761	2.266	2.020
Bicycle LOS	B	C	B	B

Sequence

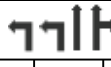
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	61.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.831

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	268	102	147	286	257	107	507	78	172	1112	236
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	6	6	0	0	4	0	0	0	4	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	9	0	0	0	9	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	306	114	165	333	288	120	568	100	193	1245	264
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	82	30	44	89	77	32	152	27	52	333	71
Total Analysis Volume [veh/h]	142	327	122	176	356	308	128	607	107	206	1330	282
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	15	40	0	12	52	0	17	57	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	46	11	36	36	8	51	51	10	53	53
g / C, Green / Cycle	0.06	0.27	0.38	0.09	0.30	0.30	0.07	0.43	0.43	0.08	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.08	0.10	0.20	0.20	0.07	0.14	0.14	0.06	0.45	0.47
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1530	1714	3427	1666	3329	1800	1695
c, Capacity [veh/h]	194	480	584	157	540	459	114	1463	711	271	795	748
d1, Uniform Delay [s]	55.60	39.43	24.94	54.50	36.63	36.79	56.00	22.91	22.96	53.95	33.50	33.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.49	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.31	7.61	0.81	71.46	6.18	7.59	76.44	0.13	0.27	4.34	37.07	52.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.68	0.21	1.12	0.66	0.67	1.12	0.33	0.33	0.76	1.02	1.07
d, Delay for Lane Group [s/veh]	60.90	47.04	25.75	125.9	42.81	44.38	132.4	23.04	23.23	58.30	70.57	86.33
Lane Group LOS	E	D	C	F	D	D	F	C	C	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.26	9.63	2.49	7.86	10.00	8.85	5.88	4.53	4.50	3.21	30.58	32.06
50th-Percentile Queue Length [ft/ln]	56.43	240.7	62.14	196.4	249.9	221.2	147.0	113.2	112.5	80.28	764.5	801.6
95th-Percentile Queue Length [veh/ln]	4.06	14.72	4.47	12.97	15.19	13.73	10.21	8.02	7.98	5.78	40.31	43.48
95th-Percentile Queue Length [ft/ln]	101.5	367.9	111.8	324.2	379.6	343.2	255.1	200.4	199.4	144.5	1007.	1086.

Movement, Approach, & Intersection Results

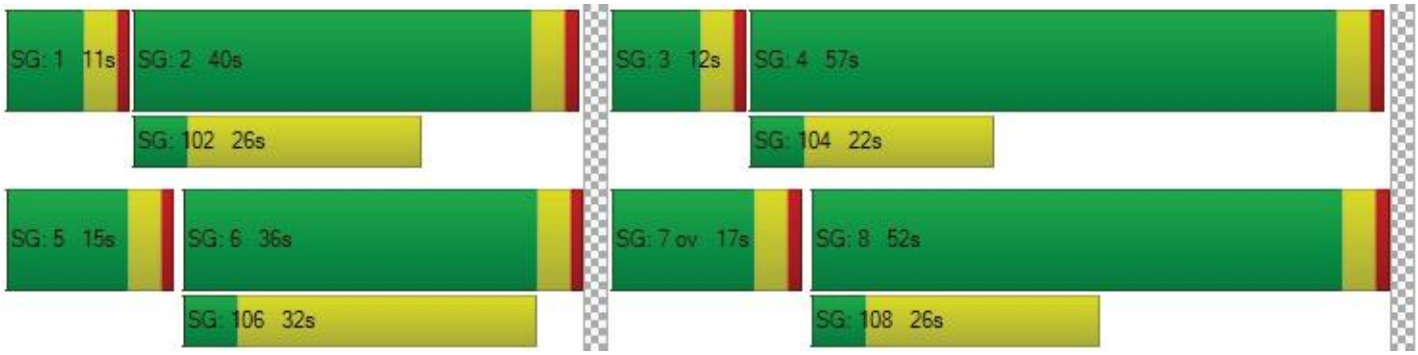
d_M, Delay for Movement [s/veh]	60.90	47.04	25.75	125.9	42.81	44.38	132.4	23.08	23.23	58.30	76.71	86.33
Movement LOS	E	D	C	F	D	D	F	C	C	E	E	F
d_A, Approach Delay [s/veh]	45.98			60.81			39.72			76.11		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	61.13											
Intersection LOS	E											
Intersection V/C	0.831											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.673	2.623	2.894	3.073
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	800	883
d_b, Bicycle Delay [s]	32.27	29.40	21.60	18.70
I_b,int, Bicycle LOS Score for Intersection	2.535	2.253	2.023	3.059
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	367	0	567	0	537	236	0	946	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	22	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	433	0	635	0	601	264	0	1060	0
Peak Hour Factor	1.000	1.000	1.000	0.908	1.000	0.908	1.000	0.908	0.908	1.000	0.908	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	119	0	175	0	165	73	0	292	0
Total Analysis Volume [veh/h]	0	0	0	477	0	699	0	662	291	0	1167	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	79	0	0	0	41	0	0	41	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		36	36	76	76
g / C, Green / Cycle		0.30	0.30	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate		0.14	0.26	0.14	0.24
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		988	804	3121	3121
d1, Uniform Delay [s]		34.63	39.99	9.16	10.40
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.37	3.07	0.16	0.34
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.48	0.87	0.21	0.37
d, Delay for Lane Group [s/veh]		35.00	43.06	9.32	10.75
Lane Group LOS		C	D	A	B
Critical Lane Group		No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]		5.78	10.04	2.39	4.80
50th-Percentile Queue Length [ft/ln]		144.51	250.99	59.82	119.95
95th-Percentile Queue Length [veh/ln]		9.72	15.24	4.31	8.39
95th-Percentile Queue Length [ft/ln]		243.09	380.90	107.67	209.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.00	0.00	43.06	0.00	9.32	0.00	0.00	10.75	0.00
Movement LOS				C		D		A			B	
d_A, Approach Delay [s/veh]	0.00			39.79			9.32			10.75		
Approach LOS	A			D			A			B		
d_I, Intersection Delay [s/veh]	21.80											
Intersection LOS	C											
Intersection V/C	0.496											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.544	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1250	617	617
d_b, Bicycle Delay [s]	60.00	8.44	28.70	28.70
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	1.924	2.201
Bicycle LOS	D	A	A	B

Sequence

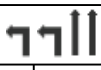
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	278	2	306	0	0	0	354	565	0	0	1595	179
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	22	0	0	0	34
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	311	2	343	0	0	0	396	655	0	0	1786	234
Peak Hour Factor	0.952	0.952	0.952	1.000	1.000	1.000	0.952	0.952	1.000	1.000	0.952	0.952
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	82	1	90	0	0	0	104	172	0	0	469	61
Total Analysis Volume [veh/h]	327	2	360	0	0	0	416	688	0	0	1876	246
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	0	0	41	111	0	0	70	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36		18	76	55
g / C, Green / Cycle	0.30	0.30	0.30		0.15	0.64	0.45
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.14		0.12	0.14	0.29
s, saturation flow rate [veh/h]	1714	1596	1530		3329	4903	6538
c, Capacity [veh/h]	508	473	453		496	3123	2972
d1, Uniform Delay [s]	34.58	34.65	34.68		49.65	9.20	25.03
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.17	3.48	3.67		3.86	0.04	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.48	0.48		0.84	0.22	0.63
d, Delay for Lane Group [s/veh]	37.75	38.12	38.35		53.51	9.23	25.26
Lane Group LOS	D	D	D		D	A	C
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	6.23	5.92	5.74		6.33	2.47	10.10
50th-Percentile Queue Length [ft/ln]	155.8	147.9	143.3		158.19	61.78	252.49
95th-Percentile Queue Length [veh/ln]	10.33	9.91	9.66		10.45	4.45	15.31
95th-Percentile Queue Length [ft/ln]	258.1	247.6	241.5		261.33	111.20	382.79

Movement, Approach, & Intersection Results

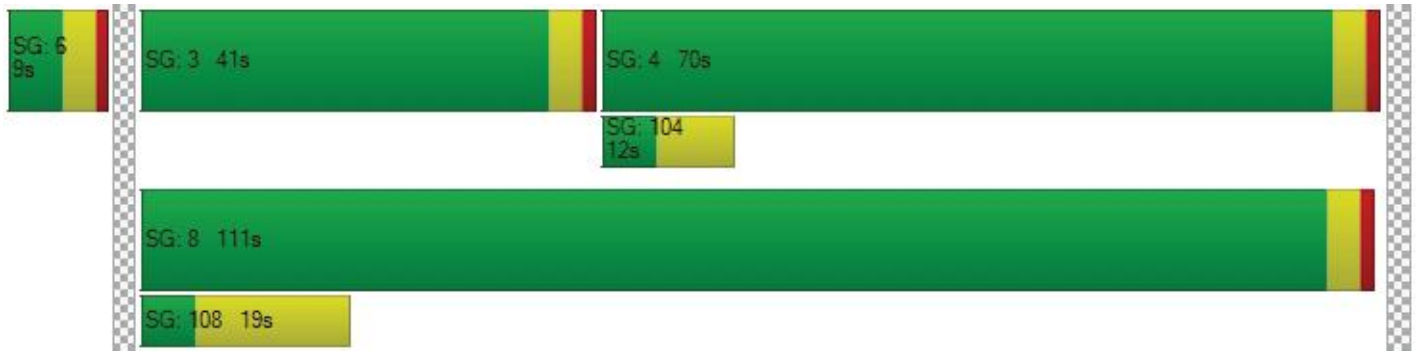
d_M, Delay for Movement [s/veh]	37.86	38.12	38.27	0.00	0.00	0.00	53.51	9.23	0.00	0.00	25.26	0.00
Movement LOS	D	D	D				D	A			C	
d_A, Approach Delay [s/veh]	38.07			0.00			25.92			25.26		
Approach LOS	D			A			C			C		
d_I, Intersection Delay [s/veh]	27.86											
Intersection LOS	C											
Intersection V/C	0.555											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.314	1.934	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	0	1783	1100
d_b, Bicycle Delay [s]	55.10	60.00	0.70	12.15
l_b,int, Bicycle LOS Score for Intersection	2.696	4.132	2.167	2.333
Bicycle LOS	B	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	63	529	155	69	828	410	232	502	139	414	1336	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	42	45	0	32	0	0	0	0	33	0	0
Site-Generated Trips [veh/h]	34	108	8	0	142	0	0	0	22	80	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	742	227	77	1101	459	260	562	178	577	1496	74
Peak Hour Factor	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	202	62	21	299	125	71	153	48	157	407	20
Total Analysis Volume [veh/h]	114	807	247	84	1197	499	283	611	193	627	1626	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	19	40	0	28	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	42	42	5	42	42	12	33	33	24	45	45
g / C, Green / Cycle	0.04	0.35	0.35	0.04	0.35	0.35	0.10	0.27	0.27	0.20	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.03	0.16	0.16	0.03	0.24	0.33	0.09	0.12	0.13	0.19	0.33	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	139	1732	540	131	1720	537	343	1344	419	666	1819	568
d1, Uniform Delay [s]	57.06	30.04	29.93	56.81	33.45	37.52	52.75	36.11	36.18	47.31	35.51	25.05
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.33	0.90	2.77	5.17	2.35	24.82	5.00	0.24	0.79	7.36	1.74	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.47	0.46	0.64	0.70	0.93	0.82	0.45	0.46	0.94	0.89	0.14
d, Delay for Lane Group [s/veh]	68.39	30.95	32.70	61.98	35.80	62.34	57.75	36.35	36.96	54.68	37.25	25.16
Lane Group LOS	E	C	C	E	D	E	E	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.93	6.16	5.92	1.35	10.28	17.59	4.42	4.99	4.80	9.87	14.93	1.54
50th-Percentile Queue Length [ft/ln]	48.34	154.0	147.9	33.74	256.9	439.8	110.4	124.6	119.9	246.6	373.3	38.55
95th-Percentile Queue Length [veh/ln]	3.48	10.23	9.91	2.43	15.54	24.47	7.87	8.65	8.39	15.02	21.27	2.78
95th-Percentile Queue Length [ft/ln]	87.01	255.7	247.7	60.73	388.4	611.8	196.6	216.2	209.7	375.4	531.7	69.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.39	30.95	32.70	61.98	35.80	62.34	57.75	36.35	36.96	54.68	37.25	25.16
Movement LOS	E	C	C	E	D	E	E	D	D	D	D	C
d_A, Approach Delay [s/veh]	34.97			44.48			42.03			41.52		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	41.23											
Intersection LOS	D											
Intersection V/C	0.777											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.209	3.184	3.388	3.301
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	600	750
d_b, Bicycle Delay [s]	27.34	27.34	29.40	23.44
l_b,int, Bicycle LOS Score for Intersection	2.202	2.539	2.157	2.843
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.536

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	239	13	94	239	197	132	419	37	45	589	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	27	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	63	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	268	15	105	268	221	148	510	41	50	750	92
Peak Hour Factor	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828	0.828
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	81	5	32	81	67	45	154	12	15	226	28
Total Analysis Volume [veh/h]	88	324	18	127	324	267	179	616	50	60	906	111
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	16	40	0	24	44	0	24	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	51	51	11	54	54	14	36	36	6	27	27
g / C, Green / Cycle	0.06	0.43	0.43	0.09	0.45	0.45	0.12	0.30	0.30	0.05	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.01	0.07	0.18	0.18	0.10	0.13	0.03	0.04	0.20	0.20
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1511	1714	4903	1506	1687	3427	1701
c, Capacity [veh/h]	109	1467	655	152	802	684	207	1487	457	79	786	390
d1, Uniform Delay [s]	55.44	21.69	19.87	53.82	21.89	21.94	51.79	33.32	30.13	56.51	44.44	44.48
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.80	0.35	0.08	11.30	1.46	1.74	10.27	0.18	0.10	13.69	2.99	6.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.22	0.03	0.84	0.40	0.40	0.86	0.41	0.11	0.76	0.86	0.87
d, Delay for Lane Group [s/veh]	68.24	22.03	19.95	65.12	23.35	23.68	62.06	33.50	30.24	70.20	47.42	50.49
Lane Group LOS	E	C	B	E	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.02	2.96	0.31	4.25	6.26	5.46	5.87	4.80	1.06	2.10	9.98	10.28
50th-Percentile Queue Length [ft/ln]	75.41	74.10	7.72	106.2	156.4	136.4	146.8	119.9	26.61	52.49	249.4	257.0
95th-Percentile Queue Length [veh/ln]	5.43	5.34	0.56	7.63	10.36	9.29	9.85	8.39	1.92	3.78	15.16	15.54
95th-Percentile Queue Length [ft/ln]	135.7	133.3	13.89	190.7	259.0	232.1	246.1	209.8	47.91	94.48	378.9	388.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.24	22.03	19.95	65.12	23.36	23.68	62.06	33.50	30.24	70.20	48.19	50.49
Movement LOS	E	C	B	E	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	31.40			30.86			39.36			49.65		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.87											
Intersection LOS	D											
Intersection V/C	0.536											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.609	2.685	3.093	2.965
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	667	667
d_b, Bicycle Delay [s]	32.27	29.40	26.67	26.67
l_b,int, Bicycle LOS Score for Intersection	1.914	2.152	2.024	2.152
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	56.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.934

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	571	733	124	771	237	274	346	109	156	659	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	2	0	0	9	11	21	0	2	14	0
Site-Generated Trips [veh/h]	0	0	5	0	0	18	2	1	0	8	36	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	134	642	828	139	864	292	320	410	122	185	788	114
Peak Hour Factor	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.942
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	170	220	37	229	77	85	109	32	49	209	30
Total Analysis Volume [veh/h]	142	682	879	148	917	310	340	435	130	196	837	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	17	62	0	13	58	0	15	26	0	19	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	61	61	9	58	58	11	25	25	9	23	36
g / C, Green / Cycle	0.10	0.51	0.51	0.08	0.48	0.48	0.09	0.21	0.21	0.08	0.19	0.30
(v / s)_i Volume / Saturation Flow Rate	0.08	0.38	0.57	0.09	0.27	0.20	0.10	0.09	0.08	0.06	0.17	0.08
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	168	910	774	129	1655	739	305	1022	319	258	952	463
d1, Uniform Delay [s]	53.25	23.60	29.66	55.50	21.90	20.12	54.50	41.26	41.09	54.25	46.97	31.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.07	5.63	76.70	86.18	1.34	1.75	61.71	0.28	0.84	4.55	2.81	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.75	1.14	1.15	0.55	0.42	1.11	0.43	0.41	0.76	0.88	0.26
d, Delay for Lane Group [s/veh]	64.32	29.22	106.3	141.6	23.24	21.87	116.2	41.54	41.93	58.80	49.78	31.99
Lane Group LOS	E	C	F	F	C	C	F	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.73	16.34	37.75	6.96	9.29	5.93	7.22	3.76	3.41	3.07	8.32	2.71
50th-Percentile Queue Length [ft/ln]	118.1	408.4	943.8	174.0	232.1	148.3	180.4	94.11	85.29	76.67	207.8	67.86
95th-Percentile Queue Length [veh/ln]	8.29	22.97	52.68	11.81	14.28	9.93	12.08	6.78	6.14	5.52	13.04	4.89
95th-Percentile Queue Length [ft/ln]	207.2	574.2	1317.	295.3	357.0	248.2	301.8	169.4	153.5	138.0	326.1	122.1

Movement, Approach, & Intersection Results

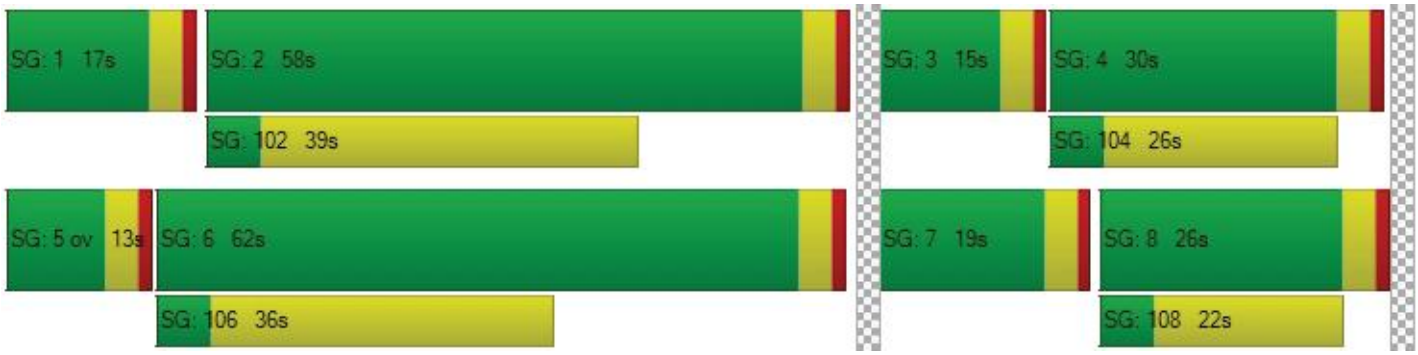
d_M, Delay for Movement [s/veh]	64.32	29.22	106.3	141.6	23.24	21.87	116.2	41.54	41.93	58.80	49.78	31.99
Movement LOS	E	C	F	F	C	C	F	D	D	E	D	C
d_A, Approach Delay [s/veh]	71.96			35.68			69.65			49.45		
Approach LOS	E			D			E			D		
d_I, Intersection Delay [s/veh]	56.79											
Intersection LOS	E											
Intersection V/C	0.934											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.890	2.877	3.102	3.237
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	900	367	433
d_b, Bicycle Delay [s]	16.02	18.15	40.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.965	2.694	2.057	2.194
Bicycle LOS	C	B	B	B

Sequence

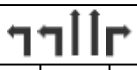
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	157	629	56	220	1054	104	94	405	109	90	492	139
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	5	0	0	4	6	10	6	0	0	4	0
Site-Generated Trips [veh/h]	0	0	0	0	5	18	1	0	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	709	63	246	1189	140	116	460	122	101	564	156
Peak Hour Factor	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	199	18	69	334	39	33	129	34	28	158	44
Total Analysis Volume [veh/h]	198	796	71	276	1334	157	130	516	137	113	633	175
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	23	50	0	10	47	0	10	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	66	66	12	70	70	6	19	19	6	19	19
g / C, Green / Cycle	0.08	0.55	0.55	0.10	0.58	0.58	0.05	0.16	0.16	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.05	0.08	0.39	0.10	0.04	0.11	0.09	0.03	0.13	0.11
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	250	2715	847	339	1990	888	166	795	248	163	790	247
d1, Uniform Delay [s]	54.58	14.27	12.54	52.77	17.28	11.76	56.35	47.07	46.26	56.18	48.48	47.68
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.63	0.27	0.19	4.73	1.82	0.43	7.73	0.90	1.91	5.21	1.94	3.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.29	0.08	0.81	0.67	0.18	0.78	0.65	0.55	0.69	0.80	0.71
d, Delay for Lane Group [s/veh]	60.21	14.55	12.73	57.50	19.10	12.20	64.08	47.97	48.17	61.39	50.42	51.43
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.14	3.86	0.94	4.29	12.61	2.05	2.13	4.88	3.90	1.80	6.22	5.21
50th-Percentile Queue Length [ft/ln]	78.43	96.61	23.44	107.3	315.2	51.18	53.14	122.0	97.54	45.08	155.5	130.3
95th-Percentile Queue Length [veh/ln]	5.65	6.96	1.69	7.69	18.44	3.68	3.83	8.51	7.02	3.25	10.31	8.96
95th-Percentile Queue Length [ft/ln]	141.1	173.8	42.20	192.3	460.8	92.12	95.65	212.6	175.5	81.15	257.7	223.9

Movement, Approach, & Intersection Results

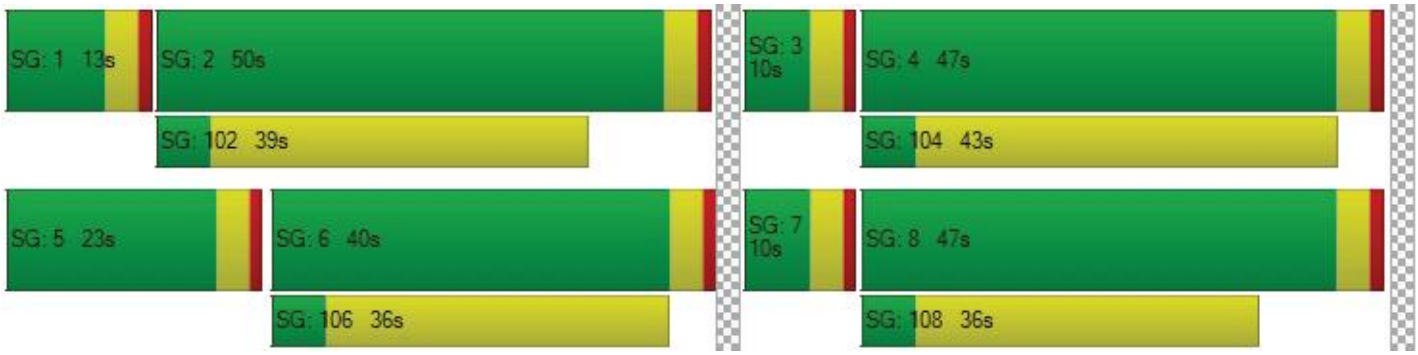
d_M, Delay for Movement [s/veh]	60.21	14.55	12.73	57.50	19.10	12.20	64.08	47.97	48.17	61.39	50.42	51.43
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.92			24.49			50.68			51.96		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.22											
Intersection LOS	C											
Intersection V/C	0.617											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.151	3.348	3.154	3.058
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	767	717	717
d_b, Bicycle Delay [s]	29.40	22.82	24.70	24.70
l_b,int, Bicycle LOS Score for Intersection	2.145	3.017	1.990	2.066
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	49.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.658

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	239	145	76	282	121	87	249	108	94	464	69
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	12	1	0	8	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	280	163	85	342	136	97	279	121	106	520	77
Peak Hour Factor	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843	0.843
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	83	48	25	101	40	29	83	36	31	154	23
Total Analysis Volume [veh/h]	187	332	193	101	406	161	115	331	144	126	617	91
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	30	0	12	23	23	0	30	0	0	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	39	39	8	32	32	24	24	33	33
g / C, Green / Cycle	0.12	0.32	0.32	0.07	0.27	0.27	0.20	0.20	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.15	0.16	0.06	0.12	0.11	0.18	0.18	0.25	0.25
s, saturation flow rate [veh/h]	1714	1800	1582	1714	3427	1530	1768	1498	1775	1574
c, Capacity [veh/h]	212	579	509	114	906	404	361	306	487	432
d1, Uniform Delay [s]	51.70	32.67	32.73	55.54	36.83	36.29	46.35	46.45	42.06	42.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.16	0.23	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.22	2.85	3.29	18.98	1.60	2.91	9.55	12.06	12.54	13.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.48	0.49	0.88	0.45	0.40	0.88	0.89	0.91	0.91
d, Delay for Lane Group [s/veh]	62.93	35.52	36.01	74.52	38.43	39.20	55.89	58.51	54.59	55.94
Lane Group LOS	E	D	D	E	D	D	E	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	6.19	6.94	6.22	3.63	5.18	4.22	10.12	8.89	14.25	12.80
50th-Percentile Queue Length [ft/ln]	154.6	173.6	155.6	90.80	129.4	105.3	252.99	222.22	356.19	320.02
95th-Percentile Queue Length [veh/ln]	10.27	11.27	10.32	6.54	8.91	7.58	15.34	13.78	20.44	18.67
95th-Percentile Queue Length [ft/ln]	256.6	281.6	257.8	163.4	222.7	189.5	383.42	344.46	510.95	466.71

Movement, Approach, & Intersection Results

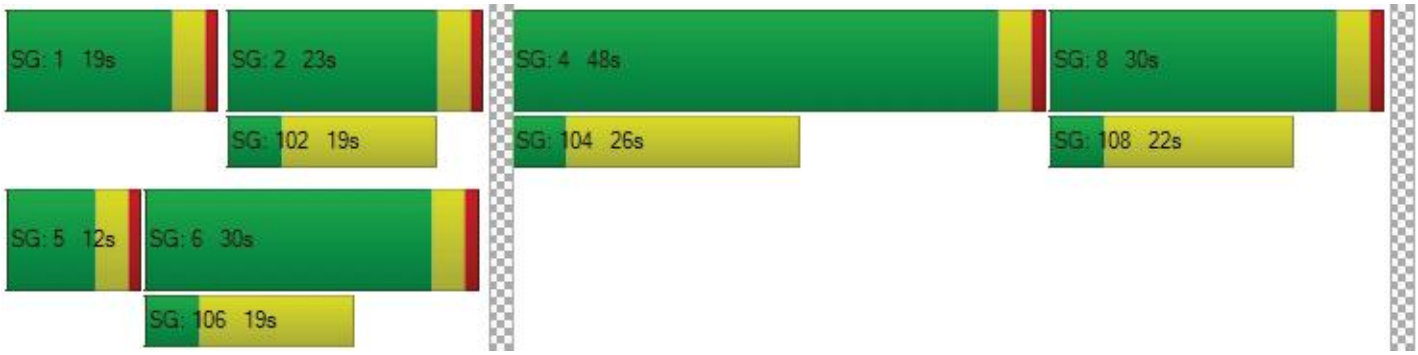
d_M, Delay for Movement [s/veh]	62.93	35.60	36.01	74.52	38.43	39.20	55.89	56.91	58.51	54.59	55.25	55.94
Movement LOS	E	D	D	E	D	D	E	E	E	D	E	E
d_A, Approach Delay [s/veh]	42.89			44.08			57.10			55.23		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	49.83											
Intersection LOS	D											
Intersection V/C	0.658											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.586	2.664	2.525	2.502
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	317	433	733
d_b, Bicycle Delay [s]	36.82	42.50	36.82	24.07
l_b,int, Bicycle LOS Score for Intersection	2.147	2.111	2.046	2.248
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.947

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	0	849	0	520	798	0	1435	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	26	0	0	0	12	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	94	0	0	0	27	0	0	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	288	0	951	0	621	894	0	1633	0
Peak Hour Factor	1.000	1.000	1.000	0.945	1.000	0.945	1.000	0.945	0.945	1.000	0.945	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	76	0	252	0	164	237	0	432	0
Total Analysis Volume [veh/h]	0	0	0	305	0	1006	0	657	946	0	1728	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	43	0	0	0	77	0	0	77	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		39	39	39	73	73	73
g / C, Green / Cycle		0.33	0.33	0.33	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.18	0.33	0.33	0.13	0.62	0.35
s, saturation flow rate [veh/h]		1714	1530	1530	4903	1530	4903
c, Capacity [veh/h]		557	497	497	2983	931	2983
d1, Uniform Delay [s]		33.25	40.50	40.50	10.63	23.50	14.21
k, delay calibration		0.12	0.47	0.47	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.97	42.06	42.06	0.17	33.66	0.83
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.55	1.01	1.01	0.22	1.02	0.58
d, Delay for Lane Group [s/veh]		34.22	82.56	82.56	10.80	57.16	15.04
Lane Group LOS		C	F	F	B	F	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		7.43	20.26	20.26	2.62	32.87	9.28
50th-Percentile Queue Length [ft/ln]		185.6	506.5	506.5	65.48	821.81	231.89
95th-Percentile Queue Length [veh/ln]		11.90	27.86	27.86	4.71	42.88	14.27
95th-Percentile Queue Length [ft/ln]		297.4	696.4	696.4	117.87	1072.07	356.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	34.22	0.00	82.56	0.00	10.80	57.16	0.00	15.04	0.00
Movement LOS				C		F		B	F		B	
d_A, Approach Delay [s/veh]	0.00			71.31			38.16			15.04		
Approach LOS	A			E			D			B		
d_I, Intersection Delay [s/veh]	38.92											
Intersection LOS	D											
Intersection V/C	0.947											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.466	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	1217	1217
d_b, Bicycle Delay [s]	60.00	27.34	9.20	9.20
l_b,int, Bicycle LOS Score for Intersection	4.132	3.723	2.441	2.510
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	873	0	494	0	0	0	0	441	0	0	1219	197
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	38	0	0	16	36
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	121	0	0	10	61
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	978	0	553	0	0	0	0	653	0	0	1391	318
Peak Hour Factor	0.879	1.000	0.879	1.000	1.000	1.000	1.000	0.879	1.000	1.000	0.879	0.879
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	278	0	157	0	0	0	0	186	0	0	396	90
Total Analysis Volume [veh/h]	1113	0	629	0	0	0	0	743	0	0	1582	362
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	66	0	0	0	0	0	0	54	0	0	54	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	50	50	50		62	62	62
g / C, Green / Cycle	0.42	0.42	0.42		0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.34	0.34	0.38		0.15	0.32	0.24
s, saturation flow rate [veh/h]	1714	1697	1530		4903	4903	1530
c, Capacity [veh/h]	716	709	639		2528	2528	789
d1, Uniform Delay [s]	30.75	30.91	32.77		16.60	20.79	18.45
k, delay calibration	0.21	0.22	0.27		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.38	4.75	11.86		0.30	1.18	1.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.82	0.91		0.29	0.63	0.46
d, Delay for Lane Group [s/veh]	35.13	35.65	44.64		16.90	21.98	20.37
Lane Group LOS	D	D	D		B	C	C
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	15.40	15.54	17.59		3.93	10.58	6.70
50th-Percentile Queue Length [ft/ln]	385.0	388.5	439.8		98.34	264.59	167.47
95th-Percentile Queue Length [veh/ln]	21.84	22.01	24.47		7.08	15.92	10.94
95th-Percentile Queue Length [ft/ln]	545.9	550.1	611.8		177.02	397.97	273.58

Movement, Approach, & Intersection Results

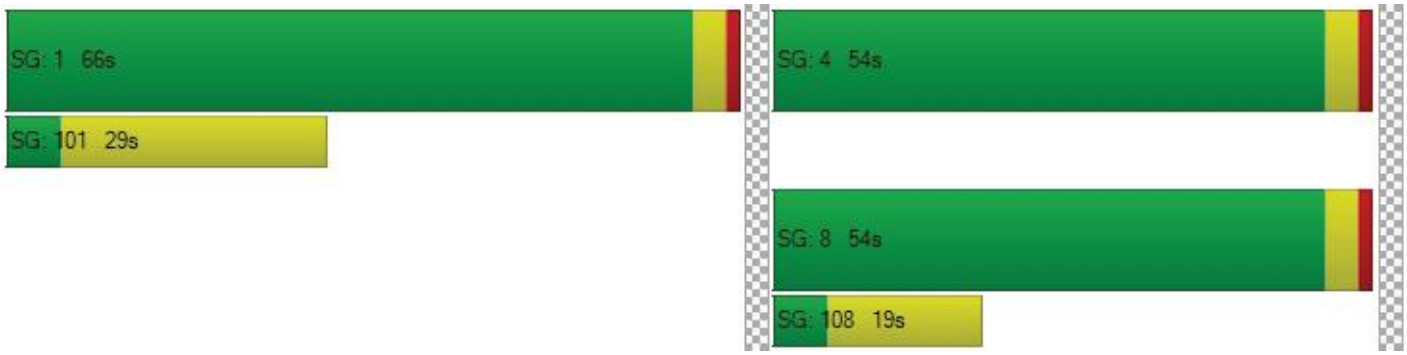
d_M, Delay for Movement [s/veh]	35.38	0.00	43.95	0.00	0.00	0.00	0.00	16.90	0.00	0.00	21.98	20.37
Movement LOS	D		D					B			C	C
d_A, Approach Delay [s/veh]	38.47			0.00			16.90			21.68		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	27.48											
Intersection LOS	C											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.571	0.000	0.000	3.071
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	0	833	833
d_b, Bicycle Delay [s]	14.02	60.00	20.42	20.42
l_b,int, Bicycle LOS Score for Intersection	4.434	4.132	1.968	2.629
Bicycle LOS	E	D	A	B

Sequence

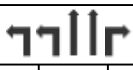
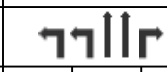
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	62.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.864

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	199	67	50	341	230	100	448	210	342	1200	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	52	13	1	0	8	0	0	0	38	0	0	0
Site-Generated Trips [veh/h]	71	0	0	0	19	0	0	0	121	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	236	76	56	409	258	112	502	394	384	1344	129
Peak Hour Factor	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921	0.921
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	80	64	21	15	111	70	30	136	107	104	365	35
Total Analysis Volume [veh/h]	319	256	83	61	444	280	122	545	428	417	1459	140
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	25	50	0	11	36	0	9	36	36	23	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	47	47	6	32	32	5	34	59	17	46	46
g / C, Green / Cycle	0.18	0.40	0.40	0.05	0.27	0.27	0.04	0.28	0.49	0.14	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.19	0.14	0.05	0.04	0.21	0.22	0.04	0.16	0.28	0.13	0.43	0.09
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1571	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	300	711	604	80	480	419	139	965	749	478	1314	587
d1, Uniform Delay [s]	49.50	25.60	23.22	56.55	41.07	41.12	57.20	36.84	21.69	50.31	37.00	25.11
k, delay calibration	0.26	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	55.65	1.42	0.47	13.86	13.34	15.32	15.84	0.52	3.15	5.11	53.18	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.06	0.36	0.14	0.76	0.80	0.81	0.88	0.57	0.57	0.87	1.11	0.24
d, Delay for Lane Group [s/veh]	105.1	27.02	23.69	70.40	54.41	56.45	73.04	37.36	24.83	55.42	90.18	25.32
Lane Group LOS	F	C	C	E	D	E	E	D	C	E	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	13.59	5.43	1.59	2.14	12.37	11.08	2.15	6.89	9.03	6.46	28.53	2.76
50th-Percentile Queue Length [ft/ln]	339.7	135.7	39.85	53.42	309.1	276.9	53.63	172.2	225.8	161.5	713.1	68.93
95th-Percentile Queue Length [veh/ln]	20.25	9.25	2.87	3.85	18.13	16.53	3.86	11.19	13.96	10.63	40.07	4.96
95th-Percentile Queue Length [ft/ln]	506.2	231.2	71.72	96.16	453.3	413.3	96.54	279.8	349.0	265.7	1001.	124.0

Movement, Approach, & Intersection Results

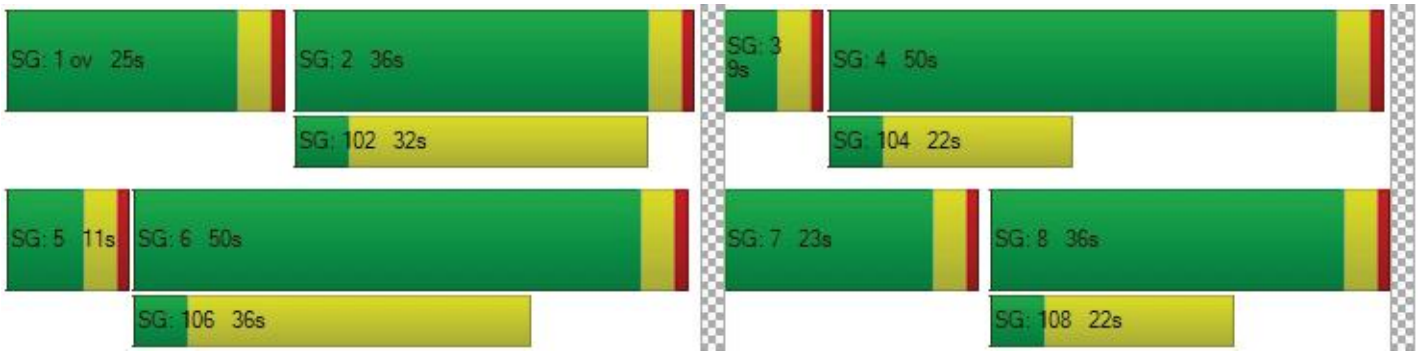
d_M, Delay for Movement [s/veh]	105.1	27.02	23.69	70.40	54.68	56.45	73.04	37.36	24.83	55.42	90.18	25.32
Movement LOS	F	C	C	E	D	E	E	D	C	E	F	C
d_A, Approach Delay [s/veh]	64.48			56.53			36.44			78.49		
Approach LOS	E			E			D			E		
d_I, Intersection Delay [s/veh]	62.57											
Intersection LOS	E											
Intersection V/C	0.864											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.695	2.569	3.125	3.157
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	533	533	767
d_b, Bicycle Delay [s]	22.82	32.27	32.27	22.82
l_b,int, Bicycle LOS Score for Intersection	2.645	2.207	2.463	3.223
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	214	404	115	164	793	203	183	414	153	284	1138	98
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	91	29	0	72	0	1	0	0	19	0	0
Site-Generated Trips [veh/h]	0	156	5	0	259	1	0	0	0	43	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	699	163	184	1219	228	206	464	171	380	1275	110
Peak Hour Factor	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	65	190	44	50	331	62	56	126	46	103	346	30
Total Analysis Volume [veh/h]	260	758	177	200	1322	247	223	503	185	412	1383	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	24	44	0	20	40	40	13	36	0	20	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	20	42	42	16	38	51	9	30	30	16	37	57
g / C, Green / Cycle	0.17	0.35	0.35	0.13	0.32	0.42	0.08	0.25	0.25	0.13	0.31	0.47
(v / s)_i Volume / Saturation Flow Rate	0.15	0.15	0.12	0.12	0.27	0.16	0.07	0.10	0.12	0.12	0.28	0.08
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	284	1714	535	226	1546	648	250	1237	386	444	1523	727
d1, Uniform Delay [s]	49.21	30.03	28.70	51.23	38.52	23.77	55.02	37.39	38.17	51.43	39.73	17.90
k, delay calibration	0.16	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.57	0.83	1.66	11.08	6.28	1.70	10.66	0.22	0.92	8.88	2.39	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.44	0.33	0.89	0.86	0.38	0.89	0.41	0.48	0.93	0.91	0.16
d, Delay for Lane Group [s/veh]	64.78	30.85	30.36	62.31	44.79	25.47	65.68	37.61	39.09	60.31	42.12	18.01
Lane Group LOS	E	C	C	E	D	C	E	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.87	5.74	4.00	6.60	12.92	5.11	3.71	4.15	4.74	6.66	13.26	1.91
50th-Percentile Queue Length [ft/ln]	221.6	143.5	100.0	164.9	322.9	127.7	92.74	103.6	118.5	166.5	331.3	47.70
95th-Percentile Queue Length [veh/ln]	13.75	9.67	7.21	10.81	18.81	8.82	6.68	7.46	8.31	10.89	19.23	3.43
95th-Percentile Queue Length [ft/ln]	343.7	241.8	180.1	270.2	470.2	220.4	166.9	186.6	207.8	272.3	480.6	85.86

Movement, Approach, & Intersection Results

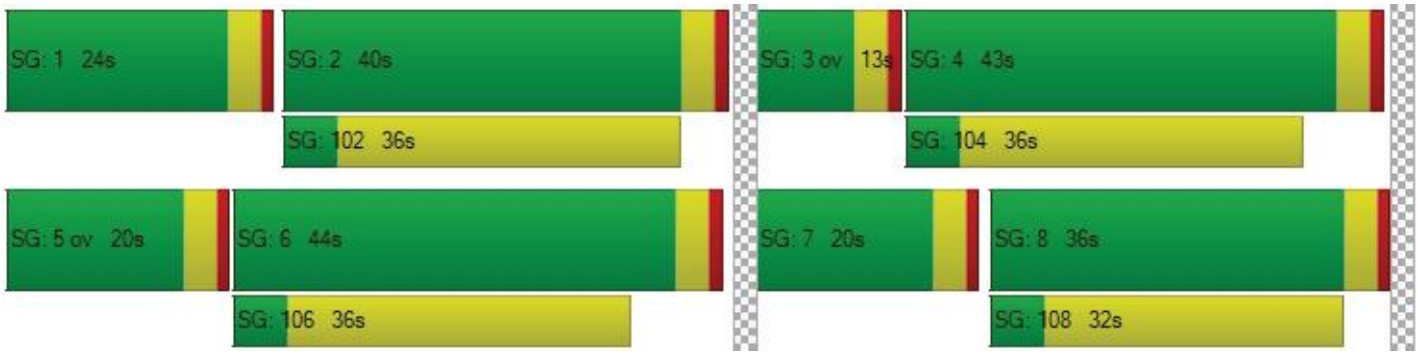
d_M, Delay for Movement [s/veh]	64.78	30.85	30.36	62.31	44.79	25.47	65.68	37.61	39.09	60.31	42.12	18.01
Movement LOS	E	C	C	E	D	C	E	D	D	E	D	B
d_A, Approach Delay [s/veh]	38.16			44.08			44.78			44.54		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.12											
Intersection LOS	D											
Intersection V/C	0.770											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.120	3.175	3.168	3.167
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	600	533	650
d_b, Bicycle Delay [s]	26.67	29.40	32.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.217	2.533	2.061	2.612
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	1,507.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.036

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	102	0	0	0	0	621	36	198	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	1	0	0	0	0	29	0	2	19	0
Site-Generated Trips [veh/h]	0	0	5	0	0	0	0	5	0	8	43	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	0	120	0	0	0	0	730	40	232	1771	0
Peak Hour Factor	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823	0.823
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	0	36	0	0	0	0	222	12	70	538	0
Total Analysis Volume [veh/h]	29	0	146	0	0	0	0	887	49	282	2152	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	3.04	0.00	0.27	0.00	0.00	0.00	0.00	0.01	0.00	0.38	0.02	0.00
d_M, Delay for Movement [s/veh]	1507.	2243.	1137.	1538.	1160.	21.50	19.19	0.00	0.00	12.83	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	18.75	18.75	18.75	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.00	0.00
95th-Percentile Queue Length [ft/ln]	468.7	468.7	468.7	0.00	0.00	0.00	0.00	0.00	0.00	44.78	0.00	0.00
d_A, Approach Delay [s/veh]	1198.92			906.89			0.00			1.49		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	60.21											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	52.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.825

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	515	78	132	724	162	149	428	114	235	797	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	2	0	0	23	0	0	15	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	5	0	0	34	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	586	87	148	821	181	167	507	128	263	942	87
Peak Hour Factor	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914	0.914
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	160	24	40	225	50	46	139	35	72	258	24
Total Analysis Volume [veh/h]	175	641	95	162	898	198	183	555	140	288	1031	95
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	43	0	18	44	0	18	31	0	28	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	40	40	13	40	40	14	29	29	22	37	37
g / C, Green / Cycle	0.11	0.33	0.33	0.11	0.33	0.33	0.12	0.24	0.24	0.18	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.10	0.21	0.21	0.09	0.31	0.31	0.11	0.16	0.09	0.17	0.30	0.06
s, saturation flow rate [veh/h]	1714	1800	1720	1714	1800	1689	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	186	597	570	189	600	563	200	825	369	316	1057	472
d1, Uniform Delay [s]	53.13	33.89	33.89	52.48	38.83	38.93	52.41	41.26	38.06	48.00	41.05	30.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.21	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.52	4.99	5.22	10.74	24.59	26.51	15.03	0.96	0.65	17.31	8.36	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.63	0.63	0.86	0.94	0.94	0.92	0.67	0.38	0.91	0.98	0.20
d, Delay for Lane Group [s/veh]	72.65	38.88	39.11	63.22	63.42	65.44	67.44	42.22	38.71	65.32	49.42	30.81
Lane Group LOS	E	D	D	E	E	E	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.24	10.05	9.64	5.36	19.98	19.17	6.28	7.53	3.52	9.94	16.10	2.07
50th-Percentile Queue Length [ft/ln]	155.9	251.2	241.0	133.9	499.5	479.1	156.9	188.1	87.94	248.5	402.5	51.76
95th-Percentile Queue Length [veh/ln]	10.33	15.25	14.73	9.15	27.31	26.34	10.38	12.03	6.33	15.11	22.68	3.73
95th-Percentile Queue Length [ft/ln]	258.3	381.2	368.3	228.7	682.7	658.6	259.6	300.6	158.2	377.8	567.0	93.17

Movement, Approach, & Intersection Results

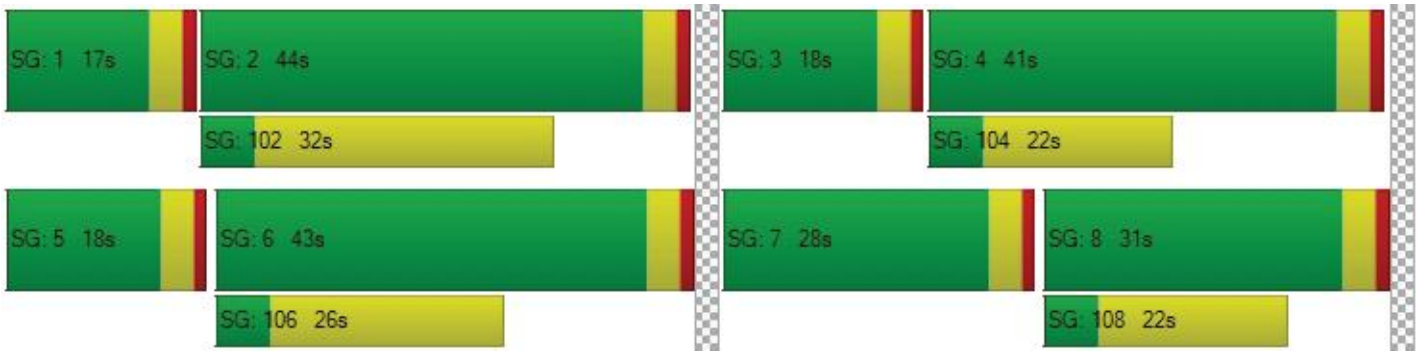
d_M, Delay for Movement [s/veh]	72.65	38.98	39.11	63.22	64.17	65.44	67.44	42.22	38.71	65.32	49.42	30.81
Movement LOS	E	D	D	E	E	E	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	45.46			64.25			46.92			51.41		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	52.93											
Intersection LOS	D											
Intersection V/C	0.825											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.751	2.740	2.839	2.830
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	667	450	617
d_b, Bicycle Delay [s]	27.34	26.67	36.04	28.70
l_b,int, Bicycle LOS Score for Intersection	2.311	2.597	2.284	2.726
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	44.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	436	79	192	814	126	211	375	100	151	611	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	9	2	0	8	2	3	14	0	3	9	0
Site-Generated Trips [veh/h]	0	5	5	0	16	6	0	5	0	8	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	502	95	215	936	149	239	439	112	180	712	140
Peak Hour Factor	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	139	26	60	259	41	66	122	31	50	197	39
Total Analysis Volume [veh/h]	98	557	105	238	1038	165	265	487	124	200	789	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	32	0	24	44	0	27	40	0	24	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	35	35	18	45	45	20	35	35	16	30	30
g / C, Green / Cycle	0.07	0.29	0.29	0.15	0.38	0.38	0.17	0.29	0.29	0.13	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.07	0.14	0.30	0.11	0.15	0.14	0.08	0.12	0.23	0.10
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	114	987	440	264	1287	574	292	997	445	229	871	389
d1, Uniform Delay [s]	55.44	36.33	32.67	49.84	33.57	26.23	48.83	35.17	32.84	50.97	43.38	37.15
k, delay calibration	0.11	0.50	0.50	0.12	0.50	0.50	0.17	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.32	2.34	1.27	12.02	5.49	1.26	14.98	0.37	0.34	9.90	3.95	0.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.56	0.24	0.90	0.81	0.29	0.91	0.49	0.28	0.87	0.91	0.40
d, Delay for Lane Group [s/veh]	71.76	38.67	33.95	61.86	39.07	27.49	63.81	35.54	33.17	60.87	47.33	37.82
Lane Group LOS	E	D	C	E	D	C	E	D	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.45	7.25	2.50	7.88	14.32	3.52	8.98	5.94	2.84	6.52	11.74	3.86
50th-Percentile Queue Length [ft/ln]	86.30	181.2	62.61	196.9	358.0	87.88	224.5	148.4	71.02	163.0	293.6	96.58
95th-Percentile Queue Length [veh/ln]	6.21	11.66	4.51	12.48	20.53	6.33	13.90	9.94	5.11	10.71	17.36	6.95
95th-Percentile Queue Length [ft/ln]	155.3	291.5	112.7	312.0	513.2	158.1	347.4	248.4	127.8	267.7	434.1	173.8

Movement, Approach, & Intersection Results

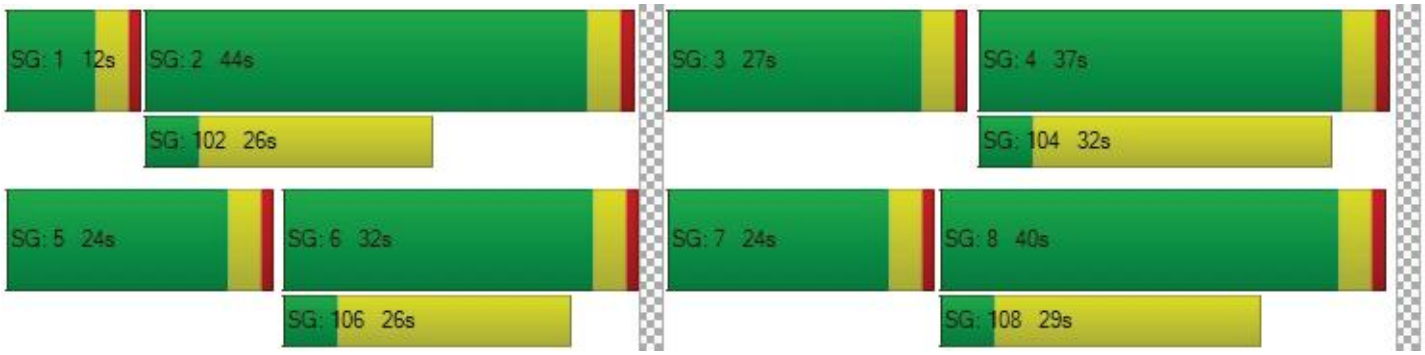
d_M, Delay for Movement [s/veh]	71.76	38.67	33.95	61.86	39.07	27.49	63.81	35.54	33.17	60.87	47.33	37.82
Movement LOS	E	D	C	E	D	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	42.29			41.50			43.76			48.41		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.98											
Intersection LOS	D											
Intersection V/C	0.745											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.905	3.035	2.781	2.789
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	667	600	550
d_b, Bicycle Delay [s]	35.27	26.67	29.40	31.54
l_b,int, Bicycle LOS Score for Intersection	2.187	2.748	2.282	2.503
Bicycle LOS	B	B	B	B

Sequence

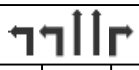
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	325	161	36	120	324	392	93	245	148	141	699	133
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	18	66	0	0	46	0	0	0	12	0	0	0
Site-Generated Trips [veh/h]	0	71	0	0	141	0	0	0	27	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	382	317	40	134	550	439	104	274	205	158	783	149
Peak Hour Factor	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865	0.865
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	110	92	12	39	159	127	30	79	59	46	226	43
Total Analysis Volume [veh/h]	442	366	46	155	636	508	120	317	237	183	905	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	23	35	35	18	30	30	10	51	51	16	57	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	45	58	13	40	50	6	38	60	9	40	40
g / C, Green / Cycle	0.15	0.38	0.48	0.11	0.33	0.41	0.05	0.31	0.50	0.07	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.13	0.11	0.03	0.09	0.19	0.33	0.04	0.18	0.15	0.05	0.31	0.31
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1702
c, Capacity [veh/h]	500	1285	737	181	1133	633	166	562	759	245	605	571
d1, Uniform Delay [s]	49.96	26.24	16.61	52.74	33.02	30.86	56.17	34.44	18.04	54.49	38.18	38.26
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.17	0.11	0.24	0.24
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.35	0.56	0.16	10.81	2.01	10.33	5.77	0.89	0.37	4.51	11.67	12.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.28	0.06	0.85	0.56	0.80	0.72	0.56	0.31	0.75	0.91	0.92
d, Delay for Lane Group [s/veh]	55.31	26.80	16.77	63.55	35.03	41.19	61.94	35.33	18.41	59.01	49.86	51.02
Lane Group LOS	E	C	B	E	D	D	E	D	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.86	3.77	0.72	5.13	7.90	14.47	1.92	7.85	3.98	2.87	17.32	16.64
50th-Percentile Queue Length [ft/ln]	171.4	94.29	17.89	128.3	197.3	361.6	48.12	196.1	99.52	71.67	432.9	416.0
95th-Percentile Queue Length [veh/ln]	11.15	6.79	1.29	8.85	12.50	20.70	3.46	12.44	7.17	5.16	24.14	23.33
95th-Percentile Queue Length [ft/ln]	278.7	169.7	32.20	221.2	312.5	517.5	86.62	311.0	179.1	129.0	603.5	583.3

Movement, Approach, & Intersection Results

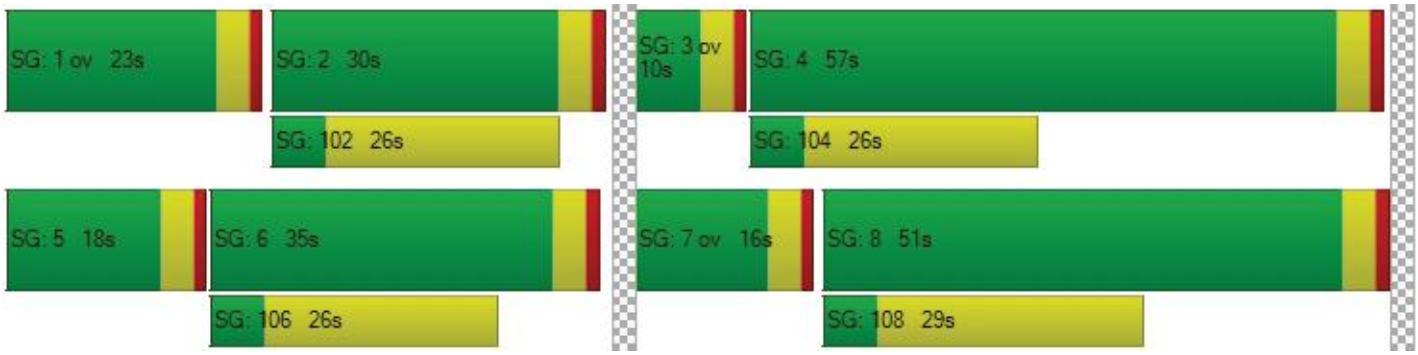
d_M, Delay for Movement [s/veh]	55.31	26.80	16.77	63.55	35.03	41.19	61.94	35.33	18.41	59.01	50.31	51.02
Movement LOS	E	C	B	E	D	D	E	D	B	E	D	D
d_A, Approach Delay [s/veh]	41.01			40.84			34.12			51.67		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	43.11											
Intersection LOS	D											
Intersection V/C	0.787											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.875	2.786	2.961	2.757
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	433	783	883
d_b, Bicycle Delay [s]	33.00	36.82	22.20	18.70
l_b,int, Bicycle LOS Score for Intersection	2.264	2.631	2.672	2.599
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	54.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.845

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	671	122	53	1008	95	70	390	93	154	601	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	121	20	0	91	0	0	0	0	13	0	0
Site-Generated Trips [veh/h]	0	161	0	0	302	0	0	0	0	35	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	1034	157	59	1522	106	78	437	104	220	673	66
Peak Hour Factor	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948	0.948
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	273	41	16	401	28	21	115	27	58	177	17
Total Analysis Volume [veh/h]	121	1091	166	62	1605	112	82	461	110	232	710	70
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	49	0	9	45	0	10	40	0	22	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	45	45	5	41	41	6	36	36	18	48	48
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.34	0.34	0.05	0.30	0.30	0.15	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.07	0.25	0.25	0.04	0.33	0.33	0.05	0.26	0.07	0.14	0.39	0.05
s, saturation flow rate [veh/h]	1714	3427	1681	1714	3427	1741	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	129	1285	630	71	1171	595	86	540	459	257	720	612
d1, Uniform Delay [s]	55.24	31.09	31.09	57.17	38.93	38.96	56.87	39.49	31.66	50.16	35.67	22.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.35	0.11	0.11	0.46	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.92	2.63	5.27	25.15	20.37	30.93	35.51	11.52	0.27	11.78	28.91	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.66	0.66	0.87	0.97	0.97	0.96	0.85	0.24	0.90	0.99	0.11
d, Delay for Lane Group [s/veh]	80.15	33.71	36.36	82.32	59.30	69.89	92.38	51.01	31.92	61.95	64.58	22.72
Lane Group LOS	F	C	D	F	E	E	F	D	C	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.53	10.51	10.77	2.37	19.55	21.64	3.32	14.40	2.46	7.67	25.85	1.27
50th-Percentile Queue Length [ft/ln]	113.2	262.6	269.3	59.21	488.7	541.0	83.10	359.8	61.41	191.7	646.2	31.74
95th-Percentile Queue Length [veh/ln]	8.02	15.82	16.16	4.26	26.80	29.27	5.98	20.62	4.42	12.21	34.19	2.29
95th-Percentile Queue Length [ft/ln]	200.4	395.5	403.9	106.5	670.0	731.8	149.5	515.4	110.5	305.3	854.7	57.13

Movement, Approach, & Intersection Results

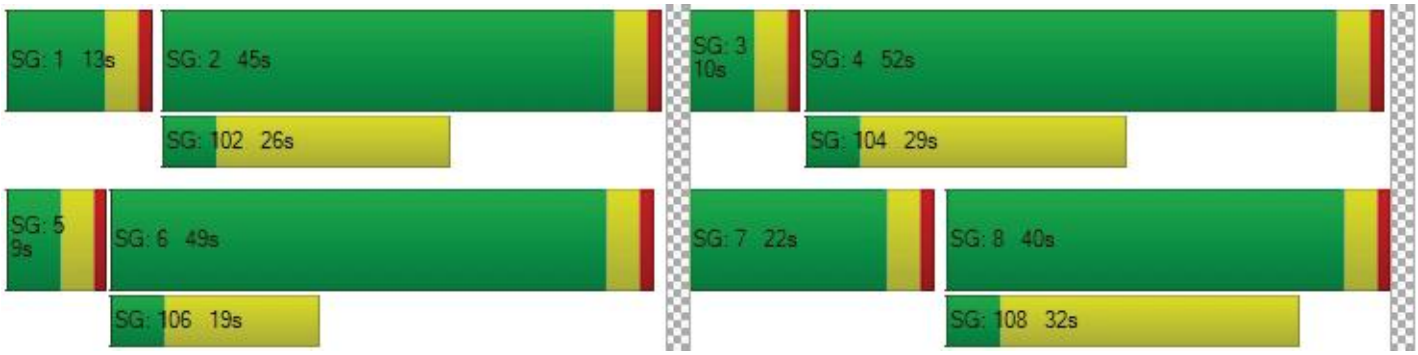
d_M, Delay for Movement [s/veh]	80.15	34.32	36.36	82.32	62.38	69.89	92.38	51.01	31.92	61.95	64.58	22.72
Movement LOS	F	C	D	F	E	E	F	D	C	E	E	C
d_A, Approach Delay [s/veh]	38.59			63.55			52.99			61.08		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	54.47											
Intersection LOS	D											
Intersection V/C	0.845											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.146	3.030	2.727	2.561
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	683	600	800
d_b, Bicycle Delay [s]	23.44	26.00	29.40	21.60
l_b,int, Bicycle LOS Score for Intersection	2.318	2.538	2.637	3.229
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	29.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	127	114	14	154	84	41	337	58	140	598	22
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	1	3	0	2	0	0	20	0	2	13	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	0	0	3	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	148	131	16	182	94	46	397	65	162	718	25
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	41	36	4	50	26	13	109	18	45	198	7
Total Analysis Volume [veh/h]	103	163	144	18	201	104	51	438	72	179	792	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	94	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	56	56	56	56	56	56	56	56	56	56
g / C, Green / Cycle	0.47	0.47	0.47	0.47	0.47	0.47	0.46	0.46	0.46	0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.09	0.02	0.11	0.07	0.08	0.24	0.05	0.20	0.44	0.02
s, saturation flow rate [veh/h]	1091	1800	1530	1089	1800	1530	678	1800	1530	904	1800	1530
c, Capacity [veh/h]	421	842	716	438	842	716	154	838	712	370	838	712
d1, Uniform Delay [s]	29.69	18.68	18.75	26.04	19.12	18.22	48.06	22.66	18.00	32.35	30.62	17.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.17	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	0.51	0.63	0.18	0.67	0.43	1.24	0.51	0.06	0.98	9.04	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.19	0.20	0.04	0.24	0.15	0.33	0.52	0.10	0.48	0.95	0.04
d, Delay for Lane Group [s/veh]	31.07	19.19	19.38	26.22	19.79	18.65	49.30	23.17	18.06	33.33	39.66	17.49
Lane Group LOS	C	B	B	C	B	B	D	C	B	C	D	B
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.37	2.78	2.48	0.37	3.51	1.74	1.48	8.77	1.14	4.35	23.25	0.43
50th-Percentile Queue Length [ft/ln]	59.24	69.46	62.09	9.17	87.82	43.50	36.93	219.3	28.55	108.8	581.2	10.77
95th-Percentile Queue Length [veh/ln]	4.27	5.00	4.47	0.66	6.32	3.13	2.66	13.63	2.06	7.78	31.16	0.78
95th-Percentile Queue Length [ft/ln]	106.6	125.0	111.7	16.51	158.0	78.30	66.47	340.8	51.39	194.3	778.9	19.39

Movement, Approach, & Intersection Results

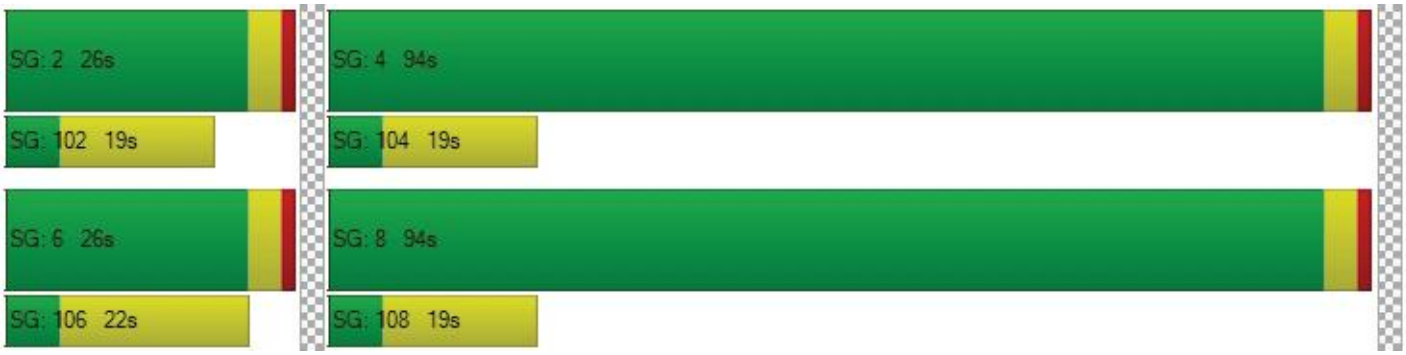
d_M, Delay for Movement [s/veh]	31.07	19.19	19.38	26.22	19.79	18.65	49.30	23.17	18.06	33.33	39.66	17.49
Movement LOS	C	B	B	C	B	B	D	C	B	C	D	B
d_A, Approach Delay [s/veh]	22.24			19.78			24.89			37.90		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	29.37											
Intersection LOS	C											
Intersection V/C	0.552											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.611	2.357	2.673	2.653
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1500	1500
d_b, Bicycle Delay [s]	40.02	40.02	3.75	3.75
l_b,int, Bicycle LOS Score for Intersection	2.236	2.093	2.485	3.208
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	50.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	208	617	205	96	791	141	73	255	105	226	437	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	3	0	2	0	0	11	0	2	7	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	0	0	3	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	233	700	233	108	896	158	82	297	118	258	516	147
Peak Hour Factor	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	60	181	60	28	232	41	21	77	31	67	134	38
Total Analysis Volume [veh/h]	241	725	241	112	928	164	85	307	122	267	534	152
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	53	0	13	44	0	11	28	0	26	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	51	51	9	42	42	7	24	24	21	37	37
g / C, Green / Cycle	0.15	0.42	0.42	0.08	0.35	0.35	0.06	0.20	0.20	0.17	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.14	0.28	0.28	0.07	0.31	0.31	0.05	0.09	0.08	0.16	0.30	0.10
s, saturation flow rate [veh/h]	1714	1800	1649	1714	1800	1707	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	257	759	695	129	624	592	100	681	304	294	561	477
d1, Uniform Delay [s]	50.44	27.87	27.92	54.93	37.19	37.24	55.98	42.32	41.87	48.78	40.40	31.55
k, delay calibration	0.13	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.17	0.40	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.91	4.53	5.01	16.02	18.12	19.19	17.50	0.47	0.86	15.35	23.82	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.66	0.67	0.87	0.90	0.90	0.85	0.45	0.40	0.91	0.95	0.32
d, Delay for Lane Group [s/veh]	67.35	32.40	32.93	70.95	55.31	56.43	73.48	42.79	42.72	64.13	64.22	31.93
Lane Group LOS	E	C	C	E	E	E	E	D	D	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.34	12.40	11.52	3.92	18.48	17.77	3.04	4.06	3.23	9.08	18.95	3.44
50th-Percentile Queue Length [ft/ln]	208.6	309.9	287.9	98.03	462.0	444.1	75.89	101.5	80.75	227.0	473.7	85.92
95th-Percentile Queue Length [veh/ln]	13.08	18.17	17.08	7.06	25.53	24.68	5.46	7.31	5.81	14.02	26.09	6.19
95th-Percentile Queue Length [ft/ln]	327.0	454.2	427.0	176.4	638.2	616.9	136.5	182.7	145.3	350.5	652.1	154.6

Movement, Approach, & Intersection Results

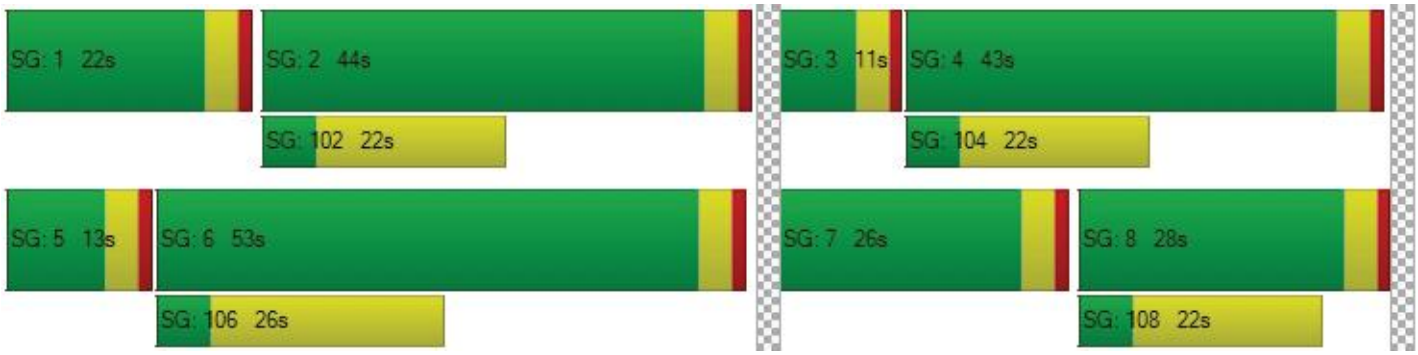
d_M, Delay for Movement [s/veh]	67.35	32.56	32.93	70.95	55.75	56.43	73.48	42.79	42.72	64.13	64.22	31.93
Movement LOS	E	C	C	E	E	E	E	D	D	E	E	C
d_A, Approach Delay [s/veh]	39.58			57.26			47.85			59.04		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	50.95											
Intersection LOS	D											
Intersection V/C	0.799											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.807	2.737	2.598	2.730
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	667	400	650
d_b, Bicycle Delay [s]	21.00	26.67	38.40	27.34
l_b,int, Bicycle LOS Score for Intersection	2.555	2.553	1.984	3.132
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	38.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	87	511	35	58	717	69	67	402	82	69	527	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	11	3	0	11	0	0	3	0	2	2	0
Site-Generated Trips [veh/h]	0	10	0	0	24	0	0	0	0	3	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	593	42	65	838	77	75	453	92	82	598	62
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	173	12	19	244	22	22	132	27	24	174	18
Total Analysis Volume [veh/h]	113	691	49	76	977	90	87	528	107	96	697	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	44	0	12	43	0	11	52	0	12	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	61	61	7	59	59	7	28	28	8	29	29
g / C, Green / Cycle	0.08	0.51	0.51	0.06	0.49	0.49	0.06	0.23	0.23	0.07	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.07	0.21	0.21	0.04	0.30	0.30	0.05	0.18	0.18	0.06	0.22	0.22
s, saturation flow rate [veh/h]	1714	1800	1758	1714	1800	1747	1714	1800	1696	1714	1800	1741
c, Capacity [veh/h]	129	917	895	96	882	857	100	423	398	114	438	423
d1, Uniform Delay [s]	54.96	18.25	18.25	55.95	22.30	22.30	56.05	42.91	42.95	55.37	43.90	43.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.12	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.78	1.35	1.38	13.46	3.18	3.28	19.52	3.03	3.26	14.82	6.99	7.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.41	0.41	0.79	0.61	0.61	0.87	0.77	0.78	0.84	0.89	0.89
d, Delay for Lane Group [s/veh]	71.74	19.59	19.63	69.41	25.47	25.58	75.56	45.94	46.21	70.18	50.89	51.13
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.98	6.70	6.55	2.63	11.68	11.38	3.15	9.38	8.91	3.34	12.01	11.66
50th-Percentile Queue Length [ft/ln]	99.51	167.4	163.8	65.81	292.0	284.3	78.87	234.5	222.6	83.52	300.3	291.4
95th-Percentile Queue Length [veh/ln]	7.16	10.94	10.75	4.74	17.28	16.91	5.68	14.40	13.80	6.01	17.70	17.26
95th-Percentile Queue Length [ft/ln]	179.1	273.5	268.8	118.4	432.1	422.6	141.9	360.1	345.0	150.3	442.4	431.4

Movement, Approach, & Intersection Results

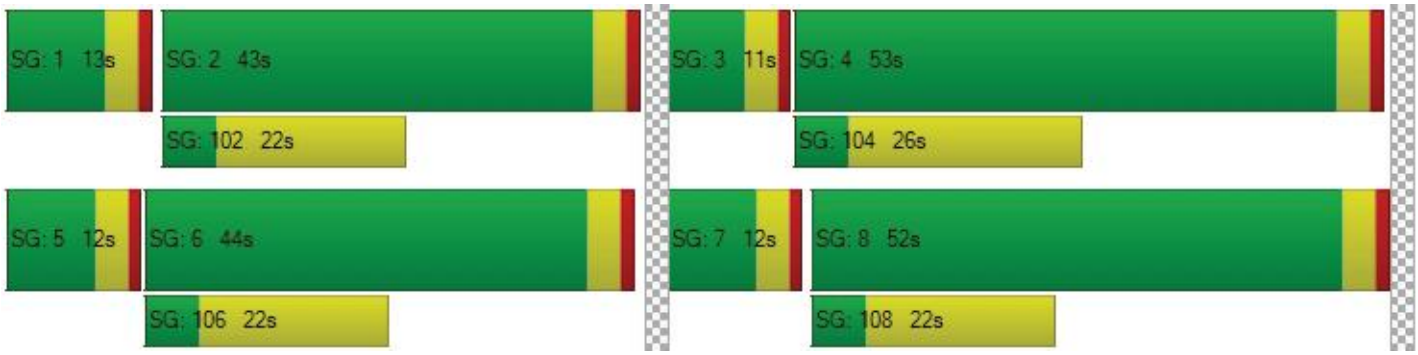
d_M, Delay for Movement [s/veh]	71.74	19.61	19.63	69.41	25.52	25.58	75.56	46.05	46.21	70.18	51.00	51.13
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.52			28.45			49.63			53.14		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.22											
Intersection LOS	D											
Intersection V/C	0.635											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.712	2.792	2.631	2.611
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	650	800	817
d_b, Bicycle Delay [s]	26.67	27.34	21.60	21.00
l_b,int, Bicycle LOS Score for Intersection	2.263	2.503	2.155	2.273
Bicycle LOS	B	B	B	B

Sequence

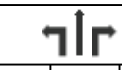
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	28.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.791

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	418	151	65	572	0	0	0	0	234	0	137
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	84	0	0	58	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	71	0	0	168	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	623	169	73	867	0	0	0	0	262	0	153
Peak Hour Factor	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	182	49	21	253	0	0	0	0	76	0	45
Total Analysis Volume [veh/h]	0	727	197	85	1012	0	0	0	0	306	0	179
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	71	0	17	79	0	0	32	0	0	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	72	72	8	80	80	28	28	28	28
g / C, Green / Cycle	0.00	0.60	0.60	0.06	0.67	0.67	0.23	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.00	0.40	0.13	0.05	0.56	0.00	0.00	0.00	0.23	0.12
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1680	1530	1337	1530
c, Capacity [veh/h]	2	1086	923	108	1198	1018	422	357	372	357
d1, Uniform Delay [s]	0.00	15.83	10.83	55.39	15.35	0.00	0.00	0.00	46.75	39.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.39	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	3.28	0.53	11.59	7.41	0.00	0.00	0.00	14.74	1.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.67	0.21	0.78	0.84	0.00	0.00	0.00	0.82	0.50
d, Delay for Lane Group [s/veh]	0.00	19.12	11.36	66.99	22.75	0.00	0.00	0.00	61.49	41.03
Lane Group LOS	A	B	B	E	C	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	13.57	2.47	2.89	21.53	0.00	0.00	0.00	10.55	4.70
50th-Percentile Queue Length [ft/ln]	0.00	339.3	61.71	72.14	538.3	0.00	0.00	0.00	263.70	117.60
95th-Percentile Queue Length [veh/ln]	0.00	19.61	4.44	5.19	29.14	0.00	0.00	0.00	15.87	8.26
95th-Percentile Queue Length [ft/ln]	0.00	490.3	111.0	129.8	728.5	0.00	0.00	0.00	396.86	206.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	19.12	11.36	66.99	22.75	0.00	0.00	0.00	0.00	61.49	61.49	41.03
Movement LOS	A	B	B	E	C	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	17.46			26.18			0.00			53.94		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	28.34											
Intersection LOS	C											
Intersection V/C	0.791											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.188	0.000	1.955	2.205
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1117	1250	467	467
d_b, Bicycle Delay [s]	11.70	8.44	35.27	35.27
l_b,int, Bicycle LOS Score for Intersection	3.084	3.370	1.560	2.360
Bicycle LOS	C	C	A	B

Sequence

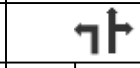
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	64.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.920

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	186	806	132	35	1068	89	30	30	200	150	136	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	140	0	0	104	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	161	0	0	337	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	1204	148	39	1637	100	34	34	224	169	152	76
Peak Hour Factor	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917	0.917
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	328	40	11	446	27	9	9	61	46	41	21
Total Analysis Volume [veh/h]	227	1313	161	43	1785	109	37	37	244	184	166	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	69	0	9	59	0	9	26	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	67	67	4	56	56	4	21	21	12	29
g / C, Green / Cycle	0.13	0.56	0.56	0.03	0.47	0.47	0.03	0.17	0.17	0.10	0.24
(v / s)_i Volume / Saturation Flow Rate	0.13	0.41	0.42	0.03	0.52	0.07	0.02	0.02	0.16	0.11	0.15
s, saturation flow rate [veh/h]	1714	1800	1733	1714	3427	1530	1714	1800	1530	1714	1700
c, Capacity [veh/h]	214	1008	970	55	1601	715	52	314	267	171	415
d1, Uniform Delay [s]	52.50	19.80	20.10	57.63	31.97	18.34	57.67	41.75	48.65	54.00	40.16
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.18	0.11	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	45.65	4.82	5.40	20.18	60.90	0.45	16.48	0.17	18.09	53.49	1.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.06	0.74	0.75	0.78	1.11	0.15	0.71	0.12	0.91	1.07	0.60
d, Delay for Lane Group [s/veh]	98.15	24.62	25.50	77.81	92.87	18.79	74.14	41.92	66.74	107.49	42.00
Lane Group LOS	F	C	C	E	F	B	E	D	E	F	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	9.15	16.25	16.33	1.61	35.89	1.84	1.35	0.95	8.49	7.71	6.72
50th-Percentile Queue Length [ft/ln]	228.8	406.3	408.3	40.17	897.2	45.88	33.78	23.63	212.3	192.80	167.96
95th-Percentile Queue Length [veh/ln]	14.46	22.86	22.96	2.89	49.58	3.30	2.43	1.70	13.27	12.60	10.97
95th-Percentile Queue Length [ft/ln]	361.6	571.6	574.0	72.30	1239.	82.58	60.81	42.53	331.8	314.97	274.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.15	25.00	25.50	77.81	92.87	18.79	74.14	41.92	66.74	107.4	42.00	42.00
Movement LOS	F	C	C	E	F	B	E	D	E	F	D	D
d_A, Approach Delay [s/veh]	34.81			88.37			64.71			69.83		
Approach LOS	C			F			E			E		
d_I, Intersection Delay [s/veh]	64.07											
Intersection LOS	E											
Intersection V/C	0.920											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.104	3.079	2.346	2.174
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	917	367	483
d_b, Bicycle Delay [s]	12.60	17.60	40.02	34.50
l_b,int, Bicycle LOS Score for Intersection	2.963	3.158	2.084	2.274
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	45.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	134	290	0	0	261	111	57	0	66	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.120	1.000	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	3	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	11	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	334	0	0	306	125	64	0	74	0	0	0
Peak Hour Factor	0.913	0.913	1.000	1.000	0.913	0.913	0.913	1.000	0.913	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	91	0	0	84	34	18	0	20	0	0	0
Total Analysis Volume [veh/h]	164	366	0	0	335	137	70	0	81	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.12	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.84	0.00	0.00	0.00	0.00	0.00	45.55	0.00	11.31	0.00	0.00	0.00
Movement LOS	A	A			A	A	E		B			
95th-Percentile Queue Length [veh/ln]	0.52	0.52	0.00	0.00	0.00	0.00	2.05	0.00	0.42	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.08	13.08	0.00	0.00	0.00	0.00	51.20	0.00	10.59	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.74			0.00			27.19			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	4.82											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.694

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	551	201	49	753	1	0	0	2	174	0	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	73	58	0	0	0	0	0	9	0	84
Site-Generated Trips [veh/h]	0	0	110	168	0	0	0	0	0	111	0	71
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	617	408	281	843	1	0	0	2	315	0	200
Peak Hour Factor	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	163	108	74	223	0	0	0	1	83	0	53
Total Analysis Volume [veh/h]	1	652	431	297	891	1	0	0	2	333	0	211
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	9	0	60	57	0	0	9	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	54	54	23	77	77	0	0	26	26
g / C, Green / Cycle	0.00	0.45	0.45	0.19	0.64	0.64	0.00	0.00	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.32	0.17	0.25	0.25	0.00	0.00	0.20	0.14
s, saturation flow rate [veh/h]	1714	1800	1564	1714	1800	1799	1800	1392	1687	1530
c, Capacity [veh/h]	3	814	707	330	1157	1157	5	4	370	335
d1, Uniform Delay [s]	59.81	26.53	26.55	47.35	10.18	10.18	59.64	59.73	45.59	42.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.18	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	47.33	5.23	6.02	8.94	0.97	0.97	0.00	67.03	12.49	1.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.71	0.71	0.90	0.39	0.39	0.00	0.48	0.90	0.63
d, Delay for Lane Group [s/veh]	107.1	31.76	32.57	56.28	11.15	11.15	59.64	126.76	58.08	44.40
Lane Group LOS	F	C	C	E	B	B	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	14.29	12.60	9.46	5.65	5.65	0.00	0.14	10.89	5.85
50th-Percentile Queue Length [ft/ln]	1.82	357.2	315.0	236.4	141.3	141.3	0.00	3.46	272.17	146.19
95th-Percentile Queue Length [veh/ln]	0.13	20.49	18.42	14.50	9.55	9.55	0.00	0.25	16.30	9.81
95th-Percentile Queue Length [ft/ln]	3.27	512.2	460.5	362.5	238.8	238.8	0.00	6.23	407.45	245.34

Movement, Approach, & Intersection Results

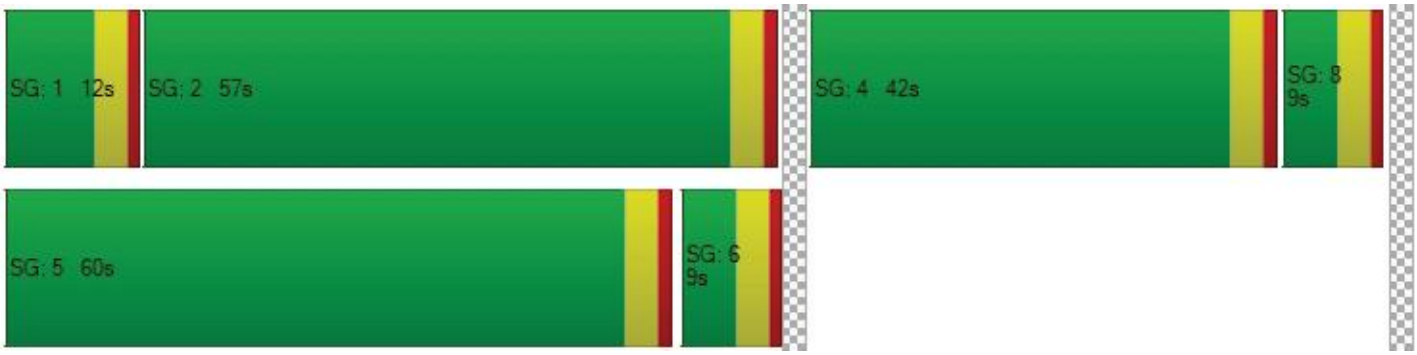
d_M, Delay for Movement [s/veh]	107.1	31.85	32.57	56.28	11.15	11.15	59.64	59.64	126.7	58.08	58.08	44.40
Movement LOS	F	C	C	E	B	B	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	32.21			22.43			126.76			52.77		
Approach LOS	C			C			F			D		
d_I, Intersection Delay [s/veh]	32.12											
Intersection LOS	C											
Intersection V/C	0.694											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	883	83	633
d_b, Bicycle Delay [s]	55.10	18.70	55.10	28.02
l_b,int, Bicycle LOS Score for Intersection	2.454	2.541	1.561	2.457
Bicycle LOS	B	B	A	B

Sequence

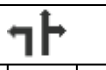
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	130	1237	0	0	0	0	145	0	253
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	161	0	0	337	0	0	0	0	20	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	974	117	146	1574	0	0	0	0	165	0	283
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	267	32	40	431	0	0	0	0	45	0	77
Total Analysis Volume [veh/h]	3	1067	128	160	1724	0	0	0	0	181	0	310
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	53	0	17	61	0	26	30	0	20	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	64	64	13	77	77	0	12	14	27
g / C, Green / Cycle	0.00	0.54	0.54	0.11	0.64	0.64	0.00	0.10	0.12	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.31	0.08	0.09	0.50	0.00	0.00	0.00	0.11	0.20
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	7	1842	822	185	2198	981	1	181	207	337
d1, Uniform Delay [s]	59.61	18.64	14.01	52.66	15.53	0.00	0.00	0.00	51.87	45.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.88	1.34	0.40	11.30	2.89	0.00	0.00	0.00	10.99	13.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.58	0.16	0.86	0.78	0.00	0.00	0.00	0.87	0.92
d, Delay for Lane Group [s/veh]	95.50	19.98	14.41	63.96	18.43	0.00	0.00	0.00	62.85	59.06
Lane Group LOS	F	B	B	E	B	A	A	A	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	10.05	1.84	5.32	16.61	0.00	0.00	0.00	5.98	10.23
50th-Percentile Queue Length [ft/ln]	4.03	251.2	46.07	132.9	415.3	0.00	0.00	0.00	149.48	255.66
95th-Percentile Queue Length [veh/ln]	0.29	15.25	3.32	9.10	23.30	0.00	0.00	0.00	9.99	15.47
95th-Percentile Queue Length [ft/ln]	7.26	381.2	82.92	227.5	582.4	0.00	0.00	0.00	249.74	386.77

Movement, Approach, & Intersection Results

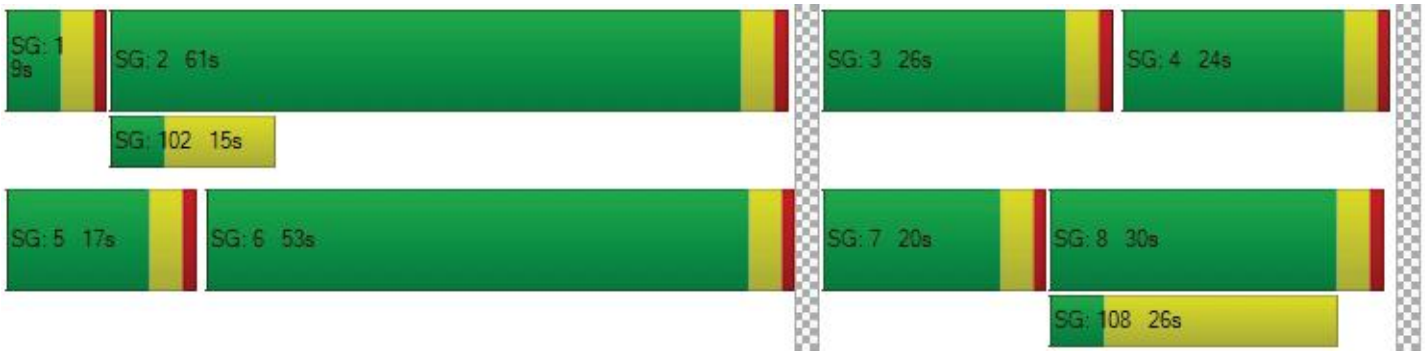
d_M, Delay for Movement [s/veh]	95.50	19.98	14.41	63.96	18.43	0.00	0.00	0.00	0.00	62.85	59.06	59.06
Movement LOS	F	B	B	E	B	A	A	A	A	E	E	E
d_A, Approach Delay [s/veh]	19.57			22.29			0.00			60.46		
Approach LOS	B			C			A			E		
d_I, Intersection Delay [s/veh]	26.63											
Intersection LOS	C											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.041	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	950	433	333
d_b, Bicycle Delay [s]	21.00	16.54	36.82	41.67
l_b,int, Bicycle LOS Score for Intersection	2.548	3.114	1.560	2.370
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	42.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.996

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	162	58	56	145	76	103	129	56	67	230	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	3	0	0	11	0	0	7	0
Site-Generated Trips [veh/h]	0	5	0	0	11	0	0	0	0	0	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	190	65	63	176	85	115	155	63	75	285	171
Peak Hour Factor	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886	0.886
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	54	18	18	50	24	32	44	18	21	80	48
Total Analysis Volume [veh/h]	64	214	73	71	199	96	130	175	71	85	322	193
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	396	434	418	395	438	408	451
Degree of Utilization, x	0.70	0.17	0.88	0.77	0.16	1.00	0.43

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.23	0.60	8.92	6.46	0.57	12.26	2.10
95th-Percentile Queue Length [ft]	130.72	14.97	223.01	161.54	14.30	306.46	52.59
Approach Delay [s/veh]	26.90		48.37	32.13		55.18	
Approach LOS	D		E	D		F	
Intersection Delay [s/veh]	42.72						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.582

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	676	27	61	902	92	147	156	48	43	206	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	7	1	0	4	0	0	11	0	1	7	0
Site-Generated Trips [veh/h]	0	5	0	0	11	0	0	0	0	1	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	769	31	68	1025	103	165	186	54	50	258	115
Peak Hour Factor	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	200	8	18	267	27	43	48	14	13	67	30
Total Analysis Volume [veh/h]	59	801	32	71	1068	107	172	194	56	52	269	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	47	0	10	48	0	37	40	0	23	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	67	67	6	68	68	14	26	26	5	16	16
g / C, Green / Cycle	0.04	0.56	0.56	0.05	0.57	0.57	0.12	0.22	0.22	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.04	0.33	0.33	0.10	0.06	0.04	0.03	0.11	0.12
s, saturation flow rate [veh/h]	1714	1800	1776	1714	1800	1743	1714	3427	1530	1714	1800	1617
c, Capacity [veh/h]	71	1009	996	86	1024	992	204	739	330	69	247	222
d1, Uniform Delay [s]	57.07	15.10	15.10	56.49	16.67	16.69	51.79	39.13	38.32	56.97	50.30	50.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.49	1.26	1.28	17.79	2.42	2.51	9.20	0.19	0.24	14.87	6.52	8.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.42	0.42	0.83	0.58	0.58	0.85	0.26	0.17	0.75	0.82	0.84
d, Delay for Lane Group [s/veh]	77.55	16.36	16.38	74.28	19.08	19.20	61.00	39.32	38.56	71.84	56.81	58.89
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.18	6.77	6.68	2.56	10.90	10.62	5.59	2.41	1.37	1.85	6.33	5.99
50th-Percentile Queue Length [ft/ln]	54.55	169.1	167.0	63.89	272.5	265.4	139.7	60.28	34.36	46.21	158.3	149.8
95th-Percentile Queue Length [veh/ln]	3.93	11.03	10.92	4.60	16.31	15.96	9.47	4.34	2.47	3.33	10.46	10.01
95th-Percentile Queue Length [ft/ln]	98.20	275.8	273.0	115.0	407.8	399.0	236.6	108.5	61.84	83.18	261.5	250.1

Movement, Approach, & Intersection Results

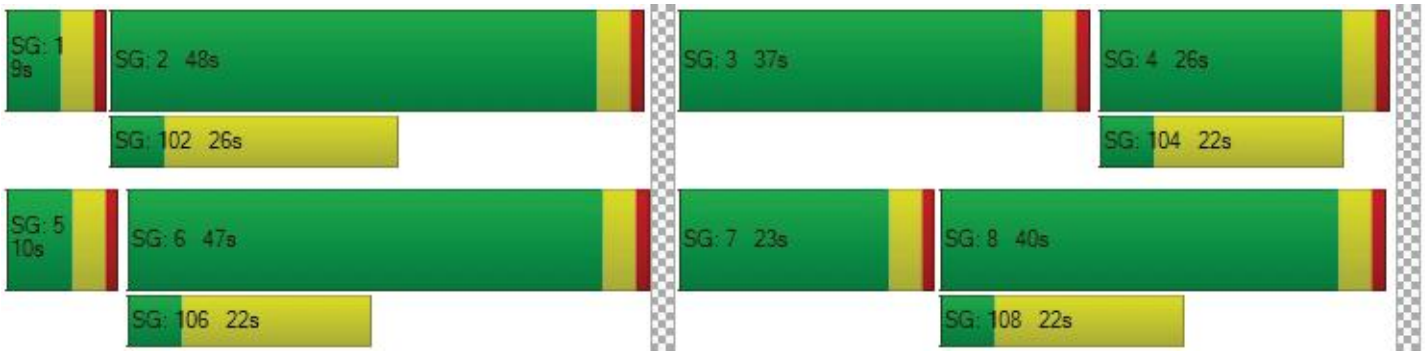
d_M, Delay for Movement [s/veh]	77.55	16.37	16.38	74.28	19.13	19.20	61.00	39.32	38.56	71.84	57.33	58.89
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	20.42			22.28			48.06			59.47		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.82											
Intersection LOS	C											
Intersection V/C	0.582											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.718	2.848	2.607	2.588
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	733	600	367
d_b, Bicycle Delay [s]	24.70	24.07	29.40	40.02
l_b,int, Bicycle LOS Score for Intersection	2.296	2.588	1.908	1.923
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	41.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	568	91	33	877	42	50	340	93	134	370	43
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	1	5	0	0	5	12	15	6	2	0	4	0
Site-Generated Trips [veh/h]	5	0	0	0	5	31	10	0	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	641	102	37	992	90	81	387	106	150	427	48
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	177	28	10	273	25	22	107	29	41	118	13
Total Analysis Volume [veh/h]	77	707	112	41	1094	99	89	427	117	165	471	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	63	0	10	63	0	13	30	0	17	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	46	4	44	44	8	41	41	13	46	46
g / C, Green / Cycle	0.05	0.38	0.38	0.03	0.36	0.36	0.06	0.34	0.34	0.11	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.04	0.23	0.23	0.02	0.34	0.34	0.05	0.16	0.16	0.10	0.15	0.15
s, saturation flow rate [veh/h]	1714	1800	1715	1714	1800	1748	1714	1800	1669	1714	1800	1737
c, Capacity [veh/h]	86	689	657	55	657	638	111	618	573	186	696	671
d1, Uniform Delay [s]	56.70	29.78	29.78	57.57	36.40	36.44	55.32	30.68	30.73	52.78	26.51	26.53
k, delay calibration	0.11	0.11	0.11	0.11	0.23	0.24	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.68	0.87	0.91	17.59	11.20	11.70	12.19	2.41	2.64	13.21	1.60	1.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.61	0.61	0.74	0.92	0.92	0.80	0.46	0.46	0.89	0.38	0.38
d, Delay for Lane Group [s/veh]	82.38	30.65	30.69	75.16	47.60	48.14	67.51	33.09	33.38	65.99	28.11	28.19
Lane Group LOS	F	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.93	9.83	9.38	1.50	18.69	18.29	3.03	6.74	6.35	5.58	5.79	5.62
50th-Percentile Queue Length [ft/ln]	73.30	245.7	234.4	37.62	467.3	457.3	75.83	168.5	158.7	139.5	144.8	140.5
95th-Percentile Queue Length [veh/ln]	5.28	14.97	14.40	2.71	25.78	25.31	5.46	11.00	10.48	9.46	9.74	9.51
95th-Percentile Queue Length [ft/ln]	131.9	374.2	359.9	67.71	644.6	632.7	136.4	275.0	262.0	236.3	243.4	237.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	82.38	30.67	30.69	75.16	47.84	48.14	67.51	33.19	33.38	65.99	28.14	28.19
Movement LOS	F	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	35.11			48.77			38.05			37.21		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.95											
Intersection LOS	D											
Intersection V/C	0.635											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.837	2.807	2.565	2.563
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	983	433	500
d_b, Bicycle Delay [s]	15.50	15.50	36.82	33.75
l_b,int, Bicycle LOS Score for Intersection	2.299	2.578	2.082	2.128
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	22.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	645	75	23	871	122	103	90	11	74	78	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	0	0	3	2	6	12	0	5	5	0
Site-Generated Trips [veh/h]	0	0	0	0	4	8	5	10	0	9	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	724	84	26	983	147	126	123	12	97	108	35
Peak Hour Factor	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	196	23	7	266	40	34	33	3	26	29	9
Total Analysis Volume [veh/h]	24	783	91	28	1063	159	136	133	13	105	117	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	42	26	0	42	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	79	79	3	80	80	12	12	12	9	10	10
g / C, Green / Cycle	0.02	0.66	0.66	0.03	0.66	0.66	0.10	0.10	0.10	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.01	0.25	0.25	0.02	0.35	0.35	0.08	0.07	0.01	0.06	0.07	0.02
s, saturation flow rate [veh/h]	1714	1800	1735	1714	1800	1719	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	40	1190	1147	44	1194	1141	166	185	157	133	150	127
d1, Uniform Delay [s]	58.07	9.15	9.15	57.94	10.40	10.42	53.16	52.18	48.74	54.39	53.93	51.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.02	0.90	0.93	14.72	1.64	1.72	9.53	5.22	0.22	9.98	8.51	1.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.37	0.37	0.64	0.52	0.52	0.82	0.72	0.08	0.79	0.78	0.30
d, Delay for Lane Group [s/veh]	72.09	10.05	10.08	72.65	12.03	12.14	62.69	57.40	48.96	64.37	62.44	53.00
Lane Group LOS	E	B	B	E	B	B	E	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.88	5.25	5.07	1.02	8.47	8.16	4.46	4.15	0.36	3.49	3.82	1.12
50th-Percentile Queue Length [ft/ln]	21.92	131.3	126.8	25.52	211.7	204.0	111.5	103.7	9.11	87.19	95.46	28.11
95th-Percentile Queue Length [veh/ln]	1.58	9.01	8.77	1.84	13.25	12.85	7.93	7.47	0.66	6.28	6.87	2.02
95th-Percentile Queue Length [ft/ln]	39.45	225.2	219.2	45.94	331.1	321.2	198.1	186.7	16.39	156.9	171.8	50.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.09	10.06	10.08	72.65	12.08	12.14	62.69	57.40	48.96	64.37	62.44	53.00
Movement LOS	E	B	B	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	11.72			13.44			59.56			61.84		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	22.38											
Intersection LOS	C											
Intersection V/C	0.506											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.720	2.745	2.288	2.271
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	367	367
d_b, Bicycle Delay [s]	27.34	27.34	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.300	2.591	2.025	1.989
Bicycle LOS	B	B	B	A

Sequence

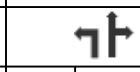
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	92.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.938

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	838	104	156	1207	9	0	1	0	214	0	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120	1.120	1.000
In-Process Volume [veh/h]	117	0	0	0	0	0	0	123	96	0	97	0
Site-Generated Trips [veh/h]	190	192	0	0	161	41	13	36	156	0	143	54
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	318	1030	116	156	1368	50	13	160	252	240	240	163
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	87	281	32	43	374	14	4	44	69	66	66	45
Total Analysis Volume [veh/h]	348	1126	127	170	1495	55	14	175	275	262	262	178
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	35	0	20	39	0	9	33	0	32	56	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	35	35	14	37	37	2	35	20	53
g / C, Green / Cycle	0.10	0.29	0.29	0.11	0.31	0.31	0.02	0.29	0.17	0.44
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.24	0.10	0.30	0.04	0.01	0.28	0.15	0.26
s, saturation flow rate [veh/h]	1714	3427	1708	1714	4903	1530	1714	1625	1714	1680
c, Capacity [veh/h]	171	1003	500	196	1506	470	27	471	291	746
d1, Uniform Delay [s]	54.00	39.71	39.72	52.23	41.44	29.88	58.60	41.86	48.82	25.15
k, delay calibration	0.31	0.50	0.50	0.11	0.50	0.50	0.11	0.39	0.17	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	476.1	8.12	15.06	10.87	21.56	0.51	14.56	27.26	14.05	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.03	0.83	0.83	0.87	0.99	0.12	0.52	0.96	0.90	0.59
d, Delay for Lane Group [s/veh]	530.1	47.83	54.78	63.10	63.00	30.39	73.16	69.12	62.86	26.17
Lane Group LOS	F	D	D	E	E	C	E	E	E	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	27.84	12.59	13.52	5.62	17.51	1.22	0.53	16.49	8.80	9.53
50th-Percentile Queue Length [ft/ln]	695.9	314.6	337.9	140.4	437.8	30.51	13.29	412.22	220.08	238.21
95th-Percentile Queue Length [veh/ln]	44.16	18.40	19.55	9.51	24.37	2.20	0.96	23.15	13.67	14.59
95th-Percentile Queue Length [ft/ln]	1104.	460.0	488.6	237.6	609.3	54.93	23.92	578.71	341.72	364.77

Movement, Approach, & Intersection Results

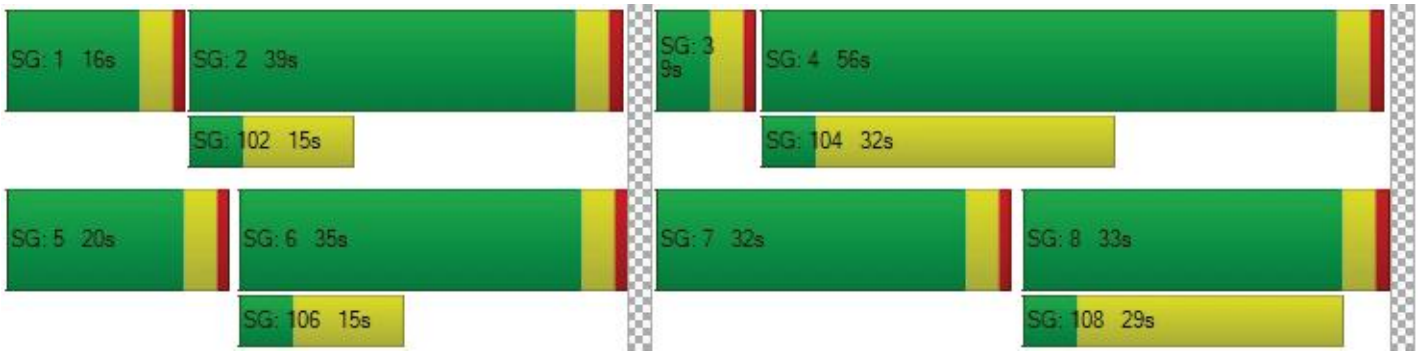
d_M, Delay for Movement [s/veh]	530.1	49.62	54.78	63.10	63.00	30.39	73.16	69.12	69.12	62.86	26.17	26.17
Movement LOS	F	D	D	E	E	C	E	E	E	E	C	C
d_A, Approach Delay [s/veh]	154.47			61.96			69.24			39.86		
Approach LOS	F			E			E			D		
d_I, Intersection Delay [s/veh]	92.27											
Intersection LOS	F											
Intersection V/C	0.938											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.115	3.278	2.322	2.337
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	583	483	867
d_b, Bicycle Delay [s]	33.00	30.10	34.50	19.27
l_b,int, Bicycle LOS Score for Intersection	2.440	2.506	2.325	2.718
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	177.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.656

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	193	42	6	194	82	55	115	18	31	173	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	4	0	0	0	0	3	4	129	8	0	102	0
Site-Generated Trips [veh/h]	9	0	0	0	0	11	5	31	0	0	159	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	216	47	7	217	106	71	289	28	35	455	44
Peak Hour Factor	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	64	14	2	65	32	21	86	8	10	135	13
Total Analysis Volume [veh/h]	38	257	56	8	258	126	85	344	33	42	542	52
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	380	392	462	636
Degree of Utilization, x	0.93	1.00	1.21	1.66

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.83	12.12	19.01	37.81
95th-Percentile Queue Length [ft]	245.81	302.92	475.32	945.15
Approach Delay [s/veh]	60.69	76.38	144.25	329.67
Approach LOS	F	F	F	F
Intersection Delay [s/veh]	177.92			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	57.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.172

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	43	60	69	61	1	41	86	14	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	48	67	77	68	1	46	96	16	10
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	18	20	18	0	12	25	4	3
Total Analysis Volume [veh/h]	4	50	70	81	71	1	48	101	17	11
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	444	414
Degree of Utilization, x	0.62	0.43

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.13	2.11
95th-Percentile Queue Length [ft]	103.31	52.76
Approach Delay [s/veh]	23.60	18.09
Approach LOS	C	C
Intersection Delay [s/veh]	57.12	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	46	6	95	57	0	27	55	146	14	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	17	105	0	0	0	0	89	0	0
Site-Generated Trips [veh/h]	0	16	10	0	0	0	0	118	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	40	221	64	0	30	62	371	16	4
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	11	58	17	0	8	16	97	4	1
Total Analysis Volume [veh/h]	55	42	232	67	0	32	65	390	17	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	441	508
Degree of Utilization, x	0.90	1.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.72	19.23
95th-Percentile Queue Length [ft]	242.98	480.73
Approach Delay [s/veh]	50.28	126.70
Approach LOS	F	F
Intersection Delay [s/veh]	57.12	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	13	66	23	1	13	45	123	26	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	15	74	26	1	15	50	138	60	7
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	19	7	0	4	13	36	16	2
Total Analysis Volume [veh/h]	2	16	78	27	1	16	53	145	63	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	425	423	470
Degree of Utilization, x	0.29	0.51	0.15

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.20	2.78	0.52
95th-Percentile Queue Length [ft]	30.02	69.40	12.99
Approach Delay [s/veh]	14.96	17.65	
Approach LOS	B	C	
Intersection Delay [s/veh]	57.12		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	35.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	591	196	103	849	50	80	110	135	123	108	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	39	0	0	0	0	8	2	60	42	0	42	0
Site-Generated Trips [veh/h]	29	0	0	0	0	13	0	5	5	0	76	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	662	220	115	951	77	92	188	198	138	239	75
Peak Hour Factor	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	167	55	29	240	19	23	47	50	35	60	19
Total Analysis Volume [veh/h]	197	667	222	116	959	78	93	190	200	139	241	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	59	0	18	52	0	17	26	0	17	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	65	65	10	59	59	8	18	18	12	21	21
g / C, Green / Cycle	0.13	0.54	0.54	0.08	0.49	0.49	0.07	0.15	0.15	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.26	0.26	0.07	0.29	0.29	0.05	0.06	0.13	0.08	0.13	0.05
s, saturation flow rate [veh/h]	1714	1800	1648	1714	1800	1753	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	226	969	887	142	881	858	117	513	229	165	319	271
d1, Uniform Delay [s]	51.11	17.24	17.25	54.13	22.09	22.10	55.06	45.94	49.92	53.35	46.90	42.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.05	1.69	1.85	10.78	2.97	3.05	11.32	0.45	10.03	11.04	3.70	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.48	0.48	0.82	0.60	0.60	0.79	0.37	0.87	0.84	0.76	0.28
d, Delay for Lane Group [s/veh]	61.16	18.93	19.10	64.91	25.06	25.15	66.38	46.39	59.95	64.39	50.60	43.30
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.43	8.26	7.61	3.87	11.19	10.93	3.14	2.59	6.50	4.63	7.16	2.00
50th-Percentile Queue Length [ft/ln]	160.8	206.4	190.2	96.79	279.7	273.2	78.51	64.84	162.4	115.6	178.9	50.11
95th-Percentile Queue Length [veh/ln]	10.59	12.97	12.13	6.97	16.67	16.35	5.65	4.67	10.68	8.16	11.54	3.61
95th-Percentile Queue Length [ft/ln]	264.8	324.2	303.3	174.2	416.8	408.7	141.3	116.7	266.9	203.8	288.5	90.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.16	18.98	19.10	64.91	25.10	25.15	66.38	46.39	59.95	64.39	50.60	43.30
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	26.66			29.11			55.85			53.59		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.85											
Intersection LOS	D											
Intersection V/C	0.619											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.780	2.703	2.510	2.628
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	800	367	367
d_b, Bicycle Delay [s]	17.60	21.60	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.456	2.511	1.958	2.312
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	30.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	725	49	22	1043	36	57	200	93	134	203	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	20	0	0	0	0	8	9	6	32	0	4	0
Site-Generated Trips [veh/h]	32	0	0	0	0	9	0	0	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	812	55	25	1168	57	73	230	136	150	240	56
Peak Hour Factor	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964	0.964
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	211	14	6	303	15	19	60	35	39	62	15
Total Analysis Volume [veh/h]	90	842	57	26	1212	59	76	239	141	156	249	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	55	0	9	52	0	26	33	0	23	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	72	72	3	67	67	7	16	16	13	22	22
g / C, Green / Cycle	0.07	0.60	0.60	0.02	0.56	0.56	0.06	0.14	0.14	0.11	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.25	0.02	0.36	0.36	0.04	0.11	0.11	0.09	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1760	1714	1800	1771	1714	1800	1583	1714	1800	1685
c, Capacity [veh/h]	112	1078	1054	42	1005	988	99	245	216	184	334	313
d1, Uniform Delay [s]	55.35	12.92	12.92	57.98	18.18	18.20	55.72	50.33	50.55	52.61	43.61	43.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.70	1.21	1.24	14.06	3.09	3.15	11.50	6.35	8.48	10.29	1.03	1.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.42	0.42	0.62	0.64	0.64	0.77	0.81	0.84	0.85	0.47	0.48
d, Delay for Lane Group [s/veh]	68.05	14.13	14.16	72.04	21.27	21.35	67.22	56.69	59.04	62.90	44.65	44.83
Lane Group LOS	E	B	B	E	C	C	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.08	6.73	6.58	0.95	12.61	12.45	2.59	6.23	5.81	5.14	4.27	4.09
50th-Percentile Queue Length [ft/ln]	76.99	168.1	164.6	23.65	315.1	311.3	64.69	155.7	145.2	128.4	106.8	102.1
95th-Percentile Queue Length [veh/ln]	5.54	10.98	10.79	1.70	18.43	18.24	4.66	10.32	9.76	8.86	7.67	7.36
95th-Percentile Queue Length [ft/ln]	138.5	274.4	269.8	42.57	460.7	455.9	116.4	258.0	244.0	221.4	191.6	183.9

Movement, Approach, & Intersection Results

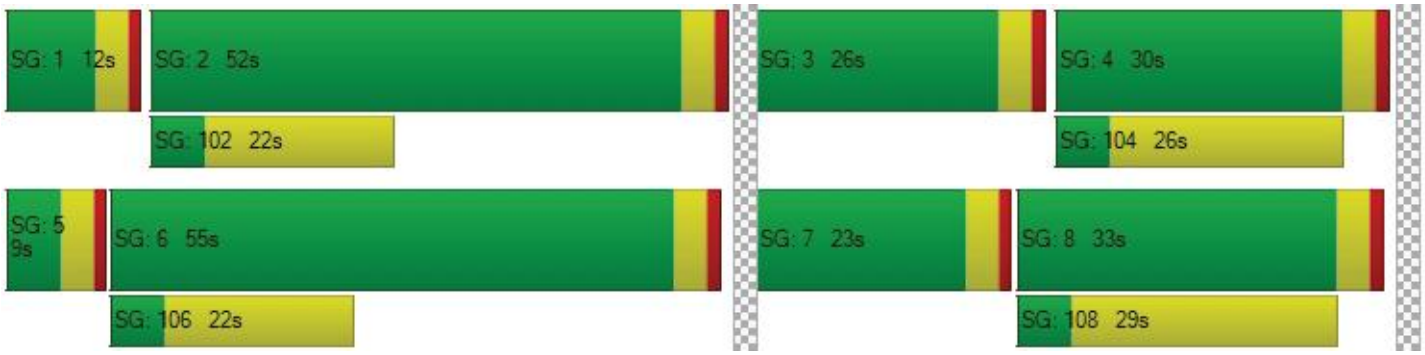
d_M, Delay for Movement [s/veh]	68.05	14.14	14.16	72.04	21.31	21.35	67.22	57.08	59.04	62.90	44.71	44.83
Movement LOS	E	B	B	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	19.05			22.32			59.38			50.86		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	30.71											
Intersection LOS	C											
Intersection V/C	0.614											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.957	2.837	2.482	2.468
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	800	483	433
d_b, Bicycle Delay [s]	19.84	21.60	34.50	36.82
l_b,int, Bicycle LOS Score for Intersection	2.376	2.630	1.936	1.942
Bicycle LOS	B	B	A	A

Sequence

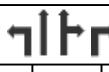
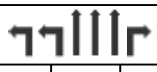
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	50.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.819

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	86	48	77	136	246	885	267	400	59	134	1190	220
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	4	0	0	6	47
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	9	0	0	0	116
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	54	86	152	276	991	299	461	66	150	1339	409
Peak Hour Factor	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907	0.907
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	15	24	42	76	273	82	127	18	41	369	113
Total Analysis Volume [veh/h]	106	60	95	168	304	1093	330	508	73	165	1476	451
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	12	0	49	49	0	17	48	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	39	39	14	45	45	45	13	44	44	7	38	38
g / C, Green / Cycle	0.07	0.33	0.33	0.12	0.38	0.38	0.38	0.11	0.37	0.37	0.06	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.10	0.17	0.36	0.36	0.10	0.10	0.05	0.05	0.30	0.29
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	114	1119	499	199	677	575	575	361	1793	559	194	1548	483
d1, Uniform Delay [s]	55.71	27.71	29.03	51.9	28.1	36.3	36.3	52.95	26.94	25.36	55.98	40.20	39.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.41
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.75	0.09	0.84	9.22	2.15	26.9	26.9	9.33	0.09	0.10	9.87	4.29	23.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.05	0.19	0.84	0.45	0.95	0.95	0.91	0.28	0.13	0.85	0.95	0.93
d, Delay for Lane Group [s/veh]	80.46	27.80	29.87	61.1	30.2	63.3	63.3	62.28	27.02	25.46	65.85	44.50	63.75
Lane Group LOS	F	C	C	E	C	E	E	E	C	C	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.98	0.61	2.10	5.46	6.96	19.5	19.5	5.38	3.46	1.42	2.74	14.64	15.95
50th-Percentile Queue Length [ft/ln]	99.38	15.28	52.44	136.	173.	488.	488.	134.5	86.60	35.40	68.52	366.0	398.7
95th-Percentile Queue Length [veh/ln]	7.16	1.10	3.78	9.30	11.2	26.7	26.7	9.19	6.24	2.55	4.93	20.92	22.50
95th-Percentile Queue Length [ft/ln]	178.8	27.51	94.40	232.	282.	669.	669.	229.7	155.8	63.72	123.3	522.9	562.5

Movement, Approach, & Intersection Results

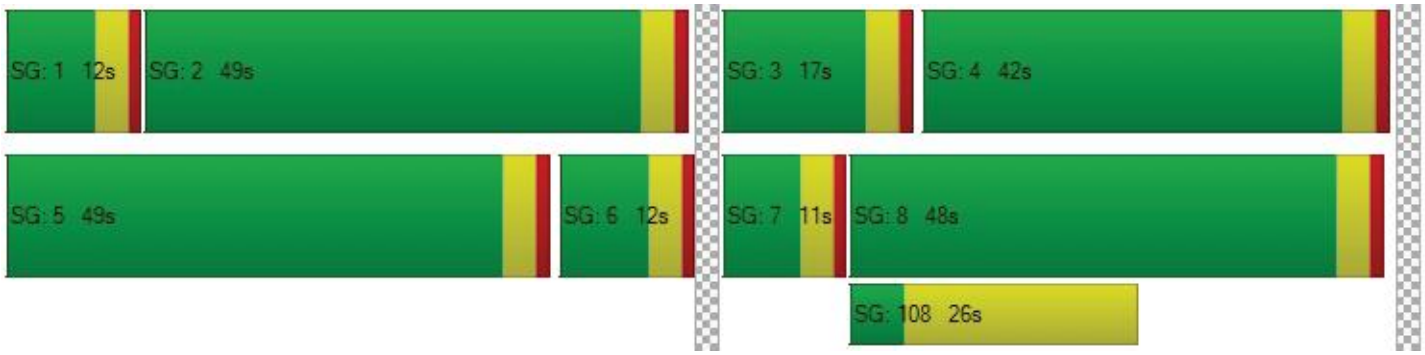
d_M, Delay for Movement [s/veh]	80.46	27.80	29.87	61.16	30.26	63.33	62.28	27.02	25.46	65.85	44.50	63.75
Movement LOS	F	C	C	E	C	E	E	C	C	E	D	E
d_A, Approach Delay [s/veh]	49.94			56.67			39.67			50.33		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	50.36											
Intersection LOS	D											
Intersection V/C	0.819											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.599	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	750	733	633
d_b, Bicycle Delay [s]	52.27	23.44	24.07	28.02
l_b,int, Bicycle LOS Score for Intersection	1.775	2.851	2.061	2.710
Bicycle LOS	A	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	59.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	25	34	338	49	955	255	331	25	30	552	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	45	0	0	0	4	0	0	53	0
Site-Generated Trips [veh/h]	0	0	0	149	0	0	0	9	0	0	116	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	28	38	573	55	1070	286	384	28	34	787	106
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	8	10	154	15	287	77	103	8	9	211	28
Total Analysis Volume [veh/h]	53	30	41	615	59	1148	307	412	30	36	844	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	44	44	44	13	51	51	4	41	41
g / C, Green / Cycle	0.05	0.05	0.05	0.37	0.37	0.37	0.11	0.42	0.42	0.03	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.03	0.20	0.19	0.42	0.09	0.08	0.02	0.02	0.19	0.19
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1729	2708	3329	4903	1530	1714	3427	1693
c, Capacity [veh/h]	83	87	74	629	634	993	372	2070	646	50	1164	575
d1, Uniform Delay [s]	56.04	55.23	55.81	29.96	29.89	38.00	52.15	21.87	20.43	57.75	32.17	32.22
k, delay calibration	0.11	0.11	0.11	0.12	0.11	0.15	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.80	2.30	6.24	0.78	0.74	74.07	4.65	0.22	0.14	17.35	1.87	3.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.34	0.55	0.54	0.53	1.16	0.83	0.20	0.05	0.72	0.55	0.55
d, Delay for Lane Group [s/veh]	63.85	57.54	62.05	30.73	30.63	112.0	56.80	22.09	20.57	75.11	34.04	36.02
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.76	0.94	1.34	7.78	7.76	24.50	4.76	2.50	0.53	1.33	7.84	8.11
50th-Percentile Queue Length [ft/ln]	43.94	23.39	33.59	194.5	193.9	612.5	118.8	62.39	13.13	33.14	195.8	202.6
95th-Percentile Queue Length [veh/ln]	3.16	1.68	2.42	12.36	12.33	35.81	8.33	4.49	0.95	2.39	12.43	12.77
95th-Percentile Queue Length [ft/ln]	79.09	42.11	60.47	308.9	308.2	895.2	208.2	112.3	23.64	59.66	310.6	319.3

Movement, Approach, & Intersection Results

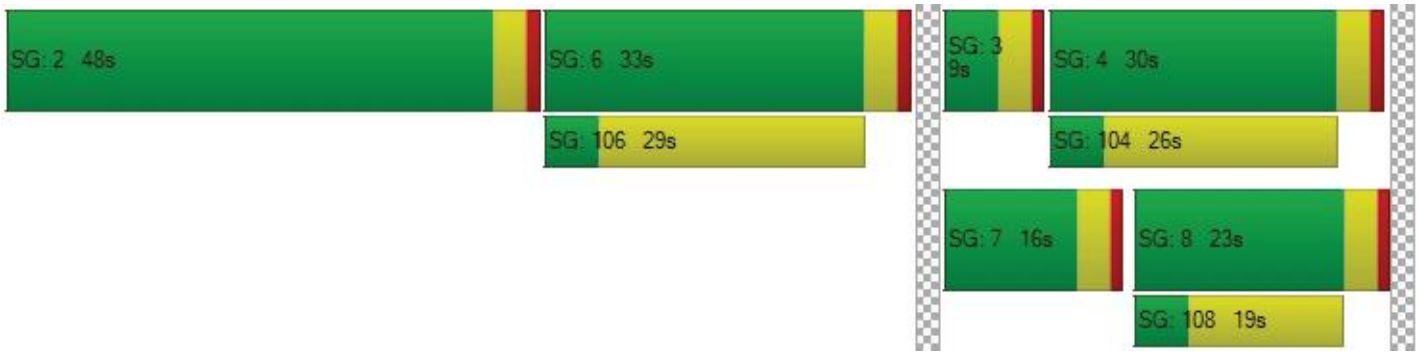
d_M, Delay for Movement [s/veh]	63.85	57.54	62.05	30.69	30.63	112.0	56.80	22.09	20.57	75.11	34.52	36.02
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	D
d_A, Approach Delay [s/veh]	61.73			81.96			36.25			36.16		
Approach LOS	E			F			D			D		
d_I, Intersection Delay [s/veh]	59.66											
Intersection LOS	E											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.207	2.837	0.000	2.896
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.662	4.566	1.972	2.106
Bicycle LOS	A	E	A	B

Sequence

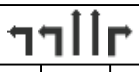
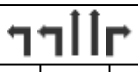
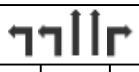
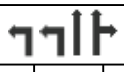
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	228	643	85	59	766	139	149	155	92	143	309	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	7	2	0	1	2	27	22	0	12	51	35
Site-Generated Trips [veh/h]	0	96	12	0	111	0	5	153	0	2	116	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	255	823	109	66	970	158	199	349	103	174	513	82
Peak Hour Factor	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	69	222	29	18	262	43	54	94	28	47	138	22
Total Analysis Volume [veh/h]	275	888	118	71	1046	170	215	376	111	188	553	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	47	0	9	36	0	14	36	0	28	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	65	5	58	58	10	25	25	9	25	25
g / C, Green / Cycle	0.10	0.54	0.04	0.48	0.48	0.08	0.21	0.21	0.08	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.02	0.31	0.11	0.06	0.11	0.07	0.06	0.18	0.18
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1715
c, Capacity [veh/h]	335	1856	126	1641	733	267	721	322	255	372	355
d1, Uniform Delay [s]	52.91	17.01	56.76	23.45	18.33	54.25	42.01	40.33	54.21	46.16	46.17
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.02	0.89	3.92	1.90	0.74	5.61	0.59	0.63	4.11	6.87	7.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.48	0.56	0.64	0.23	0.80	0.52	0.34	0.74	0.88	0.88
d, Delay for Lane Group [s/veh]	57.93	17.90	60.67	25.36	19.07	59.86	42.60	40.96	58.32	53.02	53.39
Lane Group LOS	E	B	E	C	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.30	7.65	1.13	11.32	2.92	3.40	5.00	2.86	2.93	10.17	9.73
50th-Percentile Queue Length [ft/ln]	107.39	191.18	28.18	283.1	72.94	85.00	125.1	71.50	73.17	254.1	243.2
95th-Percentile Queue Length [veh/ln]	7.69	12.18	2.03	16.84	5.25	6.12	8.67	5.15	5.27	15.39	14.85
95th-Percentile Queue Length [ft/ln]	192.36	304.56	50.73	421.0	131.2	152.9	216.8	128.7	131.7	384.8	371.1

Movement, Approach, & Intersection Results

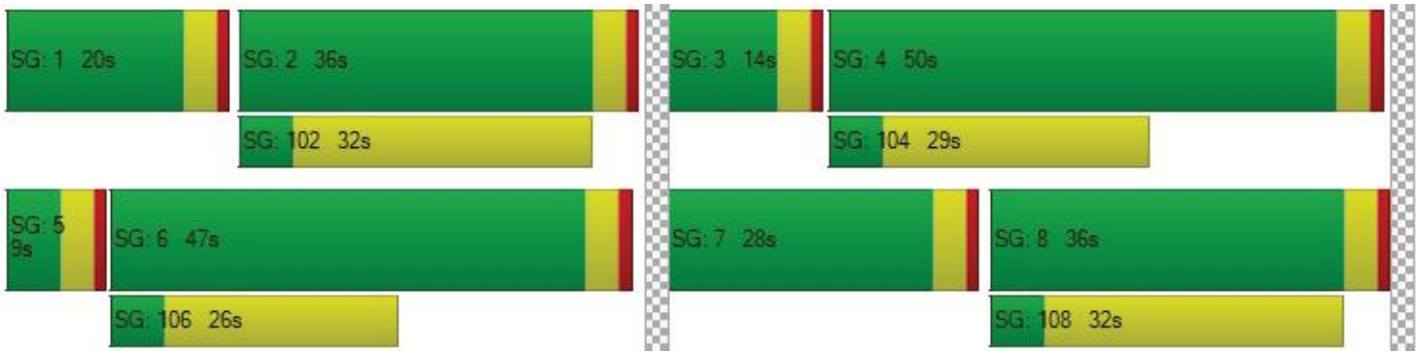
d_M, Delay for Movement [s/veh]	57.93	17.90	0.00	60.67	25.36	19.07	59.86	42.60	40.96	58.32	53.17	53.39
Movement LOS	E	B		E	C	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	27.36			26.47			47.62			54.36		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.27											
Intersection LOS	D											
Intersection V/C	0.635											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.046	2.954	2.948	2.675
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	533	533	767
d_b, Bicycle Delay [s]	24.70	32.27	32.27	22.82
l_b,int, Bicycle LOS Score for Intersection	2.519	2.621	2.139	2.244
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	41.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	220	4	8	0	1	182	33	263	473	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	35	0	39	0	0	0	0	24	0	86	62	0
Site-Generated Trips [veh/h]	0	0	133	0	0	0	0	165	0	40	118	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	418	4	9	0	1	393	37	421	710	2
Peak Hour Factor	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895	0.895
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	24	1	117	1	3	0	0	110	10	118	198	1
Total Analysis Volume [veh/h]	97	3	467	4	10	0	1	439	41	470	793	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	47	0	9	33	0	33	26	0	38	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	46	46	39	46	0	28	28	35	62	62
g / C, Green / Cycle	0.38	0.38	0.32	0.38	0.00	0.23	0.23	0.29	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.31	0.01	0.00	0.13	0.03	0.27	0.22	0.22
s, saturation flow rate [veh/h]	1427	1432	1530	1443	1714	3427	1530	1714	1800	1798
c, Capacity [veh/h]	541	661	495	608	2	786	351	498	933	932
d1, Uniform Delay [s]	24.12	24.04	39.49	23.25	59.87	40.88	36.62	41.60	17.86	17.86
k, delay calibration	0.11	0.11	0.32	0.11	0.11	0.50	0.50	0.33	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.05	21.27	0.02	87.54	2.86	0.68	21.32	1.42	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.08	0.94	0.02	0.42	0.56	0.12	0.94	0.43	0.43
d, Delay for Lane Group [s/veh]	24.19	24.09	60.76	23.26	147.4	43.74	37.30	62.92	19.28	19.28
Lane Group LOS	C	C	E	C	F	D	D	E	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.85	1.02	16.14	0.25	0.09	6.05	1.03	16.39	7.08	7.08
50th-Percentile Queue Length [ft/ln]	21.36	25.58	403.4	6.34	2.21	151.2	25.66	409.8	177.1	176.9
95th-Percentile Queue Length [veh/ln]	1.54	1.84	22.73	0.46	0.16	10.09	1.85	23.04	11.45	11.44
95th-Percentile Queue Length [ft/ln]	38.44	46.04	568.1	11.41	3.99	252.1	46.19	575.8	286.2	286.0

Movement, Approach, & Intersection Results

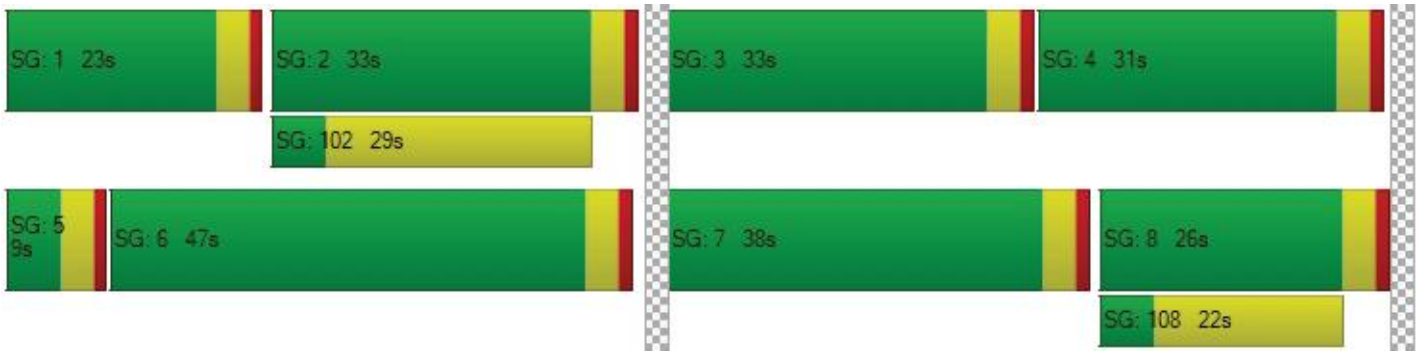
d_M, Delay for Movement [s/veh]	24.19	24.09	60.76	23.26	23.26	23.26	147.4	43.74	37.30	62.92	19.28	19.28
Movement LOS	C	C	E	C	C	C	F	D	D	E	B	B
d_A, Approach Delay [s/veh]	54.30			23.26			43.41			35.50		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	41.64											
Intersection LOS	D											
Intersection V/C	0.715											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.527	0.000	2.942	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	367	450
d_b, Bicycle Delay [s]	19.27	19.27	40.02	36.04
l_b,int, Bicycle LOS Score for Intersection	2.495	1.583	1.956	2.603
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.469

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	3	0	397	746	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.0000	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	146	0	60	3	0
Site-Generated Trips [veh/h]	0	68	212	87	90	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	217	212	592	929	1
Peak Hour Factor	0.9060	0.9060	1.0000	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	60	53	163	256	0
Total Analysis Volume [veh/h]	0	240	212	653	1025	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

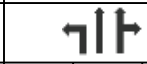
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.47	0.32	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	80.76	18.10	12.80	0.00	0.00	0.00
Movement LOS	F	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	2.47	2.47	1.35	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	61.79	61.79	33.74	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.10		3.14		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	3.31					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	45.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.767

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	854	95	88	904	383	181	80	118	143	332	79
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	88	0	12	131	3	60	0	0	0	0	10
Site-Generated Trips [veh/h]	0	257	0	17	209	90	87	0	0	0	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	1301	106	128	1352	522	350	90	132	160	372	137
Peak Hour Factor	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	355	29	35	369	143	96	25	36	44	102	37
Total Analysis Volume [veh/h]	136	1422	116	140	1478	570	383	98	144	175	407	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	14	37	37	32	40	0	28	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	44	44	10	43	75	28	36	14	22	22
g / C, Green / Cycle	0.09	0.37	0.37	0.08	0.36	0.62	0.23	0.30	0.12	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.08	0.30	0.30	0.08	0.30	0.37	0.22	0.03	0.10	0.16	0.16
s, saturation flow rate [veh/h]	1714	3427	1731	1714	4903	1530	1714	3427	1714	1800	1637
c, Capacity [veh/h]	157	1251	632	143	1748	954	400	1023	206	333	303
d1, Uniform Delay [s]	53.77	34.48	34.49	54.90	35.56	13.58	45.41	30.40	51.74	47.52	47.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.37	0.11	0.11	0.16	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.09	5.99	11.23	30.44	5.24	2.76	29.65	0.04	9.42	10.28	11.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.82	0.82	0.98	0.85	0.60	0.96	0.10	0.85	0.87	0.88
d, Delay for Lane Group [s/veh]	66.86	40.47	45.72	85.34	40.80	16.34	75.06	30.44	61.16	57.80	59.25
Lane Group LOS	E	D	D	F	D	B	E	C	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.62	14.33	15.42	5.43	13.93	9.51	14.48	1.04	5.70	9.38	8.70
50th-Percentile Queue Length [ft/ln]	115.4	358.3	385.4	135.6	348.1	237.6	361.88	25.99	142.4	234.5	217.5
95th-Percentile Queue Length [veh/ln]	8.14	20.54	21.86	9.25	20.05	14.56	20.71	1.87	9.61	14.41	13.54
95th-Percentile Queue Length [ft/ln]	203.5	513.5	546.4	231.1	501.2	364.0	517.87	46.78	240.3	360.1	338.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.86	41.95	45.72	85.34	40.80	16.34	75.06	30.44	0.00	61.16	58.22	59.25
Movement LOS	E	D	D	F	D	B	E	C		E	E	E
d_A, Approach Delay [s/veh]	44.23			37.28			65.97			59.13		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	45.44											
Intersection LOS	D											
Intersection V/C	0.767											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.225	3.246	2.727	2.527
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	550	600	533
d_b, Bicycle Delay [s]	30.82	31.54	29.40	32.27
l_b,int, Bicycle LOS Score for Intersection	2.480	2.763	1.956	2.164
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	29	126	6	43	129	75	30	216	16	7	341	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	2	0	0	0	6	0	0	6	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	17	0	0	30	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	141	7	50	144	84	34	265	18	8	418	74
Peak Hour Factor	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768	0.768
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	46	2	16	47	27	11	86	6	3	136	24
Total Analysis Volume [veh/h]	42	184	9	65	188	109	44	345	23	10	544	96
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	9	88	0	9	88	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	4	41	1	39	39
g / C, Green / Cycle	0.54	0.54	0.03	0.34	0.01	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.15	0.23	0.03	0.21	0.01	0.30	0.06
s, saturation flow rate [veh/h]	1590	1607	1714	1780	1714	1800	1530
c, Capacity [veh/h]	899	909	56	612	22	583	496
d1, Uniform Delay [s]	14.40	15.86	57.62	32.56	58.82	39.30	29.26
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	1.31	20.86	0.95	14.20	7.44	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.40	0.79	0.60	0.46	0.93	0.19
d, Delay for Lane Group [s/veh]	15.11	17.17	78.48	33.51	73.02	46.74	29.45
Lane Group LOS	B	B	E	C	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.51	5.98	1.65	8.97	0.39	16.54	2.04
50th-Percentile Queue Length [ft/ln]	87.72	149.45	41.27	224.29	9.71	413.4	51.01
95th-Percentile Queue Length [veh/ln]	6.32	9.99	2.97	13.88	0.70	23.21	3.67
95th-Percentile Queue Length [ft/ln]	157.90	249.70	74.28	347.10	17.48	580.1	91.82

Movement, Approach, & Intersection Results

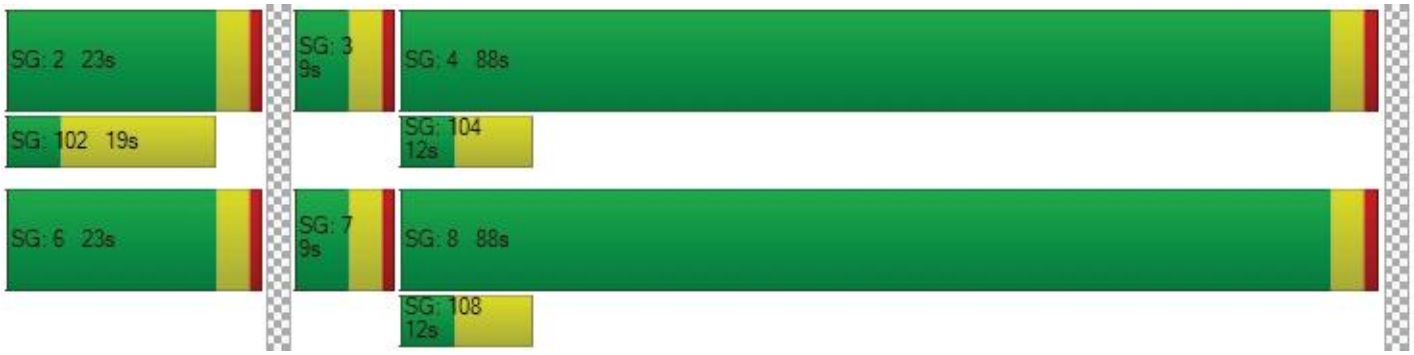
d_M, Delay for Movement [s/veh]	15.11	15.11	15.11	17.17	17.17	17.17	78.48	33.51	33.51	73.02	46.74	29.45
Movement LOS	B	B	B	B	B	B	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	15.11			17.17			38.31			44.59		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	32.87											
Intersection LOS	C											
Intersection V/C	0.553											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.952	2.065	2.476	0.000
Crosswalk LOS	A	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	1400
d_b, Bicycle Delay [s]	42.50	42.50	5.40	5.40
l_b,int, Bicycle LOS Score for Intersection	1.947	2.157	2.239	2.632
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.369

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	21	14	9	8	0	42	34	21	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	6	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	47	16	10	9	0	47	38	24	17
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	15	5	3	3	0	15	12	8	5
Total Analysis Volume [veh/h]	1	60	20	13	11	0	60	48	31	22
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	43	0	0	0	0	43	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	15	15
g / C, Green / Cycle	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.09	0.11
s, saturation flow rate [veh/h]	1135	1515
c, Capacity [veh/h]	187	227
d1, Uniform Delay [s]	50.42	51.54
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	2.63	4.02
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.71
d, Delay for Lane Group [s/veh]	53.05	55.56
Lane Group LOS	D	E
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	3.18	5.00
50th-Percentile Queue Length [ft/ln]	79.41	124.99
95th-Percentile Queue Length [veh/ln]	5.72	8.67
95th-Percentile Queue Length [ft/ln]	142.93	216.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.05	53.05	53.05	53.05	53.05	55.56	55.56	55.56	55.56	55.56
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	53.05					55.56				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	32.22									
Intersection LOS	C									
Intersection V/C	0.369									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.877	1.922
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650
d_b, Bicycle Delay [s]	27.34	27.34
l_b,int, Bicycle LOS Score for Intersection	1.616	1.690
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	42	159	11	5	1	9	169	11	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	1	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	5	0	0	0	13	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	47	191	24	6	1	10	202	12	7
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	15	61	8	2	0	3	64	4	2
Total Analysis Volume [veh/h]	13	60	243	31	8	1	13	257	15	9
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	43	0	0	9	0	43	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	78	72	78	70	70
g / C, Green / Cycle	0.65	0.60	0.65	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.01	0.14	0.02
s, saturation flow rate [veh/h]	1166	1757	1144	1800	1530
c, Capacity [veh/h]	774	1061	754	1047	890
d1, Uniform Delay [s]	7.84	11.21	7.62	12.26	10.67
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.61	0.01	0.56	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.27	0.02	0.25	0.03
d, Delay for Lane Group [s/veh]	8.09	11.82	7.63	12.81	10.73
Lane Group LOS	A	B	A	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.71	3.65	0.12	3.48	0.28
50th-Percentile Queue Length [ft/ln]	17.86	91.17	3.12	87.02	7.09
95th-Percentile Queue Length [veh/ln]	1.29	6.56	0.22	6.27	0.51
95th-Percentile Queue Length [ft/ln]	32.16	164.11	5.61	156.63	12.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.09	8.09	11.82	11.82	11.82	7.63	7.63	12.81	10.73	10.73
Movement LOS	A	A	B	B	B	A	A	B	B	B
d_A, Approach Delay [s/veh]	11.05					12.40				
Approach LOS	B					B				
d_I, Intersection Delay [s/veh]	32.22									
Intersection LOS	C									
Intersection V/C	0.369									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.324	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650
d_b, Bicycle Delay [s]	27.34	27.34
l_b,int, Bicycle LOS Score for Intersection	2.033	2.010
Bicycle LOS	B	B

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	10	36	12	1	3	14	94	78	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	40	13	1	3	16	105	87	2
Peak Hour Factor	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850	0.7850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	13	4	0	1	5	33	28	1
Total Analysis Volume [veh/h]	0	14	51	17	1	4	20	134	111	3
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	25	0	0	0	0	25	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	15
g / C, Green / Cycle	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.09	0.10	0.07
s, saturation flow rate [veh/h]	940	1598	1530
c, Capacity [veh/h]	152	233	190
d1, Uniform Delay [s]	48.54	50.71	49.73
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.05	3.44	3.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.68	0.60
d, Delay for Lane Group [s/veh]	51.59	54.15	52.76
Lane Group LOS	D	D	D
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.42	4.82	3.40
50th-Percentile Queue Length [ft/ln]	60.56	120.53	85.02
95th-Percentile Queue Length [veh/ln]	4.36	8.42	6.12
95th-Percentile Queue Length [ft/ln]	109.01	210.55	153.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.59	51.59	51.59	51.59	51.59	54.15	54.15	54.15	52.76	52.76
Movement LOS	D	D	D	D	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	51.59					53.56				
Approach LOS	D					D				
d_I, Intersection Delay [s/veh]	32.22									
Intersection LOS	C									
Intersection V/C	0.369									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.961	2.235
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	350	350
d_b, Bicycle Delay [s]	40.84	40.84
l_b,int, Bicycle LOS Score for Intersection	1.645	1.997
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	41.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	589	159	100	785	63	135	118	67	107	130	261
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	31	0	10	32	0	0	1	0	0	0	8
Site-Generated Trips [veh/h]	0	9	0	5	0	0	0	12	0	0	13	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	700	178	127	911	71	151	145	75	120	159	320
Peak Hour Factor	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	188	48	34	244	19	41	39	20	32	43	86
Total Analysis Volume [veh/h]	139	751	191	136	977	76	162	156	80	129	171	343
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	42	0	15	42	0	17	43	0	20	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	51	51	11	51	51	13	32	32	11	29	29
g / C, Green / Cycle	0.09	0.42	0.42	0.09	0.42	0.42	0.11	0.26	0.26	0.09	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.27	0.08	0.30	0.30	0.09	0.07	0.07	0.08	0.10	0.22
s, saturation flow rate [veh/h]	1714	1800	1676	1714	1800	1755	1714	1800	1601	1714	1800	1530
c, Capacity [veh/h]	157	758	706	157	758	739	186	473	420	156	442	376
d1, Uniform Delay [s]	53.87	27.57	27.58	53.77	28.56	28.57	52.68	35.01	35.11	53.59	37.74	44.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.20
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.76	4.17	4.48	13.09	5.40	5.56	11.86	0.29	0.34	10.37	0.55	14.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.64	0.64	0.87	0.70	0.70	0.87	0.26	0.27	0.83	0.39	0.91
d, Delay for Lane Group [s/veh]	68.64	31.75	32.07	66.86	33.96	34.13	64.54	35.29	35.45	63.96	38.30	58.41
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.79	11.85	11.10	4.62	13.55	13.26	5.41	2.89	2.69	4.28	4.28	11.35
50th-Percentile Queue Length [ft/ln]	119.7	296.1	277.5	115.4	338.7	331.5	135.3	72.28	67.18	106.9	106.9	283.7
95th-Percentile Queue Length [veh/ln]	8.38	17.49	16.56	8.14	19.59	19.23	9.23	5.20	4.84	7.67	7.67	16.88
95th-Percentile Queue Length [ft/ln]	209.4	437.2	414.1	203.5	489.6	480.8	230.7	130.1	120.9	191.6	191.7	421.9

Movement, Approach, & Intersection Results

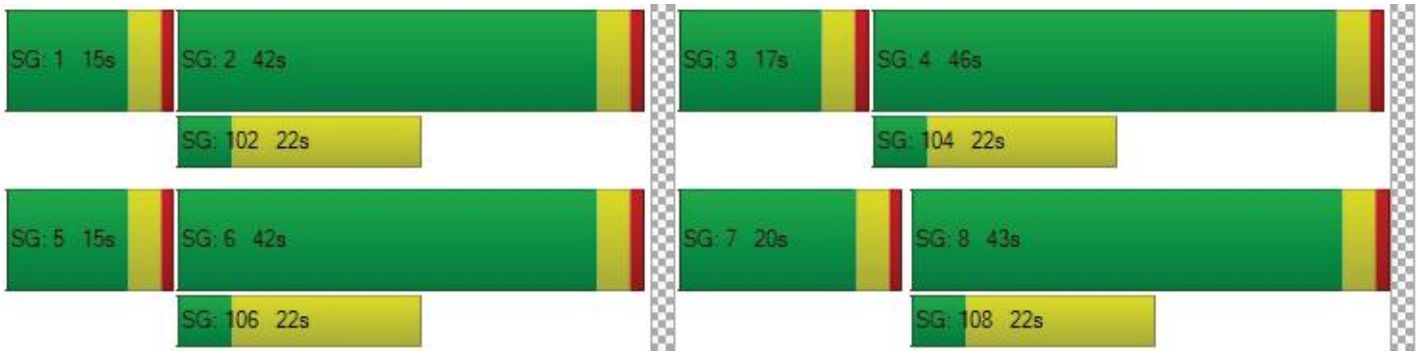
d_M, Delay for Movement [s/veh]	68.64	31.86	32.07	66.86	34.04	34.13	64.54	35.33	35.45	63.96	38.30	58.41
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	36.62			37.80			47.24			54.18		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.73											
Intersection LOS	D											
Intersection V/C	0.696											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.757	2.792	2.468	2.651
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	650	700
d_b, Bicycle Delay [s]	28.02	28.02	27.34	25.35
l_b,int, Bicycle LOS Score for Intersection	2.451	2.541	1.888	2.090
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.720

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	731	162	10	1158	67	27	177	83	258	306	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	1	13	0	4	22	0	0	2	2	0	1	3
Site-Generated Trips [veh/h]	14	16	0	0	0	0	0	0	12	0	2	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	848	181	15	1319	75	30	200	107	289	346	53
Peak Hour Factor	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953	0.953
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	222	47	4	346	20	8	52	28	76	91	14
Total Analysis Volume [veh/h]	73	890	190	16	1384	79	31	210	112	303	363	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	28	0	26	44	0	14	36	0	30	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	65	65	2	61	61	3	14	14	23	34	34
g / C, Green / Cycle	0.05	0.54	0.54	0.02	0.51	0.51	0.03	0.12	0.12	0.19	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.12	0.01	0.40	0.05	0.02	0.09	0.10	0.18	0.12	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1597	1714	1800	1717
c, Capacity [veh/h]	86	1847	824	31	1736	775	46	212	188	329	509	486
d1, Uniform Delay [s]	56.56	17.24	14.57	58.42	24.49	15.40	57.84	51.46	51.72	47.56	35.02	35.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.24	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.04	0.90	0.65	13.08	3.90	0.26	15.31	6.35	8.75	19.26	0.55	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.48	0.23	0.52	0.80	0.10	0.67	0.79	0.82	0.92	0.42	0.42
d, Delay for Lane Group [s/veh]	76.60	18.14	15.22	71.50	28.40	15.66	73.16	57.81	60.47	66.82	35.57	35.61
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.67	7.73	2.86	0.59	16.68	1.19	1.13	5.25	5.02	10.61	5.19	4.97
50th-Percentile Queue Length [ft/ln]	66.79	193.2	71.39	14.84	416.8	29.65	28.26	131.3	125.3	265.3	129.6	124.2
95th-Percentile Queue Length [veh/ln]	4.81	12.29	5.14	1.07	23.37	2.13	2.03	9.01	8.69	15.95	8.92	8.62
95th-Percentile Queue Length [ft/ln]	120.2	307.2	128.5	26.71	584.3	53.36	50.86	225.2	217.1	398.8	223.0	215.6

Movement, Approach, & Intersection Results

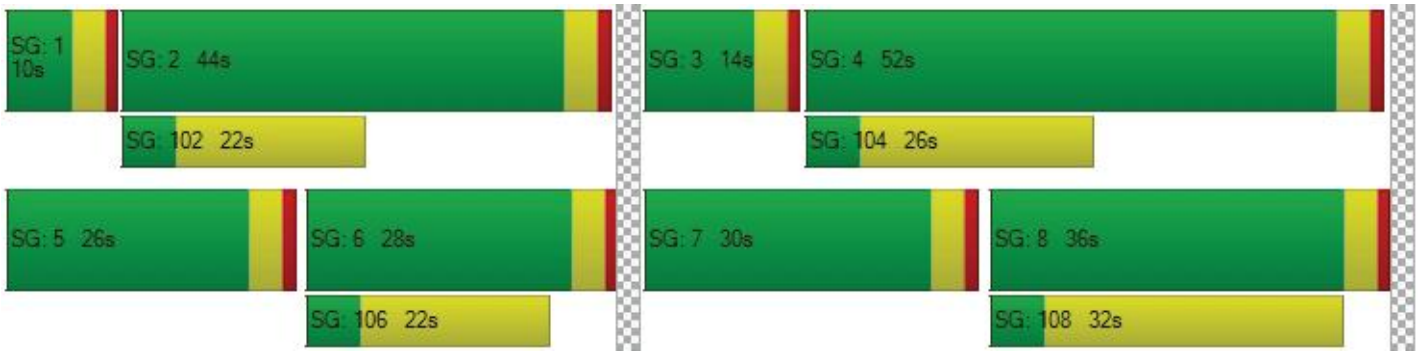
d_M, Delay for Movement [s/veh]	76.60	18.14	15.22	71.50	28.40	15.66	73.16	58.36	60.47	66.82	35.59	35.61
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	21.36			28.18			60.33			48.70		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	33.12											
Intersection LOS	C											
Intersection V/C	0.720											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.100	2.867	2.484	2.537
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	667	533	800
d_b, Bicycle Delay [s]	38.40	26.67	32.27	21.60
l_b,int, Bicycle LOS Score for Intersection	2.511	2.780	1.851	2.155
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	102	8	8	123	45	21	43	2	21	147	7
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	114	9	9	138	50	24	48	2	24	165	8
Peak Hour Factor	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854	0.854
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	33	3	3	40	15	7	14	1	7	48	2
Total Analysis Volume [veh/h]	8	133	11	11	162	59	28	56	2	28	193	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	707	739	663	635	736
Degree of Utilization, x	0.22	0.31	0.13	0.35	0.01

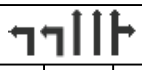
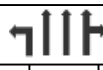
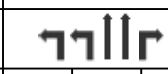
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.81	1.35	0.44	1.55	0.04
95th-Percentile Queue Length [ft]	20.31	33.63	11.12	38.84	0.93
Approach Delay [s/veh]	9.48	10.09	9.24	11.21	
Approach LOS	A	B	A	B	
Intersection Delay [s/veh]	10.22				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.511

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	292	941	78	41	857	43	25	45	128	165	161	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	9	0	0	13	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	108	0	0	113	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	327	1171	87	46	1086	48	28	50	143	185	180	76
Peak Hour Factor	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	90	321	24	13	298	13	8	14	39	51	49	21
Total Analysis Volume [veh/h]	359	1285	95	50	1192	53	31	55	157	203	198	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	26	60	0	12	46	0	15	33	0	15	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	76	76	4	65	65	3	15	15	9	21	21
g / C, Green / Cycle	0.13	0.63	0.63	0.04	0.54	0.54	0.03	0.12	0.12	0.08	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.11	0.27	0.27	0.03	0.24	0.24	0.02	0.02	0.10	0.06	0.06	0.05
s, saturation flow rate [veh/h]	3329	3427	1737	1714	3427	1761	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	426	2159	1095	64	1849	950	48	417	186	258	587	262
d1, Uniform Delay [s]	51.14	11.21	11.21	57.26	16.74	16.74	57.75	47.04	51.58	54.38	43.73	43.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.60	0.61	1.21	18.02	0.78	1.51	13.86	0.14	9.85	5.29	0.34	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.42	0.42	0.78	0.44	0.44	0.65	0.13	0.84	0.79	0.34	0.32
d, Delay for Lane Group [s/veh]	55.74	11.82	12.42	75.28	17.51	18.25	71.61	47.18	61.43	59.67	44.07	44.25
Lane Group LOS	E	B	B	E	B	B	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.54	6.07	6.34	1.83	6.93	7.31	1.12	0.75	5.13	3.20	2.63	2.22
50th-Percentile Queue Length [ft/ln]	138.5	151.6	158.5	45.64	173.1	182.8	27.91	18.66	128.2	80.04	65.68	55.53
95th-Percentile Queue Length [veh/ln]	9.40	10.11	10.47	3.29	11.24	11.75	2.01	1.34	8.84	5.76	4.73	4.00
95th-Percentile Queue Length [ft/ln]	235.0	252.6	261.8	82.16	281.1	293.7	50.24	33.58	221.1	144.0	118.2	99.96

Movement, Approach, & Intersection Results

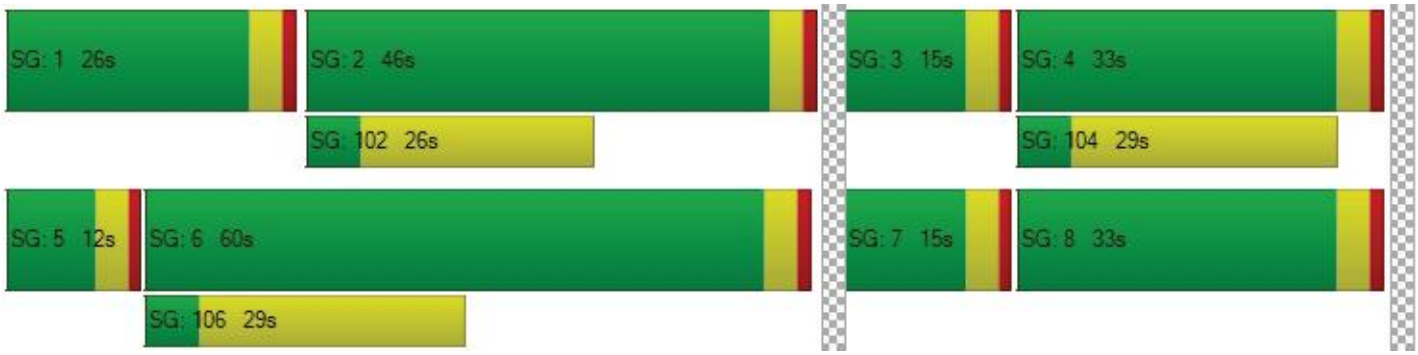
d_M, Delay for Movement [s/veh]	55.74	11.99	12.42	75.28	17.74	18.25	71.61	47.18	61.43	59.67	44.07	44.25
Movement LOS	E	B	B	E	B	B	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	21.05			19.98			59.50			50.64		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	26.97											
Intersection LOS	C											
Intersection V/C	0.511											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.984	2.607	2.704
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	700	483	483
d_b, Bicycle Delay [s]	17.07	25.35	34.50	34.50
l_b,int, Bicycle LOS Score for Intersection	2.516	2.272	1.760	1.959
Bicycle LOS	B	B	A	A

Sequence

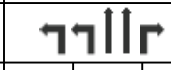
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	215	398	8	307	42	18	107	21	394	320	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	74	0	0	86	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	133	0	0	40	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	448	446	9	470	47	20	120	24	441	358	34
Peak Hour Factor	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	114	114	2	120	12	5	31	6	112	91	9
Total Analysis Volume [veh/h]	64	457	455	9	479	48	20	122	24	450	365	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	56	0	9	56	0	9	9	0	46	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	77	77	1	74	74	2	6	6	19	23	23
g / C, Green / Cycle	0.04	0.64	0.64	0.01	0.62	0.62	0.02	0.05	0.05	0.16	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.02	0.25	0.30	0.01	0.15	0.15	0.01	0.04	0.02	0.14	0.11	0.02
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1743	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	123	1156	983	19	1110	1075	35	182	81	533	660	294
d1, Uniform Delay [s]	56.76	10.29	10.93	58.96	10.35	10.36	58.23	55.80	54.67	48.94	43.79	40.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.42	1.01	1.57	16.39	0.51	0.53	13.44	4.26	2.00	3.76	0.73	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.40	0.46	0.47	0.24	0.24	0.57	0.67	0.30	0.84	0.55	0.12
d, Delay for Lane Group [s/veh]	60.17	11.30	12.49	75.35	10.86	10.89	71.67	60.06	56.67	52.70	44.52	40.22
Lane Group LOS	E	B	B	E	B	B	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	5.85	6.27	0.36	3.25	3.18	0.73	1.92	0.74	6.82	4.98	0.88
50th-Percentile Queue Length [ft/ln]	25.29	146.2	156.6	9.00	81.29	79.45	18.36	48.03	18.61	170.4	124.4	21.89
95th-Percentile Queue Length [veh/ln]	1.82	9.81	10.37	0.65	5.85	5.72	1.32	3.46	1.34	11.10	8.64	1.58
95th-Percentile Queue Length [ft/ln]	45.52	245.3	259.3	16.21	146.3	143.0	33.04	86.46	33.50	277.4	215.9	39.41

Movement, Approach, & Intersection Results

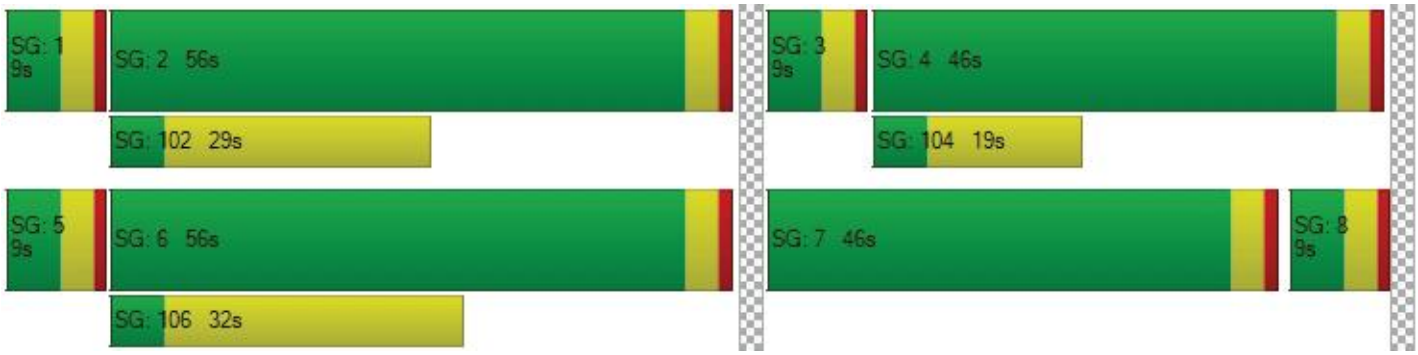
d_M, Delay for Movement [s/veh]	60.17	11.30	12.49	75.35	10.87	10.89	71.67	60.06	56.67	52.70	44.52	40.22
Movement LOS	E	B	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	15.06			11.96			60.97			48.67		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	28.72											
Intersection LOS	C											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.402	2.699	2.916
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	83	700
d_b, Bicycle Delay [s]	19.27	19.27	55.10	25.35
l_b,int, Bicycle LOS Score for Intersection	3.170	2.002	1.697	2.261
Bicycle LOS	C	B	A	B

Sequence

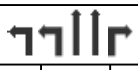
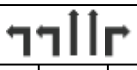
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	50.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.835

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	466	1012	370	91	1138	69	86	116	267	506	305	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	88	0	1	130	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	216	0	35	174	0	0	0	0	0	0	40
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	522	1437	414	138	1579	77	96	130	299	567	342	120
Peak Hour Factor	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	137	378	109	36	415	20	25	34	79	149	90	32
Total Analysis Volume [veh/h]	549	1511	435	145	1660	81	101	137	314	596	360	126
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	22	43	0	15	36	0	13	40	40	22	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	63	63	11	56	56	5	12	34	18	24	24
g / C, Green / Cycle	0.15	0.53	0.53	0.09	0.47	0.47	0.05	0.10	0.28	0.15	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.16	0.44	0.28	0.08	0.34	0.05	0.03	0.04	0.21	0.18	0.14	0.14
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1643
c, Capacity [veh/h]	499	1808	807	157	2300	718	154	334	430	499	362	331
d1, Uniform Delay [s]	51.00	23.96	18.72	54.08	25.57	17.86	56.29	50.90	39.04	51.00	44.56	44.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.32	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	52.11	4.76	2.58	19.08	2.00	0.32	4.69	0.80	6.87	91.64	2.47	2.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.84	0.54	0.92	0.72	0.11	0.66	0.41	0.73	1.19	0.70	0.70
d, Delay for Lane Group [s/veh]	103.1	28.73	21.30	73.16	27.56	18.18	60.98	51.70	45.91	142.6	47.02	47.27
Lane Group LOS	F	C	C	E	C	B	E	D	D	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.09	18.59	8.40	5.17	12.82	1.33	1.61	1.98	9.15	13.83	7.26	6.66
50th-Percentile Queue Length [ft/ln]	277.2	464.6	209.9	129.3	320.4	33.26	40.16	49.45	228.7	345.7	181.5	166.4
95th-Percentile Queue Length [veh/ln]	17.27	25.66	13.15	8.90	18.69	2.40	2.89	3.56	14.11	21.53	11.68	10.89
95th-Percentile Queue Length [ft/ln]	431.8	641.4	328.8	222.5	467.2	59.88	72.29	89.00	352.7	538.3	292.0	272.2

Movement, Approach, & Intersection Results

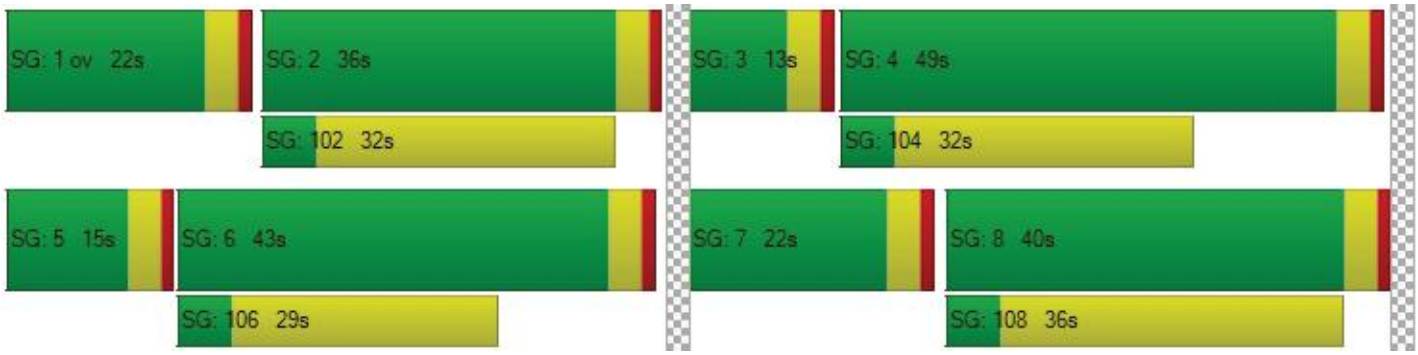
d_M, Delay for Movement [s/veh]	103.1	28.73	21.30	73.16	27.56	18.18	60.98	51.70	45.91	142.6	47.10	47.27
Movement LOS	F	C	C	E	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	43.80			30.67			50.10			99.75		
Approach LOS	D			C			D			F		
d_I, Intersection Delay [s/veh]	50.32											
Intersection LOS	D											
Intersection V/C	0.835											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.413	3.182	2.929	2.860
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	533	600	750
d_b, Bicycle Delay [s]	27.34	32.27	29.40	23.44
l_b,int, Bicycle LOS Score for Intersection	3.618	2.597	2.015	2.452
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	8	9	4	23	1	73	5	50	26	56	314	11
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	10	4	26	1	82	6	56	29	63	388	12
Peak Hour Factor	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877	0.877
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	3	1	7	0	23	2	16	8	18	111	3
Total Analysis Volume [veh/h]	10	11	5	30	1	94	7	64	33	72	442	14
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	70	63	63
g / C, Green / Cycle	0.12	0.12	0.58	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.03	0.11	0.13	0.13	0.13
s, saturation flow rate [veh/h]	1641	1466	778	1800	1781
c, Capacity [veh/h]	240	230	422	945	935
d1, Uniform Delay [s]	47.58	51.73	13.46	15.49	15.50
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	4.21	1.41	0.61	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.72	0.25	0.24	0.24
d, Delay for Lane Group [s/veh]	48.07	55.94	14.86	16.10	16.11
Lane Group LOS	D	E	B	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.56	5.19	1.41	3.55	3.52
50th-Percentile Queue Length [ft/ln]	38.93	129.69	35.20	88.79	88.07
95th-Percentile Queue Length [veh/ln]	2.80	8.92	2.53	6.39	6.34
95th-Percentile Queue Length [ft/ln]	70.08	223.07	63.36	159.82	158.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.07	48.07	48.07	48.07	55.94	55.94	55.94	55.94	14.86	14.86	16.11	16.11
Movement LOS	D	D	D	D	E	E	E	E	B	B	B	B
d_A, Approach Delay [s/veh]	48.07				55.94				15.88			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	28.52											
Intersection LOS	C											
Intersection V/C	0.569											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.783	0.000	2.746
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	250
d_b, Bicycle Delay [s]	45.94	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.603	1.678	1.963
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	16	545	49	18	10	9	194	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	40	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	650	55	20	11	10	217	1
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	185	16	6	3	3	62	0
Total Analysis Volume [veh/h]	21	741	63	23	13	11	247	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	19	0	0	0	73	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	61	61	61	23
g / C, Green / Cycle	0.02	0.51	0.51	0.51	0.19
(v / s)_i Volume / Saturation Flow Rate	0.01	0.16	0.25	0.06	0.18
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1547
c, Capacity [veh/h]	36	908	908	772	302
d1, Uniform Delay [s]	58.20	17.55	19.64	15.60	47.14
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.79	0.93	1.94	0.29	9.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.32	0.50	0.11	0.90
d, Delay for Lane Group [s/veh]	71.99	18.47	21.58	15.89	56.71
Lane Group LOS	E	B	C	B	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.77	4.94	8.68	1.30	8.71
50th-Percentile Queue Length [ft/ln]	19.28	123.49	217.07	32.58	217.68
95th-Percentile Queue Length [veh/ln]	1.39	8.58	13.52	2.35	13.55
95th-Percentile Queue Length [ft/ln]	34.71	214.61	337.89	58.65	338.66

Movement, Approach, & Intersection Results

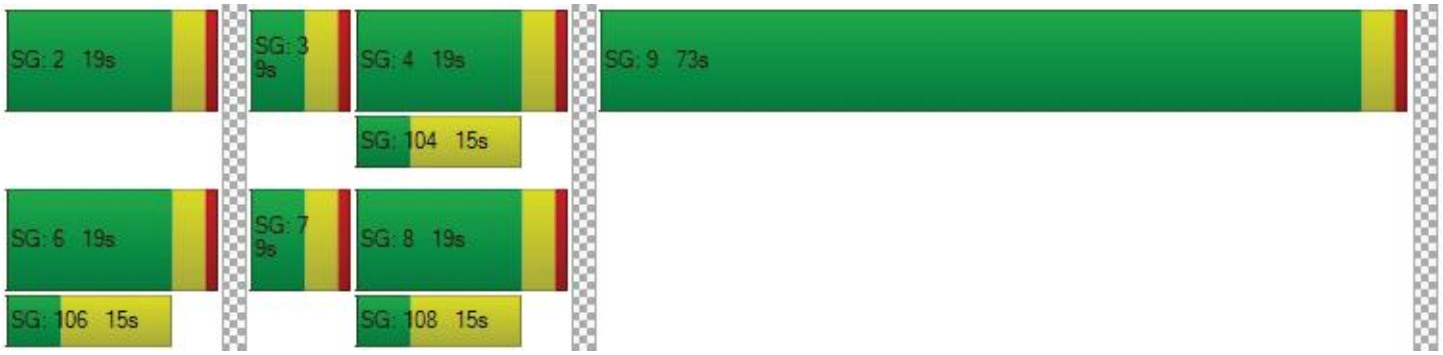
d_M, Delay for Movement [s/veh]	71.99	20.36	21.58	15.89	56.71	56.71	56.71	56.71
Movement LOS	E	C	C	B	E	E	E	E
d_A, Approach Delay [s/veh]	21.19				56.71			
Approach LOS	C				E			
d_I, Intersection Delay [s/veh]	28.52							
Intersection LOS	C							
Intersection V/C	0.569							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.125
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	1150
d_b, Bicycle Delay [s]	45.94	10.84
l_b,int, Bicycle LOS Score for Intersection	2.240	2.007
Bicycle LOS	B	B

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	120.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	6	1	21	92	3	29	14	399	8	14	605	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	1	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	35	0	0	40	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1	24	103	3	32	16	483	9	16	718	81
Peak Hour Factor	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	0	7	29	1	9	5	136	3	5	203	23
Total Analysis Volume [veh/h]	8	1	27	116	3	36	18	546	10	18	811	92
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

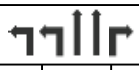
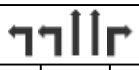
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.01	0.04	0.88	0.02	0.06	0.02	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	27.21	37.53	10.92	118.2	120.8	11.86	9.84	0.00	0.00	8.58	0.00	0.00
Movement LOS	D	E	B	F	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.31	5.93	5.93	0.21	0.07	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.66	7.66	7.66	148.3	148.3	5.13	1.81	0.00	0.00	1.34	0.00	0.00
d_A, Approach Delay [s/veh]	15.28			93.60			0.31			0.17		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	9.13											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	65.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	439	581	136	84	759	31	35	281	464	265	376	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	30	0	0	32	0	0	1	0	0	0	1
Site-Generated Trips [veh/h]	40	9	0	0	0	0	0	0	35	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	532	690	152	94	882	35	39	316	555	297	421	93
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	139	180	40	25	230	9	10	83	145	78	110	24
Total Analysis Volume [veh/h]	556	721	159	98	922	37	41	330	580	310	440	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	45	0	13	35	0	11	47	0	15	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	42	42	8	31	31	4	43	43	11	50	50
g / C, Green / Cycle	0.16	0.35	0.35	0.07	0.26	0.26	0.03	0.36	0.36	0.09	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.17	0.21	0.10	0.06	0.27	0.27	0.01	0.10	0.38	0.09	0.15	0.15
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1776	3329	3427	1530	3329	1800	1689
c, Capacity [veh/h]	527	1187	530	121	465	459	106	1228	548	305	753	706
d1, Uniform Delay [s]	50.50	32.47	28.62	54.99	44.50	44.50	56.93	27.34	38.50	54.50	24.01	24.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	34.74	2.32	1.45	12.18	51.97	52.28	2.28	0.12	54.66	27.96	0.30	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.05	0.61	0.30	0.81	1.04	1.04	0.39	0.27	1.06	1.02	0.37	0.37
d, Delay for Lane Group [s/veh]	85.24	34.79	30.07	67.17	96.47	96.78	59.22	27.45	93.16	82.46	24.31	24.34
Lane Group LOS	F	C	C	E	F	F	E	C	F	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.43	9.01	3.57	3.33	20.40	20.17	0.64	3.40	24.13	5.79	5.46	5.13
50th-Percentile Queue Length [ft/ln]	260.6	225.3	89.20	83.24	510.1	504.2	16.10	84.96	603.3	144.6	136.5	128.3
95th-Percentile Queue Length [veh/ln]	16.12	13.94	6.42	5.99	28.46	28.18	1.16	6.12	33.46	9.79	9.29	8.85
95th-Percentile Queue Length [ft/ln]	402.9	348.4	160.5	149.8	711.5	704.3	28.98	152.9	836.5	244.6	232.3	221.2

Movement, Approach, & Intersection Results

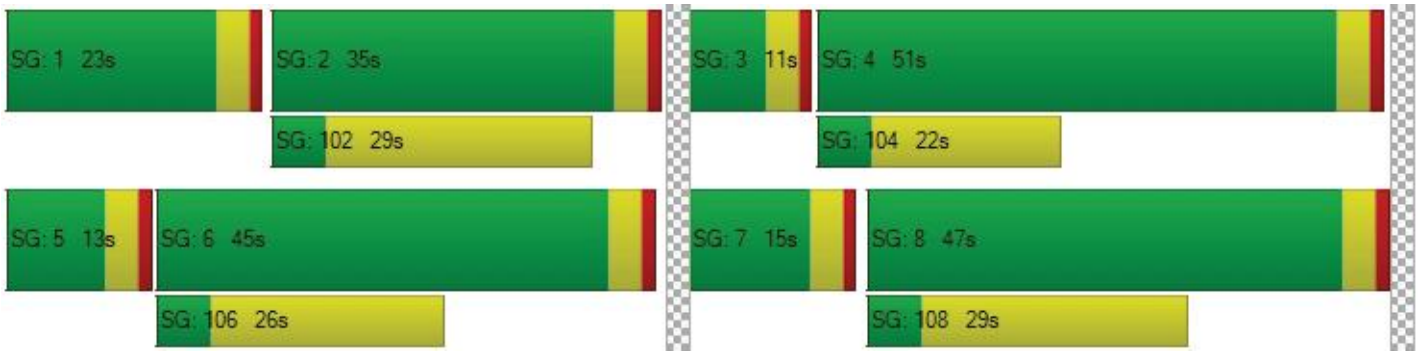
d_M, Delay for Movement [s/veh]	85.24	34.79	30.07	67.17	96.62	96.78	59.22	27.45	93.16	82.46	24.32	24.34
Movement LOS	F	C	C	E	F	F	E	C	F	F	C	C
d_A, Approach Delay [s/veh]	53.80			93.89			68.89			45.60		
Approach LOS	D			F			E			D		
d_I, Intersection Delay [s/veh]	65.40											
Intersection LOS	E											
Intersection V/C	0.907											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.062	2.689	2.885	2.915
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	517	717	783
d_b, Bicycle Delay [s]	26.00	33.00	24.70	22.20
l_b,int, Bicycle LOS Score for Intersection	2.744	2.432	2.344	2.258
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	36.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	180	1217	675	109	1386	98	170	259	151	546	419	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	1	10	0	6	18	0	0	0	1	0	0	4
Site-Generated Trips [veh/h]	0	21	0	0	12	0	0	0	0	0	0	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	203	1394	756	128	1582	110	190	290	170	612	469	118
Peak Hour Factor	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	372	202	34	423	29	51	77	45	163	125	32
Total Analysis Volume [veh/h]	217	1489	808	137	1690	118	203	310	182	654	501	126
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	9	36	0	35	43	0	28	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	58	86	5	54	54	10	17	17	24	31	40
g / C, Green / Cycle	0.08	0.48	0.72	0.04	0.45	0.45	0.08	0.14	0.14	0.20	0.26	0.34
(v / s)_i Volume / Saturation Flow Rate	0.07	0.30	0.53	0.04	0.35	0.35	0.06	0.09	0.12	0.20	0.15	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1741	3329	3427	1530	3329	3427	2708
c, Capacity [veh/h]	250	2367	1095	139	1540	782	271	488	218	666	894	910
d1, Uniform Delay [s]	54.92	23.06	10.26	57.47	27.97	28.02	53.91	48.52	50.09	47.79	38.39	27.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.97	1.28	4.45	32.63	3.93	7.60	4.11	1.38	8.18	12.56	0.55	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.63	0.74	0.99	0.78	0.78	0.75	0.64	0.84	0.98	0.56	0.14
d, Delay for Lane Group [s/veh]	63.89	24.34	14.71	90.10	31.90	35.62	58.02	49.90	58.28	60.35	38.95	27.83
Lane Group LOS	E	C	B	F	C	D	E	D	E	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.56	10.51	12.61	2.70	15.07	16.19	3.15	4.48	5.81	10.84	6.45	1.28
50th-Percentile Queue Length [ft/ln]	88.88	262.7	315.2	67.62	376.7	404.6	78.86	111.8	145.1	270.9	161.2	32.01
95th-Percentile Queue Length [veh/ln]	6.40	15.83	18.43	4.87	21.44	22.79	5.68	7.95	9.76	16.24	10.61	2.30
95th-Percentile Queue Length [ft/ln]	159.9	395.6	460.7	121.7	535.9	569.6	141.9	198.6	243.9	405.9	265.3	57.62

Movement, Approach, & Intersection Results

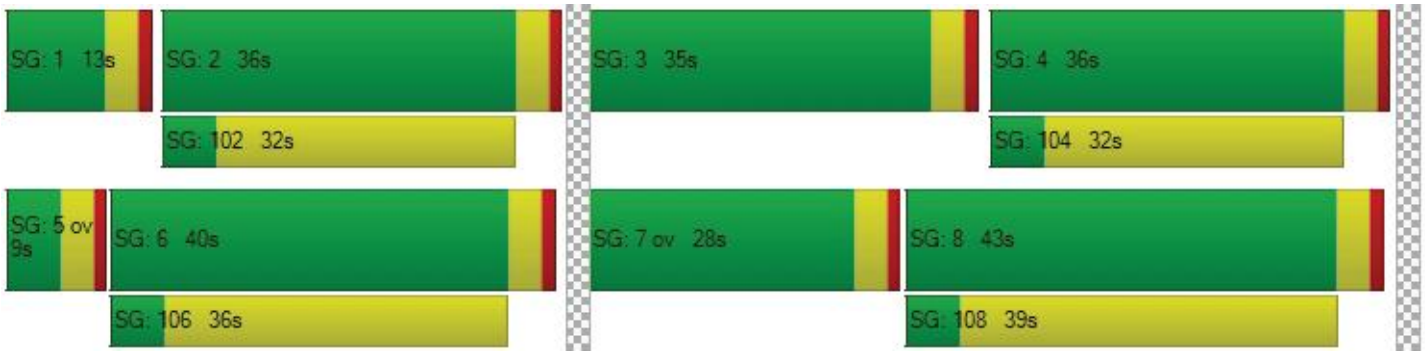
d_M, Delay for Movement [s/veh]	63.89	24.34	14.71	90.10	32.98	35.62	58.02	49.90	58.28	60.35	38.95	27.83
Movement LOS	E	C	B	F	C	D	E	D	E	E	D	C
d_A, Approach Delay [s/veh]	24.66			37.17			54.47			48.78		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	36.46											
Intersection LOS	D											
Intersection V/C	0.770											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.473	3.199	2.927	3.139
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.942	2.629	1.942	2.616
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	762	445	0	774	408	0	0	0	490	0	531
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	9	0	0	6	7	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	108	0	0	0	113	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	970	445	0	873	577	0	0	0	549	0	595
Peak Hour Factor	1.000	0.924	1.000	1.000	0.924	0.924	1.000	1.000	1.000	0.924	1.000	0.924
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	262	111	0	236	156	0	0	0	149	0	161
Total Analysis Volume [veh/h]	0	1050	445	0	945	624	0	0	0	594	0	644
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	33	0	0	33	0	0	0	0	87	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	75	75		37	37	37
g / C, Green / Cycle	0.63	0.63		0.31	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.31	0.19		0.24	0.26	0.27
s, saturation flow rate [veh/h]	3427	4903		1714	1606	1530
c, Capacity [veh/h]	2151	3077		524	491	468
d1, Uniform Delay [s]	12.00	10.31		38.08	38.91	39.59
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.80	0.26		2.67	3.95	5.61
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.31		0.79	0.84	0.88
d, Delay for Lane Group [s/veh]	12.80	10.57		40.75	42.86	45.20
Lane Group LOS	B	B		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.43	3.78		11.41	11.80	12.19
50th-Percentile Queue Length [ft/ln]	185.80	94.57		285.3	295.0	304.7
95th-Percentile Queue Length [veh/ln]	11.90	6.81		16.95	17.44	17.92
95th-Percentile Queue Length [ft/ln]	297.57	170.22		423.8	435.9	447.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.80	0.00	0.00	10.57	0.00	0.00	0.00	0.00	41.39	0.00	44.36
Movement LOS		B			B					D		D
d_A, Approach Delay [s/veh]	12.80			10.57			0.00			42.94		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	23.69											
Intersection LOS	C											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	0	1383
d_b, Bicycle Delay [s]	34.50	34.50	60.00	5.70
l_b,int, Bicycle LOS Score for Intersection	2.426	2.079	4.132	3.602
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	70.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.051

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	993	543	0	1748	0	0	0	0	738	0	637
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	26	0	0	124	0	0	0	0	0	0	62
Site-Generated Trips [veh/h]	0	55	0	0	172	2	0	0	0	0	0	161
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1193	608	0	2254	2	0	0	0	827	0	936
Peak Hour Factor	1.000	0.910	0.910	1.000	0.910	0.910	0.910	0.910	0.910	0.910	1.000	0.910
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	328	167	0	619	1	0	0	0	227	0	257
Total Analysis Volume [veh/h]	0	1311	668	0	2477	2	0	0	0	909	0	1029
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	45	0	0	45	0	0	0	0	75	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	41	41		71	71
g / C, Green / Cycle	0.34	0.34		0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.27	0.38		0.27	0.67
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	1675	2234		1970	905
d1, Uniform Delay [s]	35.49	39.50		13.76	24.50
k, delay calibration	0.50	0.50		0.11	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	3.73	56.18		0.17	75.07
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.78	1.11		0.46	1.14
d, Delay for Lane Group [s/veh]	39.22	95.68		13.93	99.57
Lane Group LOS	D	F		B	F
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	11.95	24.88		6.75	42.66
50th-Percentile Queue Length [ft/ln]	298.68	622.04		168.82	1066.42
95th-Percentile Queue Length [veh/ln]	17.62	35.37		11.01	59.17
95th-Percentile Queue Length [ft/ln]	440.39	884.28		275.36	1479.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	39.22	0.00	0.00	95.68	0.00	0.00	0.00	0.00	13.93	0.00	99.57
Movement LOS		D			F					B		F
d_A, Approach Delay [s/veh]	39.22			95.68			0.00			59.40		
Approach LOS	D			F			A			E		
d_I, Intersection Delay [s/veh]	70.47											
Intersection LOS	E											
Intersection V/C	1.051											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	683	0	1183
d_b, Bicycle Delay [s]	26.00	26.00	60.00	10.00
l_b,int, Bicycle LOS Score for Intersection	2.281	2.581	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	654	272	0	983	466	0	0	0	363	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	4	0	0	32	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	9	0	0	35	0	0	0	0	0	0	40
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	745	272	0	1168	466	0	0	0	407	0	568
Peak Hour Factor	1.000	0.960	0.868	1.000	0.960	1.000	1.000	1.000	1.000	0.960	1.000	0.960
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	194	78	0	304	117	0	0	0	106	0	148
Total Analysis Volume [veh/h]	0	776	313	0	1217	466	0	0	0	424	0	592
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	48	0	0	48	0	0	0	0	72	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	78	78		34	34
g / C, Green / Cycle	0.65	0.65		0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.16	0.36		0.25	0.22
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3202	2238		480	759
d1, Uniform Delay [s]	8.58	11.19		41.30	39.78
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.18	0.95		5.52	1.79
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.54		0.88	0.78
d, Delay for Lane Group [s/veh]	8.76	12.15		46.82	41.57
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.71	8.46		12.64	8.19
50th-Percentile Queue Length [ft/ln]	67.79	211.48		316.07	204.87
95th-Percentile Queue Length [veh/ln]	4.88	13.23		18.47	12.89
95th-Percentile Queue Length [ft/ln]	122.03	330.72		461.85	322.24

Movement, Approach, & Intersection Results

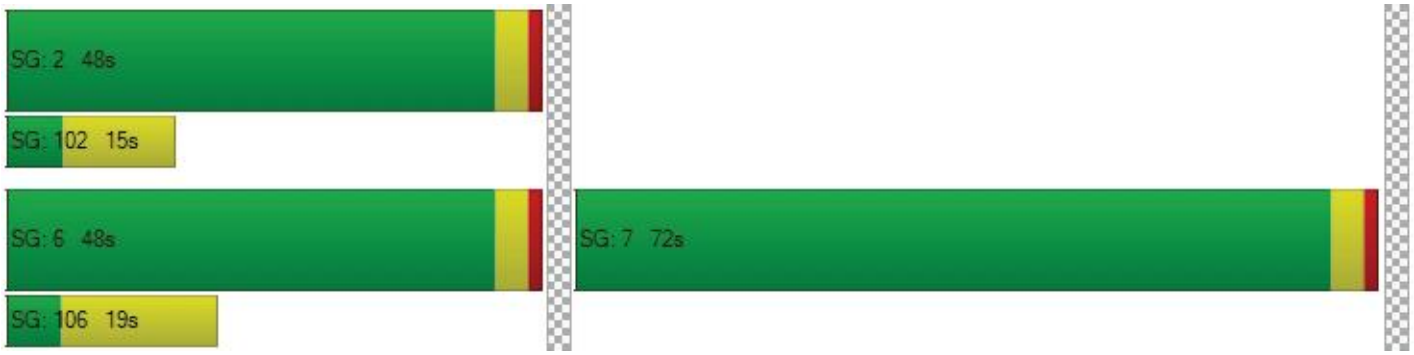
d_M, Delay for Movement [s/veh]	0.00	8.76	0.00	0.00	12.15	0.00	0.00	0.00	0.00	46.82	0.00	41.57
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	8.76			12.15			0.00			43.76		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	21.95											
Intersection LOS	C											
Intersection V/C	0.602											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.394
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	0	1133
d_b, Bicycle Delay [s]	24.07	24.07	60.00	11.27
l_b,int, Bicycle LOS Score for Intersection	1.986	2.564	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1074	381	0	966	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	0	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	99	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1216	381	0	1088	238	407	0	671	0	0	0
Peak Hour Factor	1.000	0.927	1.000	1.000	0.927	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	328	95	0	293	60	110	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1312	381	0	1174	238	439	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	60	60	
g / C, Green / Cycle	0.43	0.43	0.50	0.50	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.34	0.13	0.47	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	2120	1482	1668	767	
d1, Uniform Delay [s]	26.40	29.41	17.21	28.35	
k, delay calibration	0.50	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.37	4.43	0.08	9.57	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.62	0.79	0.26	0.94	
d, Delay for Lane Group [s/veh]	27.77	33.84	17.29	37.92	
Lane Group LOS	C	C	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.83	15.21	3.50	20.97	
50th-Percentile Queue Length [ft/ln]	245.76	380.23	87.54	524.16	
95th-Percentile Queue Length [veh/ln]	14.97	21.60	6.30	28.48	
95th-Percentile Queue Length [ft/ln]	374.31	540.12	157.58	711.90	

Movement, Approach, & Intersection Results

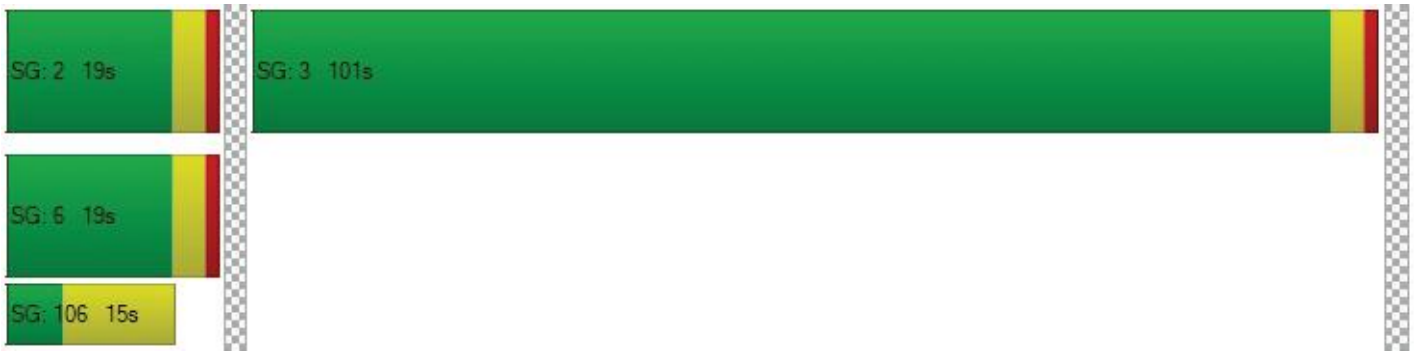
d_M, Delay for Movement [s/veh]	0.00	27.77	0.00	0.00	33.84	0.00	17.29	0.00	37.92	0.00	0.00	0.00
Movement LOS		C			C		B		D			
d_A, Approach Delay [s/veh]	27.77			33.84			30.13			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	30.48											
Intersection LOS	C											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.281	2.528	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	46.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.918

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1234	483	460	1488	0	401	6	617	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	21	0	92	32	0	5	0	0	0	0	0
Site-Generated Trips [veh/h]	0	46	0	167	5	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1449	541	774	1704	0	462	7	691	0	0	0
Peak Hour Factor	1.000	0.914	0.914	0.914	0.914	1.000	0.914	0.914	0.914	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	396	148	212	466	0	126	2	189	0	0	0
Total Analysis Volume [veh/h]	0	1585	592	847	1864	0	505	8	756	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	49	0	34	83	0	0	37	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	45	45	30	79	33	33	33	
g / C, Green / Cycle	0.38	0.38	0.25	0.66	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.39	0.25	0.38	0.25	0.27	0.28	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1567	1530	
c, Capacity [veh/h]	1839	574	832	3228	471	431	421	
d1, Uniform Delay [s]	34.63	37.50	45.00	11.30	41.87	43.20	43.50	
k, delay calibration	0.50	0.50	0.11	0.50	0.38	0.44	0.46	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.61	45.99	19.14	0.76	18.16	36.42	43.38	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.86	1.03	1.02	0.58	0.90	0.98	1.01	
d, Delay for Lane Group [s/veh]	40.24	83.49	64.14	12.06	60.03	79.62	86.88	
Lane Group LOS	D	F	F	B	E	E	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	14.97	23.81	14.48	8.75	14.33	16.69	17.42	
50th-Percentile Queue Length [ft/ln]	374.20	595.17	362.08	218.80	358.2	417.2	435.5	
95th-Percentile Queue Length [veh/ln]	21.31	32.53	20.94	13.60	20.54	23.39	24.35	
95th-Percentile Queue Length [ft/ln]	532.82	813.15	523.50	340.10	513.4	584.7	608.7	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	40.24	83.49	64.14	12.06	0.00	63.21	79.62	83.68	0.00	0.00	0.00
Movement LOS		D	F	F	B		E	E	F			
d_A, Approach Delay [s/veh]	52.00			28.33			75.51			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	46.42											
Intersection LOS	D											
Intersection V/C	0.918											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.456	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	1317	550	0
d_b, Bicycle Delay [s]	23.44	7.00	31.54	60.00
l_b,int, Bicycle LOS Score for Intersection	2.757	3.051	3.653	4.132
Bicycle LOS	C	C	D	D

Sequence

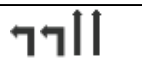
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	651	332	534	851	0	304	8	427	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	4	0	26	6	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	35	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	742	372	659	959	0	340	9	478	0	0	0
Peak Hour Factor	1.000	0.964	0.964	0.964	0.964	1.000	0.964	0.964	0.964	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	192	96	171	249	0	88	2	124	0	0	0
Total Analysis Volume [veh/h]	0	770	386	684	995	0	353	9	496	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	32	41	0	0	79	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	27	69	43	43	
g / C, Green / Cycle	0.32	0.32	0.22	0.58	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.25	0.21	0.29	0.11	0.33	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1534	
c, Capacity [veh/h]	1104	493	740	1979	1185	546	
d1, Uniform Delay [s]	35.57	36.89	45.68	15.09	27.85	37.12	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.12	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.67	11.80	5.54	0.92	0.14	7.82	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.70	0.78	0.92	0.50	0.30	0.93	
d, Delay for Lane Group [s/veh]	39.24	48.69	51.23	16.01	27.99	44.94	
Lane Group LOS	D	D	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.35	11.79	10.49	8.10	3.69	15.19	
50th-Percentile Queue Length [ft/ln]	258.69	294.69	262.22	202.42	92.36	379.64	
95th-Percentile Queue Length [veh/ln]	15.62	17.42	15.80	12.76	6.65	21.58	
95th-Percentile Queue Length [ft/ln]	390.58	435.46	395.00	319.09	166.25	539.41	

Movement, Approach, & Intersection Results

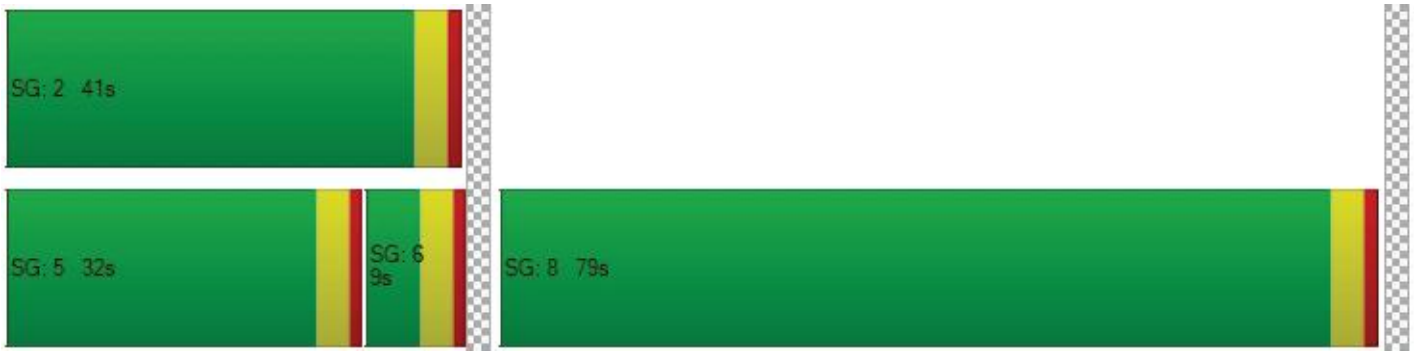
d_M, Delay for Movement [s/veh]	0.00	39.24	48.69	51.23	16.01	0.00	27.99	44.94	44.94	0.00	0.00	0.00
Movement LOS		D	D	D	B		C	D	D			
d_A, Approach Delay [s/veh]	42.40			30.35			37.97			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	35.89											
Intersection LOS	D											
Intersection V/C	0.787											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	617	1250	0
d_b, Bicycle Delay [s]	55.10	28.70	8.44	60.00
l_b,int, Bicycle LOS Score for Intersection	2.195	2.945	2.975	4.132
Bicycle LOS	B	C	C	D

Sequence

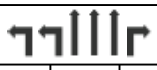
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.783

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	420	718	357	500	741	821	855	0	501	428	0	550
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	4	0	13	6	0	0	0	0	0	0	7
Site-Generated Trips [veh/h]	0	9	0	12	0	0	0	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	470	817	400	585	836	920	958	0	561	479	0	635
Peak Hour Factor	0.955	0.955	0.955	0.955	0.955	0.955	0.955	1.000	0.955	0.955	1.000	0.955
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	123	214	105	153	219	241	251	0	147	125	0	166
Total Analysis Volume [veh/h]	492	855	419	613	875	963	1003	0	587	502	0	665
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	62	0	0	62	0	58	0	0	58	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	72	72	72	72	40	40
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.39	0.17	0.48	0.18	0.30	0.15
s, saturation flow rate [veh/h]	1250	4903	1274	4903	3329	3329
c, Capacity [veh/h]	663	2947	677	2947	1106	1106
d1, Uniform Delay [s]	26.54	11.57	30.73	11.63	38.28	31.50
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.37	0.25	17.88	0.26	3.17	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.29	0.91	0.30	0.91	0.45
d, Delay for Lane Group [s/veh]	33.91	11.82	48.61	11.88	41.46	31.79
Lane Group LOS	C	B	D	B	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.50	3.66	10.12	3.76	14.41	5.78
50th-Percentile Queue Length [ft/ln]	162.57	91.40	252.92	94.01	360.16	144.42
95th-Percentile Queue Length [veh/ln]	10.69	6.58	15.33	6.77	20.63	9.72
95th-Percentile Queue Length [ft/ln]	267.13	164.53	383.33	169.23	515.78	242.96

Movement, Approach, & Intersection Results

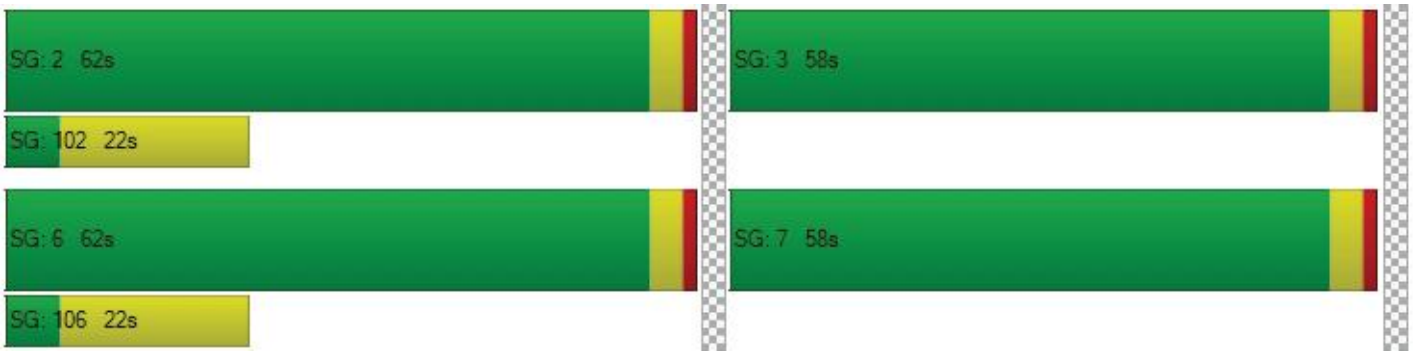
d_M, Delay for Movement [s/veh]	33.91	11.82	0.00	48.61	11.88	0.00	41.46	0.00	0.00	31.79	0.00	0.00
Movement LOS	C	B		D	B		D			C		
d_A, Approach Delay [s/veh]	19.89			27.01			41.46			31.79		
Approach LOS	B			C			D			C		
d_I, Intersection Delay [s/veh]	28.69											
Intersection LOS	C											
Intersection V/C	0.783											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.306	3.405
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	900	900
d_b, Bicycle Delay [s]	16.02	16.02	18.15	18.15
l_b,int, Bicycle LOS Score for Intersection	2.300	2.378	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	333	80	108	705	218	77	409	118	156	1102	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	4	4	0	0	0	4	0	6	6	6
Site-Generated Trips [veh/h]	0	0	9	9	0	0	0	9	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	373	103	134	790	244	86	471	132	181	1240	121
Peak Hour Factor	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858	0.858
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	109	30	39	230	71	25	137	38	53	361	35
Total Analysis Volume [veh/h]	230	435	120	156	921	284	100	549	154	211	1445	141
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	31	0	12	29	0	12	55	0	22	65	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	33	33	8	31	31	8	46	46	17	55	55
g / C, Green / Cycle	0.08	0.28	0.28	0.06	0.26	0.26	0.07	0.39	0.39	0.14	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.08	0.05	0.19	0.19	0.06	0.16	0.10	0.12	0.42	0.09
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	277	1361	425	210	1261	393	114	1327	592	238	1575	703
d1, Uniform Delay [s]	54.16	34.37	33.99	55.27	40.77	40.65	55.50	26.84	25.06	50.71	30.31	19.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.28	0.62	1.66	5.15	3.75	10.92	18.04	0.21	0.23	10.44	2.57	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.32	0.28	0.74	0.73	0.72	0.88	0.41	0.26	0.88	0.92	0.20
d, Delay for Lane Group [s/veh]	60.44	34.99	35.65	60.42	44.52	51.57	73.54	27.05	25.29	61.15	32.88	19.45
Lane Group LOS	E	C	D	E	D	D	E	C	C	E	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.66	3.45	2.95	2.47	8.70	8.82	3.57	5.77	3.04	6.91	19.49	2.38
50th-Percentile Queue Length [ft/ln]	91.51	86.19	73.83	61.77	217.5	220.4	89.25	144.3	76.06	172.6	487.1	59.50
95th-Percentile Queue Length [veh/ln]	6.59	6.21	5.32	4.45	13.54	13.69	6.43	9.71	5.48	11.22	26.73	4.28
95th-Percentile Queue Length [ft/ln]	164.7	155.1	132.9	111.1	338.4	342.1	160.6	242.8	136.9	280.4	668.1	107.1

Movement, Approach, & Intersection Results

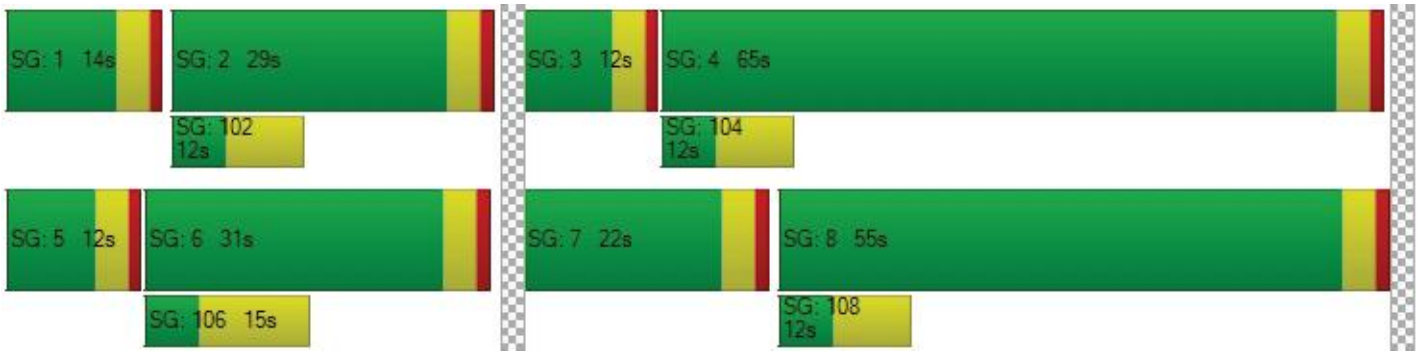
d_M, Delay for Movement [s/veh]	60.44	34.99	35.65	60.42	44.52	51.57	73.54	27.05	25.29	61.15	32.88	19.45
Movement LOS	E	C	D	E	D	D	E	C	C	E	C	B
d_A, Approach Delay [s/veh]	42.55			47.81			32.50			35.14		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	39.55											
Intersection LOS	D											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.089	3.085	2.917	2.894
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	417	850	1017
d_b, Bicycle Delay [s]	36.04	37.60	19.84	14.50
l_b,int, Bicycle LOS Score for Intersection	1.991	2.308	2.222	3.042
Bicycle LOS	A	B	B	C

Sequence

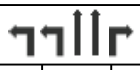
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	170	66	105	390	270	118	333	69	166	1013	134
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	12	0	0	18	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	27	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	190	74	118	437	302	132	412	77	186	1153	150
Peak Hour Factor	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	56	22	35	129	89	39	121	23	55	340	44
Total Analysis Volume [veh/h]	65	224	87	139	515	356	156	486	91	219	1360	177
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	10	33	0	15	38	38	16	55	0	17	56	56
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	31	31	11	36	52	12	52	52	10	50	65
g / C, Green / Cycle	0.05	0.26	0.26	0.09	0.30	0.43	0.10	0.44	0.44	0.08	0.42	0.54
(v / s)_i Volume / Saturation Flow Rate	0.04	0.07	0.06	0.08	0.15	0.23	0.09	0.16	0.17	0.07	0.40	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1703	3329	3427	1530
c, Capacity [veh/h]	82	875	391	157	1025	661	171	784	742	279	1438	833
d1, Uniform Delay [s]	56.51	35.59	35.27	53.87	34.70	25.20	53.47	22.87	22.89	53.90	33.51	14.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.17	0.71	1.31	14.76	1.76	3.12	16.34	0.30	0.32	4.81	4.05	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.26	0.22	0.88	0.50	0.54	0.91	0.38	0.38	0.78	0.95	0.21
d, Delay for Lane Group [s/veh]	71.68	36.29	36.58	68.64	36.46	28.32	69.81	23.17	23.21	58.70	37.56	14.20
Lane Group LOS	E	D	D	E	D	C	E	C	C	E	D	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.30	2.71	2.17	4.79	6.46	8.01	5.43	5.70	5.42	3.43	19.37	2.49
50th-Percentile Queue Length [ft/ln]	57.41	67.85	54.14	119.7	161.3	200.3	135.7	142.5	135.4	85.75	484.3	62.28
95th-Percentile Queue Length [veh/ln]	4.13	4.88	3.90	8.38	10.62	12.65	9.25	9.62	9.24	6.17	26.59	4.48
95th-Percentile Queue Length [ft/ln]	103.3	122.1	97.46	209.4	265.5	316.3	231.3	240.4	230.9	154.3	664.7	112.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.68	36.29	36.58	68.64	36.46	28.32	69.81	23.19	23.21	58.70	37.56	14.20
Movement LOS	E	D	D	E	D	C	E	C	C	E	D	B
d_A, Approach Delay [s/veh]	42.48			38.02			33.11			37.84		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.44											
Intersection LOS	D											
Intersection V/C	0.731											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.663	2.723	2.805	2.953
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	567	850	867
d_b, Bicycle Delay [s]	34.50	30.82	19.84	19.27
l_b,int, Bicycle LOS Score for Intersection	1.870	2.393	2.164	3.008
Bicycle LOS	A	B	B	C

Sequence

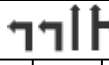
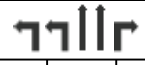
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	37.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	937	55	409	1110	522	407	220	42	53	258	351
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	17	0	0	26	6	4	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	0	0	5	0	9	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	1103	62	458	1274	591	469	246	47	59	289	393
Peak Hour Factor	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898	0.898
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	307	17	128	355	165	131	68	13	16	80	109
Total Analysis Volume [veh/h]	35	1228	69	510	1419	658	522	274	52	66	322	438
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	33	0	22	41	41	22	56	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	51	51	18	65	87	18	31	31	4	17	39
g / C, Green / Cycle	0.03	0.42	0.42	0.15	0.54	0.73	0.15	0.26	0.26	0.04	0.14	0.33
(v / s)_i Volume / Saturation Flow Rate	0.02	0.25	0.25	0.15	0.29	0.43	0.16	0.09	0.09	0.02	0.09	0.29
s, saturation flow rate [veh/h]	1714	3427	1751	3329	4903	1530	3329	1800	1701	3329	3427	1530
c, Capacity [veh/h]	51	1451	741	499	2666	1113	499	461	436	124	491	500
d1, Uniform Delay [s]	57.68	26.62	26.62	51.00	17.57	7.84	51.00	36.60	36.60	56.75	48.60	38.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.37
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.46	1.78	3.45	24.30	0.77	2.31	31.88	0.48	0.51	3.55	1.49	15.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.59	0.59	1.02	0.53	0.59	1.05	0.36	0.36	0.53	0.66	0.88
d, Delay for Lane Group [s/veh]	73.14	28.40	30.07	75.30	18.34	10.15	82.88	37.08	37.11	60.30	50.09	53.11
Lane Group LOS	E	C	C	F	B	B	F	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.27	9.71	10.27	9.16	8.38	7.87	9.69	4.11	3.89	1.04	4.66	14.09
50th-Percentile Queue Length [ft/ln]	31.77	242.8	256.8	229.0	209.5	196.7	242.1	102.7	97.26	26.11	116.5	352.1
95th-Percentile Queue Length [veh/ln]	2.29	14.82	15.53	14.26	13.13	12.47	15.09	7.39	7.00	1.88	8.21	20.24
95th-Percentile Queue Length [ft/ln]	57.18	370.5	388.2	356.5	328.2	311.7	377.3	184.8	175.0	47.00	205.1	506.0

Movement, Approach, & Intersection Results

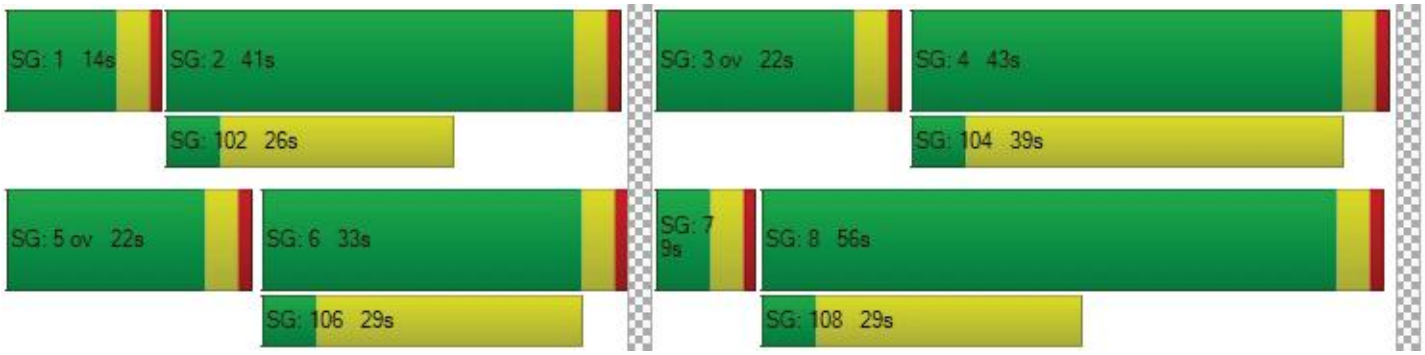
d_M, Delay for Movement [s/veh]	73.14	28.90	30.07	75.30	18.34	10.15	82.88	37.09	37.11	60.30	50.09	53.11
Movement LOS	E	C	C	F	B	B	F	D	D	E	D	D
d_A, Approach Delay [s/veh]	30.12			27.49			65.28			52.51		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	37.54											
Intersection LOS	D											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.090	3.447	2.771	2.843
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	617	867	650
d_b, Bicycle Delay [s]	34.50	28.70	19.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.292	2.982	2.259	2.241
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	605.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	75.638

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	762	11	114	720	331	245	39	80	9	21	66
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	14	6	6	4	0	0	0	0	9
Site-Generated Trips [veh/h]	0	9	0	5	0	0	9	0	0	0	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	866	12	147	812	377	287	44	90	10	24	102
Peak Hour Factor	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913	0.913
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	237	3	40	222	103	79	12	25	3	7	28
Total Analysis Volume [veh/h]	44	949	13	161	889	413	314	48	99	11	26	112
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	19	0	9	19	0	0	92	0	0	92	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	15	15	5	16	16	88	88	88	88
g / C, Green / Cycle	0.03	0.13	0.13	0.04	0.13	0.13	0.73	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate	0.03	0.18	0.18	0.09	0.26	0.27	75.34	0.06	0.37	0.07
s, saturation flow rate [veh/h]	1714	3427	1788	1714	3427	1530	5	1530	99	1530
c, Capacity [veh/h]	56	433	226	71	465	208	60	1120	111	1120
d1, Uniform Delay [s]	57.65	52.42	52.42	57.50	51.86	51.86	59.30	4.61	33.18	4.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.58	219.0	229.8	573.9	418.5	462.3	2321.66	0.03	1.73	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	1.46	1.46	2.25	1.91	1.99	6.08	0.09	0.33	0.10
d, Delay for Lane Group [s/veh]	79.23	271.4	282.2	631.4	470.4	514.2	2380.95	4.64	34.90	4.69
Lane Group LOS	E	F	F	F	F	F	F	A	C	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.66	19.69	21.22	13.55	34.00	32.88	40.21	0.65	0.91	0.74
50th-Percentile Queue Length [ft/ln]	41.49	492.2	530.4	338.8	850.0	822.0	1005.24	16.21	22.71	18.51
95th-Percentile Queue Length [veh/ln]	2.99	31.00	33.12	22.54	53.51	52.18	72.38	1.17	1.64	1.33
95th-Percentile Queue Length [ft/ln]	74.68	775.0	828.0	563.4	1337.	1304.	1809.44	29.18	40.88	33.32

Movement, Approach, & Intersection Results

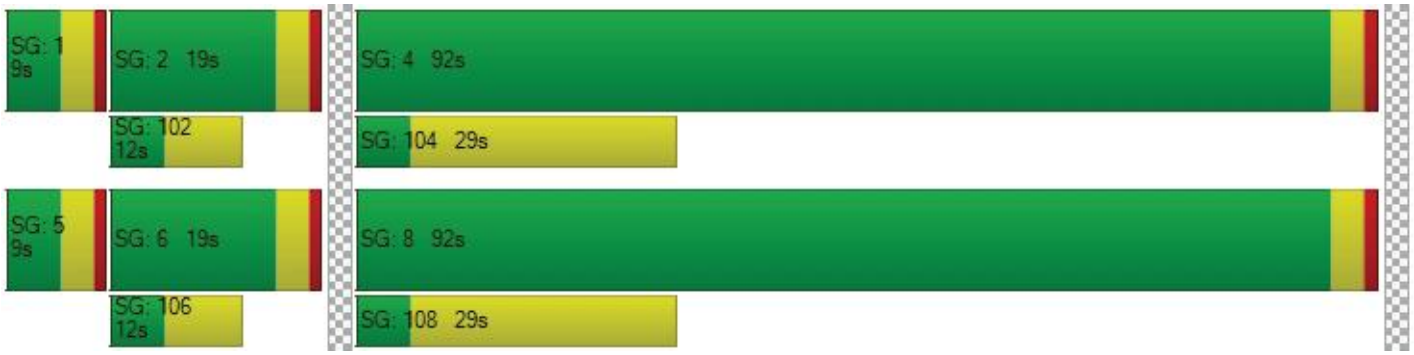
d_M, Delay for Movement [s/veh]	79.23	275.0	282.2	631.4	470.4	514.2	2380.	2380.	4.64	34.90	34.90	4.69
Movement LOS	E	F	F	F	F	F	F	F	A	C	C	A
d_A, Approach Delay [s/veh]	266.60			500.51			1870.64			12.19		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	605.60											
Intersection LOS	F											
Intersection V/C	75.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.904	3.451	2.262	2.076
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1467	1467
d_b, Bicycle Delay [s]	45.94	45.94	4.27	4.27
l_b,int, Bicycle LOS Score for Intersection	2.113	2.364	2.320	1.805
Bicycle LOS	B	B	B	A

Sequence

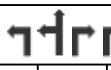
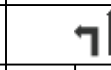
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	246	13	0	0	41	317	148	0	161	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	246	13	0	0	41	317	148	0	161	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	62	3	0	0	10	79	37	0	40	0	0	0
Total Analysis Volume [veh/h]	246	13	0	0	41	317	148	0	161	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	93	93	0	74	92	11	11	11	0	0
g / C, Green / Cycle	0.16	0.78	0.78	0.00	0.61	0.77	0.09	0.09	0.09	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.15	0.00	0.00	0.00	0.01	0.21	0.04	0.04	0.06	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1687	2665	1687	1772
c, Capacity [veh/h]	276	2617	1374	1	2067	1159	151	151	239	1	1
d1, Uniform Delay [s]	49.13	3.03	3.03	0.00	9.11	4.03	52.00	52.00	52.92	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.59	0.00	0.00	0.00	0.02	0.58	2.43	2.43	3.28	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.00	0.00	0.00	0.02	0.27	0.49	0.49	0.67	0.00	0.00
d, Delay for Lane Group [s/veh]	58.72	3.03	3.03	0.00	9.13	4.62	54.44	54.44	56.20	0.00	0.00
Lane Group LOS	E	A	A	A	A	A	D	D	E	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.93	0.02	0.02	0.00	0.21	2.11	2.23	2.23	2.46	0.00	0.00
50th-Percentile Queue Length [ft/ln]	198.3	0.51	0.55	0.00	5.32	52.81	55.70	55.70	61.55	0.00	0.00
95th-Percentile Queue Length [veh/ln]	12.55	0.04	0.04	0.00	0.38	3.80	4.01	4.01	4.43	0.00	0.00
95th-Percentile Queue Length [ft/ln]	313.8	0.91	1.00	0.00	9.57	95.06	100.2	100.2	110.8	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.72	3.03	3.03	0.00	9.13	4.62	54.44	54.44	56.20	0.00	0.00	0.00
Movement LOS	E	A	A	A	A	A	D	D	E	A	A	A
d_A, Approach Delay [s/veh]	55.92			5.13			55.35			0.00		
Approach LOS	E			A			E			A		
d_I, Intersection Delay [s/veh]	36.10											
Intersection LOS	D											
Intersection V/C	0.394											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.673	0.000	2.610	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.702	1.855	2.069	1.560
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	99	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	99	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	25	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	99	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

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Report File: K:\...\6 OY 2027 CUM Plus Phases 1 and 2 PM.pdf

Scenario 6 OY 2027 CUM Plus Phases 1 and 2 PM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.698	37.6	D
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.675	27.4	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.463	16.9	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.711	28.1	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.761	31.7	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.502	14.6	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.405	34.9	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.721	40.5	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	EB Left	0.872	56.2	E
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.482	40.0	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.361	15.8	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.501	34.2	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.816	43.8	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.507	43.0	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.580	40.3	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.556	35.9	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.565	44.4	D

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.941	27.7	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.637	22.8	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.807	71.3	E
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.770	48.4	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	6.211	3,016.9	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.857	60.0	E
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	SB Left	0.786	45.9	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.785	42.8	D
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.999	93.9	F
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.627	24.1	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.762	46.6	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.606	37.1	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.926	43.3	D
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	1.005	96.1	F
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.588	54.9	F
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.957	88.9	F
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.885	43.0	D
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	EB Thru	1.125	63.1	F
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.605	32.0	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	EB Left	0.657	45.1	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.523	26.4	C

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	1.106	135.9	F
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	1.700	203.5	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	EB Thru	1.418	125.2	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.579	32.5	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.639	34.6	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Right	1.059	87.5	F
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.683	37.9	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.689	39.3	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Thru	1.195	179.1	F
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.733	22.5	C
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	1.032	85.8	F
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.543	35.1	D
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	NB Thru	0.552	29.2	C
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.565	33.5	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.786	45.0	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	EB Thru	0.362	10.2	B
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.651	36.0	D
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	NB Right	0.933	61.3	E
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Right	1.005	63.1	E
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.528	16.2	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Left	1.710	518.3	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.839	52.8	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.914	62.0	E
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.594	19.1	B
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.996	59.3	E
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.597	20.1	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.608	19.6	B
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.900	50.7	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.771	33.5	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	EB Left	1.164	75.2	E
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.808	44.1	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.755	41.0	D
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.708	38.2	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	43.372	605.6	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition	NB Left	0.579	37.1	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	37.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	302	571	0	0	461	146	0	0	0	287	0	135
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	15	5	0	0	8	0	0	0	0	26	0	0
Site-Generated Trips [veh/h]	56	12	0	0	12	0	0	0	0	130	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	409	657	0	0	536	164	0	0	0	477	0	151
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	108	173	0	0	141	43	0	0	0	126	0	40
Total Analysis Volume [veh/h]	431	692	0	0	564	173	0	0	0	502	0	159
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	43	71	0	0	28	0	0	0	0	0	49	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	32	75	38	38		37	37
g / C, Green / Cycle	0.27	0.62	0.32	0.32		0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.25	0.20	0.14	0.15		0.29	0.10
s, saturation flow rate [veh/h]	1714	3427	3427	1601		1714	1530
c, Capacity [veh/h]	461	2127	1092	510		536	478
d1, Uniform Delay [s]	42.87	10.81	32.50	32.89		40.09	31.64
k, delay calibration	0.29	0.50	0.50	0.50		0.30	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	19.81	0.41	1.34	3.23		18.31	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.33	0.45	0.48		0.94	0.33
d, Delay for Lane Group [s/veh]	62.68	11.22	33.84	36.12		58.40	32.04
Lane Group LOS	E	B	C	D		E	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	14.91	4.35	5.89	6.21		16.95	3.61
50th-Percentile Queue Length [ft/ln]	372.83	108.72	147.14	155.19		423.66	90.21
95th-Percentile Queue Length [veh/ln]	21.25	7.77	9.86	10.29		23.70	6.50
95th-Percentile Queue Length [ft/ln]	531.16	194.23	246.60	257.34		592.44	162.38

Movement, Approach, & Intersection Results

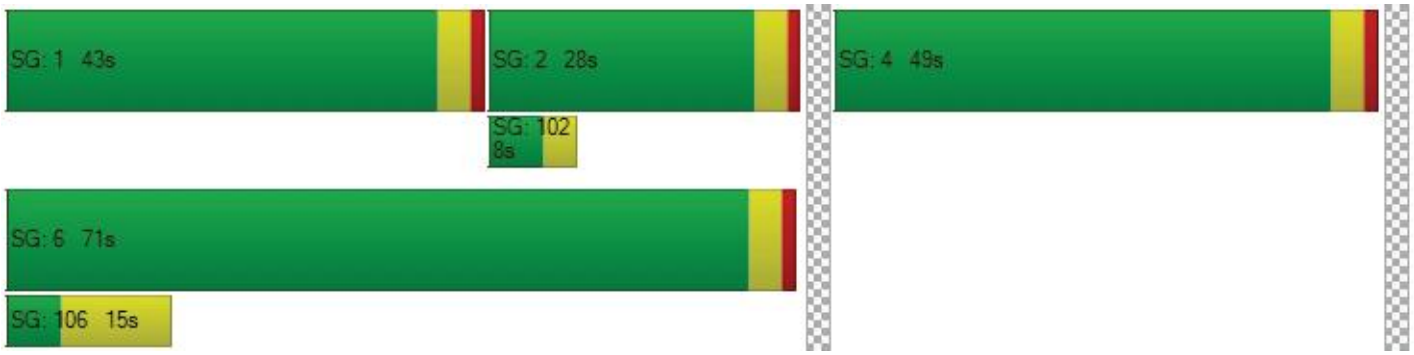
d_M, Delay for Movement [s/veh]	62.68	11.22	0.00	0.00	34.14	36.12	0.00	0.00	0.00	58.40	58.40	32.04
Movement LOS	E	B			C	D				E	E	C
d_A, Approach Delay [s/veh]	30.97			34.60			0.00			52.06		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	37.56											
Intersection LOS	D											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.028	2.170
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1117	400	0	750
d_b, Bicycle Delay [s]	11.70	38.40	60.00	23.44
l_b,int, Bicycle LOS Score for Intersection	2.486	1.965	4.132	2.650
Bicycle LOS	B	A	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	323	1038	0	0	732	395	0	0	0	341	0	332
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	7	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	362	1180	0	0	840	442	0	0	0	401	0	372
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	95	311	0	0	221	116	0	0	0	106	0	98
Total Analysis Volume [veh/h]	381	1242	0	0	884	465	0	0	0	422	0	392
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	26	56	0	0	30	0	0	0	0	0	64	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	16	78	58	58		34	34	34
g / C, Green / Cycle	0.13	0.65	0.48	0.48		0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.11	0.36	0.26	0.30		0.12	0.12	0.26
s, saturation flow rate [veh/h]	3329	3427	3427	1530		1714	1714	1530
c, Capacity [veh/h]	447	2230	1656	739		484	484	432
d1, Uniform Delay [s]	50.77	11.47	21.60	23.03		35.22	35.22	41.53
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.67	1.01	1.24	4.03		0.62	0.62	7.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.56	0.53	0.63		0.44	0.44	0.91
d, Delay for Lane Group [s/veh]	55.44	12.48	22.84	27.06		35.84	35.84	48.96
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.88	8.83	8.82	10.40		5.15	5.15	11.98
50th-Percentile Queue Length [ft/ln]	146.95	220.85	220.55	260.07		128.6	128.6	299.5
95th-Percentile Queue Length [veh/ln]	9.85	13.71	13.69	15.69		8.87	8.87	17.66
95th-Percentile Queue Length [ft/ln]	246.35	342.71	342.33	392.31		221.6	221.6	441.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.44	12.48	0.00	0.00	22.84	27.06	0.00	0.00	0.00	35.84	35.84	48.96
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	22.57			24.30			0.00			42.16		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	27.40											
Intersection LOS	C											
Intersection V/C	0.675											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.143	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	433	0	1000
d_b, Bicycle Delay [s]	19.27	36.82	60.00	15.00
l_b,int, Bicycle LOS Score for Intersection	2.899	2.673	4.132	2.903
Bicycle LOS	C	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1132	0	0	1172	0	0	0	0	297	0	400
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120
In-Process Volume [veh/h]	0	5	0	0	8	0	0	0	0	4	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1285	0	0	1333	0	0	0	0	344	0	448
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	338	0	0	351	0	0	0	0	91	0	118
Total Analysis Volume [veh/h]	0	1353	0	0	1403	0	0	0	0	362	0	472
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	47	0	0	47	0	0	0	0	0	73	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	87	87		25	25	25
g / C, Green / Cycle	0.73	0.73		0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.28	0.29		0.17	0.17	0.18
s, saturation flow rate [veh/h]	4903	4903		1714	1576	1530
c, Capacity [veh/h]	3556	3556		357	328	318
d1, Uniform Delay [s]	6.25	6.34		45.22	45.60	45.74
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	0.33		4.32	5.77	6.41
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.39		0.81	0.84	0.85
d, Delay for Lane Group [s/veh]	6.56	6.67		49.54	51.37	52.15
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.99	4.20		8.56	8.38	8.32
50th-Percentile Queue Length [ft/ln]	99.80	104.99		214.0	209.5	208.1
95th-Percentile Queue Length [veh/ln]	7.19	7.56		13.36	13.13	13.06
95th-Percentile Queue Length [ft/ln]	179.64	188.98		333.9	328.2	326.4

Movement, Approach, & Intersection Results

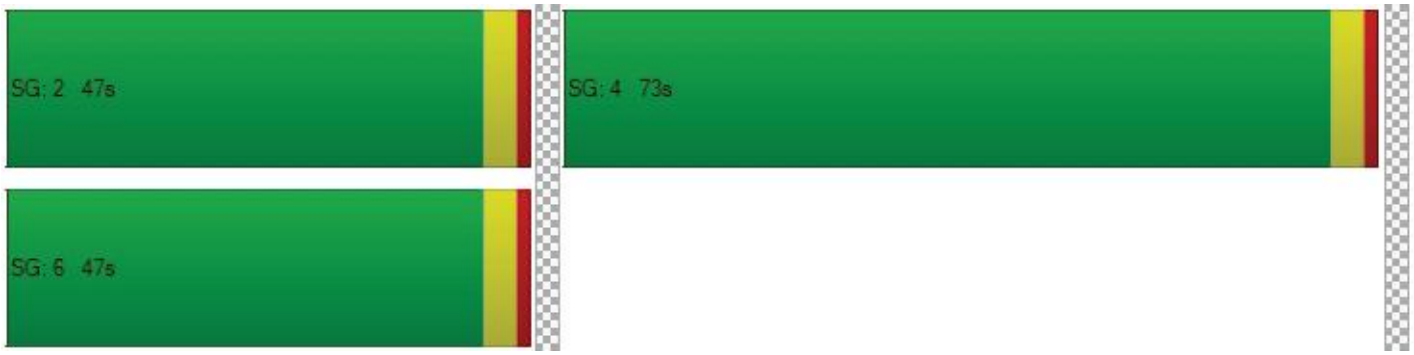
d_M, Delay for Movement [s/veh]	0.00	6.56	0.00	0.00	6.67	0.00	0.00	0.00	0.00	49.95	51.37	51.83
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	6.56			6.67			0.00			50.99		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.93											
Intersection LOS	B											
Intersection V/C	0.463											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	717	0	1150
d_b, Bicycle Delay [s]	24.70	24.70	60.00	10.84
l_b,int, Bicycle LOS Score for Intersection	2.304	2.331	4.132	2.936
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	687	307	72	673	0	193	2	359	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	20	22	0	34	0	0	0	16	0	0	0
Site-Generated Trips [veh/h]	0	68	107	0	142	0	0	0	70	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	857	473	81	930	0	216	2	488	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	226	124	21	245	0	57	1	128	0	0	0
Total Analysis Volume [veh/h]	0	902	498	85	979	0	227	2	514	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	44	0	11	55	0	0	65	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	58	58	7	69	43	43	
g / C, Green / Cycle	0.48	0.48	0.06	0.57	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.33	0.05	0.29	0.13	0.34	
s, saturation flow rate [veh/h]	3427	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1654	738	100	1968	616	550	
d1, Uniform Delay [s]	21.81	23.83	55.98	15.23	28.43	37.10	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.22	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.30	4.89	17.50	0.90	0.37	13.94	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.55	0.67	0.85	0.50	0.37	0.94	
d, Delay for Lane Group [s/veh]	23.11	28.72	73.48	16.14	28.81	51.04	
Lane Group LOS	C	C	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.08	11.60	3.04	7.99	4.95	16.44	
50th-Percentile Queue Length [ft/ln]	227.08	289.99	75.89	199.69	123.77	411.00	
95th-Percentile Queue Length [veh/ln]	14.03	17.19	5.46	12.62	8.60	23.09	
95th-Percentile Queue Length [ft/ln]	350.64	429.63	136.59	315.56	214.99	577.24	

Movement, Approach, & Intersection Results

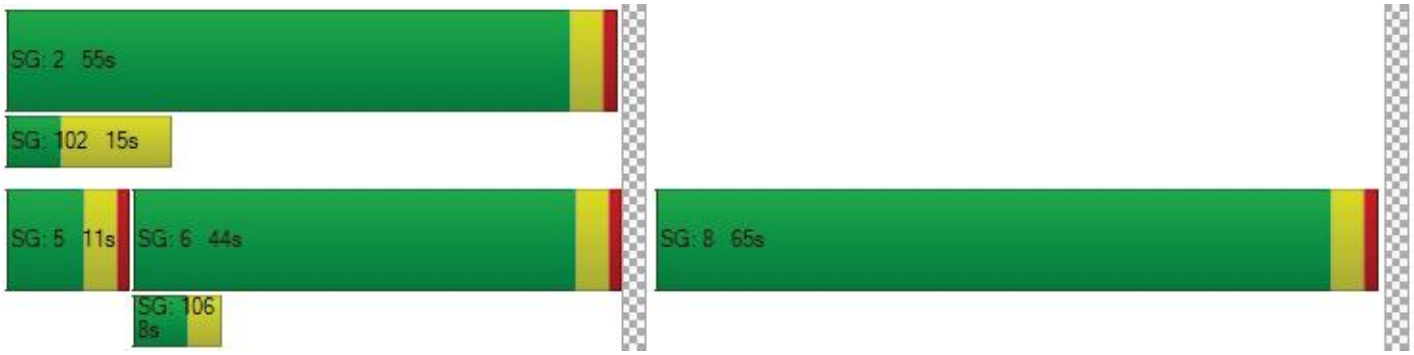
d_M, Delay for Movement [s/veh]	0.00	23.11	28.72	73.48	16.14	0.00	28.81	28.81	51.04	0.00	0.00	0.00
Movement LOS		C	C	E	B		C	C	D			
d_A, Approach Delay [s/veh]	25.10			20.72			44.19			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.07											
Intersection LOS	C											
Intersection V/C	0.711											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.197	2.009
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	850	1017	0
d_b, Bicycle Delay [s]	26.67	19.84	14.50	60.00
l_b,int, Bicycle LOS Score for Intersection	2.330	2.437	2.786	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1043	269	204	682	0	496	3	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	7	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	12	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1185	320	228	803	0	556	3	385	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	312	84	60	211	0	146	1	101	0	0	0
Total Analysis Volume [veh/h]	0	1247	337	240	845	0	585	3	405	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	65	0	14	79	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	69	69	10	83	29	29	29	
g / C, Green / Cycle	0.57	0.57	0.08	0.69	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.44	0.47	0.07	0.25	0.19	0.20	0.22	
s, saturation flow rate [veh/h]	1800	1674	3329	3427	1714	1670	1530	
c, Capacity [veh/h]	1029	957	277	2360	420	409	375	
d1, Uniform Delay [s]	19.64	20.87	54.33	7.72	42.41	42.68	43.67	
k, delay calibration	0.50	0.50	0.11	0.50	0.18	0.19	0.24	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.54	8.14	7.95	0.42	5.51	6.74	13.77	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.77	0.83	0.87	0.36	0.79	0.81	0.88	
d, Delay for Lane Group [s/veh]	25.18	29.01	62.28	8.15	47.92	49.42	57.44	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	17.65	19.24	3.88	4.33	9.80	9.98	10.86	
50th-Percentile Queue Length [ft/ln]	441.24	480.99	97.12	108.22	244.9	249.4	271.4	
95th-Percentile Queue Length [veh/ln]	24.54	26.43	6.99	7.74	14.93	15.16	16.26	
95th-Percentile Queue Length [ft/ln]	613.49	660.82	174.82	193.52	373.2	378.9	406.5	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	26.58	29.01	62.28	8.15	0.00	48.57	49.42	55.97	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	27.09			20.12			51.59			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.67											
Intersection LOS	C											
Intersection V/C	0.761											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.388	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1250	617	0
d_b, Bicycle Delay [s]	14.50	8.44	28.70	60.00
l_b,int, Bicycle LOS Score for Intersection	2.866	2.455	3.198	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.502

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1417	643	0	1189	41	193	0	409	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	5	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	6	0	19	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1604	726	0	1363	41	216	0	458	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	422	191	0	359	11	57	0	121	0	0	0
Total Analysis Volume [veh/h]	0	1688	764	0	1435	43	227	0	482	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	80	0	0	80	0	0	40	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	90	90	22	22	22	
g / C, Green / Cycle	0.75	0.75	0.18	0.18	0.18	
(v / s)_i Volume / Saturation Flow Rate	0.34	0.29	0.13	0.16	0.16	
s, saturation flow rate [veh/h]	4903	4903	1714	1530	1530	
c, Capacity [veh/h]	3668	3668	318	284	284	
d1, Uniform Delay [s]	5.81	5.39	45.90	47.26	47.26	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.42	0.32	2.99	7.03	7.03	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.39	0.71	0.85	0.85	
d, Delay for Lane Group [s/veh]	6.23	5.70	48.89	54.30	54.30	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	Yes	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	4.85	3.82	6.62	7.50	7.50	
50th-Percentile Queue Length [ft/ln]	121.32	95.49	165.5	187.6	187.6	
95th-Percentile Queue Length [veh/ln]	8.47	6.88	10.84	12.00	12.00	
95th-Percentile Queue Length [ft/ln]	211.64	171.88	271.0	299.9	299.9	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.23	0.00	0.00	5.70	0.00	48.89	54.30	54.30	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	6.23			5.70			52.57			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	14.60											
Intersection LOS	B											
Intersection V/C	0.502											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.319	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1267	1267	600	0
d_b, Bicycle Delay [s]	8.07	8.07	29.40	60.00
l_b,int, Bicycle LOS Score for Intersection	2.488	2.349	2.729	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.405

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	384	87	100	386	54	65	324	60	68	185	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	430	97	112	432	60	73	363	67	76	207	92
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	113	26	29	114	16	19	96	18	20	54	24
Total Analysis Volume [veh/h]	31	453	102	118	455	63	77	382	71	80	218	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	35	0	17	33	0	42	55	0	13	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	69	69	10	75	75	7	18	18	7	18	18
g / C, Green / Cycle	0.03	0.57	0.57	0.08	0.63	0.63	0.06	0.15	0.15	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.16	0.07	0.15	0.15	0.04	0.13	0.13	0.05	0.09	0.09
s, saturation flow rate [veh/h]	1714	1800	1687	1714	1800	1725	1714	1800	1704	1714	1800	1618
c, Capacity [veh/h]	47	1030	965	143	1130	1083	101	275	260	100	274	247
d1, Uniform Delay [s]	57.78	13.06	13.09	54.14	9.74	9.75	55.64	49.43	49.51	55.78	47.40	47.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.29	0.67	0.72	11.29	0.48	0.51	11.18	6.87	7.68	13.22	2.05	2.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.28	0.28	0.83	0.23	0.23	0.76	0.84	0.85	0.80	0.59	0.62
d, Delay for Lane Group [s/veh]	72.06	13.73	13.81	65.43	10.23	10.26	66.81	56.30	57.19	69.00	49.45	50.07
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.12	4.04	3.85	3.95	3.09	2.98	2.61	7.26	7.02	2.76	4.70	4.42
50th-Percentile Queue Length [ft/ln]	28.01	101.0	96.15	98.87	77.23	74.59	65.31	181.5	175.3	69.01	117.5	110.6
95th-Percentile Queue Length [veh/ln]	2.02	7.27	6.92	7.12	5.56	5.37	4.70	11.68	11.36	4.97	8.26	7.87
95th-Percentile Queue Length [ft/ln]	50.42	181.8	173.0	177.9	139.0	134.2	117.5	292.1	283.9	124.2	206.4	196.8

Movement, Approach, & Intersection Results

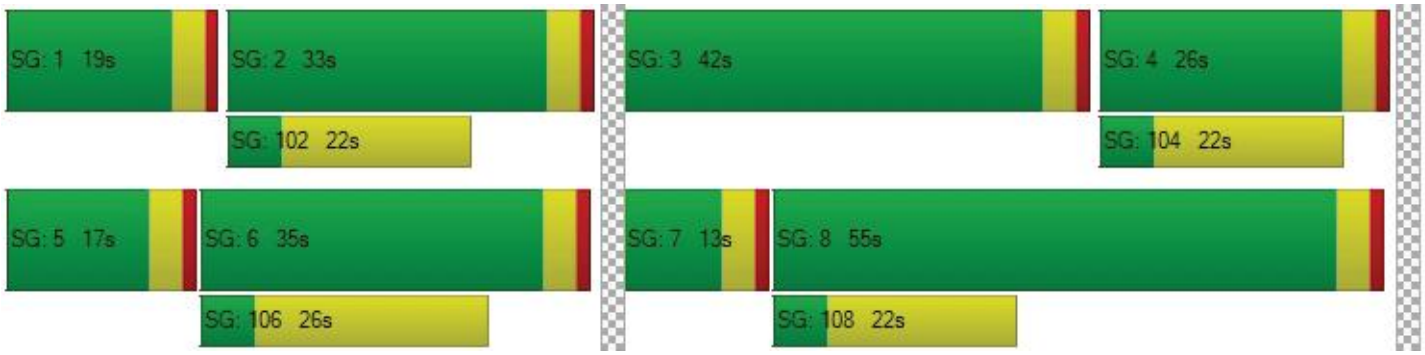
d_M, Delay for Movement [s/veh]	72.06	13.76	13.81	65.43	10.24	10.26	66.81	56.65	57.19	69.00	49.61	50.07
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	16.85			20.48			58.20			53.65		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	34.90											
Intersection LOS	C											
Intersection V/C	0.405											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.548	2.561	2.479	2.630
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	483	850	367
d_b, Bicycle Delay [s]	33.00	34.50	19.84	40.02
l_b,int, Bicycle LOS Score for Intersection	2.043	2.084	1.997	1.885
Bicycle LOS	B	B	A	A

Sequence

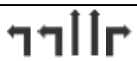
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	750	75	294	625	106	192	300	54	124	296	363
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	12	0	0	15	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	876	84	329	739	119	215	336	60	139	332	407
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	231	22	87	194	31	57	88	16	37	87	107
Total Analysis Volume [veh/h]	73	922	88	346	778	125	226	354	63	146	349	428
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	26	0	19	30	0	13	48	0	27	62	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	44	44	14	52	52	9	33	33	12	37	37
g / C, Green / Cycle	0.05	0.37	0.37	0.12	0.43	0.43	0.08	0.28	0.28	0.10	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.27	0.06	0.10	0.23	0.08	0.07	0.10	0.04	0.09	0.19	0.28
s, saturation flow rate [veh/h]	1714	3427	1530	3329	3427	1530	3329	3427	1530	1714	1800	1530
c, Capacity [veh/h]	93	1260	562	398	1484	662	250	951	424	175	548	466
d1, Uniform Delay [s]	56.05	32.82	25.46	51.90	24.96	21.01	55.08	34.94	32.68	52.88	36.01	40.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.33	3.78	0.59	5.89	1.33	0.63	11.67	0.24	0.16	9.88	1.24	10.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.73	0.16	0.87	0.52	0.19	0.91	0.37	0.15	0.83	0.64	0.92
d, Delay for Lane Group [s/veh]	69.38	36.60	26.05	57.79	26.29	21.64	66.75	35.19	32.84	62.75	37.25	50.82
Lane Group LOS	E	D	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.53	12.13	1.79	5.43	8.33	2.29	3.79	4.22	1.41	4.80	8.98	13.43
50th-Percentile Queue Length [ft/ln]	63.23	303.3	44.78	135.8	208.2	57.37	94.83	105.3	35.28	119.9	224.4	335.6
95th-Percentile Queue Length [veh/ln]	4.55	17.85	3.22	9.26	13.06	4.13	6.83	7.58	2.54	8.39	13.89	19.44
95th-Percentile Queue Length [ft/ln]	113.8	446.1	80.60	231.4	326.5	103.2	170.6	189.5	63.51	209.7	347.3	485.8

Movement, Approach, & Intersection Results

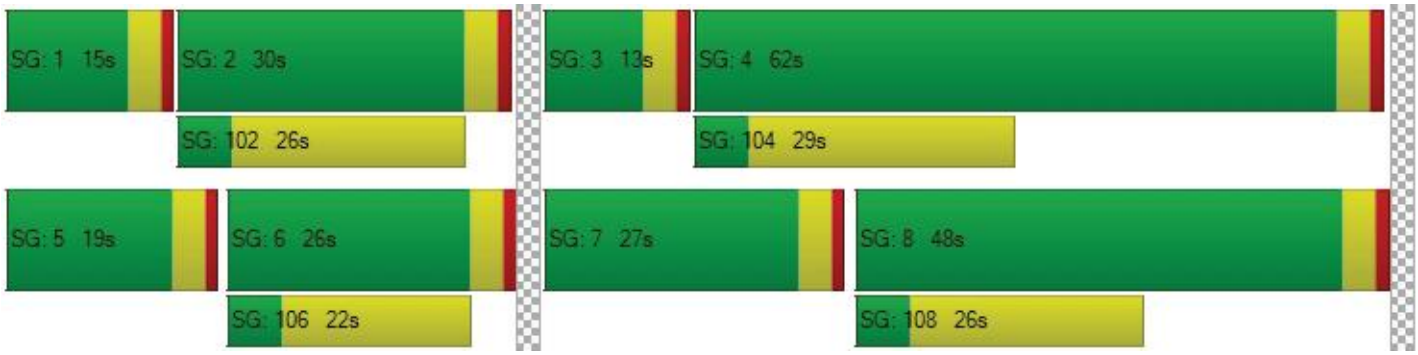
d_M, Delay for Movement [s/veh]	69.38	36.60	26.05	57.79	26.29	21.64	66.75	35.19	32.84	62.75	37.25	50.82
Movement LOS	E	D	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	37.95			34.55			46.05			47.57		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.48											
Intersection LOS	D											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.804	3.003	2.775	2.746
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	433	733	967
d_b, Bicycle Delay [s]	40.02	36.82	24.07	16.02
l_b,int, Bicycle LOS Score for Intersection	2.453	2.590	2.090	3.083
Bicycle LOS	B	B	B	C

Sequence

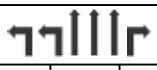
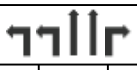
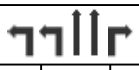
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	56.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.872

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1316	65	357	973	241	426	251	51	69	171	354
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	8	0	0	12	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	0	0	19	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	1500	73	400	1121	270	477	281	57	77	192	396
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	395	19	105	295	71	126	74	15	20	51	104
Total Analysis Volume [veh/h]	69	1579	77	421	1180	284	502	296	60	81	202	417
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	40	0	19	37	0	21	40	0	21	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	38	38	15	48	48	17	47	47	5	34	34
g / C, Green / Cycle	0.04	0.31	0.31	0.13	0.40	0.40	0.14	0.39	0.39	0.04	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.32	0.05	0.13	0.24	0.19	0.15	0.09	0.04	0.02	0.06	0.27
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	128	1533	478	416	1958	611	472	1334	596	132	985	440
d1, Uniform Delay [s]	56.66	41.24	29.84	52.50	28.51	26.58	51.50	24.49	23.29	56.71	32.39	41.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.39
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.52	30.98	0.72	23.42	1.38	2.53	39.08	0.08	0.07	4.55	0.10	27.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	1.03	0.16	1.01	0.60	0.46	1.06	0.22	0.10	0.61	0.21	0.95
d, Delay for Lane Group [s/veh]	60.18	72.22	30.56	75.92	29.89	29.11	90.58	24.58	23.36	61.27	32.49	69.07
Lane Group LOS	E	F	C	F	C	C	F	C	C	E	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.09	19.29	1.72	7.60	9.12	6.40	9.63	2.84	1.10	1.29	2.25	15.28
50th-Percentile Queue Length [ft/ln]	27.26	482.2	42.98	190.0	228.0	160.0	240.7	71.09	27.56	32.33	56.35	382.0
95th-Percentile Queue Length [veh/ln]	1.96	27.01	3.09	12.19	14.07	10.55	15.13	5.12	1.98	2.33	4.06	21.69
95th-Percentile Queue Length [ft/ln]	49.08	675.1	77.37	304.6	351.8	263.7	378.2	127.9	49.61	58.19	101.4	542.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.18	72.22	30.56	75.92	29.89	29.11	90.58	24.58	23.36	61.27	32.49	69.07
Movement LOS	E	F	C	F	C	C	F	C	C	E	C	E
d_A, Approach Delay [s/veh]	69.88			40.05			63.11			57.61		
Approach LOS	E			D			E			E		
d_I, Intersection Delay [s/veh]	56.22											
Intersection LOS	E											
Intersection V/C	0.872											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.194	3.339	2.806	2.817
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	550	600	600
d_b, Bicycle Delay [s]	29.40	31.54	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.508	2.596	2.267	2.137
Bicycle LOS	B	B	B	B

Sequence

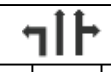
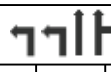
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	40.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	163	206	49	94	61	74	991	115	128	620	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	5	5	0	0	8	0	0	0	8	0	0	0
Site-Generated Trips [veh/h]	12	12	0	0	12	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	200	231	55	125	68	83	1110	149	143	694	52
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	53	61	14	33	18	22	292	39	38	183	14
Total Analysis Volume [veh/h]	138	211	243	58	132	72	87	1168	157	151	731	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	36	36	11	31	0	14	60	0	13	59	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	67	5	53	53	8	35	35	9	37	37
g / C, Green / Cycle	0.06	0.45	0.56	0.04	0.44	0.44	0.06	0.30	0.30	0.08	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.04	0.12	0.16	0.03	0.06	0.06	0.05	0.26	0.26	0.05	0.22	0.22
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1595	1714	3427	1693	3329	1800	1756
c, Capacity [veh/h]	195	816	859	74	788	699	109	1012	500	250	552	539
d1, Uniform Delay [s]	55.49	20.31	13.71	56.86	20.12	20.20	55.44	40.21	40.21	53.78	37.02	37.02
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.70	0.77	0.82	16.32	0.35	0.42	12.50	2.61	6.25	2.35	1.79	1.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.26	0.28	0.78	0.13	0.14	0.80	0.88	0.88	0.60	0.72	0.72
d, Delay for Lane Group [s/veh]	60.19	21.08	14.53	73.17	20.47	20.63	67.93	42.82	46.46	56.13	38.82	38.86
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.18	3.84	3.58	2.08	1.84	1.75	2.97	12.70	13.05	2.29	10.61	10.35
50th-Percentile Queue Length [ft/ln]	54.48	95.96	89.55	51.93	46.04	43.86	74.37	317.4	326.3	57.30	265.1	258.8
95th-Percentile Queue Length [veh/ln]	3.92	6.91	6.45	3.74	3.32	3.16	5.35	18.54	18.98	4.13	15.95	15.63
95th-Percentile Queue Length [ft/ln]	98.07	172.7	161.2	93.47	82.88	78.95	133.8	463.5	474.4	103.1	398.6	390.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.19	21.08	14.53	73.17	20.50	20.63	67.93	43.70	46.46	56.13	38.84	38.86
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	27.51			32.20			45.50			41.62		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.95											
Intersection LOS	D											
Intersection V/C	0.482											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.636	2.435	2.850	3.034
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	450	933	917
d_b, Bicycle Delay [s]	32.27	36.04	17.07	17.60
l_b,int, Bicycle LOS Score for Intersection	2.536	1.776	2.336	2.333
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.361

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	258	0	250	0	1047	169	0	558	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	37	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	326	0	280	0	1173	189	0	625	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	86	0	74	0	309	50	0	164	0
Total Analysis Volume [veh/h]	0	0	0	343	0	295	0	1235	199	0	658	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	45	0	0	0	75	0	0	75	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		17	17	95	95
g / C, Green / Cycle		0.14	0.14	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate		0.10	0.11	0.25	0.13
s, saturation flow rate [veh/h]		3329	2708	4903	4903
c, Capacity [veh/h]		461	375	3897	3897
d1, Uniform Delay [s]		49.63	49.96	3.38	2.92
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.39	3.66	0.21	0.09
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.74	0.79	0.32	0.17
d, Delay for Lane Group [s/veh]		52.02	53.63	3.59	3.01
Lane Group LOS		D	D	A	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		5.10	4.47	2.24	1.03
50th-Percentile Queue Length [ft/ln]		127.42	111.78	56.01	25.74
95th-Percentile Queue Length [veh/ln]		8.80	7.94	4.03	1.85
95th-Percentile Queue Length [ft/ln]		219.99	198.47	100.81	46.33

Movement, Approach, & Intersection Results

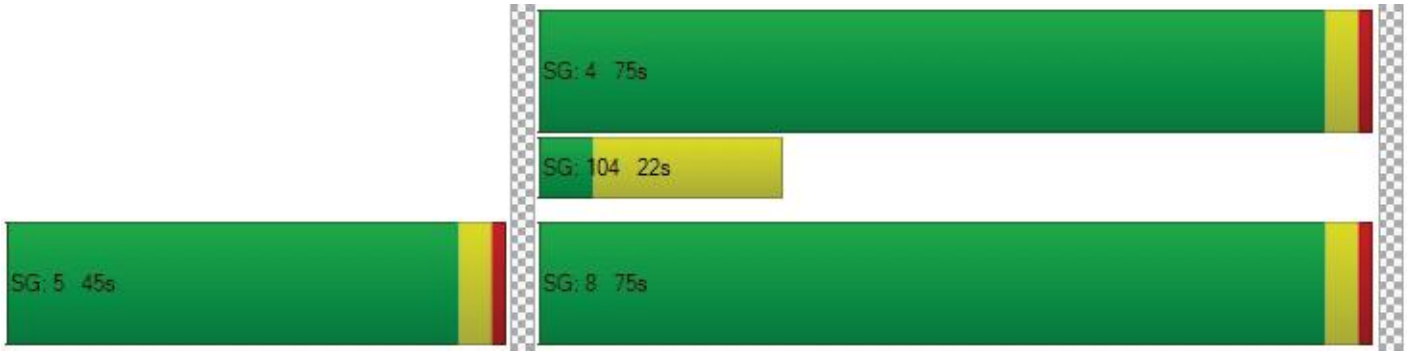
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	52.02	0.00	53.63	0.00	3.59	0.00	0.00	3.01	0.00
Movement LOS				D		D		A			A	
d_A, Approach Delay [s/veh]	0.00			52.77			3.59			3.01		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	15.84											
Intersection LOS	B											
Intersection V/C	0.361											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.440	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	683	1183	1183
d_b, Bicycle Delay [s]	60.00	26.00	10.00	10.00
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.239	1.922
Bicycle LOS	D	A	B	A

Sequence

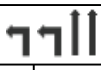
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	276	0	514	0	0	0	439	912	0	0	798	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.000	1.000	1.000	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	37	0	0	0	34
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	309	0	576	0	0	0	492	1058	0	0	894	215
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	81	0	152	0	0	0	129	278	0	0	235	57
Total Analysis Volume [veh/h]	325	0	606	0	0	0	518	1114	0	0	941	226
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	0	0	62	90	0	0	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65		22	47	22
g / C, Green / Cycle	0.54	0.54	0.54		0.18	0.40	0.18
(v / s)_i Volume / Saturation Flow Rate	0.18	0.20	0.20		0.16	0.23	0.14
s, saturation flow rate [veh/h]	1714	1536	1530		3329	4903	6538
c, Capacity [veh/h]	920	824	821		606	1944	1184
d1, Uniform Delay [s]	15.77	16.11	16.12		47.53	28.27	47.01
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.01	1.30	1.31		3.56	0.27	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.37	0.38		0.85	0.57	0.80
d, Delay for Lane Group [s/veh]	16.78	17.41	17.43		51.09	28.54	48.27
Lane Group LOS	B	B	B		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.08	5.13	5.13		7.79	8.34	6.81
50th-Percentile Queue Length [ft/ln]	127.1	128.2	128.3		194.64	208.53	170.31
95th-Percentile Queue Length [veh/ln]	8.78	8.85	8.85		12.36	13.08	11.09
95th-Percentile Queue Length [ft/ln]	219.5	221.1	221.2		309.04	326.94	277.33

Movement, Approach, & Intersection Results

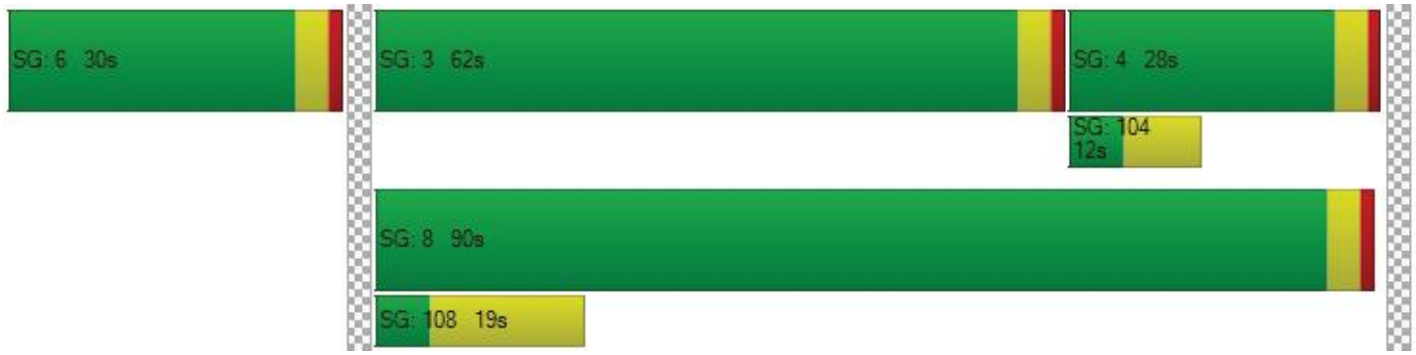
d_M, Delay for Movement [s/veh]	16.81	17.41	17.42	0.00	0.00	0.00	51.09	28.54	0.00	0.00	48.27	0.00
Movement LOS	B	B	B				D	C			D	
d_A, Approach Delay [s/veh]	17.20			0.00			35.70			48.27		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	34.16											
Intersection LOS	C											
Intersection V/C	0.501											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.373	1.983	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	0	1433	400
d_b, Bicycle Delay [s]	36.82	60.00	4.82	38.40
l_b,int, Bicycle LOS Score for Intersection	3.096	4.132	2.457	1.948
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	43.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	154	926	338	107	435	86	305	1060	81	292	590	61
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	42	39	0	50	0	0	0	0	63	0	0
Site-Generated Trips [veh/h]	34	175	111	0	212	0	0	0	37	113	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	1254	529	120	749	96	342	1187	128	503	661	68
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	330	139	32	197	25	90	312	34	132	174	18
Total Analysis Volume [veh/h]	217	1320	557	126	788	101	360	1249	135	529	696	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	47	0	9	40	0	24	40	0	24	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	45	45	5	40	40	15	34	34	20	39	39
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.34	0.34	0.13	0.28	0.28	0.17	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.07	0.27	0.36	0.04	0.16	0.07	0.11	0.25	0.09	0.16	0.14	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	274	1846	576	139	1647	514	425	1382	431	555	1574	491
d1, Uniform Delay [s]	54.07	31.92	36.68	57.27	31.52	28.33	51.20	41.52	33.94	49.54	32.24	29.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.17	2.40	30.20	19.02	1.00	0.85	4.76	2.50	0.41	9.78	0.20	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.72	0.97	0.91	0.48	0.20	0.85	0.90	0.31	0.95	0.44	0.15
d, Delay for Lane Group [s/veh]	59.24	34.32	66.88	76.29	32.52	29.18	55.96	44.02	34.35	59.32	32.44	29.17
Lane Group LOS	E	C	E	E	C	C	E	D	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.41	11.19	20.51	2.27	6.17	2.20	5.57	12.08	3.17	8.58	5.37	1.51
50th-Percentile Queue Length [ft/ln]	85.34	279.6	512.6	56.73	154.3	55.06	139.2	302.0	79.17	214.5	134.1	37.75
95th-Percentile Queue Length [veh/ln]	6.14	16.67	27.93	4.08	10.25	3.96	9.44	17.78	5.70	13.39	9.17	2.72
95th-Percentile Queue Length [ft/ln]	153.6	416.7	698.3	102.1	256.2	99.11	236.0	444.5	142.5	334.6	229.1	67.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.24	34.32	66.88	76.29	32.52	29.18	55.96	44.02	34.35	59.32	32.44	29.17
Movement LOS	E	C	E	E	C	C	E	D	C	E	C	C
d_A, Approach Delay [s/veh]	45.57			37.62			45.73			43.22		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.81											
Intersection LOS	D											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.249	3.164	3.338	3.297
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	600	600	600
d_b, Bicycle Delay [s]	24.70	29.40	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.711	2.118	2.519	2.273
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	43.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	94	250	24	131	191	90	211	979	73	65	552	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	33	0	0	54	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	82	0	0	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	280	27	147	214	101	236	1211	82	73	757	136
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	74	7	39	56	27	62	319	22	19	199	36
Total Analysis Volume [veh/h]	111	295	28	155	225	106	248	1275	86	77	797	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	0	17	40	0	37	56	0	11	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	13	50	50	20	38	38	7	26	26
g / C, Green / Cycle	0.08	0.38	0.38	0.11	0.41	0.41	0.16	0.32	0.32	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.06	0.09	0.02	0.09	0.10	0.10	0.14	0.26	0.06	0.05	0.18	0.19
s, saturation flow rate [veh/h]	1714	3427	1530	1714	1772	1585	1714	4903	1506	1687	3427	1664
c, Capacity [veh/h]	129	1316	588	180	734	656	281	1571	482	96	733	356
d1, Uniform Delay [s]	54.89	24.91	23.19	52.82	22.81	22.88	49.06	37.45	29.39	55.90	45.47	45.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.30	0.39	0.15	11.22	0.75	0.87	9.00	1.05	0.17	13.98	3.15	8.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.22	0.05	0.86	0.24	0.24	0.88	0.81	0.18	0.80	0.86	0.87
d, Delay for Lane Group [s/veh]	70.19	25.30	23.34	64.04	23.56	23.75	58.06	38.50	29.57	69.88	48.62	53.74
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.86	2.92	0.53	5.15	3.33	3.09	7.96	11.52	1.83	2.68	9.34	9.65
50th-Percentile Queue Length [ft/ln]	96.59	72.91	13.19	128.8	83.24	77.14	198.9	288.0	45.71	66.93	233.5	241.1
95th-Percentile Queue Length [veh/ln]	6.95	5.25	0.95	8.88	5.99	5.55	12.58	17.09	3.29	4.82	14.36	14.74
95th-Percentile Queue Length [ft/ln]	173.8	131.2	23.75	221.9	149.8	138.8	314.5	427.1	82.28	120.4	358.9	368.5

Movement, Approach, & Intersection Results

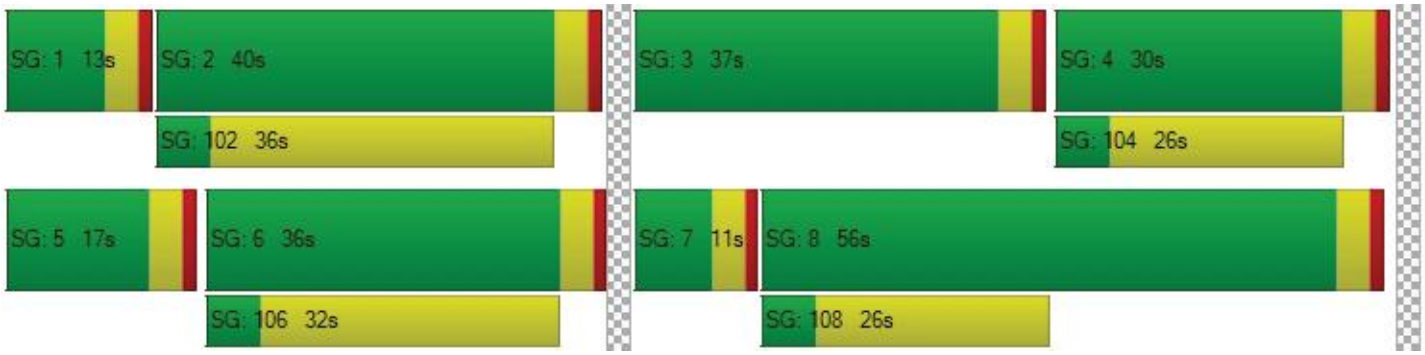
d_M, Delay for Movement [s/veh]	70.19	25.30	23.34	64.04	23.60	23.75	58.06	38.50	29.57	69.88	49.68	53.74
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	36.66			36.53			41.04			51.78		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.97											
Intersection LOS	D											
Intersection V/C	0.507											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.602	2.659	3.149	3.042
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	867	433
d_b, Bicycle Delay [s]	32.27	29.40	19.27	36.82
l_b,int, Bicycle LOS Score for Intersection	1.918	1.961	2.445	2.119
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	40.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	607	69	127	443	106	299	720	115	160	526	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	2	0	0	15	10	18	0	1	30	0
Site-Generated Trips [veh/h]	0	2	18	0	0	24	23	48	0	16	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	684	97	142	496	158	368	872	129	196	668	65
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	180	26	37	131	42	97	229	34	52	176	17
Total Analysis Volume [veh/h]	112	720	102	149	522	166	387	918	136	206	703	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	17	40	0	20	43	0	30	46	0	14	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	54	54	12	57	57	17	28	28	9	21	37
g / C, Green / Cycle	0.08	0.45	0.45	0.10	0.48	0.48	0.14	0.23	0.23	0.08	0.17	0.31
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.23	0.09	0.15	0.11	0.12	0.19	0.09	0.06	0.14	0.04
s, saturation flow rate [veh/h]	1714	1800	1723	1714	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	137	815	780	177	1631	728	459	1143	357	259	848	473
d1, Uniform Delay [s]	54.35	23.44	23.44	52.86	19.44	18.48	50.47	43.42	38.74	54.39	47.90	29.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.26	2.32	2.43	10.32	0.52	0.73	4.30	1.37	0.67	5.50	2.16	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.52	0.52	0.84	0.32	0.23	0.84	0.80	0.38	0.80	0.83	0.14
d, Delay for Lane Group [s/veh]	65.61	25.76	25.87	63.18	19.95	19.21	54.77	44.79	39.41	59.89	50.06	30.08
Lane Group LOS	E	C	C	E	B	B	D	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.76	8.93	8.57	4.92	4.60	2.86	5.94	8.69	3.45	3.26	6.92	1.45
50th-Percentile Queue Length [ft/ln]	93.96	223.2	214.2	122.8	115.0	71.48	148.4	217.2	86.35	81.41	173.0	36.29
95th-Percentile Queue Length [veh/ln]	6.77	13.83	13.37	8.55	8.12	5.15	9.93	13.52	6.22	5.86	11.24	2.61
95th-Percentile Queue Length [ft/ln]	169.1	345.7	334.2	213.7	203.0	128.6	248.3	338.0	155.4	146.5	280.9	65.32

Movement, Approach, & Intersection Results

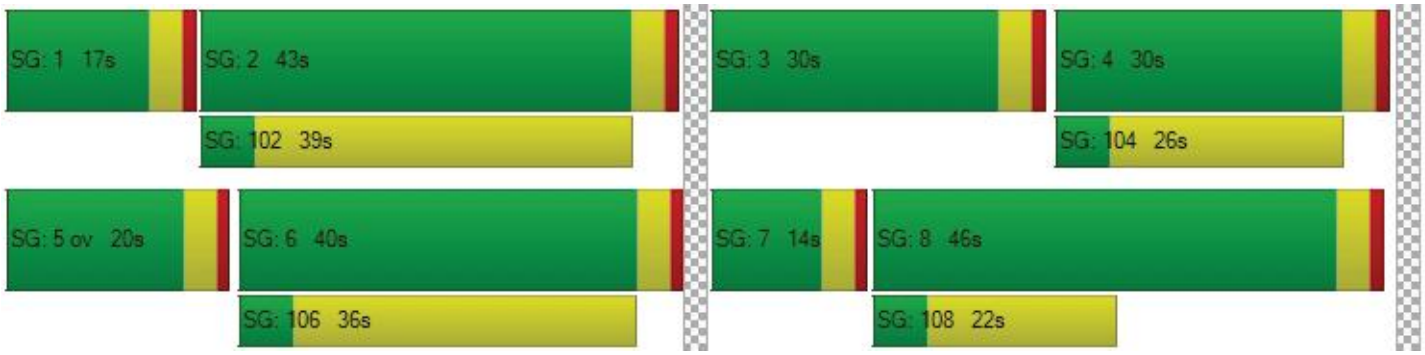
d_M, Delay for Movement [s/veh]	65.61	25.81	25.87	63.18	19.95	19.21	54.77	44.79	39.41	59.89	50.06	30.08
Movement LOS	E	C	C	E	B	B	D	D	D	E	D	C
d_A, Approach Delay [s/veh]	30.59			27.50			46.96			50.74		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.30											
Intersection LOS	D											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.666	2.795	3.127	3.191
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	700	433
d_b, Bicycle Delay [s]	29.40	27.34	25.35	36.82
l_b,int, Bicycle LOS Score for Intersection	2.330	2.250	2.352	2.097
Bicycle LOS	B	B	B	B

Sequence

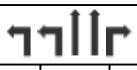
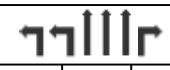
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	104	974	61	226	510	55	136	597	90	92	640	235
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	6	14	9	5	0	0	8	0
Site-Generated Trips [veh/h]	0	5	0	0	6	25	25	12	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	1100	68	253	583	101	186	686	101	103	737	263
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	31	289	18	67	153	27	49	181	27	27	194	69
Total Analysis Volume [veh/h]	122	1158	72	266	614	106	196	722	106	108	776	277
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	40	0	17	43	0	13	54	0	9	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	57	57	12	63	63	9	30	30	5	26	26
g / C, Green / Cycle	0.05	0.48	0.48	0.10	0.52	0.52	0.07	0.25	0.25	0.04	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.05	0.08	0.18	0.07	0.06	0.15	0.07	0.03	0.16	0.18
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	176	2346	732	321	1789	799	248	1227	383	139	1066	333
d1, Uniform Delay [s]	55.87	21.36	17.12	53.25	16.70	14.73	54.61	39.56	36.25	56.95	43.66	44.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.81	0.75	0.27	5.51	0.52	0.34	5.58	0.45	0.39	9.04	0.97	5.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.49	0.10	0.83	0.34	0.13	0.79	0.59	0.28	0.78	0.73	0.83
d, Delay for Lane Group [s/veh]	60.68	22.11	17.39	58.76	17.23	15.08	60.19	40.01	36.64	65.99	44.63	50.32
Lane Group LOS	E	C	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.93	7.48	1.15	4.18	5.00	1.56	3.10	6.29	2.56	1.80	7.23	8.36
50th-Percentile Queue Length [ft/ln]	48.36	187.0	28.72	104.5	125.1	39.02	77.61	157.3	64.02	44.90	180.7	208.8
95th-Percentile Queue Length [veh/ln]	3.48	11.97	2.07	7.53	8.67	2.81	5.59	10.41	4.61	3.23	11.64	13.10
95th-Percentile Queue Length [ft/ln]	87.06	299.1	51.70	188.2	216.8	70.23	139.7	260.2	115.2	80.82	291.0	327.3

Movement, Approach, & Intersection Results

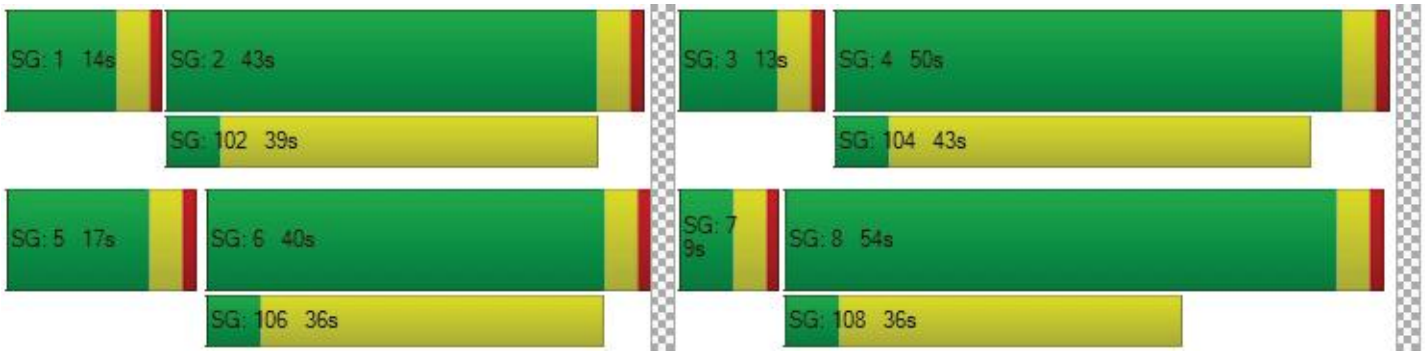
d_M, Delay for Movement [s/veh]	60.68	22.11	17.39	58.76	17.23	15.08	60.19	40.01	36.64	65.99	44.63	50.32
Movement LOS	E	C	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	25.34			28.20			43.53			47.98		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.89											
Intersection LOS	D											
Intersection V/C	0.556											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.101	3.325	3.179	3.105
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	650	833	767
d_b, Bicycle Delay [s]	29.40	27.34	20.42	22.82
l_b,int, Bicycle LOS Score for Intersection	2.303	2.373	2.123	2.198
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	256	98	23	224	93	137	439	167	42	256	30
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	10	0	0	16	0	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	24	2	0	24	0	0	0	0	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	321	112	26	291	104	153	492	187	50	287	34
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	84	29	7	77	27	40	129	49	13	76	9
Total Analysis Volume [veh/h]	157	338	118	27	306	109	161	518	197	53	302	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	26	0	14	23	23	0	50	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	49	49	3	40	40	35	35	16	16
g / C, Green / Cycle	0.11	0.41	0.41	0.03	0.33	0.33	0.29	0.29	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.09	0.13	0.13	0.02	0.09	0.07	0.27	0.27	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1644	1714	3427	1530	1770	1508	1777	1584
c, Capacity [veh/h]	182	739	675	44	1131	505	519	442	244	217
d1, Uniform Delay [s]	52.76	24.00	24.05	57.87	29.58	29.00	40.89	40.90	50.54	50.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.27	1.15	1.28	13.10	0.59	0.98	8.90	10.24	7.86	9.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.32	0.32	0.61	0.27	0.22	0.91	0.91	0.85	0.85
d, Delay for Lane Group [s/veh]	64.03	25.15	25.32	70.97	30.16	29.98	49.79	51.14	58.40	59.66
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.22	4.80	4.47	0.97	3.36	2.42	14.62	12.63	6.57	5.97
50th-Percentile Queue Length [ft/ln]	130.5	120.0	111.6	24.30	83.95	60.46	365.58	315.85	164.14	149.23
95th-Percentile Queue Length [veh/ln]	8.97	8.40	7.93	1.75	6.04	4.35	20.89	18.46	10.77	9.98
95th-Percentile Queue Length [ft/ln]	224.1	209.9	198.3	43.75	151.1	108.8	522.37	461.58	269.20	249.40

Movement, Approach, & Intersection Results

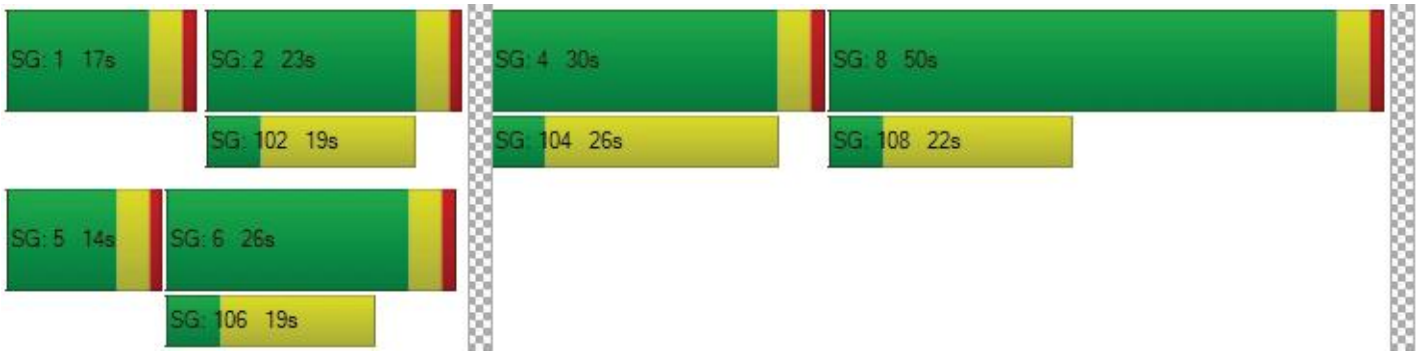
d_M, Delay for Movement [s/veh]	64.03	25.20	25.32	70.97	30.16	29.98	49.79	50.33	51.14	58.40	59.02	59.66
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	35.17			32.61			50.41			58.99		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	44.44											
Intersection LOS	D											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.543	2.627	2.498	2.403
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	317	767	433
d_b, Bicycle Delay [s]	40.02	42.50	22.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.065	1.924	2.282	1.882
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.941

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	167	0	536	0	1898	934	0	1348	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.000	1.120	1.120	1.000	1.120	1.000
In-Process Volume [veh/h]	0	0	0	42	0	0	0	16	0	0	16	0
Site-Generated Trips [veh/h]	0	0	0	137	0	0	0	40	0	0	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	366	0	600	0	2182	1046	0	1567	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	96	0	158	0	574	275	0	412	0
Total Analysis Volume [veh/h]	0	0	0	385	0	632	0	2297	1101	0	1649	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	31	0	0	0	89	0	0	89	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		27	27	27	85	85	85
g / C, Green / Cycle		0.23	0.23	0.23	0.71	0.71	0.71
(v / s)_i Volume / Saturation Flow Rate		0.20	0.22	0.22	0.47	0.72	0.34
s, saturation flow rate [veh/h]		1714	1553	1530	4903	1530	4903
c, Capacity [veh/h]		386	349	344	3473	1084	3473
d1, Uniform Delay [s]		44.92	46.10	46.30	9.60	17.50	7.69
k, delay calibration		0.30	0.36	0.37	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		15.65	34.02	37.97	1.01	31.37	0.47
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.88	0.97	0.98	0.66	1.02	0.47
d, Delay for Lane Group [s/veh]		60.57	80.12	84.27	10.61	48.87	8.16
Lane Group LOS		E	F	F	B	F	A
Critical Lane Group		No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		11.37	13.25	13.63	10.17	34.85	5.81
50th-Percentile Queue Length [ft/ln]		284.3	331.3	340.6	254.34	871.28	145.34
95th-Percentile Queue Length [veh/ln]		16.91	19.22	19.68	15.40	45.19	9.77
95th-Percentile Queue Length [ft/ln]		422.6	480.6	491.9	385.11	1129.79	244.20

Movement, Approach, & Intersection Results

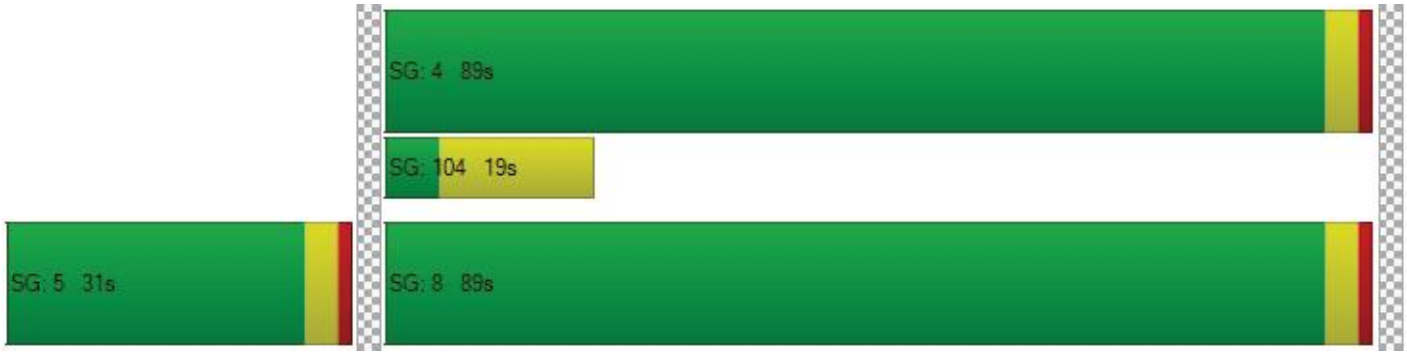
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	62.91	0.00	82.35	0.00	10.61	48.87	0.00	8.16	0.00
Movement LOS				E		F		B	F		A	
d_A, Approach Delay [s/veh]	0.00			74.99			23.01			8.16		
Approach LOS	A			E			C			A		
d_I, Intersection Delay [s/veh]	27.69											
Intersection LOS	C											
Intersection V/C	0.941											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.394	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	450	1417	1417
d_b, Bicycle Delay [s]	60.00	36.04	5.10	5.10
l_b,int, Bicycle LOS Score for Intersection	4.132	3.238	3.429	2.467
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	731	0	465	0	0	0	0	1092	0	0	1114	292
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	58	0	0	16	35
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	177	0	0	41	117
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	819	0	521	0	0	0	0	1458	0	0	1305	479
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	216	0	137	0	0	0	0	384	0	0	343	126
Total Analysis Volume [veh/h]	862	0	548	0	0	0	0	1535	0	0	1374	504
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	67	0	0	0	0	0	0	53	0	0	53	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	41	41	41		71	71	71
g / C, Green / Cycle	0.34	0.34	0.34		0.59	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.27	0.28	0.31		0.31	0.28	0.33
s, saturation flow rate [veh/h]	1714	1681	1530		4903	4903	1530
c, Capacity [veh/h]	590	579	527		2888	2888	901
d1, Uniform Delay [s]	35.53	35.80	37.23		14.76	14.08	15.12
k, delay calibration	0.11	0.12	0.16		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.61	3.13	7.81		0.70	0.56	2.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.81	0.89		0.53	0.48	0.56
d, Delay for Lane Group [s/veh]	38.15	38.93	45.04		15.46	14.65	17.62
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	12.73	12.90	14.03		8.23	7.02	8.74
50th-Percentile Queue Length [ft/ln]	318.2	322.4	350.7		205.63	175.41	218.40
95th-Percentile Queue Length [veh/ln]	18.58	18.79	20.17		12.93	11.36	13.58
95th-Percentile Queue Length [ft/ln]	464.5	469.7	504.3		323.21	284.01	339.58

Movement, Approach, & Intersection Results

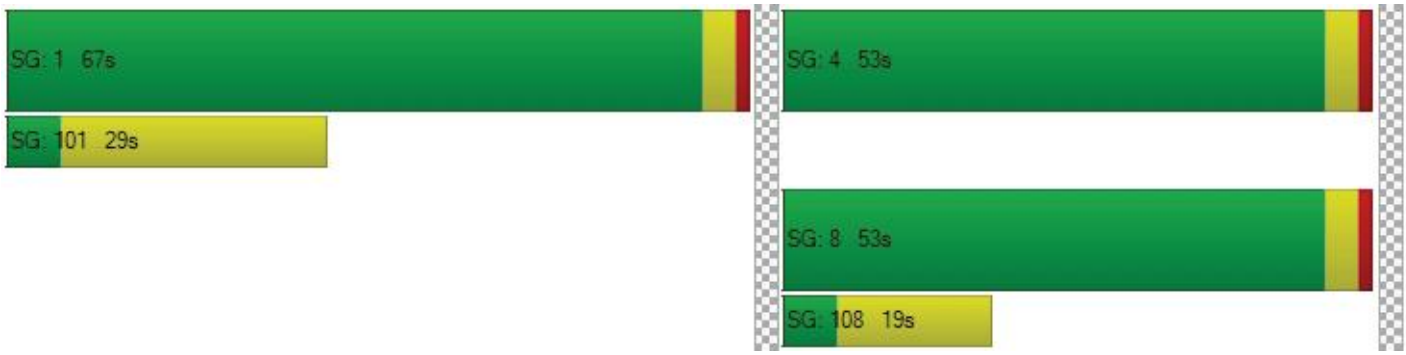
d_M, Delay for Movement [s/veh]	38.50	0.00	44.17	0.00	0.00	0.00	0.00	15.46	0.00	0.00	14.65	17.62
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	40.71			0.00			15.46			15.45		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	22.84											
Intersection LOS	C											
Intersection V/C	0.637											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.490	0.000	0.000	3.161
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	0	817	817
d_b, Bicycle Delay [s]	13.54	60.00	21.00	21.00
l_b,int, Bicycle LOS Score for Intersection	3.886	4.132	2.404	2.593
Bicycle LOS	D	D	B	B

Sequence

Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	71.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.807

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	260	348	189	62	209	155	236	931	176	104	748	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	51	10	0	0	17	0	0	0	58	1	0	0
Site-Generated Trips [veh/h]	158	26	2	0	26	0	0	0	177	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	500	426	214	69	277	174	264	1043	432	119	838	53
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	132	112	56	18	73	46	69	274	114	31	221	14
Total Analysis Volume [veh/h]	526	448	225	73	292	183	278	1098	455	125	882	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	37	61	0	12	36	0	13	38	38	9	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	58	58	7	32	32	9	34	71	5	30	30
g / C, Green / Cycle	0.28	0.49	0.49	0.05	0.27	0.27	0.08	0.28	0.59	0.04	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.31	0.25	0.15	0.04	0.14	0.14	0.08	0.32	0.30	0.04	0.26	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1574	3329	3427	1530	3329	3427	1530
c, Capacity [veh/h]	471	876	744	94	480	420	250	971	905	139	857	383
d1, Uniform Delay [s]	43.50	21.06	18.54	55.95	37.48	37.63	55.50	43.00	14.24	57.25	45.00	35.03
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.13	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	76.99	2.13	1.04	12.48	4.02	4.82	63.35	62.88	1.99	18.15	22.56	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.12	0.51	0.30	0.77	0.52	0.53	1.11	1.13	0.50	0.90	1.03	0.15
d, Delay for Lane Group [s/veh]	120.4	23.19	19.59	68.43	41.50	42.46	118.8	105.8	16.23	75.40	67.56	35.21
Lane Group LOS	F	C	B	E	D	D	F	F	B	E	F	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	23.92	8.99	3.96	2.51	6.81	6.21	5.97	22.71	7.45	2.24	15.32	1.30
50th-Percentile Queue Length [ft/ln]	598.0	224.7	99.08	62.77	170.3	155.1	149.2	567.7	186.1	55.92	382.9	32.60
95th-Percentile Queue Length [veh/ln]	34.12	13.91	7.13	4.52	11.09	10.29	10.32	32.85	11.92	4.03	22.11	2.35
95th-Percentile Queue Length [ft/ln]	853.0	347.7	178.3	112.9	277.3	257.2	258.1	821.3	298.0	100.6	552.7	58.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	120.4	23.19	19.59	68.43	41.64	42.46	118.8	105.8	16.23	75.40	67.56	35.21
Movement LOS	F	C	B	E	D	D	F	F	B	E	F	D
d_A, Approach Delay [s/veh]	65.20			45.48			85.57			66.78		
Approach LOS	E			D			F			E		
d_I, Intersection Delay [s/veh]	71.27											
Intersection LOS	E											
Intersection V/C	0.807											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.719	2.574	3.158	3.131
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	533	567	500
d_b, Bicycle Delay [s]	16.54	32.27	30.82	33.75
l_b,int, Bicycle LOS Score for Intersection	3.538	2.012	3.070	2.437
Bicycle LOS	D	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	48.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	276	828	230	281	634	195	247	860	100	135	567	123
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	87	26	0	120	1	0	0	0	36	0	0
Site-Generated Trips [veh/h]	0	345	57	0	387	2	2	0	0	57	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	309	1359	341	315	1217	221	279	963	112	244	635	138
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	81	358	90	83	320	58	73	253	29	64	167	36
Total Analysis Volume [veh/h]	325	1431	359	332	1281	233	294	1014	118	257	668	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	26	40	0	26	40	40	14	40	0	14	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	22	43	43	22	43	57	10	29	29	10	29	55
g / C, Green / Cycle	0.18	0.36	0.36	0.18	0.36	0.48	0.08	0.24	0.24	0.08	0.24	0.46
(v / s)_i Volume / Saturation Flow Rate	0.19	0.29	0.23	0.19	0.26	0.15	0.09	0.21	0.08	0.08	0.14	0.09
s, saturation flow rate [veh/h]	1714	4903	1530	1714	4903	1530	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	314	1760	549	314	1760	728	277	1182	369	277	1182	700
d1, Uniform Delay [s]	49.00	34.82	32.22	49.00	33.38	19.47	55.00	43.56	37.44	54.63	40.01	19.49
k, delay calibration	0.27	0.50	0.50	0.29	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	46.61	4.24	5.96	54.09	2.68	1.16	42.58	1.93	0.50	12.74	0.43	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.81	0.65	1.06	0.73	0.32	1.06	0.86	0.32	0.93	0.57	0.21
d, Delay for Lane Group [s/veh]	95.61	39.06	38.18	103.0	36.06	20.63	97.58	45.49	37.94	67.37	40.43	19.63
Lane Group LOS	F	D	D	F	D	C	F	D	D	E	D	B
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.44	13.12	9.57	14.09	11.11	4.24	5.83	9.77	2.92	4.34	5.83	2.47
50th-Percentile Queue Length [ft/ln]	335.8	328.1	239.1	352.2	277.6	105.9	145.7	244.3	73.00	108.6	145.7	61.64
95th-Percentile Queue Length [veh/ln]	19.79	19.07	14.64	20.82	16.57	7.62	9.98	14.90	5.26	7.76	9.79	4.44
95th-Percentile Queue Length [ft/ln]	494.7	476.6	366.0	520.6	414.2	190.4	249.5	372.5	131.4	194.0	244.7	110.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	95.61	39.06	38.18	103.0	36.06	20.63	97.58	45.49	37.94	67.37	40.43	19.63
Movement LOS	F	D	D	F	D	C	F	D	D	E	D	B
d_A, Approach Delay [s/veh]	47.60			46.17			55.60			44.08		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	48.38											
Intersection LOS	D											
Intersection V/C	0.770											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.200	3.267	3.152	3.165
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	600	600
d_b, Bicycle Delay [s]	29.40	29.40	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.723	2.575	2.344	2.148
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	3,016.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	6.211

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	60	0	118	0	0	0	0	1326	54	104	760	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	1	0	0	0	0	26	0	1	36	0
Site-Generated Trips [veh/h]	0	0	17	0	0	0	0	57	0	16	57	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	0	150	0	0	0	0	1568	60	133	944	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	0	39	0	0	0	0	413	16	35	248	0
Total Analysis Volume [veh/h]	71	0	158	0	0	0	0	1651	63	140	994	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	6.21	0.00	0.52	0.00	0.00	0.00	0.00	0.02	0.00	0.37	0.01	0.00
d_M, Delay for Movement [s/veh]	3016.	3091.	2713.	351.6	413.3	11.87	10.11	0.00	0.00	20.22	0.00	0.00
Movement LOS	F	F	F	F	F	B	B	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	27.49	27.49	27.49	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.00	0.00
95th-Percentile Queue Length [ft/ln]	687.3	687.3	687.3	0.00	0.00	0.00	0.00	0.00	0.00	42.27	0.00	0.00
d_A, Approach Delay [s/veh]	2807.77			258.95			0.00			2.50		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	209.88											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	60.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.857

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	673	87	131	551	71	256	837	177	287	553	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	0	0	1	0	0	21	0	0	28	0
Site-Generated Trips [veh/h]	0	20	0	0	16	0	0	45	0	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	778	97	147	634	80	287	1003	198	321	692	133
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	205	26	39	167	21	76	264	52	84	182	35
Total Analysis Volume [veh/h]	163	819	102	155	667	84	302	1056	208	338	728	140
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	37	0	15	36	0	29	40	0	28	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	33	33	11	32	32	23	36	36	24	37	37
g / C, Green / Cycle	0.10	0.28	0.28	0.09	0.27	0.27	0.19	0.30	0.30	0.20	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.26	0.09	0.21	0.21	0.18	0.31	0.14	0.20	0.21	0.09
s, saturation flow rate [veh/h]	1714	1800	1731	1714	1800	1730	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	171	495	476	157	480	461	330	1028	459	343	1055	471
d1, Uniform Delay [s]	53.71	42.66	42.67	54.43	40.98	40.99	47.52	42.00	34.03	47.83	36.51	31.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.23	0.11	0.11	0.30	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.00	29.43	30.26	30.22	12.94	13.41	18.71	20.65	0.70	34.06	0.82	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.95	0.95	0.99	0.80	0.80	0.92	1.03	0.45	0.99	0.69	0.30
d, Delay for Lane Group [s/veh]	75.71	72.09	72.93	84.64	53.93	54.40	66.23	62.65	34.73	81.89	37.32	32.00
Lane Group LOS	E	E	E	F	D	D	E	F	C	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.93	17.56	17.01	5.99	12.21	11.80	10.53	17.97	5.01	13.26	9.44	3.15
50th-Percentile Queue Length [ft/ln]	148.3	439.0	425.1	149.6	305.2	295.0	263.3	449.1	125.3	331.4	236.0	78.84
95th-Percentile Queue Length [veh/ln]	9.93	24.43	23.77	10.00	17.94	17.43	15.86	25.35	8.68	19.23	14.48	5.68
95th-Percentile Queue Length [ft/ln]	248.1	610.8	594.2	250.0	448.5	435.8	396.4	633.7	217.0	480.6	362.0	141.9

Movement, Approach, & Intersection Results

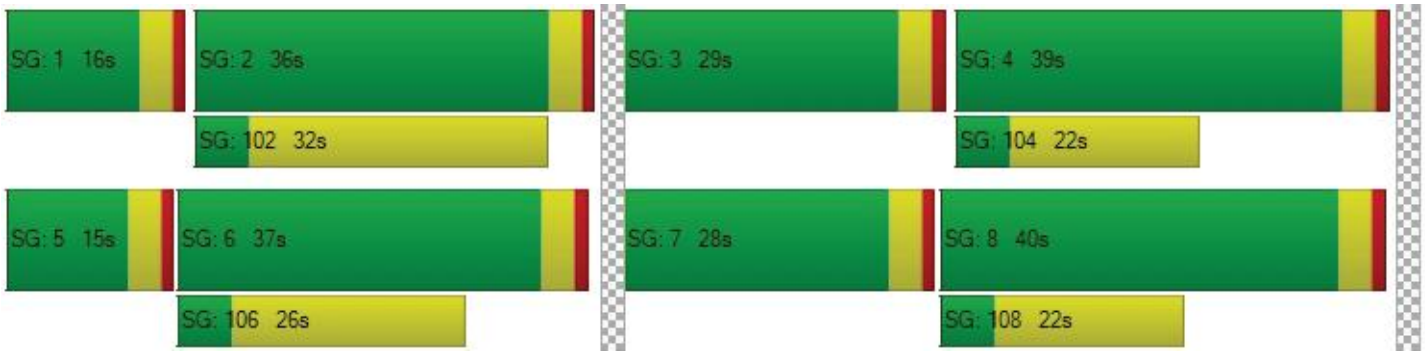
d_M, Delay for Movement [s/veh]	75.71	72.45	72.93	84.64	54.13	54.40	66.23	62.65	34.73	81.89	37.32	32.00
Movement LOS	E	E	E	F	D	D	E	F	C	F	D	C
d_A, Approach Delay [s/veh]	72.99			59.37			59.63			49.20		
Approach LOS	E			E			E			D		
d_I, Intersection Delay [s/veh]	59.98											
Intersection LOS	E											
Intersection V/C	0.857											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.763	2.738	2.881	2.877
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	533	600	583
d_b, Bicycle Delay [s]	31.54	32.27	29.40	30.10
l_b,int, Bicycle LOS Score for Intersection	2.454	2.307	2.852	2.555
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	45.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.786

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	798	135	153	488	119	200	689	134	200	501	162
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	7	3	0	10	5	3	13	0	1	15	0
Site-Generated Trips [veh/h]	0	25	17	0	25	9	9	24	0	16	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	926	171	171	582	147	236	809	150	241	600	181
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	30	244	45	45	153	39	62	213	39	63	158	48
Total Analysis Volume [veh/h]	121	975	180	180	613	155	248	852	158	254	632	191
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	41	0	18	44	0	25	37	0	24	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	38	38	14	42	42	19	32	32	20	32	32
g / C, Green / Cycle	0.09	0.32	0.32	0.12	0.35	0.35	0.16	0.27	0.27	0.16	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.07	0.28	0.12	0.11	0.18	0.10	0.14	0.25	0.10	0.15	0.18	0.12
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	146	1098	490	200	1205	538	276	914	408	279	921	411
d1, Uniform Delay [s]	54.00	38.74	31.41	52.31	30.73	28.08	49.39	42.93	35.97	49.36	39.33	36.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.14	0.11	0.11	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.05	10.73	2.12	13.47	1.54	1.35	12.84	5.00	0.60	14.50	0.92	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.89	0.37	0.90	0.51	0.29	0.90	0.93	0.39	0.91	0.69	0.46
d, Delay for Lane Group [s/veh]	65.04	49.47	33.53	65.78	32.26	29.42	62.23	47.92	36.57	63.86	40.25	37.47
Lane Group LOS	E	D	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.04	15.10	4.32	6.09	7.24	3.43	8.26	12.86	3.87	8.59	8.44	4.78
50th-Percentile Queue Length [ft/ln]	101.1	377.5	107.9	152.2	181.0	85.71	206.5	321.4	96.68	214.6	210.9	119.5
95th-Percentile Queue Length [veh/ln]	7.28	21.47	7.73	10.14	11.65	6.17	12.98	18.74	6.96	13.39	13.20	8.37
95th-Percentile Queue Length [ft/ln]	182.0	536.8	193.2	253.4	291.3	154.2	324.4	468.4	174.0	334.8	330.0	209.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.04	49.47	33.53	65.78	32.26	29.42	62.23	47.92	36.57	63.86	40.25	37.47
Movement LOS	E	D	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	48.70			38.16			49.32			45.32		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.88											
Intersection LOS	D											
Intersection V/C	0.786											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.930	3.029	2.820	2.840
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	667	550	533
d_b, Bicycle Delay [s]	28.70	26.67	31.54	32.27
l_b,int, Bicycle LOS Score for Intersection	2.612	2.342	2.597	2.448
Bicycle LOS	B	B	B	B

Sequence

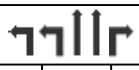
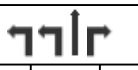
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	163	520	116	127	235	114	349	622	387	100	360	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	15	61	0	0	76	0	0	0	24	0	0	0
Site-Generated Trips [veh/h]	36	186	0	0	205	0	0	0	36	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	829	130	142	544	128	391	697	493	112	403	161
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	62	218	34	37	143	34	103	183	130	29	106	42
Total Analysis Volume [veh/h]	246	873	137	149	573	135	412	734	519	118	424	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	16	30	30	16	30	30	26	65	65	9	48	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	35	44	12	35	56	17	52	68	5	40	40
g / C, Green / Cycle	0.10	0.29	0.37	0.10	0.29	0.47	0.15	0.43	0.57	0.04	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.07	0.25	0.09	0.09	0.17	0.09	0.12	0.41	0.34	0.04	0.17	0.17
s, saturation flow rate [veh/h]	3329	3427	1530	1714	3427	1530	3329	1800	1530	3329	1800	1628
c, Capacity [veh/h]	333	999	561	171	999	721	487	780	867	139	592	536
d1, Uniform Delay [s]	52.48	40.42	26.45	53.23	36.17	18.42	49.91	32.50	17.03	57.13	32.64	32.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.32	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.22	10.55	1.04	12.44	2.40	0.57	4.15	15.14	3.04	13.33	0.72	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.87	0.24	0.87	0.57	0.19	0.85	0.94	0.60	0.85	0.52	0.53
d, Delay for Lane Group [s/veh]	55.70	50.97	27.49	65.67	38.57	18.99	54.06	47.64	20.07	70.46	33.36	33.50
Lane Group LOS	E	D	C	E	D	B	D	D	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.75	13.61	2.90	5.02	7.46	2.30	6.30	23.11	9.81	2.03	7.41	6.78
50th-Percentile Queue Length [ft/ln]	93.75	340.1	72.62	125.4	186.6	57.56	157.4	577.7	245.2	50.86	185.3	169.4
95th-Percentile Queue Length [veh/ln]	6.75	19.66	5.23	8.69	11.95	4.14	10.42	30.99	14.94	3.66	11.88	11.04
95th-Percentile Queue Length [ft/ln]	168.7	491.3	130.7	217.2	298.6	103.6	260.3	774.8	373.6	91.54	297.0	276.1

Movement, Approach, & Intersection Results

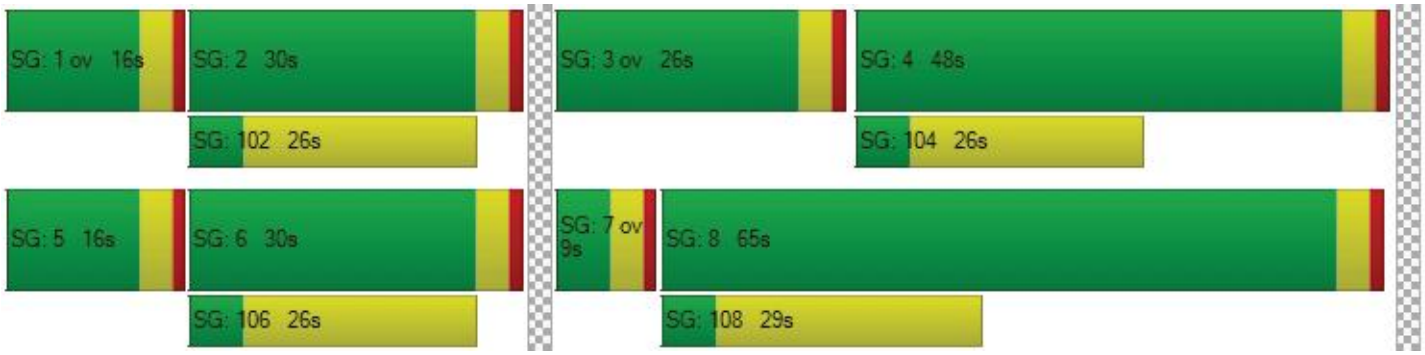
d_M, Delay for Movement [s/veh]	55.70	50.97	27.49	65.67	38.57	18.99	54.06	47.64	20.07	70.46	33.40	33.50
Movement LOS	E	D	C	E	D	B	D	D	C	E	C	C
d_A, Approach Delay [s/veh]	49.33			40.20			40.64			39.57		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.82											
Intersection LOS	D											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.953	2.844	2.953	2.749
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1017	733
d_b, Bicycle Delay [s]	36.82	36.82	14.50	24.07
l_b,int, Bicycle LOS Score for Intersection	2.596	2.267	4.307	2.146
Bicycle LOS	B	B	E	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	93.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.999

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	138	1069	219	69	777	93	84	606	98	116	542	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	113	18	0	156	0	0	0	0	30	0	0
Site-Generated Trips [veh/h]	0	402	50	0	444	0	0	0	0	50	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	1712	313	77	1470	104	94	679	110	210	607	66
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	451	82	20	387	27	25	179	29	55	160	17
Total Analysis Volume [veh/h]	163	1802	329	81	1547	109	99	715	116	221	639	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	48	0	9	43	0	21	45	0	18	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	44	44	5	39	39	9	41	41	14	46	46
g / C, Green / Cycle	0.08	0.37	0.37	0.04	0.33	0.33	0.07	0.34	0.34	0.12	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.10	0.42	0.43	0.05	0.32	0.32	0.06	0.40	0.08	0.13	0.36	0.05
s, saturation flow rate [veh/h]	1714	3427	1664	1714	3427	1740	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	143	1257	610	71	1114	566	124	615	523	200	695	590
d1, Uniform Delay [s]	55.00	38.00	38.00	57.50	40.22	40.25	54.79	39.50	28.14	53.00	35.08	23.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.41	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	80.76	69.94	89.64	90.87	23.75	34.76	11.01	90.16	0.21	62.68	16.64	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.14	1.13	1.16	1.13	0.99	0.99	0.80	1.16	0.22	1.11	0.92	0.12
d, Delay for Lane Group [s/veh]	135.7	107.9	127.6	148.3	63.97	75.01	65.80	129.6	28.35	115.6	51.72	23.78
Lane Group LOS	F	F	F	F	E	E	E	F	C	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.52	30.29	32.74	3.97	19.52	21.58	3.33	33.21	2.42	9.50	20.62	1.28
50th-Percentile Queue Length [ft/ln]	187.9	757.2	818.6	99.23	487.9	539.4	83.17	830.1	60.58	237.3	515.4	32.10
95th-Percentile Queue Length [veh/ln]	12.56	42.73	46.50	7.14	26.76	29.20	5.99	47.03	4.36	15.15	28.07	2.31
95th-Percentile Queue Length [ft/ln]	314.0	1068.	1162.	178.6	669.0	729.8	149.7	1175.	109.0	378.6	701.6	57.78

Movement, Approach, & Intersection Results

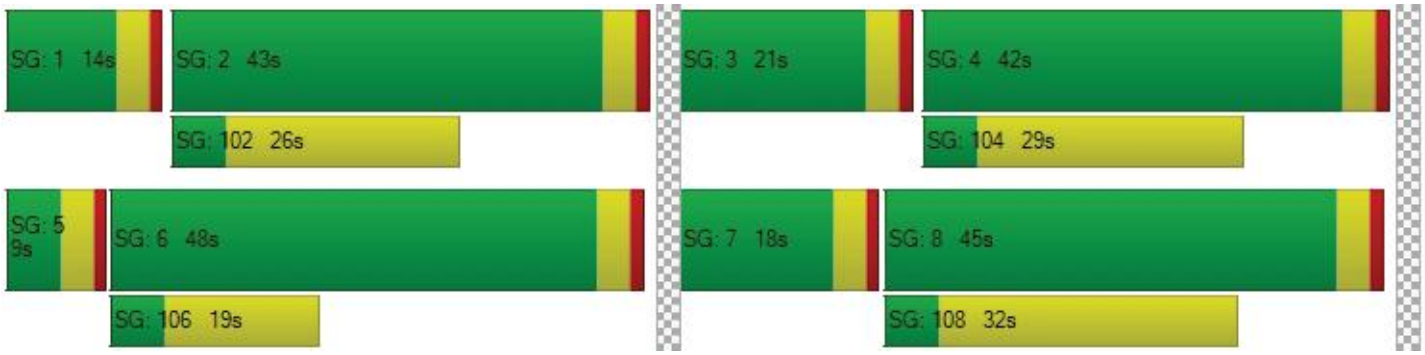
d_M, Delay for Movement [s/veh]	135.7	112.0	127.6	148.3	67.17	75.01	65.80	129.6	28.35	115.6	51.72	23.78
Movement LOS	F	F	F	F	E	E	E	F	C	F	D	C
d_A, Approach Delay [s/veh]	116.00			71.45			110.22			64.86		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	93.88											
Intersection LOS	F											
Intersection V/C	0.999											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.250	3.125	2.767	2.647
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	650	683	633
d_b, Bicycle Delay [s]	24.07	27.34	26.00	28.02
l_b,int, Bicycle LOS Score for Intersection	2.821	2.515	3.094	3.092
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.627

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	96	151	218	18	141	22	31	636	65	90	429	27
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	1	2	0	1	0	0	18	0	3	30	0
Site-Generated Trips [veh/h]	0	17	3	0	16	0	0	50	0	3	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	187	249	20	175	25	35	780	73	107	560	30
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	49	66	5	46	7	9	205	19	28	147	8
Total Analysis Volume [veh/h]	114	197	262	21	184	26	37	821	77	113	589	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	72	72	72	72	72	72
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.33	0.33	0.60	0.60	0.60	0.60	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.10	0.11	0.17	0.02	0.10	0.02	0.05	0.46	0.05	0.18	0.33	0.02
s, saturation flow rate [veh/h]	1190	1800	1530	947	1800	1530	816	1800	1530	630	1800	1530
c, Capacity [veh/h]	367	595	506	299	595	506	354	1085	922	191	1085	922
d1, Uniform Delay [s]	36.53	30.19	32.44	34.31	29.95	27.35	25.73	17.41	9.97	45.79	14.07	9.67
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.22	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.19	1.49	3.76	0.45	1.35	0.19	0.13	2.23	0.04	2.88	0.42	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.33	0.52	0.07	0.31	0.05	0.10	0.76	0.08	0.59	0.54	0.03
d, Delay for Lane Group [s/veh]	38.72	31.68	36.20	34.76	31.30	27.54	25.86	19.64	10.01	48.67	14.50	9.69
Lane Group LOS	D	C	D	C	C	C	C	B	B	D	B	A
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.98	4.54	6.66	0.51	4.20	0.54	0.73	16.34	0.85	3.39	9.21	0.34
50th-Percentile Queue Length [ft/ln]	74.39	113.4	166.6	12.77	105.0	13.51	18.21	408.4	21.28	84.79	230.3	8.58
95th-Percentile Queue Length [veh/ln]	5.36	8.03	10.90	0.92	7.56	0.97	1.31	22.97	1.53	6.10	14.19	0.62
95th-Percentile Queue Length [ft/ln]	133.9	200.8	272.4	22.98	189.0	24.32	32.77	574.2	38.31	152.6	354.8	15.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.72	31.68	36.20	34.76	31.30	27.54	25.86	19.64	10.01	48.67	14.50	9.69
Movement LOS	D	C	D	C	C	C	C	B	B	D	B	A
d_A, Approach Delay [s/veh]	35.15			31.19			19.10			19.55		
Approach LOS	D			C			B			B		
d_I, Intersection Delay [s/veh]	24.08											
Intersection LOS	C											
Intersection V/C	0.627											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.538	2.320	2.714	2.703
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	1383	1383
d_b, Bicycle Delay [s]	34.50	34.50	5.70	5.70
l_b,int, Bicycle LOS Score for Intersection	2.505	1.941	3.102	2.771
Bicycle LOS	B	A	C	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	46.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.762

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	175	861	169	138	729	67	78	565	168	144	309	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	4	2	0	1	0	0	10	0	3	17	0
Site-Generated Trips [veh/h]	0	20	3	0	16	0	0	29	0	3	29	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	196	988	194	155	833	75	87	672	188	167	392	103
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	260	51	41	219	20	23	177	49	44	103	27
Total Analysis Volume [veh/h]	206	1040	204	163	877	79	92	707	198	176	413	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	51	0	17	44	0	12	34	0	18	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	50	50	13	46	46	8	27	27	14	33	33
g / C, Green / Cycle	0.14	0.41	0.41	0.11	0.39	0.39	0.07	0.23	0.23	0.12	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.12	0.35	0.36	0.10	0.27	0.27	0.05	0.21	0.13	0.10	0.23	0.07
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1748	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	234	746	705	186	696	676	114	778	347	200	499	424
d1, Uniform Delay [s]	50.86	31.79	32.03	52.72	30.90	30.91	55.26	45.16	41.17	52.17	40.66	33.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.28	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.34	11.78	13.28	12.29	5.71	5.88	12.59	4.47	1.47	11.72	8.80	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.85	0.86	0.88	0.70	0.70	0.81	0.91	0.57	0.88	0.83	0.25
d, Delay for Lane Group [s/veh]	61.20	43.57	45.30	65.00	36.61	36.79	67.86	49.64	42.65	63.89	49.46	34.02
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.74	18.78	18.35	5.47	12.75	12.42	3.14	10.68	5.35	5.86	12.59	2.50
50th-Percentile Queue Length [ft/ln]	168.4	469.5	458.7	136.7	318.7	310.6	78.58	266.9	133.6	146.5	314.6	62.53
95th-Percentile Queue Length [veh/ln]	11.00	25.89	25.38	9.30	18.60	18.21	5.66	16.03	9.14	9.83	18.41	4.50
95th-Percentile Queue Length [ft/ln]	274.8	647.1	634.4	232.5	465.0	455.1	141.4	400.8	228.4	245.7	460.1	112.5

Movement, Approach, & Intersection Results

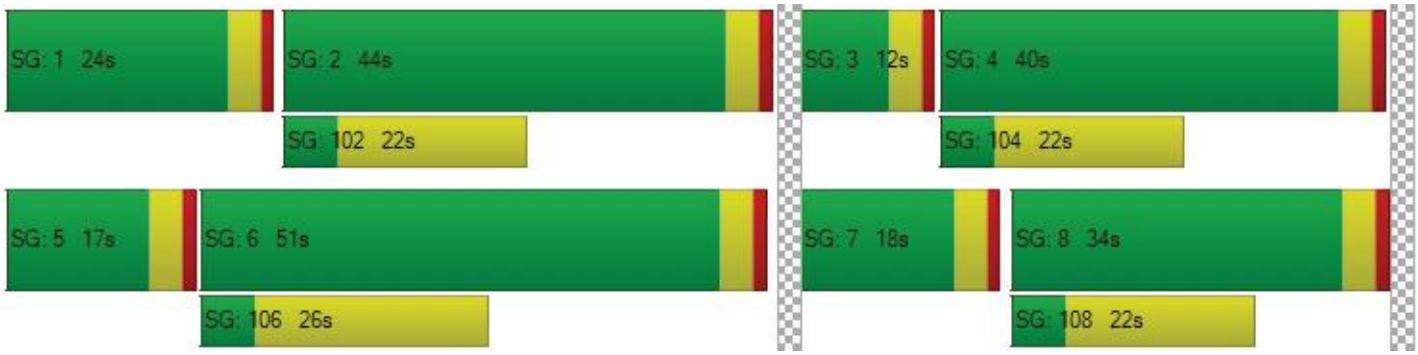
d_M, Delay for Movement [s/veh]	61.20	44.24	45.30	65.00	36.69	36.79	67.86	49.64	42.65	63.89	49.46	34.02
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	46.80			40.82			49.93			50.71		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	46.60											
Intersection LOS	D											
Intersection V/C	0.762											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.842	2.775	2.646	2.756
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	667	500	600
d_b, Bicycle Delay [s]	22.20	26.67	33.75	29.40
l_b,int, Bicycle LOS Score for Intersection	2.756	2.483	2.382	2.710
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	85	770	56	108	507	77	101	475	89	64	311	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	10	2	0	11	0	0	3	0	3	5	0
Site-Generated Trips [veh/h]	0	42	3	0	41	0	0	9	0	3	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	914	68	121	620	86	113	544	100	78	362	59
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	241	18	32	163	23	30	143	26	21	95	16
Total Analysis Volume [veh/h]	100	962	72	127	653	91	119	573	105	82	381	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	44	0	15	36	0	24	50	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	60	60	11	62	62	10	26	26	7	23	23
g / C, Green / Cycle	0.07	0.50	0.50	0.09	0.52	0.52	0.08	0.22	0.22	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.06	0.29	0.29	0.07	0.21	0.21	0.07	0.19	0.19	0.05	0.13	0.13
s, saturation flow rate [veh/h]	1714	1800	1756	1714	1800	1724	1714	1800	1704	1714	1800	1714
c, Capacity [veh/h]	126	903	881	152	930	891	146	393	372	100	344	328
d1, Uniform Delay [s]	54.71	21.00	21.01	53.85	17.76	17.76	53.94	45.46	45.47	55.88	44.88	44.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.76	2.71	2.78	11.48	1.33	1.39	10.30	6.78	7.21	14.96	2.13	2.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.58	0.58	0.84	0.41	0.41	0.81	0.89	0.89	0.82	0.66	0.66
d, Delay for Lane Group [s/veh]	65.47	23.71	23.79	65.33	19.09	19.15	64.24	52.24	52.68	70.83	47.00	47.24
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.35	10.79	10.56	4.26	6.70	6.43	3.95	10.74	10.23	2.87	6.42	6.20
50th-Percentile Queue Length [ft/ln]	83.78	269.8	263.9	106.3	167.4	160.8	98.77	268.5	255.8	71.76	160.4	154.9
95th-Percentile Queue Length [veh/ln]	6.03	16.18	15.89	7.64	10.94	10.60	7.11	16.12	15.48	5.17	10.57	10.28
95th-Percentile Queue Length [ft/ln]	150.8	404.5	397.2	190.9	273.6	264.8	177.7	402.8	387.0	129.1	264.3	256.9

Movement, Approach, & Intersection Results

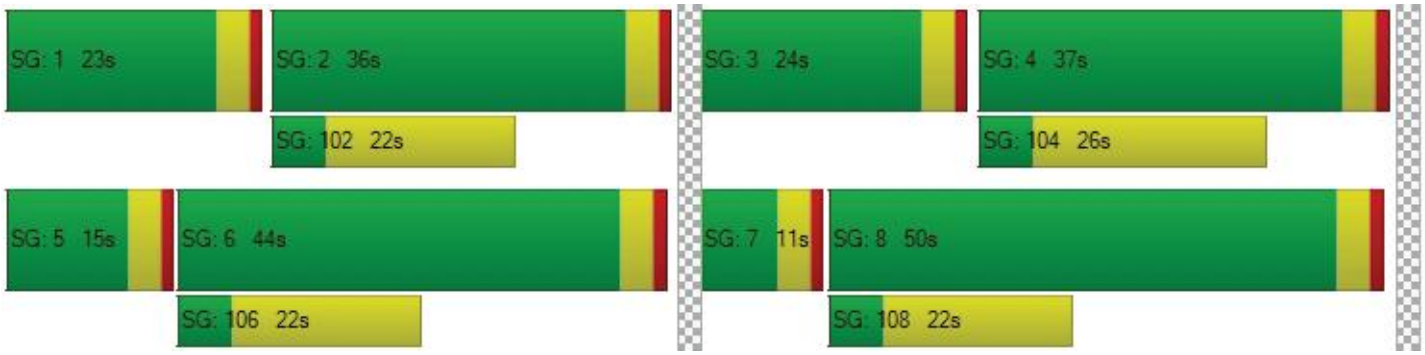
d_M, Delay for Movement [s/veh]	65.47	23.74	23.79	65.33	19.12	19.15	64.24	52.41	52.68	70.83	47.10	47.24
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	27.43			25.86			54.21			50.82		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.13											
Intersection LOS	D											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.700	2.795	2.582	2.568
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	767	550
d_b, Bicycle Delay [s]	26.67	32.27	22.82	31.54
l_b,int, Bicycle LOS Score for Intersection	2.495	2.278	2.217	1.993
Bicycle LOS	B	B	B	A

Sequence

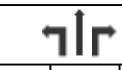
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	43.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.926

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	664	283	196	515	0	0	0	0	201	0	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	76	0	0	100	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	222	0	0	241	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1042	317	220	918	0	0	0	0	225	0	99
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	274	83	58	242	0	0	0	0	59	0	26
Total Analysis Volume [veh/h]	0	1097	334	232	966	0	0	0	0	237	0	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	74	0	20	77	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	70	70	16	86	86	22	22	22	22
g / C, Green / Cycle	0.00	0.58	0.58	0.13	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.61	0.22	0.14	0.54	0.00	0.00	0.00	0.18	0.07
s, saturation flow rate [veh/h]	1714	1800	1530	1714	1800	1530	1638	1530	1309	1530
c, Capacity [veh/h]	1	1050	893	229	1288	1095	330	281	300	281
d1, Uniform Delay [s]	0.00	25.00	13.33	52.00	10.46	0.00	0.00	0.00	49.88	42.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	40.19	1.20	32.20	4.04	0.00	0.00	0.00	10.13	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	1.04	0.37	1.02	0.75	0.00	0.00	0.00	0.79	0.37
d, Delay for Lane Group [s/veh]	0.00	65.19	14.53	84.20	14.50	0.00	0.00	0.00	60.01	43.75
Lane Group LOS	A	F	B	F	B	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	39.46	5.00	8.90	15.15	0.00	0.00	0.00	7.91	2.78
50th-Percentile Queue Length [ft/ln]	0.00	986.3	124.9	222.5	378.8	0.00	0.00	0.00	197.66	69.48
95th-Percentile Queue Length [veh/ln]	0.00	51.67	8.67	13.89	21.54	0.00	0.00	0.00	12.52	5.00
95th-Percentile Queue Length [ft/ln]	0.00	1291.	216.6	347.1	538.4	0.00	0.00	0.00	312.94	125.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	65.19	14.53	84.20	14.50	0.00	0.00	0.00	0.00	60.01	60.01	43.75
Movement LOS	A	F	B	F	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	53.37			28.00			0.00			55.05		
Approach LOS	D			C			A			E		
d_I, Intersection Delay [s/veh]	43.33											
Intersection LOS	D											
Intersection V/C	0.926											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.166	0.000	1.955	2.250
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1167	1217	367	367
d_b, Bicycle Delay [s]	10.42	9.20	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	3.921	3.536	1.560	2.122
Bicycle LOS	D	D	A	B

Sequence

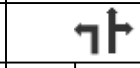
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	96.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	143	1366	112	38	688	56	87	141	294	122	67	73
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	131	0	0	186	0	0	0	0	2	0	0
Site-Generated Trips [veh/h]	0	452	0	0	494	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	2113	125	43	1451	63	97	158	329	139	75	82
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	556	33	11	382	17	26	42	87	37	20	22
Total Analysis Volume [veh/h]	168	2224	132	45	1527	66	102	166	346	146	79	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	67	0	10	61	0	10	29	0	14	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	65	65	4	57	57	6	25	25	10	29
g / C, Green / Cycle	0.10	0.54	0.54	0.03	0.48	0.48	0.05	0.21	0.21	0.08	0.24
(v / s)_i Volume / Saturation Flow Rate	0.10	0.65	0.67	0.03	0.45	0.04	0.06	0.09	0.23	0.09	0.10
s, saturation flow rate [veh/h]	1714	1800	1765	1714	3427	1530	1714	1800	1530	1714	1648
c, Capacity [veh/h]	171	973	955	59	1628	727	86	375	319	143	398
d1, Uniform Delay [s]	53.88	27.55	27.55	57.48	29.83	17.28	57.00	41.42	47.50	55.00	38.34
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.38	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.45	104.2	114.4	18.64	11.77	0.25	108.0	0.82	68.95	40.68	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	1.21	1.23	0.77	0.94	0.09	1.19	0.44	1.09	1.02	0.41
d, Delay for Lane Group [s/veh]	81.33	131.7	142.0	76.11	41.59	17.53	165.0	42.25	116.4	95.68	39.03
Lane Group LOS	F	F	F	E	D	B	F	D	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	6.36	54.48	56.14	1.66	22.79	1.06	5.17	4.38	15.57	5.93	4.18
50th-Percentile Queue Length [ft/ln]	158.9	1361.	1403.	41.47	569.6	26.45	129.2	109.5	389.2	148.17	104.55
95th-Percentile Queue Length [veh/ln]	10.49	76.90	80.01	2.99	30.62	1.90	9.30	7.82	23.02	10.00	7.53
95th-Percentile Queue Length [ft/ln]	262.3	1922.	2000.	74.64	765.4	47.61	232.5	195.4	575.6	249.88	188.20

Movement, Approach, & Intersection Results

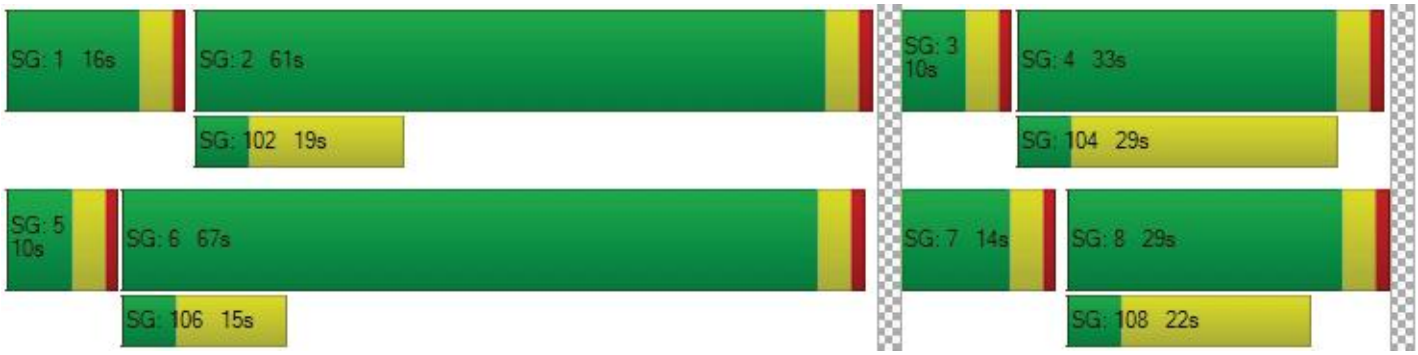
d_M, Delay for Movement [s/veh]	81.33	136.5	142.0	76.11	41.59	17.53	165.0	42.25	116.4	95.68	39.03	39.03
Movement LOS	F	F	F	E	D	B	F	D	F	F	D	D
d_A, Approach Delay [s/veh]	133.19			41.57			104.45			65.62		
Approach LOS	F			D			F			E		
d_I, Intersection Delay [s/veh]	96.09											
Intersection LOS	F											
Intersection V/C	1.005											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.206	3.173	2.372	2.168
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	950	417	483
d_b, Bicycle Delay [s]	13.54	16.54	37.60	34.50
l_b,int, Bicycle LOS Score for Intersection	3.642	2.911	2.573	2.073
Bicycle LOS	D	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	54.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.588

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	88	400	0	0	314	39	80	0	165	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.120	1.120	1.000	1.000	1.120	1.120	1.120	1.000	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	3	0	0	2	2	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	0	19	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	471	0	0	373	46	90	0	185	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	124	0	0	98	12	24	0	49	0	0	0
Total Analysis Volume [veh/h]	104	496	0	0	393	48	95	0	195	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.30	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.51	0.00	0.00	0.00	0.00	0.00	54.94	0.00	13.07	0.00	0.00	0.00
Movement LOS	A	A			A	A	F		B			
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.00	0.00	0.00	0.00	3.11	0.00	1.28	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.59	7.59	0.00	0.00	0.00	0.00	77.86	0.00	32.12	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.47			0.00			26.78			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	6.50											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	88.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.957

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	907	60	95	571	0	5	0	30	191	0	49
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	88	100	0	0	0	0	0	9	0	76
Site-Generated Trips [veh/h]	0	0	172	241	0	0	0	0	0	134	0	222
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1016	327	447	640	0	6	0	34	357	0	353
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	267	86	118	168	0	2	0	9	94	0	93
Total Analysis Volume [veh/h]	0	1069	344	471	674	0	6	0	36	376	0	372
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	55	48	0	33	26	0	0	9	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	45	45	29	74	74	4	4	26	26
g / C, Green / Cycle	0.00	0.38	0.38	0.24	0.62	0.62	0.03	0.03	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.41	0.41	0.27	0.19	0.19	0.00	0.03	0.22	0.24
s, saturation flow rate [veh/h]	1714	1800	1653	1714	1800	1800	1714	1392	1687	1530
c, Capacity [veh/h]	1	678	622	414	1111	1111	55	44	366	332
d1, Uniform Delay [s]	0.00	37.42	37.42	45.50	10.82	10.82	56.43	57.72	47.00	47.00
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.37	0.43
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	57.65	65.37	87.12	0.70	0.70	0.87	28.04	48.06	83.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	1.08	1.10	1.14	0.30	0.30	0.11	0.81	1.03	1.12
d, Delay for Lane Group [s/veh]	0.00	95.06	102.7	132.6	11.52	11.52	57.30	85.77	95.06	130.33
Lane Group LOS	A	F	F	F	B	B	E	F	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	30.30	29.16	22.26	4.31	4.31	0.19	1.43	15.72	17.50
50th-Percentile Queue Length [ft/ln]	0.00	757.4	728.9	556.4	107.6	107.6	4.75	35.81	392.99	437.57
95th-Percentile Queue Length [veh/ln]	0.00	41.48	40.53	32.25	7.71	7.71	0.34	2.58	22.58	25.91
95th-Percentile Queue Length [ft/ln]	0.00	1036.	1013.	806.2	192.7	192.7	8.56	64.45	564.44	647.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	97.51	102.7	132.6	11.52	11.52	57.30	71.53	85.77	95.06	95.06	130.3
Movement LOS	A	F	F	F	B	B	E	E	F	F	F	F
d_A, Approach Delay [s/veh]	98.79			61.33			81.70			112.60		
Approach LOS	F			E			F			F		
d_I, Intersection Delay [s/veh]	88.85											
Intersection LOS	F											
Intersection V/C	0.957											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	367	83	433
d_b, Bicycle Delay [s]	24.07	40.02	55.10	36.82
l_b,int, Bicycle LOS Score for Intersection	2.725	2.504	1.594	2.794
Bicycle LOS	B	B	A	C

Sequence

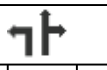
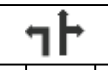
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	43.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.885

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	199	841	1	0	1	0	107	0	206
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	452	28	0	494	0	0	0	0	28	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1910	228	223	1335	1	0	1	0	135	0	231
Peak Hour Factor	0.946	0.946	0.946	0.950	0.946	0.950	0.950	0.950	0.946	0.946	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	505	60	59	353	0	0	0	0	36	0	61
Total Analysis Volume [veh/h]	1	2019	241	235	1411	1	0	1	0	143	0	243
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	57	0	18	66	0	28	30	0	15	17	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	69	69	14	83	83	0	10	11	21
g / C, Green / Cycle	0.00	0.57	0.57	0.12	0.69	0.69	0.00	0.08	0.09	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.59	0.16	0.14	0.41	0.00	0.00	0.00	0.08	0.16
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1714	1530
c, Capacity [veh/h]	2	1967	878	200	2362	1054	1	152	157	269
d1, Uniform Delay [s]	59.86	25.57	12.93	53.00	9.86	5.81	0.00	50.32	54.01	48.46
k, delay calibration	0.11	0.50	0.50	0.12	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	81.55	27.41	0.77	91.18	1.12	0.00	0.00	0.02	17.48	10.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	1.03	0.27	1.18	0.60	0.00	0.00	0.01	0.91	0.90
d, Delay for Lane Group [s/veh]	141.4	52.98	13.71	144.1	10.99	5.81	0.00	50.33	71.49	59.30
Lane Group LOS	F	F	B	F	B	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.09	33.64	3.43	11.08	9.36	0.01	0.00	0.03	5.04	7.91
50th-Percentile Queue Length [ft/ln]	2.16	841.0	85.79	276.9	233.8	0.20	0.00	0.71	125.92	197.68
95th-Percentile Queue Length [veh/ln]	0.16	44.14	6.18	17.63	14.37	0.01	0.00	0.05	8.72	12.52
95th-Percentile Queue Length [ft/ln]	3.89	1103.	154.4	440.6	359.2	0.36	0.00	1.28	217.94	312.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	141.4	52.98	13.71	144.1	10.99	5.81	0.00	50.33	50.33	71.49	59.30	59.30
Movement LOS	F	F	B	F	B	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	48.83			29.99			50.33			63.81		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	42.95											
Intersection LOS	D											
Intersection V/C	0.885											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.141	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	1033	433	217
d_b, Bicycle Delay [s]	18.70	14.02	36.82	47.70
l_b,int, Bicycle LOS Score for Intersection	3.425	2.918	1.561	2.197
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	63.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.125

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	215	48	118	172	40	129	224	33	32	148	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	3	0	0	2	0	0	10	0	0	17	0
Site-Generated Trips [veh/h]	0	20	0	0	19	0	0	28	0	0	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	264	54	132	214	45	144	289	37	36	211	144
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	69	14	35	56	12	38	76	10	9	56	38
Total Analysis Volume [veh/h]	36	278	57	139	225	47	152	304	39	38	222	152
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	394	428	411	456	449	389	425
Degree of Utilization, x	0.80	0.13	1.01	1.12	0.09	0.67	0.36

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.96	0.46	12.70	16.62	0.28	4.67	1.60
95th-Percentile Queue Length [ft]	173.90	11.39	317.39	415.48	7.11	116.63	39.92
Approach Delay [s/veh]	35.30		77.83	104.44		23.87	
Approach LOS	E		F	F		C	
Intersection Delay [s/veh]	63.12						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	922	34	78	735	100	139	250	53	29	195	136
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	6	1	0	4	0	0	10	0	1	17	0
Site-Generated Trips [veh/h]	0	23	1	0	19	0	0	28	0	1	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	1062	40	87	846	112	156	318	59	34	263	152
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	279	11	23	223	29	41	84	16	9	69	40
Total Analysis Volume [veh/h]	53	1118	42	92	891	118	164	335	62	36	277	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	59	0	13	62	0	20	35	0	13	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	64	64	8	68	68	13	28	28	4	18	18
g / C, Green / Cycle	0.04	0.54	0.54	0.07	0.56	0.56	0.11	0.23	0.23	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.32	0.05	0.29	0.29	0.10	0.10	0.04	0.02	0.13	0.13
s, saturation flow rate [veh/h]	1714	1800	1777	1714	1800	1727	1714	3427	1530	1714	1800	1585
c, Capacity [veh/h]	68	966	954	114	1015	974	191	798	356	52	274	241
d1, Uniform Delay [s]	57.12	19.07	19.07	55.23	16.00	16.00	52.39	39.13	36.80	57.60	49.42	49.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.47	2.80	2.84	12.34	1.81	1.89	10.63	0.35	0.23	14.78	6.65	8.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.60	0.60	0.81	0.51	0.51	0.86	0.42	0.17	0.69	0.84	0.86
d, Delay for Lane Group [s/veh]	74.58	21.87	21.91	67.58	17.81	17.89	63.02	39.48	37.03	72.38	56.07	58.56
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.92	11.58	11.45	3.14	8.90	8.57	5.41	4.25	1.49	1.30	7.16	6.68
50th-Percentile Queue Length [ft/ln]	48.06	289.4	286.3	78.41	222.4	214.1	135.3	106.2	37.21	32.45	179.1	166.9
95th-Percentile Queue Length [veh/ln]	3.46	17.16	17.00	5.65	13.79	13.37	9.23	7.63	2.68	2.34	11.55	10.92
95th-Percentile Queue Length [ft/ln]	86.51	428.9	425.1	141.1	344.7	334.2	230.7	190.7	66.98	58.41	288.8	272.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.58	21.89	21.91	67.58	17.84	17.89	63.02	39.48	37.03	72.38	56.51	58.56
Movement LOS	E	C	C	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	24.19			22.00			46.09			58.41		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	31.98											
Intersection LOS	C											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.744	2.881	2.632	2.621
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	967	517	400
d_b, Bicycle Delay [s]	17.60	16.02	33.00	38.40
l_b,int, Bicycle LOS Score for Intersection	2.560	2.468	2.022	1.950
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	45.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	113	833	164	64	696	56	75	453	101	111	270	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	4	5	0	0	5	17	12	5	2	0	8	0
Site-Generated Trips [veh/h]	7	5	0	0	5	51	52	12	7	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	943	184	72	790	131	148	524	122	124	322	52
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	248	48	19	208	34	39	138	32	33	85	14
Total Analysis Volume [veh/h]	145	993	194	76	832	138	156	552	128	131	339	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	61	0	13	56	0	16	31	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	44	44	7	39	39	12	42	42	11	41	41
g / C, Green / Cycle	0.10	0.37	0.37	0.06	0.33	0.33	0.10	0.35	0.35	0.09	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.34	0.34	0.04	0.28	0.28	0.09	0.20	0.20	0.08	0.11	0.11
s, saturation flow rate [veh/h]	1714	1800	1699	1714	1800	1712	1714	1800	1684	1714	1800	1714
c, Capacity [veh/h]	172	664	627	97	586	557	171	630	590	156	613	584
d1, Uniform Delay [s]	53.06	36.08	36.22	55.85	37.70	37.70	53.47	31.49	31.50	53.71	29.35	29.39
k, delay calibration	0.11	0.24	0.24	0.11	0.18	0.18	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.61	10.84	12.21	12.59	5.73	6.02	16.34	3.53	3.78	11.46	1.42	1.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.92	0.92	0.78	0.85	0.85	0.91	0.56	0.56	0.84	0.33	0.33
d, Delay for Lane Group [s/veh]	63.67	46.91	48.43	68.44	43.43	43.72	69.81	35.02	35.28	65.16	30.77	30.90
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.80	18.68	18.06	2.61	14.40	13.74	5.43	8.80	8.29	4.39	4.55	4.40
50th-Percentile Queue Length [ft/ln]	120.0	467.0	451.4	65.32	360.0	343.6	135.7	219.9	207.1	109.6	113.7	109.9
95th-Percentile Queue Length [veh/ln]	8.40	25.77	25.03	4.70	20.62	19.82	9.25	13.66	13.01	7.82	8.05	7.83
95th-Percentile Queue Length [ft/ln]	209.9	644.2	625.7	117.5	515.6	495.6	231.3	341.5	325.1	195.4	201.2	195.8

Movement, Approach, & Intersection Results

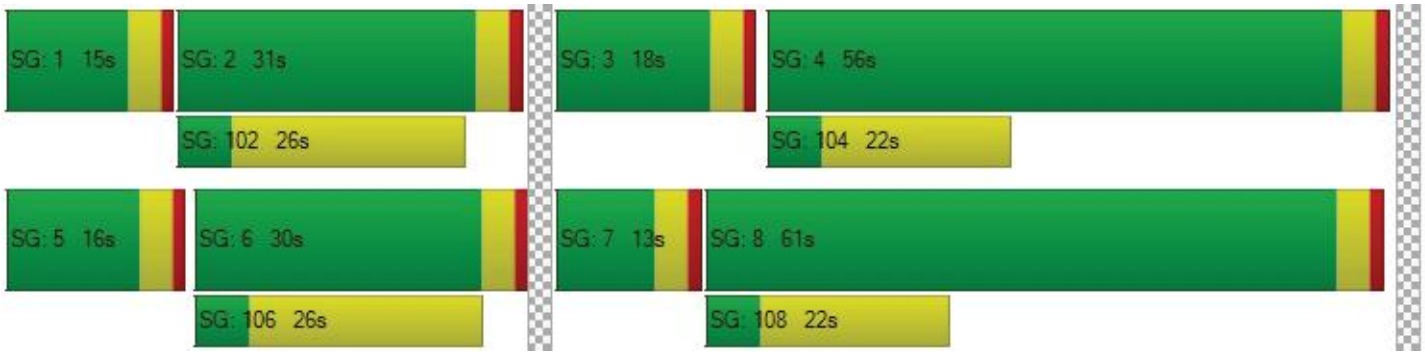
d_M, Delay for Movement [s/veh]	63.67	47.50	48.43	68.44	43.55	43.72	69.81	35.12	35.28	65.16	30.82	30.90
Movement LOS	E	D	D	E	D	D	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	49.39			45.38			41.62			39.40		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.13											
Intersection LOS	D											
Intersection V/C	0.657											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.862	2.834	2.599	2.578
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	867	450	433
d_b, Bicycle Delay [s]	16.54	19.27	36.04	36.82
l_b,int, Bicycle LOS Score for Intersection	2.659	2.423	2.249	1.993
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	868	69	34	681	106	136	178	9	42	83	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	2	0	0	4	1	5	9	0	10	2	0
Site-Generated Trips [veh/h]	0	2	0	0	4	16	22	43	0	10	32	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	976	77	38	771	136	179	251	10	67	127	22
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	257	20	10	203	36	47	66	3	18	33	6
Total Analysis Volume [veh/h]	21	1027	81	40	812	143	188	264	11	71	134	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	36	0	9	33	0	49	64	0	11	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	74	74	4	75	75	15	20	20	6	11	11
g / C, Green / Cycle	0.02	0.62	0.62	0.03	0.63	0.63	0.13	0.17	0.17	0.05	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.01	0.31	0.31	0.02	0.27	0.27	0.11	0.15	0.01	0.04	0.07	0.02
s, saturation flow rate [veh/h]	1714	1800	1754	1714	1800	1707	1714	1800	1530	1714	1800	1530
c, Capacity [veh/h]	37	1108	1079	53	1125	1067	220	303	258	90	166	141
d1, Uniform Delay [s]	58.18	12.90	12.90	57.71	11.61	11.61	51.22	48.63	41.80	56.22	53.40	50.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.41	1.66	1.70	19.60	1.23	1.30	9.19	7.68	0.07	14.38	8.80	0.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.51	0.51	0.76	0.44	0.44	0.86	0.87	0.04	0.79	0.81	0.16
d, Delay for Lane Group [s/veh]	71.59	14.55	14.60	77.31	12.84	12.91	60.42	56.31	41.87	70.60	62.20	50.71
Lane Group LOS	E	B	B	E	B	B	E	E	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.77	8.59	8.39	1.49	6.85	6.51	6.09	8.34	0.28	2.48	4.37	0.66
50th-Percentile Queue Length [ft/ln]	19.21	214.7	209.8	37.31	171.1	162.8	152.2	208.4	7.01	62.10	109.2	16.51
95th-Percentile Queue Length [veh/ln]	1.38	13.40	13.14	2.69	11.14	10.70	10.14	13.07	0.50	4.47	7.80	1.19
95th-Percentile Queue Length [ft/ln]	34.58	334.9	328.5	67.16	278.4	267.5	253.4	326.8	12.61	111.7	194.9	29.71

Movement, Approach, & Intersection Results

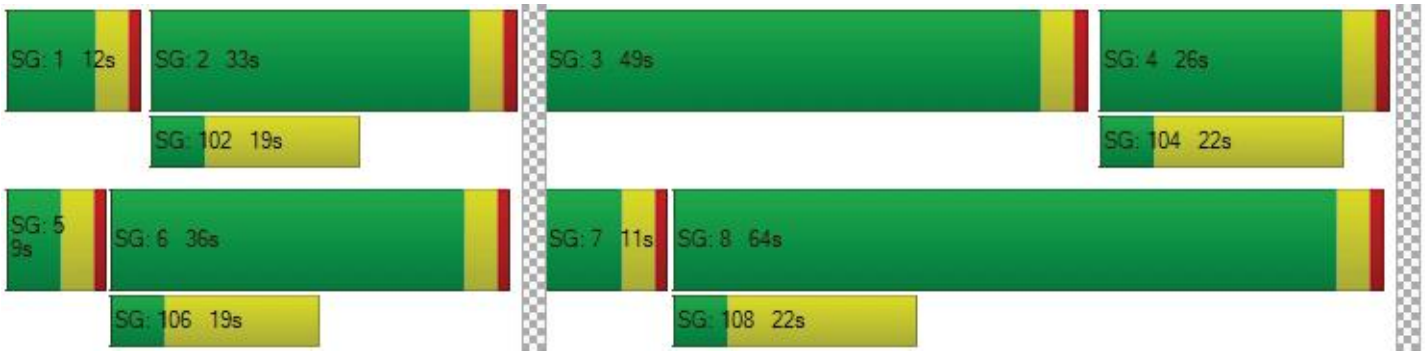
d_M, Delay for Movement [s/veh]	71.59	14.58	14.60	77.31	12.87	12.91	60.42	56.31	41.87	70.60	62.20	50.71
Movement LOS	E	B	B	E	B	B	E	E	D	E	E	D
d_A, Approach Delay [s/veh]	15.64			15.46			57.64			63.65		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	26.37											
Intersection LOS	C											
Intersection V/C	0.523											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.710	2.751	2.332	2.296
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	483	1000	367
d_b, Bicycle Delay [s]	32.27	34.50	15.00	40.02
l_b,int, Bicycle LOS Score for Intersection	2.491	2.380	2.324	1.936
Bicycle LOS	B	B	B	A

Sequence

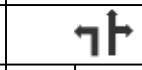
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	135.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.106

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	16	1461	163	160	882	2	5	2	5	165	0	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.120	1.120	1.120	1.000
In-Process Volume [veh/h]	144	0	0	0	0	0	0	106	93	0	116	0
Site-Generated Trips [veh/h]	295	275	0	69	229	66	52	235	284	0	224	69
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	1736	183	229	1111	68	57	343	383	185	340	193
Peak Hour Factor	0.950	0.972	0.950	0.972	0.972	0.972	0.972	0.950	0.950	0.950	0.950	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	120	447	48	59	286	17	15	90	101	49	89	50
Total Analysis Volume [veh/h]	481	1786	193	236	1143	70	59	361	403	195	358	199
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	43	0	20	36	0	19	43	0	14	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	39	39	16	32	32	5	39	10	44
g / C, Green / Cycle	0.19	0.33	0.33	0.13	0.27	0.27	0.04	0.33	0.08	0.36
(v / s)_i Volume / Saturation Flow Rate	0.28	0.38	0.39	0.14	0.23	0.05	0.03	0.46	0.11	0.33
s, saturation flow rate [veh/h]	1714	3427	1713	1714	4903	1530	1714	1647	1714	1693
c, Capacity [veh/h]	329	1114	557	229	1308	408	77	535	143	615
d1, Uniform Delay [s]	48.50	40.50	40.50	52.00	42.07	33.81	56.67	40.50	55.00	36.25
k, delay calibration	0.50	0.50	0.50	0.12	0.50	0.50	0.11	0.50	0.11	0.40
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	224.8	88.64	107.5	37.93	8.34	0.91	14.37	203.04	173.87	16.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.46	1.18	1.20	1.03	0.87	0.17	0.76	1.43	1.37	0.91
d, Delay for Lane Group [s/veh]	273.3	129.1	148.0	89.93	50.41	34.73	71.04	243.54	228.87	52.37
Lane Group LOS	F	F	F	F	D	C	E	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	30.30	29.90	32.81	9.27	11.72	1.68	2.08	45.74	11.21	17.96
50th-Percentile Queue Length [ft/ln]	757.4	747.4	820.3	231.6	293.0	42.12	51.95	1143.42	280.30	449.08
95th-Percentile Queue Length [veh/ln]	46.50	42.99	47.31	14.46	17.34	3.03	3.74	69.09	18.43	24.91
95th-Percentile Queue Length [ft/ln]	1162.	1074.	1182.	361.5	433.3	75.82	93.52	1727.13	460.80	622.85

Movement, Approach, & Intersection Results

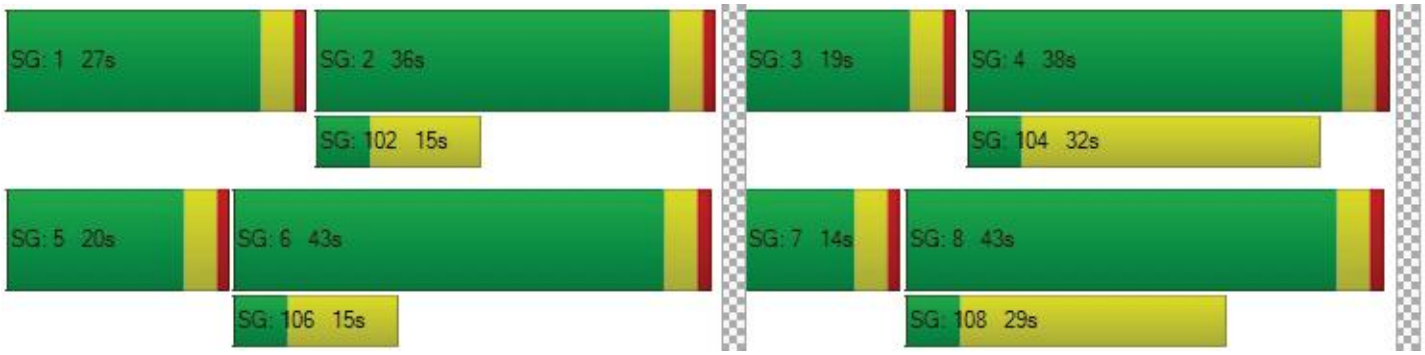
d_M, Delay for Movement [s/veh]	273.3	134.1	148.0	89.93	50.41	34.73	71.04	243.5	243.5	228.8	52.37	52.37
Movement LOS	F	F	F	F	D	C	E	F	F	F	D	D
d_A, Approach Delay [s/veh]	162.48			56.09			231.17			98.14		
Approach LOS	F			E			F			F		
d_I, Intersection Delay [s/veh]	135.86											
Intersection LOS	F											
Intersection V/C	1.106											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.194	3.322	2.518	2.457
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	533	650	567
d_b, Bicycle Delay [s]	27.34	32.27	27.34	30.82
l_b,int, Bicycle LOS Score for Intersection	2.913	2.357	2.918	2.800
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	203.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.700

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	213	12	34	162	31	62	171	22	10	113	42
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	8	0	0	0	0	2	3	135	6	0	144	0
Site-Generated Trips [veh/h]	12	0	0	0	0	19	20	246	14	0	238	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	239	13	38	181	56	92	573	45	11	509	47
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	63	3	10	48	15	24	151	12	3	134	12
Total Analysis Volume [veh/h]	39	252	14	40	191	59	97	603	47	12	536	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	409	409	747	597
Degree of Utilization, x	0.75	0.71	1.70	1.35

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.03	5.38	44.73	27.60
95th-Percentile Queue Length [ft]	150.69	134.62	1118.15	689.96
Approach Delay [s/veh]	33.60	30.66	345.17	196.95
Approach LOS	D	D	F	F
Intersection Delay [s/veh]	203.49			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	125.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.418

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	33	51	48	20	4	12	42	7	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	37	57	54	22	4	13	47	8	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	10	15	14	6	1	3	12	2	0
Total Analysis Volume [veh/h]	0	39	60	57	23	4	14	49	8	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	434	409
Degree of Utilization, x	0.41	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.98	0.67
95th-Percentile Queue Length [ft]	49.43	16.86
Approach Delay [s/veh]	16.95	13.81
Approach LOS	C	B
Intersection Delay [s/veh]	125.22	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	39	2	143	22	4	12	39	142	7	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	13	115	0	0	0	0	132	0	0
Site-Generated Trips [veh/h]	0	65	152	0	0	0	0	162	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	80	427	25	4	13	44	453	8	6
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	21	112	7	1	3	12	119	2	2
Total Analysis Volume [veh/h]	46	84	449	26	4	14	46	477	8	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	609	551
Degree of Utilization, x	1.42	1.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	30.03	23.81
95th-Percentile Queue Length [ft]	750.77	595.32
Approach Delay [s/veh]	224.41	168.79
Approach LOS	F	F
Intersection Delay [s/veh]	125.22	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	16	240	40	0	5	39	95	31	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	18	269	45	0	6	44	106	86	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	71	12	0	2	12	28	23	2
Total Analysis Volume [veh/h]	3	19	283	47	0	6	46	112	91	8
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	413	381	418
Degree of Utilization, x	0.85	0.43	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.30	2.11	0.91
95th-Percentile Queue Length [ft]	207.39	52.72	22.76
Approach Delay [s/veh]	45.20	17.19	
Approach LOS	E	C	
Intersection Delay [s/veh]	125.22		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	874	82	66	634	13	20	165	39	57	148	63
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	49	0	0	0	0	14	2	54	60	0	69	0
Site-Generated Trips [veh/h]	42	0	0	0	0	14	2	109	41	0	106	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	147	979	92	74	710	43	26	348	145	64	341	71
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	258	24	19	187	11	7	92	38	17	90	19
Total Analysis Volume [veh/h]	155	1031	97	78	747	45	27	366	153	67	359	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	47	0	11	34	0	9	37	0	25	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	68	68	7	62	62	3	23	23	6	26	26
g / C, Green / Cycle	0.11	0.57	0.57	0.06	0.52	0.52	0.02	0.19	0.19	0.05	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.09	0.32	0.32	0.05	0.22	0.22	0.02	0.11	0.10	0.04	0.20	0.05
s, saturation flow rate [veh/h]	1714	1800	1746	1714	1800	1764	1714	3427	1530	1714	1800	1530
c, Capacity [veh/h]	183	1016	986	98	927	908	43	663	296	88	396	337
d1, Uniform Delay [s]	52.62	16.67	16.69	55.89	18.16	18.16	57.95	43.70	43.37	56.17	45.60	38.38
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.17	2.25	2.34	13.62	1.47	1.50	14.25	0.72	1.40	12.38	8.00	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.56	0.56	0.80	0.43	0.43	0.63	0.55	0.52	0.76	0.91	0.22
d, Delay for Lane Group [s/veh]	62.79	18.92	19.03	69.51	19.63	19.66	72.20	44.42	44.77	68.55	53.60	38.72
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.10	10.36	10.12	2.70	7.20	7.06	0.98	4.98	4.19	2.31	11.25	1.85
50th-Percentile Queue Length [ft/ln]	127.5	259.1	253.0	67.57	179.9	176.6	24.55	124.5	104.8	57.73	281.2	46.37
95th-Percentile Queue Length [veh/ln]	8.81	15.64	15.34	4.87	11.60	11.42	1.77	8.64	7.55	4.16	16.75	3.34
95th-Percentile Queue Length [ft/ln]	220.1	391.1	383.4	121.6	289.9	285.5	44.20	216.0	188.6	103.9	418.8	83.47

Movement, Approach, & Intersection Results

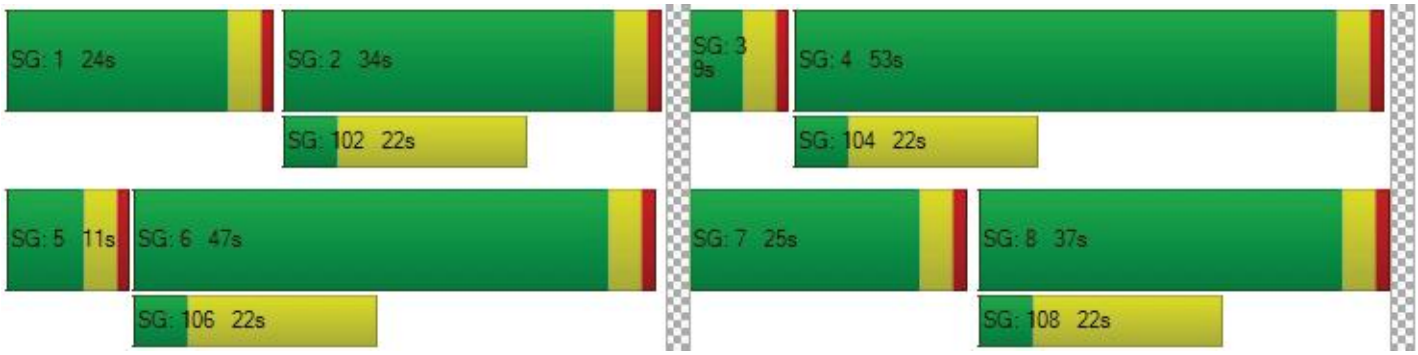
d_M, Delay for Movement [s/veh]	62.79	18.97	19.03	69.51	19.64	19.66	72.20	44.42	44.77	68.55	53.60	38.72
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.27			24.11			45.89			53.37		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.47											
Intersection LOS	C											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.754	2.706	2.531	2.637
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	500	550	817
d_b, Bicycle Delay [s]	24.70	33.75	31.54	21.00
l_b,int, Bicycle LOS Score for Intersection	2.618	2.277	2.010	2.386
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	34.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	1025	112	64	785	62	76	231	66	117	164	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	35	0	0	0	0	9	8	5	30	0	8	0
Site-Generated Trips [veh/h]	44	0	0	0	0	10	10	12	46	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	1148	125	72	879	88	103	276	150	131	204	65
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	302	33	19	231	23	27	73	39	34	54	17
Total Analysis Volume [veh/h]	163	1208	132	76	925	93	108	291	158	138	215	68
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	57	0	11	44	0	22	36	0	16	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	67	67	7	61	61	9	19	19	11	21	21
g / C, Green / Cycle	0.11	0.56	0.56	0.06	0.50	0.50	0.08	0.16	0.16	0.10	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.38	0.38	0.04	0.29	0.29	0.06	0.13	0.13	0.08	0.08	0.08
s, saturation flow rate [veh/h]	1714	1800	1739	1714	1800	1743	1714	1800	1592	1714	1800	1655
c, Capacity [veh/h]	191	1008	974	95	907	879	134	281	248	163	311	286
d1, Uniform Delay [s]	52.34	18.64	18.76	55.98	20.70	20.70	54.41	49.19	49.35	53.43	44.67	44.78
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.19	3.59	3.82	13.80	2.59	2.68	10.68	6.68	8.40	11.31	1.10	1.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.67	0.68	0.80	0.57	0.57	0.81	0.84	0.86	0.85	0.47	0.48
d, Delay for Lane Group [s/veh]	62.53	22.23	22.58	69.79	23.29	23.38	65.09	55.87	57.76	64.75	45.77	46.03
Lane Group LOS	E	C	C	E	C	C	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.36	13.81	13.61	2.64	10.54	10.23	3.61	7.38	6.80	4.61	4.00	3.80
50th-Percentile Queue Length [ft/ln]	133.9	345.3	340.2	66.00	263.4	255.7	90.21	184.4	169.8	115.1	100.1	94.99
95th-Percentile Queue Length [veh/ln]	9.15	19.91	19.66	4.75	15.86	15.48	6.50	11.83	11.07	8.13	7.21	6.84
95th-Percentile Queue Length [ft/ln]	228.8	497.6	491.5	118.8	396.5	386.9	162.3	295.8	276.7	203.1	180.2	170.9

Movement, Approach, & Intersection Results

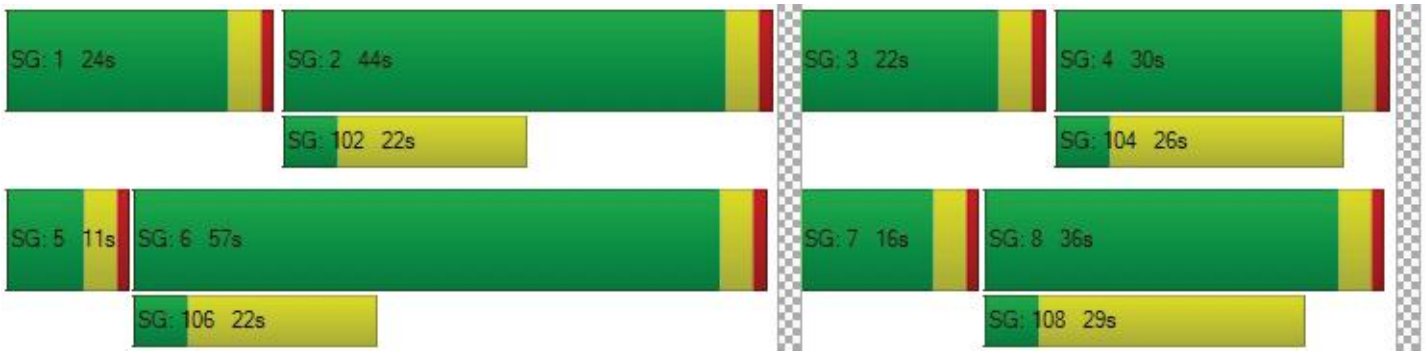
d_M, Delay for Movement [s/veh]	62.53	22.38	22.58	69.79	23.33	23.38	65.09	56.23	57.76	64.75	45.85	46.03
Movement LOS	E	C	C	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	26.76			26.56			58.38			52.07		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	34.61											
Intersection LOS	C											
Intersection V/C	0.639											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.989	2.871	2.516	2.494
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	667	533	433
d_b, Bicycle Delay [s]	18.70	26.67	32.27	36.82
l_b,int, Bicycle LOS Score for Intersection	2.800	2.462	2.019	1.907
Bicycle LOS	C	B	B	A

Sequence

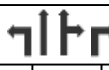
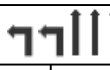
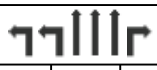
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	87.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.059

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	119	208	360	107	282	534	817	1020	94	152	605	306
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	8	0	0	5	51
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	12	0	0	12	216
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	233	403	120	316	598	915	1162	105	170	695	610
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	61	106	32	83	157	241	306	28	45	183	161
Total Analysis Volume [veh/h]	140	245	424	126	333	629	963	1223	111	179	732	642
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	31	0	12	30	0	32	65	0	12	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	27	27	8	26	26	26	28	61	61	8	41	41
g / C, Green / Cycle	0.08	0.23	0.23	0.07	0.22	0.22	0.22	0.23	0.51	0.51	0.07	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.28	0.07	0.19	0.21	0.21	0.29	0.25	0.07	0.05	0.15	0.42
s, saturation flow rate [veh/h]	1714	3427	1530	171	180	153	153	3329	4903	1530	3329	4903	1530
c, Capacity [veh/h]	129	771	344	114	390	332	332	777	2492	778	222	1675	523
d1, Uniform Delay [s]	55.50	38.81	46.50	56.0	45.1	46.3	46.3	46.00	19.32	15.64	55.24	30.57	39.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.14	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	63.38	1.08	127.0	70.1	20.5	37.9	37.9	111.1	0.15	0.08	6.78	0.18	118.6
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.09	0.32	1.23	1.10	0.85	0.95	0.95	1.24	0.49	0.14	0.81	0.44	1.23
d, Delay for Lane Group [s/veh]	118.8	39.90	173.5	126.	65.7	84.3	84.3	157.1	19.47	15.72	62.01	30.75	158.1
Lane Group LOS	F	D	F	F	E	F	F	F	B	B	E	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.15	3.14	22.34	5.68	11.7	12.6	12.6	23.48	7.37	1.63	2.88	5.49	32.37
50th-Percentile Queue Length [ft/ln]	153.7	78.59	558.5	142.	292.	317.	317.	586.9	184.2	40.86	71.97	137.3	809.2
95th-Percentile Queue Length [veh/ln]	10.50	5.66	33.52	9.89	17.3	18.5	18.5	35.16	11.82	2.94	5.18	9.34	47.32
95th-Percentile Queue Length [ft/ln]	262.5	141.4	837.9	247.	433.	463.	463.	879.0	295.5	73.54	129.5	233.4	1183.

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	118.8	39.90	173.5	126.1	65.72	84.31	157.1	19.47	15.72	62.01	30.75	158.1
Movement LOS	F	D	F	F	E	F	F	B	B	E	C	F
d_A, Approach Delay [s/veh]	123.62			83.47			77.01			87.03		
Approach LOS	F			F			E			F		
d_I, Intersection Delay [s/veh]	87.50											
Intersection LOS	F											
Intersection V/C	1.059											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.701	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	433	1017	683
d_b, Bicycle Delay [s]	36.04	36.82	14.50	26.00
l_b,int, Bicycle LOS Score for Intersection	2.227	2.457	2.823	2.414
Bicycle LOS	B	B	C	B

Sequence

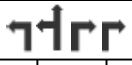
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	48	43	114	42	359	674	752	63	37	631	140
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	51	0	0	0	8	0	0	56	0
Site-Generated Trips [veh/h]	0	0	0	237	0	0	0	12	0	0	228	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	54	48	416	47	402	755	862	71	41	991	157
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	14	13	109	12	106	199	227	19	11	261	41
Total Analysis Volume [veh/h]	87	57	51	438	49	423	795	907	75	43	1043	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	29	0	28	23	0	35	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	22	22	22	32	70	70	4	42	42
g / C, Green / Cycle	0.07	0.07	0.07	0.18	0.18	0.18	0.27	0.58	0.58	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.14	0.14	0.16	0.24	0.18	0.05	0.03	0.24	0.24
s, saturation flow rate [veh/h]	1714	1800	1536	1714	1731	2708	3329	4903	1530	1714	3427	1677
c, Capacity [veh/h]	120	126	108	307	310	486	888	2864	894	57	1201	588
d1, Uniform Delay [s]	54.64	53.53	53.70	47.09	47.03	47.89	42.39	12.74	10.92	57.54	33.16	33.17
k, delay calibration	0.11	0.11	0.11	0.13	0.13	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.93	2.40	3.36	5.57	5.23	4.97	3.50	0.29	0.18	18.51	3.05	6.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.44	0.49	0.79	0.79	0.87	0.90	0.32	0.08	0.76	0.67	0.68
d, Delay for Lane Group [s/veh]	62.57	55.92	57.06	52.65	52.27	52.86	45.89	13.03	11.10	76.05	36.20	39.30
Lane Group LOS	E	E	E	D	D	D	D	B	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.84	1.70	1.63	7.41	7.40	6.47	11.69	4.14	0.91	1.59	10.47	10.77
50th-Percentile Queue Length [ft/ln]	71.05	42.45	40.63	185.2	184.8	161.7	292.2	103.5	22.75	39.65	261.7	269.2
95th-Percentile Queue Length [veh/ln]	5.12	3.06	2.93	11.88	11.86	10.64	17.30	7.46	1.64	2.86	15.78	16.15
95th-Percentile Queue Length [ft/ln]	127.8	76.41	73.13	296.8	296.3	266.0	432.3	186.4	40.95	71.38	394.4	403.7

Movement, Approach, & Intersection Results

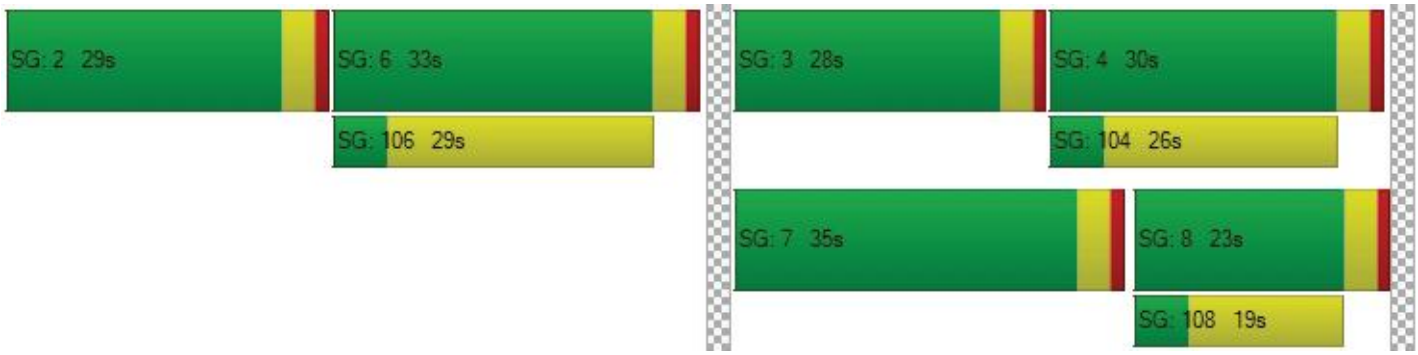
d_M, Delay for Movement [s/veh]	62.57	55.95	57.06	52.48	52.27	52.86	45.89	13.03	11.10	76.05	36.89	39.30
Movement LOS	E	E	E	D	D	D	D	B	B	E	D	D
d_A, Approach Delay [s/veh]	59.19			52.64			27.65			38.56		
Approach LOS	E			D			C			D		
d_I, Intersection Delay [s/veh]	37.94											
Intersection LOS	D											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.235	2.781	0.000	2.978
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	417	317	433
d_b, Bicycle Delay [s]	34.50	37.60	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.720	3.061	2.537	2.248
Bicycle LOS	A	C	B	B

Sequence

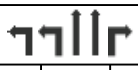
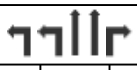
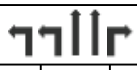
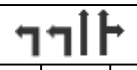
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	39.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.689

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	754	90	148	608	171	182	575	229	108	268	65
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	10	6	0	2	2	35	24	0	9	54	35
Site-Generated Trips [veh/h]	0	153	16	0	115	7	7	242	0	20	221	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	177	1007	123	166	798	201	246	910	256	150	575	108
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	265	32	44	210	53	65	239	67	39	151	28
Total Analysis Volume [veh/h]	186	1060	129	175	840	212	259	958	269	158	605	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	46	0	12	45	0	16	51	0	11	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	52	8	51	51	11	37	37	7	33	33
g / C, Green / Cycle	0.07	0.43	0.07	0.43	0.43	0.09	0.31	0.31	0.06	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.06	0.31	0.05	0.25	0.14	0.08	0.28	0.18	0.05	0.21	0.21
s, saturation flow rate [veh/h]	3329	3427	3329	3427	1530	3329	3427	1530	3329	1800	1702
c, Capacity [veh/h]	239	1473	222	1455	650	313	1069	477	194	497	470
d1, Uniform Delay [s]	54.75	28.26	55.17	26.32	23.07	53.41	39.42	34.46	55.86	39.53	39.54
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.15	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.41	3.07	6.14	1.68	1.34	5.58	2.95	1.05	7.98	3.02	3.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.72	0.79	0.58	0.33	0.83	0.90	0.56	0.81	0.74	0.74
d, Delay for Lane Group [s/veh]	60.17	31.32	61.30	28.00	24.40	58.99	42.36	35.50	63.84	42.55	42.73
Lane Group LOS	E	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.94	12.99	2.80	9.39	4.25	4.08	13.78	6.69	2.58	10.30	9.77
50th-Percentile Queue Length [ft/ln]	73.59	324.67	69.90	234.8	106.1	101.9	344.5	167.2	64.48	257.3	244.1
95th-Percentile Queue Length [veh/ln]	5.30	18.90	5.03	14.42	7.63	7.34	19.87	10.93	4.64	15.56	14.89
95th-Percentile Queue Length [ft/ln]	132.46	472.42	125.8	360.5	190.6	183.5	496.6	273.2	116.0	388.9	372.2

Movement, Approach, & Intersection Results

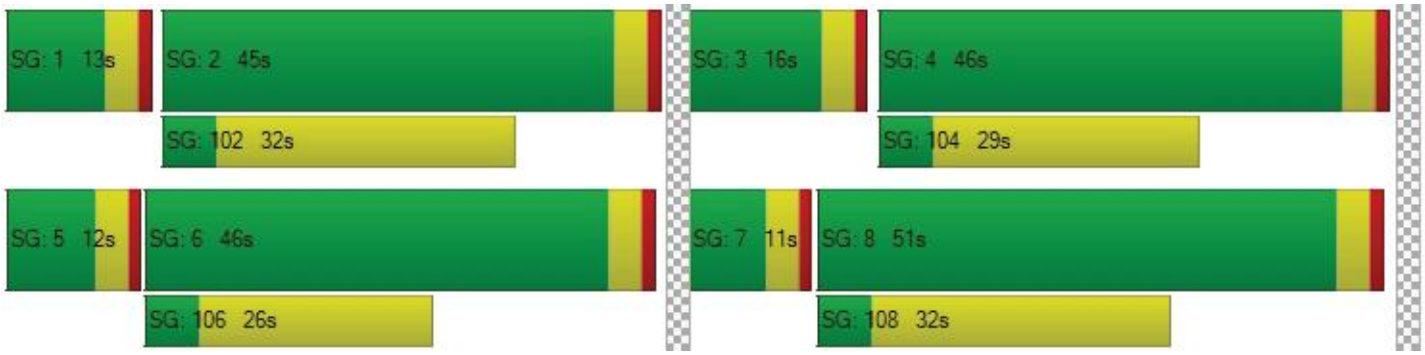
d_M, Delay for Movement [s/veh]	60.17	31.32	0.00	61.30	28.00	24.40	58.99	42.36	35.50	63.84	42.62	42.73
Movement LOS	E	C		E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	35.63			32.13			44.02			46.46		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.28											
Intersection LOS	D											
Intersection V/C	0.689											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.047	2.980	3.044	2.795
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	683	783	700
d_b, Bicycle Delay [s]	25.35	26.00	22.20	25.35
l_b,int, Bicycle LOS Score for Intersection	2.588	2.572	2.786	2.283
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	179.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.195

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	46	3	492	3	0	1	0	791	45	140	261	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	35	0	61	0	0	0	0	29	0	90	64	0
Site-Generated Trips [veh/h]	0	0	195	0	0	0	0	258	0	200	241	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	807	3	0	1	0	1173	50	447	597	2
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	212	1	0	0	0	309	13	118	157	1
Total Analysis Volume [veh/h]	92	3	849	3	0	1	0	1235	53	471	628	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	48	0	9	48	0	9	35	0	28	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	53	53	48	53	0	31	31	24	55	55
g / C, Green / Cycle	0.44	0.44	0.40	0.44	0.00	0.26	0.26	0.20	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.55	0.01	0.00	0.36	0.03	0.27	0.18	0.18
s, saturation flow rate [veh/h]	1439	1488	1530	716	1714	3427	1530	1714	1800	1798
c, Capacity [veh/h]	667	773	614	407	0	881	393	346	826	825
d1, Uniform Delay [s]	19.40	19.33	35.93	18.85	0.00	44.57	34.30	47.90	21.30	21.30
k, delay calibration	0.13	0.17	0.50	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.06	182.4	0.01	0.00	187.4	0.71	180.5	1.34	1.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.07	1.38	0.01	0.00	1.40	0.13	1.36	0.38	0.38
d, Delay for Lane Group [s/veh]	19.45	19.38	218.4	18.86	0.00	232.0	35.01	228.4	22.64	22.64
Lane Group LOS	B	B	F	B	A	F	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.73	0.83	48.60	0.06	0.00	35.92	1.28	27.63	6.10	6.09
50th-Percentile Queue Length [ft/ln]	18.36	20.79	1215.	1.60	0.00	897.9	31.95	690.8	152.4	152.3
95th-Percentile Queue Length [veh/ln]	1.32	1.50	73.04	0.12	0.00	54.30	2.30	41.92	10.15	10.14
95th-Percentile Queue Length [ft/ln]	33.05	37.43	1826.	2.89	0.00	1357.	57.51	1047.	253.7	253.5

Movement, Approach, & Intersection Results

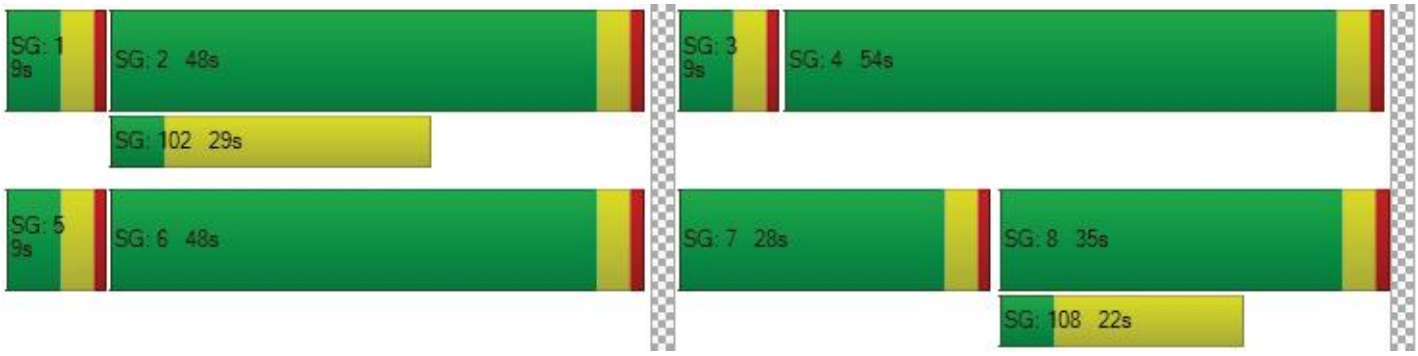
d_M, Delay for Movement [s/veh]	19.45	19.38	218.4	18.86	18.86	18.86	0.00	232.0	35.01	228.4	22.64	22.64
Movement LOS	B	B	F	B	B	B	A	F	D	F	C	C
d_A, Approach Delay [s/veh]	198.37			18.86			223.94			110.70		
Approach LOS	F			B			F			F		
d_I, Intersection Delay [s/veh]	179.10											
Intersection LOS	F											
Intersection V/C	1.195											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.601	0.000	3.024	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	883	517	833
d_b, Bicycle Delay [s]	18.70	18.70	33.00	20.42
l_b,int, Bicycle LOS Score for Intersection	3.117	1.566	2.622	2.468
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	22.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.733

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1295	400	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.0000	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	153	0	82	1	0
Site-Generated Trips [veh/h]	0	346	316	137	95	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	499	316	1669	544	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	131	83	439	143	0
Total Analysis Volume [veh/h]	0	525	333	1757	573	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.73	0.33	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	139.36	22.52	10.42	0.00	0.00	0.00
Movement LOS	F	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	6.48	6.48	1.48	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	161.96	161.96	37.01	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	22.52		1.66		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	4.80					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	85.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.032

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	1021	140	76	775	225	468	667	302	75	184	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	130	0	10	159	1	82	0	0	0	0	18
Site-Generated Trips [veh/h]	0	375	0	58	359	95	137	0	0	0	0	59
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	1649	157	153	1386	348	743	747	338	84	206	142
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	434	41	40	365	92	196	197	89	22	54	37
Total Analysis Volume [veh/h]	77	1736	165	161	1459	366	782	786	356	88	217	149
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	13	36	36	38	54	0	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	45	45	9	48	86	34	42	8	16	16
g / C, Green / Cycle	0.05	0.38	0.38	0.08	0.40	0.72	0.28	0.35	0.06	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.37	0.09	0.30	0.24	0.46	0.23	0.05	0.11	0.11
s, saturation flow rate [veh/h]	1714	3427	1721	1714	4903	1530	1714	3427	1714	1800	1563
c, Capacity [veh/h]	86	1287	647	129	1964	1097	486	1203	112	239	207
d1, Uniform Delay [s]	56.70	37.05	37.17	55.50	30.69	6.30	43.00	32.80	55.28	50.53	50.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.68	20.98	32.28	126.9	2.59	0.82	283.96	0.61	11.55	6.28	8.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.98	0.99	1.25	0.74	0.33	1.61	0.65	0.79	0.81	0.84
d, Delay for Lane Group [s/veh]	82.38	58.02	69.45	182.4	33.28	7.12	326.96	33.41	66.82	56.81	59.36
Lane Group LOS	F	E	E	F	C	A	F	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.93	21.66	23.95	8.42	12.29	3.39	52.55	9.67	2.98	6.03	5.58
50th-Percentile Queue Length [ft/ln]	73.30	541.6	598.7	210.4	307.3	84.68	1313.68	241.65	74.57	150.6	139.5
95th-Percentile Queue Length [veh/ln]	5.28	29.30	31.98	14.13	18.05	6.10	80.94	14.76	5.37	10.05	9.46
95th-Percentile Queue Length [ft/ln]	131.9	732.4	799.4	353.3	451.1	152.4	2023.47	369.12	134.2	251.3	236.3

Movement, Approach, & Intersection Results

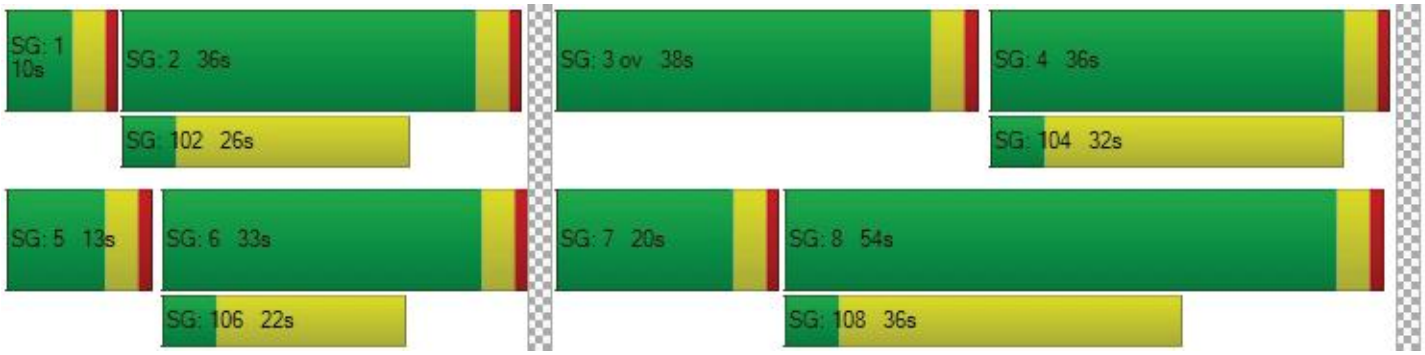
d_M, Delay for Movement [s/veh]	82.38	61.14	69.45	182.4	33.28	7.12	326.9	33.41	0.00	66.82	57.10	59.36
Movement LOS	F	E	E	F	C	A	F	C		E	E	E
d_A, Approach Delay [s/veh]	62.66			40.55			179.81			59.73		
Approach LOS	E			D			F			E		
d_I, Intersection Delay [s/veh]	85.79											
Intersection LOS	F											
Intersection V/C	1.032											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.246	3.308	2.830	2.620
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	533	833	533
d_b, Bicycle Delay [s]	34.50	32.27	20.42	32.27
l_b,int, Bicycle LOS Score for Intersection	2.648	2.652	2.853	1.934
Bicycle LOS	B	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	35.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.543

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	17	158	25	39	100	35	68	546	12	13	227	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	1	0	0	0	5	0	0	10	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	46	0	0	47	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	177	28	47	112	39	76	663	13	15	311	39
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	5	47	7	12	29	10	20	174	3	4	82	10
Total Analysis Volume [veh/h]	20	186	29	49	118	41	80	698	14	16	327	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	81	88	0	9	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	7	50	2	45	45
g / C, Green / Cycle	0.47	0.47	0.06	0.42	0.02	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.14	0.13	0.05	0.40	0.01	0.18	0.03
s, saturation flow rate [veh/h]	1721	1581	1714	1794	1714	1800	1530
c, Capacity [veh/h]	835	774	105	747	30	671	570
d1, Uniform Delay [s]	19.74	19.45	55.46	33.85	58.49	28.85	24.26
k, delay calibration	0.50	0.50	0.11	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	0.85	10.73	9.20	14.32	0.55	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.27	0.76	0.95	0.54	0.49	0.07
d, Delay for Lane Group [s/veh]	20.59	20.30	66.19	43.06	72.81	29.40	24.31
Lane Group LOS	C	C	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.24	3.71	2.70	21.46	0.60	7.30	0.77
50th-Percentile Queue Length [ft/ln]	105.99	92.78	67.48	536.54	15.01	182.3	19.17
95th-Percentile Queue Length [veh/ln]	7.62	6.68	4.86	29.06	1.08	11.72	1.38
95th-Percentile Queue Length [ft/ln]	190.41	167.01	121.46	726.48	27.03	293.1	34.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.59	20.59	20.59	20.30	20.30	20.30	66.19	43.06	43.06	72.81	29.40	24.31
Movement LOS	C	C	C	C	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	20.59			20.30			45.39			30.67		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	35.08											
Intersection LOS	D											
Intersection V/C	0.543											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	1.917	1.981	2.462	0.000
Crosswalk LOS	A	A	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	200
d_b, Bicycle Delay [s]	42.50	42.50	5.40	48.60
l_b,int, Bicycle LOS Score for Intersection	1.947	1.903	2.866	2.193
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	5	19	54	26	3	0	14	23	8	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	9	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	58	60	29	3	0	16	26	9	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	15	16	8	1	0	4	7	2	3
Total Analysis Volume [veh/h]	6	61	63	31	3	0	17	27	9	14
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	14	14
g / C, Green / Cycle	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.10	0.04
s, saturation flow rate [veh/h]	1586	1578
c, Capacity [veh/h]	228	222
d1, Uniform Delay [s]	52.03	48.69
k, delay calibration	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	4.22	0.75
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.30
d, Delay for Lane Group [s/veh]	56.26	49.44
Lane Group LOS	E	D
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	5.12	1.90
50th-Percentile Queue Length [ft/ln]	127.93	47.43
95th-Percentile Queue Length [veh/ln]	8.83	3.42
95th-Percentile Queue Length [ft/ln]	220.67	85.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.26	56.26	56.26	56.26	56.26	49.44	49.44	49.44	49.44	49.44
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	56.26					49.44				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	29.17									
Intersection LOS	C									
Intersection V/C	0.552									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.896	1.986
Crosswalk LOS	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.725	1.619
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	8	128	402	18	1	6	12	184	18	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	6	0	0	0	1	0	0
Site-Generated Trips [veh/h]	0	0	19	29	0	0	0	19	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	143	469	55	1	7	13	226	20	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	38	123	14	0	2	3	59	5	3
Total Analysis Volume [veh/h]	9	151	494	58	1	7	14	238	21	11
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	57	0	0	9	0	57	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	76	70	76	66	66
g / C, Green / Cycle	0.63	0.58	0.63	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.13	0.31	0.02	0.13	0.02
s, saturation flow rate [veh/h]	1188	1767	920	1800	1530
c, Capacity [veh/h]	756	1024	491	993	844
d1, Uniform Delay [s]	9.25	15.45	10.78	13.89	12.31
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.64	2.05	0.04	0.57	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.54	0.04	0.24	0.04
d, Delay for Lane Group [s/veh]	9.89	17.49	10.82	14.46	12.40
Lane Group LOS	A	B	B	B	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.77	9.52	0.20	3.46	0.41
50th-Percentile Queue Length [ft/ln]	44.32	238.10	5.06	86.52	10.33
95th-Percentile Queue Length [veh/ln]	3.19	14.59	0.36	6.23	0.74
95th-Percentile Queue Length [ft/ln]	79.78	364.63	9.10	155.74	18.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.89	9.89	17.49	17.49	17.49	10.82	10.82	14.46	12.40	12.40
Movement LOS	A	A	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	15.79					13.97				
Approach LOS	B					B				
d_I, Intersection Delay [s/veh]	29.17									
Intersection LOS	C									
Intersection V/C	0.552									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.449	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	883
d_b, Bicycle Delay [s]	18.70	18.70
l_b,int, Bicycle LOS Score for Intersection	2.485	1.999
Bicycle LOS	B	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	7	16	152	12	4	4	7	52	62	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	18	170	13	4	4	8	58	69	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	5	45	3	1	1	2	15	18	1
Total Analysis Volume [veh/h]	8	19	179	14	4	4	8	61	73	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	35	0	0	0	0	35	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	18
g / C, Green / Cycle	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.13	0.04	0.05
s, saturation flow rate [veh/h]	1719	1669	1530
c, Capacity [veh/h]	289	283	227
d1, Uniform Delay [s]	49.92	45.35	45.75
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	4.45	0.48	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.26	0.33
d, Delay for Lane Group [s/veh]	54.37	45.82	46.59
Lane Group LOS	D	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.93	1.98	2.07
50th-Percentile Queue Length [ft/ln]	173.16	49.49	51.66
95th-Percentile Queue Length [veh/ln]	11.24	3.56	3.72
95th-Percentile Queue Length [ft/ln]	281.07	89.09	92.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.37	54.37	54.37	54.37	54.37	45.82	45.82	45.82	46.59	46.59
Movement LOS	D	D	D	D	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	54.37					46.21				
Approach LOS	D					D				
d_I, Intersection Delay [s/veh]	29.17									
Intersection LOS	C									
Intersection V/C	0.552									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.997	2.278
Crosswalk LOS	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	517
d_b, Bicycle Delay [s]	33.00	33.00
l_b,int, Bicycle LOS Score for Intersection	1.875	1.794
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	33.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	956	47	48	575	25	53	305	64	44	212	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	37	0	10	50	0	0	0	0	0	1	12
Site-Generated Trips [veh/h]	0	12	0	29	12	0	0	19	0	0	19	30
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	1120	53	93	706	28	59	361	72	49	257	122
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	295	14	24	186	7	16	95	19	13	68	32
Total Analysis Volume [veh/h]	204	1179	56	98	743	29	62	380	76	52	271	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	38	67	0	14	43	0	11	29	0	10	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	73	73	8	65	65	6	18	18	5	17	17
g / C, Green / Cycle	0.14	0.61	0.61	0.07	0.54	0.54	0.05	0.15	0.15	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.12	0.35	0.35	0.06	0.22	0.22	0.04	0.13	0.13	0.03	0.12	0.12
s, saturation flow rate [veh/h]	1714	1800	1771	1714	1800	1776	1714	1800	1698	1714	1800	1610
c, Capacity [veh/h]	236	1090	1073	121	970	957	79	273	257	66	260	232
d1, Uniform Delay [s]	50.66	14.24	14.26	54.98	16.27	16.27	56.65	49.61	49.70	57.19	49.66	49.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.21	2.16	2.21	12.05	1.23	1.25	15.57	7.50	8.50	18.04	5.61	7.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.57	0.57	0.81	0.40	0.40	0.79	0.85	0.87	0.78	0.80	0.82
d, Delay for Lane Group [s/veh]	59.87	16.40	16.48	67.03	17.51	17.52	72.23	57.11	58.20	75.22	55.27	57.06
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.60	10.37	10.28	3.33	6.51	6.43	2.20	7.38	7.12	1.90	6.42	6.04
50th-Percentile Queue Length [ft/ln]	164.9	259.3	256.9	83.14	162.6	160.6	55.04	184.3	178.0	47.40	160.5	150.9
95th-Percentile Queue Length [veh/ln]	10.81	15.66	15.54	5.99	10.69	10.58	3.96	11.83	11.50	3.41	10.58	10.07
95th-Percentile Queue Length [ft/ln]	270.2	391.4	388.4	149.6	267.2	264.6	99.06	295.7	287.4	85.32	264.4	251.6

Movement, Approach, & Intersection Results

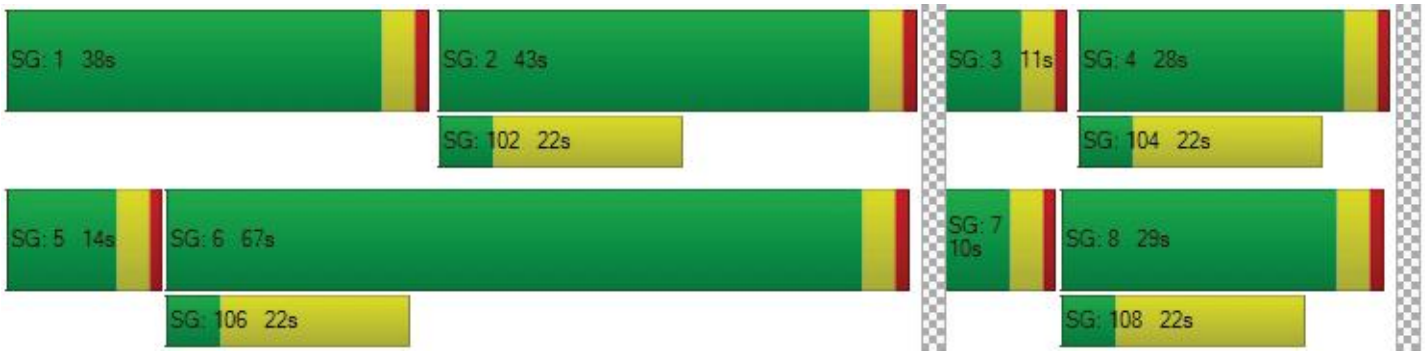
d_M, Delay for Movement [s/veh]	59.87	16.44	16.48	67.03	17.51	17.52	72.23	57.53	58.20	75.22	55.69	57.06
Movement LOS	E	B	B	E	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	22.60			23.09			59.39			58.33		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	33.46											
Intersection LOS	C											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.766	2.752	2.514	2.628
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	650	417	400
d_b, Bicycle Delay [s]	13.54	27.34	37.60	38.40
l_b,int, Bicycle LOS Score for Intersection	2.747	2.277	1.987	1.932
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	45.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.786

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	182	958	368	67	880	54	92	340	135	232	281	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	2	21	0	4	21	0	0	1	3	0	2	6
Site-Generated Trips [veh/h]	19	22	0	10	24	0	0	2	17	0	2	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	225	1116	412	89	1031	60	103	384	171	260	319	100
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	59	294	108	23	271	16	27	101	45	68	84	26
Total Analysis Volume [veh/h]	237	1175	434	94	1085	63	108	404	180	274	336	105
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	50	0	11	40	0	29	36	0	23	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	55	55	7	45	45	9	23	23	19	33	33
g / C, Green / Cycle	0.14	0.46	0.46	0.06	0.37	0.37	0.08	0.19	0.19	0.16	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.14	0.34	0.28	0.05	0.32	0.04	0.06	0.17	0.17	0.16	0.13	0.13
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1615	1714	1800	1655
c, Capacity [veh/h]	243	1564	698	100	1278	571	136	349	313	271	491	452
d1, Uniform Delay [s]	51.30	26.99	24.76	56.29	34.52	24.60	54.29	47.01	47.10	50.50	36.36	36.39
k, delay calibration	0.12	0.50	0.50	0.11	0.50	0.50	0.11	0.19	0.19	0.19	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.33	3.38	4.14	29.25	7.16	0.39	10.01	11.60	13.61	35.67	0.69	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.75	0.62	0.94	0.85	0.11	0.79	0.88	0.89	1.01	0.47	0.47
d, Delay for Lane Group [s/veh]	74.62	30.37	28.90	85.54	41.68	25.00	64.30	58.61	60.71	86.17	37.05	37.15
Lane Group LOS	E	C	C	F	D	C	E	E	E	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.65	14.35	10.03	3.65	15.57	1.25	3.59	9.99	9.22	10.81	5.70	5.28
50th-Percentile Queue Length [ft/ln]	216.2	358.8	250.7	91.18	389.2	31.14	89.64	249.7	230.5	270.1	142.4	132.0
95th-Percentile Queue Length [veh/ln]	13.47	20.57	15.23	6.57	22.04	2.24	6.45	15.17	14.20	16.27	9.61	9.05
95th-Percentile Queue Length [ft/ln]	336.8	514.1	380.6	164.1	550.9	56.04	161.3	379.3	355.0	406.8	240.2	226.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.62	30.37	28.90	85.54	41.68	25.00	64.30	59.11	60.71	86.17	37.08	37.15
Movement LOS	E	C	C	F	D	C	E	E	E	F	D	D
d_A, Approach Delay [s/veh]	35.70			44.15			60.34			55.90		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	45.04											
Intersection LOS	D											
Intersection V/C	0.786											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.153	2.895	2.574	2.636
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	600	533	433
d_b, Bicycle Delay [s]	22.82	29.40	32.27	36.82
l_b,int, Bicycle LOS Score for Intersection	3.083	2.584	2.131	2.149
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.362

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	164	64	4	101	23	42	130	1	7	77	12
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	184	72	4	113	26	47	146	1	8	86	13
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	48	19	1	30	7	12	38	0	2	23	3
Total Analysis Volume [veh/h]	0	194	76	4	119	27	49	154	1	8	91	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	746	711	677	611	700
Degree of Utilization, x	0.36	0.21	0.30	0.16	0.02

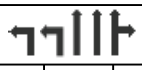
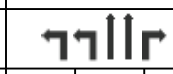
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.66	0.79	1.27	0.58	0.06
95th-Percentile Queue Length [ft]	41.42	19.82	31.66	14.38	1.53
Approach Delay [s/veh]	10.54	9.41	10.59	9.51	
Approach LOS	B	A	B	A	
Intersection Delay [s/veh]	10.17				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	36.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	937	121	64	940	30	75	256	340	136	91	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	16	0	0	11	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	169	0	0	135	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	1234	136	72	1199	34	84	287	381	152	102	99
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	76	325	36	19	316	9	22	76	100	40	27	26
Total Analysis Volume [veh/h]	303	1299	143	76	1262	36	88	302	401	160	107	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	42	0	10	36	0	19	57	0	11	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	57	57	6	51	51	8	34	34	7	33	33
g / C, Green / Cycle	0.10	0.47	0.47	0.05	0.42	0.42	0.06	0.29	0.29	0.06	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.28	0.28	0.04	0.25	0.25	0.05	0.09	0.26	0.05	0.03	0.07
s, saturation flow rate [veh/h]	3329	3427	1710	1714	3427	1775	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	333	1619	808	86	1448	750	113	980	437	194	954	426
d1, Uniform Delay [s]	53.47	23.21	23.22	56.66	26.67	26.67	55.20	33.56	41.47	55.89	32.25	33.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.57	1.61	3.21	24.10	1.78	3.40	11.04	0.18	11.43	8.46	0.05	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.59	0.59	0.89	0.59	0.59	0.78	0.31	0.92	0.82	0.11	0.24
d, Delay for Lane Group [s/veh]	63.03	24.82	26.44	80.77	28.44	30.07	66.25	33.73	52.90	64.36	32.30	33.81
Lane Group LOS	E	C	C	F	C	C	E	C	D	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.96	10.17	10.54	2.86	9.68	10.36	2.97	3.49	12.76	2.62	1.18	2.40
50th-Percentile Queue Length [ft/ln]	124.0	254.3	263.5	71.57	241.8	258.9	74.24	87.26	319.1	65.60	29.38	59.89
95th-Percentile Queue Length [veh/ln]	8.61	15.41	15.86	5.15	14.78	15.64	5.34	6.28	18.62	4.72	2.12	4.31
95th-Percentile Queue Length [ft/ln]	215.3	385.1	396.6	128.8	369.4	390.9	133.6	157.0	465.5	118.0	52.88	107.8

Movement, Approach, & Intersection Results

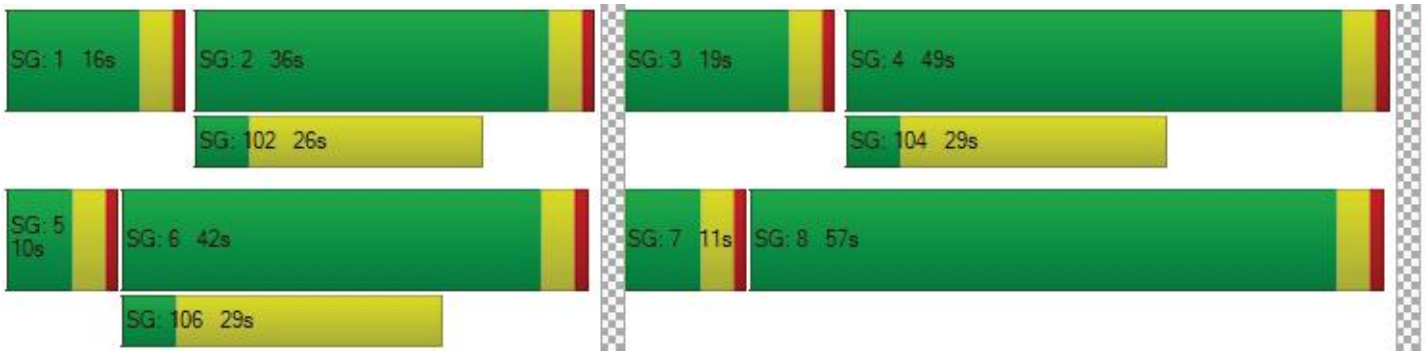
d_M, Delay for Movement [s/veh]	63.03	25.24	26.44	80.77	28.97	30.07	66.25	33.73	52.90	64.36	32.30	33.81
Movement LOS	E	C	C	F	C	C	E	C	D	E	C	C
d_A, Approach Delay [s/veh]	31.90			31.86			47.07			46.55		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.96											
Intersection LOS	D											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.008	2.669	2.733
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	533	883	750
d_b, Bicycle Delay [s]	28.02	32.27	18.70	23.44
l_b,int, Bicycle LOS Score for Intersection	2.519	2.315	2.212	1.866
Bicycle LOS	B	B	B	A

Sequence

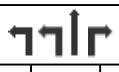
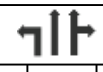
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	61.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	371	673	11	254	25	40	443	23	718	443	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	96	0	0	90	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	195	0	0	200	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	707	754	12	574	28	45	496	26	804	496	80
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	186	198	3	151	7	12	131	7	212	131	21
Total Analysis Volume [veh/h]	38	744	794	13	604	29	47	522	27	846	522	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	56	0	9	44	0	13	22	0	33	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	55	55	2	53	53	4	18	18	29	43	43
g / C, Green / Cycle	0.03	0.46	0.46	0.01	0.44	0.44	0.03	0.15	0.15	0.24	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.01	0.41	0.52	0.01	0.18	0.18	0.03	0.15	0.02	0.25	0.15	0.05
s, saturation flow rate [veh/h]	3329	1800	1530	1714	1800	1771	1714	3427	1530	3329	3427	1530
c, Capacity [veh/h]	103	828	704	25	800	787	60	514	230	805	1222	546
d1, Uniform Delay [s]	57.01	29.81	32.39	58.67	22.52	22.53	57.44	51.00	44.13	45.50	29.30	26.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.22	14.56	74.86	14.89	1.48	1.51	19.32	22.38	0.23	30.65	0.24	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.90	1.13	0.51	0.40	0.40	0.78	1.02	0.12	1.05	0.43	0.15
d, Delay for Lane Group [s/veh]	59.23	44.37	107.2	73.57	24.01	24.05	76.75	73.38	44.35	76.15	29.54	26.41
Lane Group LOS	E	D	F	E	C	C	E	F	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.60	22.51	34.34	0.50	6.38	6.30	1.74	9.29	0.71	15.30	5.75	1.67
50th-Percentile Queue Length [ft/ln]	14.93	562.7	858.5	12.45	159.5	157.5	43.45	232.3	17.85	382.6	143.8	41.73
95th-Percentile Queue Length [veh/ln]	1.08	30.29	48.00	0.90	10.53	10.42	3.13	14.40	1.28	22.35	9.69	3.00
95th-Percentile Queue Length [ft/ln]	26.88	757.2	1200.	22.40	263.1	260.4	78.20	359.8	32.12	558.8	242.2	75.11

Movement, Approach, & Intersection Results

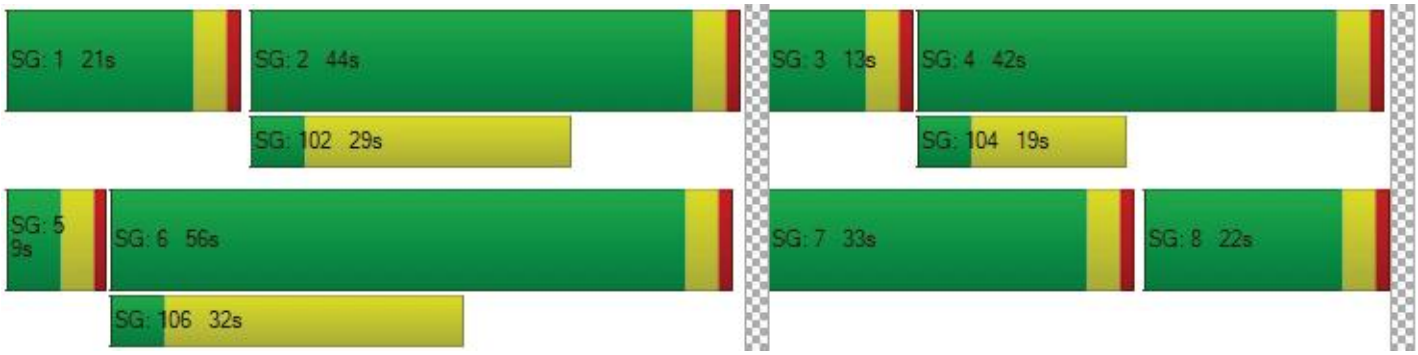
d_M, Delay for Movement [s/veh]	59.23	44.37	107.2	73.57	24.03	24.05	76.75	73.38	44.35	76.15	29.54	26.41
Movement LOS	E	D	F	E	C	C	E	F	D	F	C	C
d_A, Approach Delay [s/veh]	76.41			25.02			72.33			56.52		
Approach LOS	E			C			E			E		
d_I, Intersection Delay [s/veh]	61.30											
Intersection LOS	E											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.517	2.774	3.080
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	667	300	633
d_b, Bicycle Delay [s]	19.27	26.67	43.35	28.02
l_b,int, Bicycle LOS Score for Intersection	4.160	2.093	2.051	2.758
Bicycle LOS	D	B	B	C

Sequence

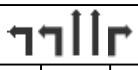
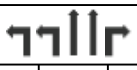
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	63.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	247	951	696	98	948	67	178	452	354	395	240	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	129	0	2	157	0	0	0	0	0	0	1
Site-Generated Trips [veh/h]	0	313	0	65	295	0	0	0	0	0	0	62
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	277	1507	780	177	1514	75	199	506	396	442	269	155
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	73	397	205	47	398	20	52	133	104	116	71	41
Total Analysis Volume [veh/h]	292	1586	821	186	1594	79	209	533	417	465	283	163
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	18	44	0	16	42	0	24	41	41	19	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	55	55	12	53	53	10	22	40	15	28	28
g / C, Green / Cycle	0.12	0.46	0.46	0.10	0.44	0.44	0.08	0.19	0.34	0.13	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.09	0.46	0.54	0.11	0.33	0.05	0.06	0.16	0.27	0.14	0.13	0.13
s, saturation flow rate [veh/h]	3329	3427	1530	1714	4903	1530	3329	3427	1530	3329	1800	1582
c, Capacity [veh/h]	388	1558	696	171	2148	670	274	641	516	416	413	363
d1, Uniform Delay [s]	51.32	32.72	32.72	54.00	28.08	19.98	53.91	46.96	36.25	52.50	41.01	41.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.95	27.36	95.49	57.51	2.37	0.36	4.37	2.89	12.84	60.59	1.26	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	1.02	1.18	1.09	0.74	0.12	0.76	0.83	0.81	1.12	0.57	0.57
d, Delay for Lane Group [s/veh]	54.27	60.08	128.2	111.5	30.45	20.34	58.28	49.85	49.10	113.0	42.27	42.45
Lane Group LOS	D	F	F	F	C	C	E	D	D	F	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.41	27.76	37.95	7.90	12.94	1.39	3.26	7.90	12.86	9.75	6.37	5.62
50th-Percentile Queue Length [ft/ln]	110.2	693.8	948.6	197.5	323.4	34.65	81.43	197.5	321.5	243.7	159.3	140.5
95th-Percentile Queue Length [veh/ln]	7.85	36.90	54.03	12.90	18.84	2.49	5.86	12.51	18.74	15.57	10.52	9.51
95th-Percentile Queue Length [ft/ln]	196.3	922.5	1350.	322.6	470.9	62.37	146.5	312.8	468.5	389.1	262.8	237.7

Movement, Approach, & Intersection Results

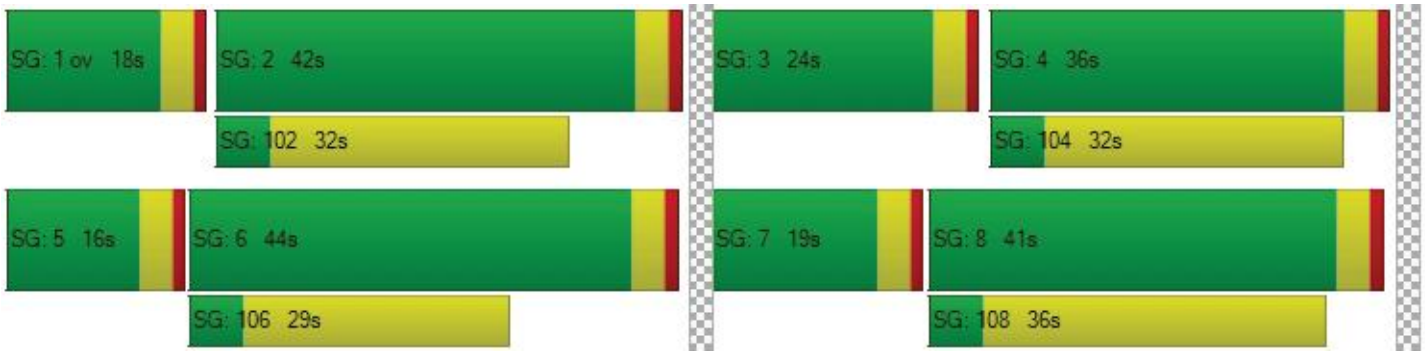
d_M, Delay for Movement [s/veh]	54.27	60.08	128.2	111.5	30.45	20.34	58.28	49.85	49.10	113.0	42.30	42.45
Movement LOS	D	F	F	F	C	C	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	80.18			38.13			51.10			78.46		
Approach LOS	F			D			D			E		
d_I, Intersection Delay [s/veh]	63.06											
Intersection LOS	E											
Intersection V/C	1.005											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.425	3.206	2.962	2.951
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	633	617	533
d_b, Bicycle Delay [s]	26.67	28.02	28.70	32.27
l_b,int, Bicycle LOS Score for Intersection	3.786	2.582	2.516	2.311
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.528

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	5	4	23	3	46	4	21	43	157	1081	15
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	65	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	6	4	26	3	52	4	24	48	176	1278	17
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	2	1	7	1	14	1	6	13	46	336	4
Total Analysis Volume [veh/h]	18	6	4	27	3	55	4	25	51	185	1345	18
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	9	9	88	82	82
g / C, Green / Cycle	0.07	0.07	0.73	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.28	0.38	0.38
s, saturation flow rate [veh/h]	1655	1446	844	1800	1792
c, Capacity [veh/h]	157	153	621	1229	1223
d1, Uniform Delay [s]	53.59	55.08	6.21	9.74	9.75
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.33	3.33	1.77	1.81	1.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.57	0.38	0.56	0.56
d, Delay for Lane Group [s/veh]	54.91	58.41	7.98	11.55	11.58
Lane Group LOS	D	E	A	B	B
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.65	2.74	1.98	9.07	9.06
50th-Percentile Queue Length [ft/ln]	41.36	68.46	49.48	226.83	226.57
95th-Percentile Queue Length [veh/ln]	2.98	4.93	3.56	14.01	14.00
95th-Percentile Queue Length [ft/ln]	74.45	123.23	89.07	350.33	349.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.91	54.91	54.91	54.91	58.41	58.41	58.41	58.41	7.98	7.98	11.57	11.58
Movement LOS	D	D	D	D	E	E	E	E	A	A	B	B
d_A, Approach Delay [s/veh]	54.91				58.41				11.04			
Approach LOS	D				E				B			
d_I, Intersection Delay [s/veh]	16.15											
Intersection LOS	B											
Intersection V/C	0.528											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.777	0.000	2.883
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	467
d_b, Bicycle Delay [s]	45.94	45.94	35.27
l_b,int, Bicycle LOS Score for Intersection	1.606	1.612	2.726
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	10	487	53	23	5	6	94	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200	1.1200
In-Process Volume [veh/h]	0	1	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	62	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	608	59	26	6	7	105	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	160	16	7	2	2	28	1
Total Analysis Volume [veh/h]	12	640	62	27	6	7	111	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	32	0	0	0	60	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	76	76	76	12
g / C, Green / Cycle	0.01	0.63	0.63	0.63	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.21	0.06	0.08
s, saturation flow rate [veh/h]	1714	1800	1800	1530	1551
c, Capacity [veh/h]	24	1141	1141	970	154
d1, Uniform Delay [s]	58.75	9.37	10.23	8.54	52.99
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.32	0.45	0.80	0.19	10.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.22	0.34	0.09	0.82
d, Delay for Lane Group [s/veh]	74.06	9.83	11.03	8.73	63.15
Lane Group LOS	E	A	B	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.46	2.91	4.81	0.93	4.16
50th-Percentile Queue Length [ft/ln]	11.60	72.72	120.17	23.24	104.01
95th-Percentile Queue Length [veh/ln]	0.84	5.24	8.40	1.67	7.49
95th-Percentile Queue Length [ft/ln]	20.89	130.89	210.07	41.82	187.21

Movement, Approach, & Intersection Results

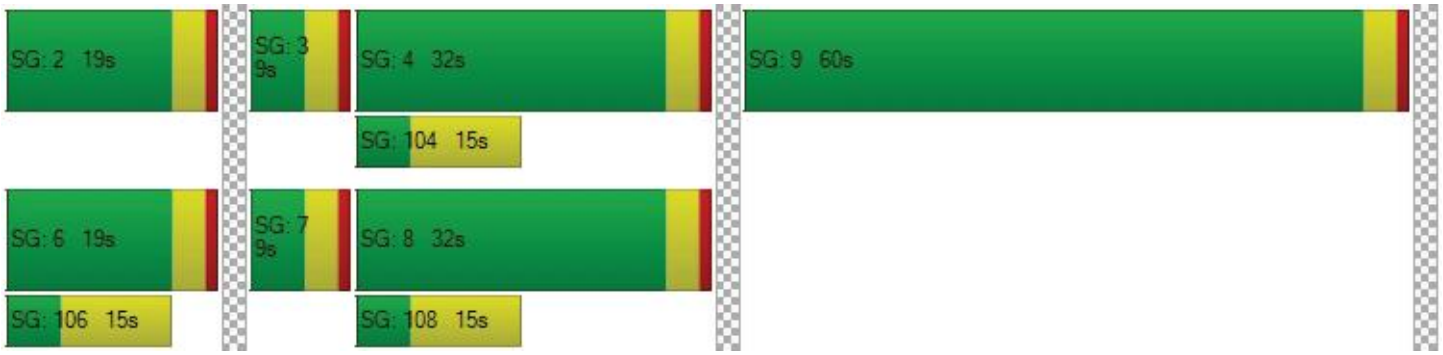
d_M, Delay for Movement [s/veh]	74.06	10.55	11.03	8.73	63.15	63.15	63.15	63.15
Movement LOS	E	B	B	A	E	E	E	E
d_A, Approach Delay [s/veh]	11.36				63.15			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	16.15							
Intersection LOS	B							
Intersection V/C	0.528							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.199
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	933
d_b, Bicycle Delay [s]	35.27	17.07
l_b,int, Bicycle LOS Score for Intersection	2.149	1.764
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	518.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.710

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	2	18	74	0	20	117	1003	7	7	509	125
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	2	0	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	65	0	0	62	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	2	20	83	0	22	131	1190	8	8	633	140
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	1	5	22	0	6	34	313	2	2	167	37
Total Analysis Volume [veh/h]	4	2	21	87	0	23	138	1253	8	8	666	147
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

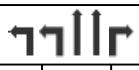
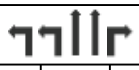
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.07	0.05	1.71	0.00	0.04	0.17	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	111.2	136.1	21.95	518.3	558.2	11.24	10.26	0.00	0.00	11.54	0.00	0.00
Movement LOS	F	F	C	F	F	B	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.82	0.82	0.82	8.40	8.40	0.12	0.60	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.42	20.42	20.42	209.9	209.9	2.99	15.01	0.00	0.00	1.09	0.00	0.00
d_A, Approach Delay [s/veh]	43.65			412.28			1.01			0.11		
Approach LOS	E			F			A			A		
d_I, Intersection Delay [s/veh]	20.38											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	52.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.839

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	553	970	285	96	540	41	70	663	405	158	753	183
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	34	0	0	50	0	0	2	0	0	1	3
Site-Generated Trips [veh/h]	62	12	0	0	12	0	0	0	65	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	681	1132	319	108	667	46	78	745	519	177	844	208
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	179	298	84	28	176	12	21	196	137	47	222	55
Total Analysis Volume [veh/h]	717	1192	336	114	702	48	82	784	546	186	888	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	30	51	0	12	33	0	9	46	0	11	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	47	47	8	29	29	5	42	42	7	44	44
g / C, Green / Cycle	0.22	0.39	0.39	0.07	0.24	0.24	0.04	0.35	0.35	0.06	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.22	0.35	0.22	0.07	0.21	0.21	0.02	0.23	0.36	0.06	0.32	0.32
s, saturation flow rate [veh/h]	3329	3427	1530	1714	1800	1760	3329	3427	1530	3329	1800	1679
c, Capacity [veh/h]	721	1342	599	114	435	425	132	1200	536	194	664	619
d1, Uniform Delay [s]	46.92	34.05	28.45	55.99	43.71	43.72	56.74	32.87	39.00	56.35	35.01	35.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.48	0.11	0.36	0.37
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.24	9.02	3.76	38.52	20.69	21.09	4.71	0.61	43.10	21.38	10.36	11.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	0.89	0.56	1.00	0.87	0.87	0.62	0.65	1.02	0.96	0.86	0.87
d, Delay for Lane Group [s/veh]	61.16	43.06	32.21	94.51	64.41	64.81	61.44	33.48	82.10	77.73	45.38	46.73
Lane Group LOS	E	D	C	F	E	E	E	C	F	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.04	17.58	8.12	4.67	13.26	13.01	1.31	9.65	21.89	3.38	17.08	16.29
50th-Percentile Queue Length [ft/ln]	300.9	439.4	202.8	116.7	331.4	325.3	32.78	241.2	547.1	84.61	426.9	407.3
95th-Percentile Queue Length [veh/ln]	17.73	24.45	12.79	8.21	19.23	18.93	2.36	14.74	29.96	6.09	23.85	22.91
95th-Percentile Queue Length [ft/ln]	443.2	611.3	319.6	205.3	480.7	473.2	59.00	368.5	749.0	152.3	596.3	572.8

Movement, Approach, & Intersection Results

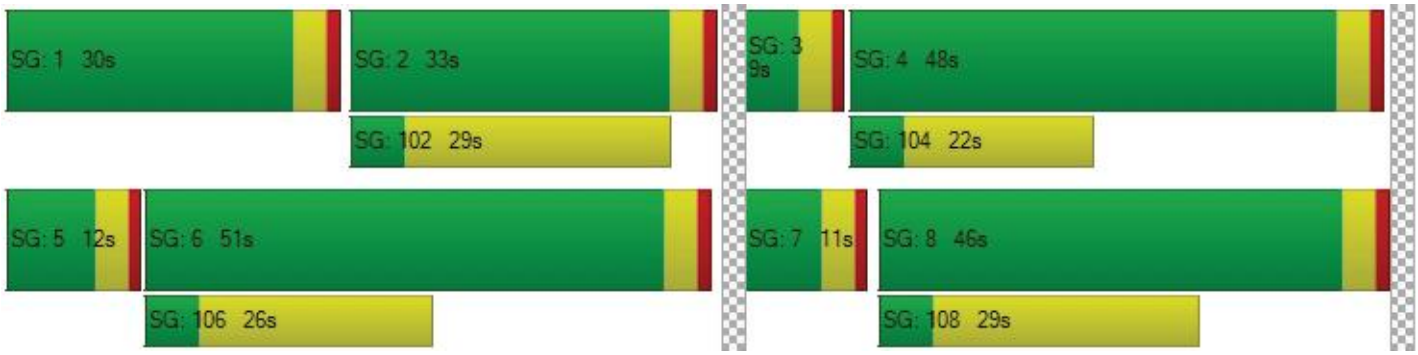
d_M, Delay for Movement [s/veh]	61.16	43.06	32.21	94.51	64.59	64.81	61.44	33.48	82.10	77.73	45.86	46.73
Movement LOS	E	D	C	F	E	E	E	C	F	E	D	D
d_A, Approach Delay [s/veh]	47.22			68.55			53.91			50.59		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	52.76											
Intersection LOS	D											
Intersection V/C	0.839											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.122	2.775	3.036	3.049
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	483	700	733
d_b, Bicycle Delay [s]	22.20	34.50	25.35	24.07
l_b,int, Bicycle LOS Score for Intersection	3.412	2.272	2.725	2.626
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	62.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.914

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	236	1176	727	154	1201	87	267	863	219	633	638	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	4	15	0	5	18	0	0	0	2	0	0	8
Site-Generated Trips [veh/h]	0	29	0	12	29	0	0	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	1361	814	189	1392	97	299	967	247	709	715	139
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	71	358	214	50	366	26	79	254	65	187	188	37
Total Analysis Volume [veh/h]	282	1433	857	199	1465	102	315	1018	260	746	753	146
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	40	40	10	36	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	41	68	6	37	37	14	34	34	23	43	53
g / C, Green / Cycle	0.08	0.34	0.57	0.05	0.31	0.31	0.12	0.28	0.28	0.19	0.36	0.44
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.56	0.06	0.30	0.30	0.09	0.25	0.25	0.22	0.22	0.05
s, saturation flow rate [veh/h]	3329	4903	1530	3329	3427	1741	3329	3427	1619	3329	3427	2708
c, Capacity [veh/h]	277	1682	869	166	1061	539	389	966	456	638	1223	1192
d1, Uniform Delay [s]	55.00	36.59	25.45	57.00	41.02	41.05	51.68	41.42	41.44	48.50	31.82	19.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.30	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.30	5.67	27.34	100.4	22.92	34.12	4.05	3.31	15.54	80.11	0.51	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.85	0.99	1.20	0.98	0.98	0.81	0.90	0.90	1.17	0.62	0.12
d, Delay for Lane Group [s/veh]	84.30	42.26	52.79	157.4	63.94	75.17	55.73	44.73	56.97	128.6	32.33	19.93
Lane Group LOS	F	D	D	F	E	E	E	D	E	F	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.32	13.72	29.03	4.84	18.37	20.37	4.84	12.67	13.54	16.60	9.03	1.22
50th-Percentile Queue Length [ft/ln]	132.9	342.8	725.7	121.1	459.3	509.3	121.0	316.8	338.4	414.8	225.8	30.60
95th-Percentile Queue Length [veh/ln]	9.15	19.79	37.86	8.72	25.40	27.78	8.45	18.51	19.57	25.14	13.96	2.20
95th-Percentile Queue Length [ft/ln]	228.7	494.7	946.6	218.0	635.1	694.4	211.2	462.8	489.3	628.5	349.0	55.07

Movement, Approach, & Intersection Results

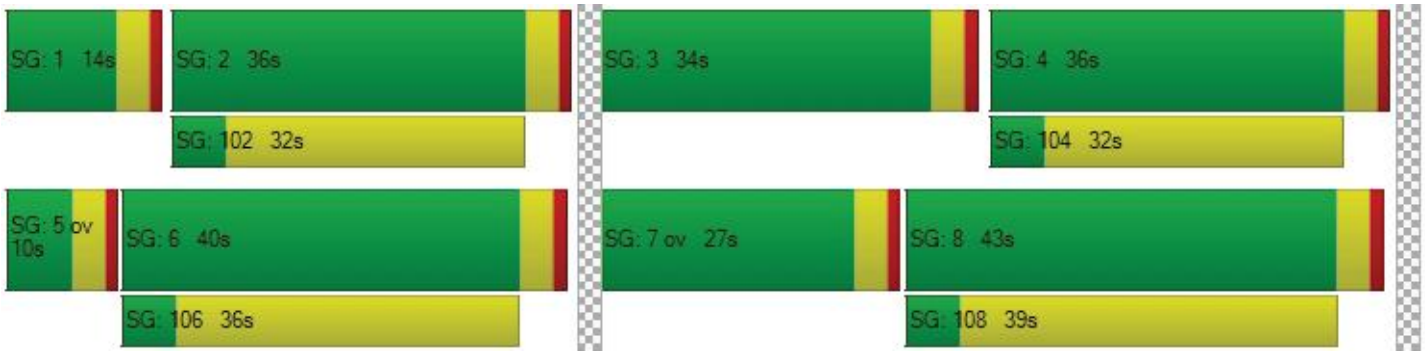
d_M, Delay for Movement [s/veh]	84.30	42.26	52.79	157.4	67.21	75.17	55.73	46.54	56.97	128.6	32.33	19.93
Movement LOS	F	D	D	F	E	E	E	D	E	F	C	B
d_A, Approach Delay [s/veh]	50.38			77.84			50.06			74.89		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	62.03											
Intersection LOS	E											
Intersection V/C	0.914											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.473	3.187	3.073	3.267
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.974	2.531	2.436	2.917
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.594

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	986	622	0	1033	422	0	0	0	347	0	432
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.120	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	16	0	0	5	6	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	169	0	0	12	123	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1289	622	0	1174	602	0	0	0	389	0	484
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	339	164	0	309	158	0	0	0	102	0	127
Total Analysis Volume [veh/h]	0	1357	655	0	1236	634	0	0	0	409	0	509
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	68	0	0	68	0	0	0	0	52	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85		27	27	27
g / C, Green / Cycle	0.71	0.71		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.40	0.25		0.18	0.19	0.20
s, saturation flow rate [veh/h]	3427	4903		1714	1585	1530
c, Capacity [veh/h]	2414	3453		393	363	351
d1, Uniform Delay [s]	8.69	7.02		43.54	44.15	44.44
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.95	0.29		3.60	5.24	6.33
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.36		0.79	0.84	0.86
d, Delay for Lane Group [s/veh]	9.64	7.31		47.15	49.39	50.77
Lane Group LOS	A	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.12	3.92		9.05	9.16	9.23
50th-Percentile Queue Length [ft/ln]	203.08	98.00		226.3	228.8	230.6
95th-Percentile Queue Length [veh/ln]	12.80	7.06		13.99	14.12	14.21
95th-Percentile Queue Length [ft/ln]	319.93	176.39		349.7	352.9	355.2

Movement, Approach, & Intersection Results

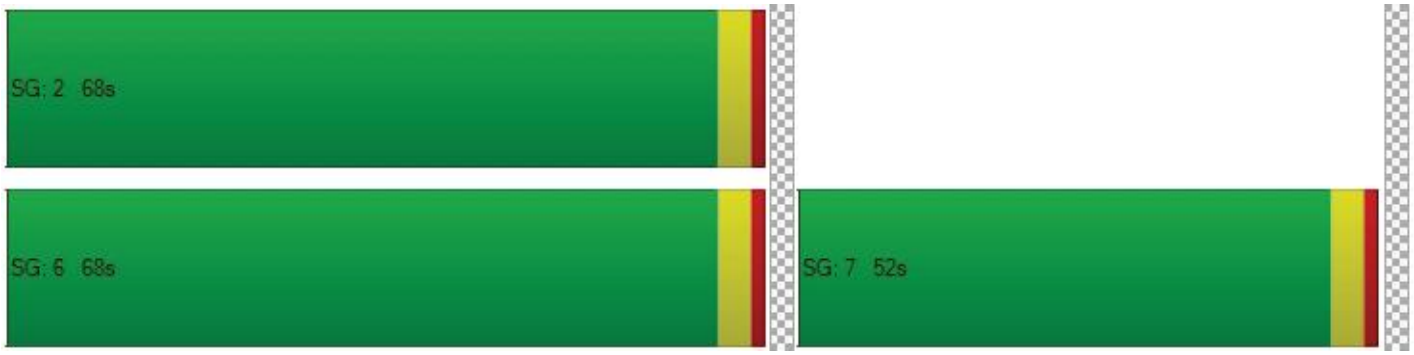
d_M, Delay for Movement [s/veh]	0.00	9.64	0.00	0.00	7.31	0.00	0.00	0.00	0.00	47.70	0.00	50.22
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	9.64			7.31			0.00			49.09		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.13											
Intersection LOS	B											
Intersection V/C	0.594											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	1067	0	800
d_b, Bicycle Delay [s]	13.07	13.07	60.00	21.60
l_b,int, Bicycle LOS Score for Intersection	2.679	2.239	4.132	3.074
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	59.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.996

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1339	389	0	1805	0	0	0	0	518	0	492
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.120	1.000	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	47	0	0	150	0	0	0	0	0	0	82
Site-Generated Trips [veh/h]	0	72	0	0	282	12	0	0	0	0	0	240
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1619	436	0	2454	12	0	0	0	580	0	873
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	426	115	0	646	3	0	0	0	153	0	230
Total Analysis Volume [veh/h]	0	1704	459	0	2583	13	0	0	0	611	0	919
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	49	0	0	49	0	0	0	0	71	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	45	45		67	67
g / C, Green / Cycle	0.38	0.38		0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.35	0.40		0.18	0.60
s, saturation flow rate [veh/h]	4903	6538		3329	1530
c, Capacity [veh/h]	1839	2452		1859	854
d1, Uniform Delay [s]	35.92	37.50		14.34	26.50
k, delay calibration	0.50	0.50		0.11	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	9.59	34.28		0.10	53.26
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.93	1.05		0.33	1.08
d, Delay for Lane Group [s/veh]	45.51	71.78		14.44	79.76
Lane Group LOS	D	F		B	F
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	17.26	23.44		4.46	35.53
50th-Percentile Queue Length [ft/ln]	431.46	585.92		111.40	888.37
95th-Percentile Queue Length [veh/ln]	24.07	32.54		7.92	48.10
95th-Percentile Queue Length [ft/ln]	601.79	813.53		197.94	1202.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	45.51	0.00	0.00	71.78	0.00	0.00	0.00	0.00	14.44	0.00	79.76
Movement LOS		D			F					B		F
d_A, Approach Delay [s/veh]	45.51			71.78			0.00			53.67		
Approach LOS	D			E			A			D		
d_I, Intersection Delay [s/veh]	59.32											
Intersection LOS	E											
Intersection V/C	0.996											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	750	0	1117
d_b, Bicycle Delay [s]	23.44	23.44	60.00	11.70
l_b,int, Bicycle LOS Score for Intersection	2.497	2.625	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	20.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1075	256	0	892	474	0	0	0	240	0	498
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.120	1.000	1.120
In-Process Volume [veh/h]	0	8	0	0	50	0	0	0	0	0	0	26
Site-Generated Trips [veh/h]	0	12	0	0	77	0	0	0	0	0	0	62
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1224	256	0	1126	474	0	0	0	269	0	646
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	322	67	0	296	125	0	0	0	71	0	170
Total Analysis Volume [veh/h]	0	1288	269	0	1185	499	0	0	0	283	0	680
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	46	0	0	46	0	0	0	0	74	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	78	78		34	34
g / C, Green / Cycle	0.65	0.65		0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.26	0.35		0.17	0.25
s, saturation flow rate [veh/h]	4903	3427		1714	2708
c, Capacity [veh/h]	3186	2227		486	768
d1, Uniform Delay [s]	9.98	11.25		36.88	41.12
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.38	0.92		1.11	3.65
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.53		0.58	0.89
d, Delay for Lane Group [s/veh]	10.37	12.17		37.99	44.77
Lane Group LOS	B	B		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	5.22	8.22		7.28	9.93
50th-Percentile Queue Length [ft/ln]	130.41	205.52		181.88	248.34
95th-Percentile Queue Length [veh/ln]	8.96	12.92		11.70	15.10
95th-Percentile Queue Length [ft/ln]	224.06	323.07		292.47	377.57

Movement, Approach, & Intersection Results

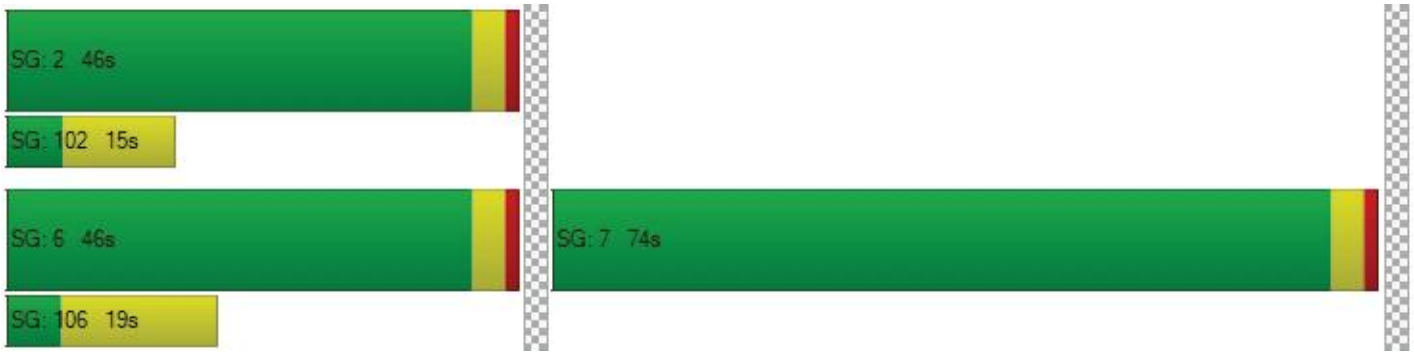
d_M, Delay for Movement [s/veh]	0.00	10.37	0.00	0.00	12.17	0.00	0.00	0.00	0.00	37.99	0.00	44.77
Movement LOS		B			B					D		D
d_A, Approach Delay [s/veh]	10.37			12.17			0.00			42.78		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	20.07											
Intersection LOS	C											
Intersection V/C	0.597											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.381
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	0	1167
d_b, Bicycle Delay [s]	25.35	25.35	60.00	10.42
l_b,int, Bicycle LOS Score for Intersection	2.268	2.537	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.608

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1287	562	0	969	394	298	0	392	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.120	1.000	1.000	1.120	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	0	5	0	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	157	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1461	562	0	1102	394	463	0	392	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	384	148	0	290	104	122	0	103	0	0	0
Total Analysis Volume [veh/h]	0	1538	592	0	1160	415	487	0	413	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	34	0	0	34	0	86	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	76	76	36	36	
g / C, Green / Cycle	0.63	0.63	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.31	0.34	0.15	0.27	
s, saturation flow rate [veh/h]	4903	3427	3329	1530	
c, Capacity [veh/h]	3102	2169	1001	460	
d1, Uniform Delay [s]	11.79	12.23	34.38	40.20	
k, delay calibration	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.57	0.95	0.37	6.52	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.50	0.53	0.49	0.90	
d, Delay for Lane Group [s/veh]	12.36	13.18	34.75	46.72	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	7.13	8.47	5.89	12.41	
50th-Percentile Queue Length [ft/ln]	178.32	211.67	147.15	310.14	
95th-Percentile Queue Length [veh/ln]	11.51	13.24	9.86	18.18	
95th-Percentile Queue Length [ft/ln]	287.82	330.97	246.62	454.55	

Movement, Approach, & Intersection Results

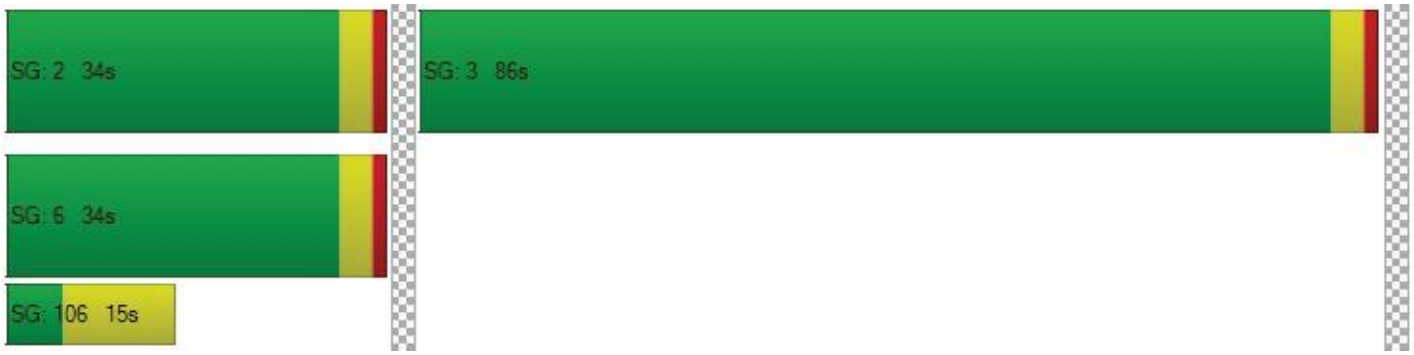
d_M, Delay for Movement [s/veh]	0.00	12.36	0.00	0.00	13.18	0.00	34.75	0.00	46.72	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	12.36			13.18			40.24			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.60											
Intersection LOS	B											
Intersection V/C	0.608											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	1367	0
d_b, Bicycle Delay [s]	33.75	33.75	6.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.406	2.517	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	50.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.900

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1236	419	513	1182	0	509	43	548	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	39	0	123	28	0	7	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	0	222	60	0	10	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1483	469	920	1412	0	587	48	614	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	390	123	242	372	0	154	13	162	0	0	0
Total Analysis Volume [veh/h]	0	1561	494	968	1486	0	618	51	646	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	43	0	39	82	0	0	38	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	35	78	34	34	34	
g / C, Green / Cycle	0.33	0.33	0.29	0.65	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.32	0.29	0.30	0.26	0.27	0.29	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	1714	1630	1530	
c, Capacity [veh/h]	1594	497	971	3187	486	462	434	
d1, Uniform Delay [s]	40.11	40.37	42.45	10.55	41.40	42.15	43.00	
k, delay calibration	0.50	0.50	0.11	0.50	0.38	0.42	0.46	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	18.19	38.78	12.73	0.49	18.53	27.57	44.49	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.98	0.99	1.00	0.47	0.90	0.95	1.01	
d, Delay for Lane Group [s/veh]	58.29	79.16	55.17	11.04	59.93	69.72	87.49	
Lane Group LOS	E	E	E	B	E	E	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	17.66	19.67	15.86	6.39	14.87	16.13	18.06	
50th-Percentile Queue Length [ft/ln]	441.44	491.70	396.53	159.68	371.7	403.2	451.5	
95th-Percentile Queue Length [veh/ln]	24.55	26.94	22.39	10.53	21.19	22.72	25.21	
95th-Percentile Queue Length [ft/ln]	613.72	673.53	559.81	263.30	529.8	567.9	630.2	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	58.29	79.16	55.17	11.04	0.00	62.78	69.72	81.78	0.00	0.00	0.00
Movement LOS		E	E	E	B		E	E	F			
d_A, Approach Delay [s/veh]	63.31			28.45			72.38			0.00		
Approach LOS	E			C			E			A		
d_I, Intersection Delay [s/veh]	50.67											
Intersection LOS	D											
Intersection V/C	0.900											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.467	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	1300	567	0
d_b, Bicycle Delay [s]	27.34	7.35	30.82	60.00
l_b,int, Bicycle LOS Score for Intersection	2.690	2.909	3.729	4.132
Bicycle LOS	B	C	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	33.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	893	509	501	647	0	451	7	212	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.120	1.000	1.000	1.000
In-Process Volume [veh/h]	0	8	0	45	5	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	65	12	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1020	570	671	742	0	505	8	237	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	268	150	177	195	0	133	2	62	0	0	0
Total Analysis Volume [veh/h]	0	1074	600	706	781	0	532	8	249	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	40	0	50	90	0	0	30	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	57	57	29	89	23	23	
g / C, Green / Cycle	0.47	0.47	0.24	0.74	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.31	0.39	0.21	0.23	0.16	0.17	
s, saturation flow rate [veh/h]	3427	1530	3329	3427	3329	1537	
c, Capacity [veh/h]	1612	720	799	2549	631	291	
d1, Uniform Delay [s]	24.51	27.69	43.97	5.10	46.91	47.32	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.21	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.20	10.94	3.45	0.31	3.17	14.96	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.67	0.83	0.88	0.31	0.84	0.88	
d, Delay for Lane Group [s/veh]	26.71	38.64	47.42	5.41	50.08	62.29	
Lane Group LOS	C	D	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	12.02	16.74	10.45	2.97	7.92	8.66	
50th-Percentile Queue Length [ft/ln]	300.57	418.53	261.20	74.19	197.99	216.50	
95th-Percentile Queue Length [veh/ln]	17.71	23.45	15.75	5.34	12.53	13.49	
95th-Percentile Queue Length [ft/ln]	442.73	586.28	393.73	133.53	313.37	337.15	

Movement, Approach, & Intersection Results

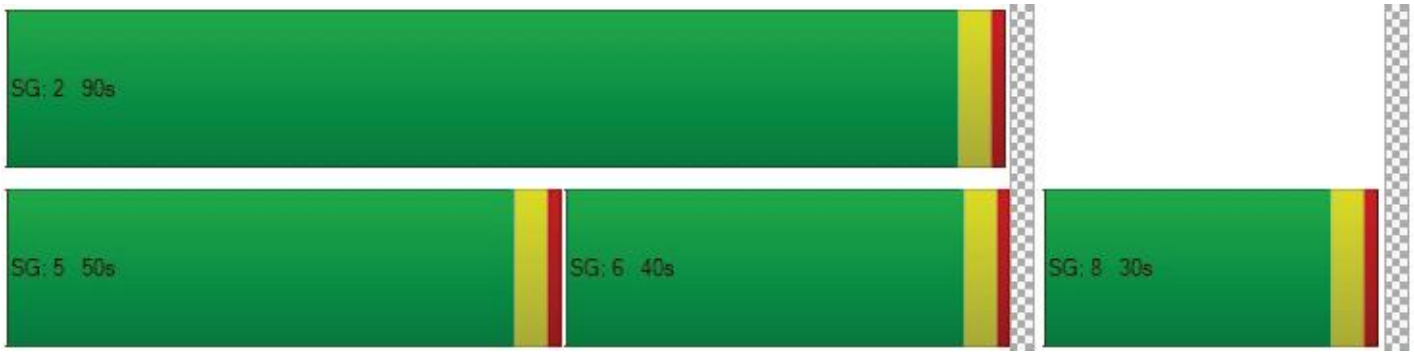
d_M, Delay for Movement [s/veh]	0.00	26.71	38.64	47.42	5.41	0.00	50.08	62.29	62.29	0.00	0.00	0.00
Movement LOS		C	D	D	A		D	E	E			
d_A, Approach Delay [s/veh]	30.99			25.36			54.05			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	33.47											
Intersection LOS	C											
Intersection V/C	0.771											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	1433	433	0
d_b, Bicycle Delay [s]	29.40	4.82	36.82	60.00
l_b,int, Bicycle LOS Score for Intersection	2.480	2.786	2.861	4.132
Bicycle LOS	B	C	C	D

Sequence

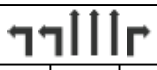
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	75.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.164

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	512	1223	467	480	861	796	914	0	457	463	0	566
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.000	1.120	1.120	1.000	1.120
In-Process Volume [veh/h]	0	8	0	16	5	0	0	0	0	0	0	11
Site-Generated Trips [veh/h]	0	12	0	17	12	0	0	0	0	0	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	573	1390	523	571	981	892	1024	0	512	519	0	662
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	151	366	138	150	258	235	269	0	135	137	0	174
Total Analysis Volume [veh/h]	603	1463	551	601	1033	939	1078	0	539	546	0	697
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	87	0	0	87	0	33	0	0	33	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83	83	83	29	29
g / C, Green / Cycle	0.69	0.69	0.69	0.69	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.56	0.30	0.84	0.21	0.32	0.16
s, saturation flow rate [veh/h]	1077	4903	715	4903	3329	3329
c, Capacity [veh/h]	700	3391	451	3391	805	805
d1, Uniform Delay [s]	22.48	8.13	31.61	7.23	45.50	41.27
k, delay calibration	0.50	0.50	0.50	0.50	0.19	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.22	0.40	164.86	0.23	156.27	1.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.43	1.33	0.30	1.34	0.68
d, Delay for Lane Group [s/veh]	35.70	8.53	196.47	7.46	201.77	42.29
Lane Group LOS	D	A	F	A	F	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.58	5.27	17.17	3.30	29.34	7.43
50th-Percentile Queue Length [ft/ln]	214.51	131.63	429.36	82.46	733.52	185.65
95th-Percentile Queue Length [veh/ln]	13.38	9.03	28.98	5.94	44.34	11.90
95th-Percentile Queue Length [ft/ln]	334.61	225.71	724.44	148.42	1108.59	297.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.70	8.53	0.00	196.4	7.46	0.00	201.7	0.00	0.00	42.29	0.00	0.00
Movement LOS	D	A		F	A		F			D		
d_A, Approach Delay [s/veh]	16.46			76.98			201.77			42.29		
Approach LOS	B			E			F			D		
d_I, Intersection Delay [s/veh]	75.20											
Intersection LOS	E											
Intersection V/C	1.164											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.501	3.394
Crosswalk LOS	F	F	D	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1383	1383	483	483
d_b, Bicycle Delay [s]	5.70	5.70	34.50	34.50
l_b,int, Bicycle LOS Score for Intersection	2.696	2.458	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	44.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.808

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	174	1468	329	62	520	118	237	979	186	107	541	102
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	8	8	0	0	0	8	0	5	5	5
Site-Generated Trips [veh/h]	0	0	12	12	0	0	0	12	0	12	12	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	1644	388	89	582	132	265	1116	208	137	623	131
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	433	102	23	153	35	70	294	55	36	164	34
Total Analysis Volume [veh/h]	205	1731	408	94	613	139	279	1175	219	144	656	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	37	48	0	9	20	0	35	48	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	45	45	5	40	40	22	43	43	11	33	33
g / C, Green / Cycle	0.08	0.37	0.37	0.04	0.33	0.33	0.18	0.36	0.36	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.35	0.27	0.03	0.13	0.09	0.16	0.34	0.14	0.08	0.19	0.09
s, saturation flow rate [veh/h]	3329	4903	1530	3329	4903	1530	1714	3427	1530	1714	3427	1530
c, Capacity [veh/h]	274	1832	572	139	1632	509	309	1233	550	157	930	415
d1, Uniform Delay [s]	53.85	36.40	32.11	56.71	30.51	29.37	48.17	37.42	28.70	54.04	39.40	35.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.18	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.07	11.53	7.43	5.67	0.66	1.32	14.69	5.14	0.47	18.26	0.99	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.95	0.71	0.68	0.38	0.27	0.90	0.95	0.40	0.92	0.71	0.33
d, Delay for Lane Group [s/veh]	57.92	47.93	39.54	62.38	31.18	30.69	62.87	42.56	29.17	72.30	40.39	35.48
Lane Group LOS	E	D	D	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.18	18.01	11.19	1.51	4.62	3.14	9.41	17.38	4.79	5.10	8.81	3.30
50th-Percentile Queue Length [ft/ln]	79.58	450.1	279.8	37.87	115.3	78.58	235.1	434.4	119.7	127.5	220.2	82.50
95th-Percentile Queue Length [veh/ln]	5.73	24.97	16.68	2.73	8.14	5.66	14.44	24.22	8.38	8.81	13.68	5.94
95th-Percentile Queue Length [ft/ln]	143.2	624.1	416.9	68.17	203.4	141.4	360.9	605.4	209.4	220.2	341.9	148.5

Movement, Approach, & Intersection Results

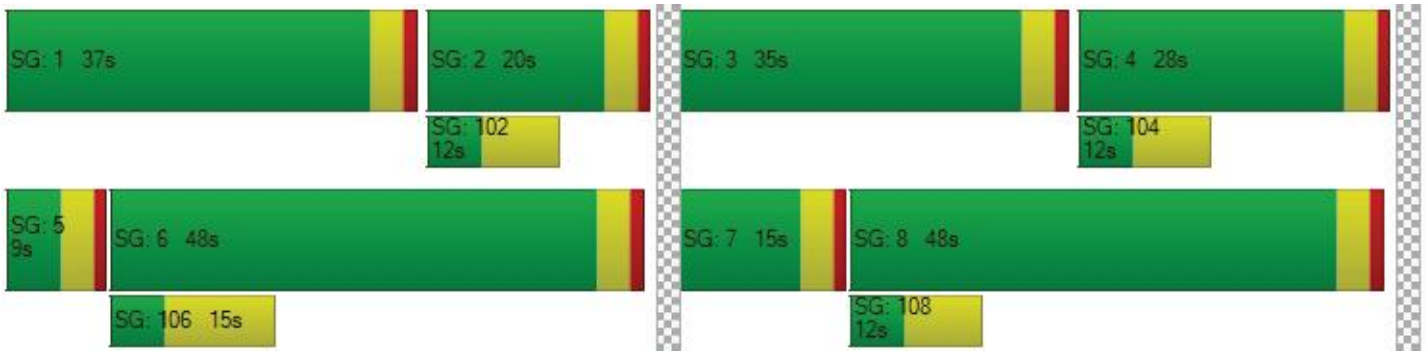
d_M, Delay for Movement [s/veh]	57.92	47.93	39.54	62.38	31.18	30.69	62.87	42.56	29.17	72.30	40.39	35.48
Movement LOS	E	D	D	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	47.34			34.56			44.19			44.57		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	44.12											
Intersection LOS	D											
Intersection V/C	0.808											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.224	3.189	2.902	2.893
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	267	733	400
d_b, Bicycle Delay [s]	24.07	45.07	24.07	38.40
l_b,int, Bicycle LOS Score for Intersection	2.849	2.025	2.940	2.333
Bicycle LOS	C	B	C	B

Sequence

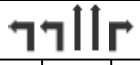
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	41.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.755

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	791	257	87	219	179	347	879	21	68	490	173
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	0	0	0	0	0	0	24	0	0	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	36	0	0	36	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	886	288	97	245	200	389	1044	24	76	600	194
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	233	76	26	64	53	102	275	6	20	158	51
Total Analysis Volume [veh/h]	65	933	303	102	258	211	409	1099	25	80	632	204
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	23	37	0	12	26	26	41	62	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	40	40	8	42	77	31	51	51	5	25	37
g / C, Green / Cycle	0.05	0.33	0.33	0.07	0.35	0.64	0.26	0.43	0.43	0.04	0.21	0.31
(v / s)_i Volume / Saturation Flow Rate	0.04	0.27	0.20	0.06	0.08	0.14	0.24	0.31	0.31	0.02	0.18	0.13
s, saturation flow rate [veh/h]	1714	3427	1530	1714	3427	1530	1714	1800	1786	3329	3427	1530
c, Capacity [veh/h]	86	1141	509	114	1198	981	443	771	765	129	716	473
d1, Uniform Delay [s]	56.30	36.69	33.30	55.57	27.44	8.96	43.35	28.54	28.58	56.80	46.05	33.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.29	0.20	0.21	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.88	6.56	5.05	19.99	0.41	0.50	18.60	2.54	2.59	4.76	3.83	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.82	0.59	0.89	0.22	0.22	0.92	0.73	0.73	0.62	0.88	0.43
d, Delay for Lane Group [s/veh]	69.18	43.25	38.35	75.56	27.86	9.46	61.95	31.08	31.17	61.56	49.87	33.70
Lane Group LOS	E	D	D	E	C	A	E	C	C	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.25	13.44	8.03	3.70	2.69	2.35	14.02	13.81	13.76	1.28	9.48	4.83
50th-Percentile Queue Length [ft/ln]	56.31	336.1	200.6	92.40	67.17	58.80	350.4	345.1	344.0	32.01	237.0	120.6
95th-Percentile Queue Length [veh/ln]	4.05	19.46	12.67	6.65	4.84	4.23	20.16	19.90	19.85	2.30	14.53	8.43
95th-Percentile Queue Length [ft/ln]	101.3	486.4	316.8	166.3	120.9	105.8	504.0	497.5	496.1	57.62	363.2	210.7

Movement, Approach, & Intersection Results

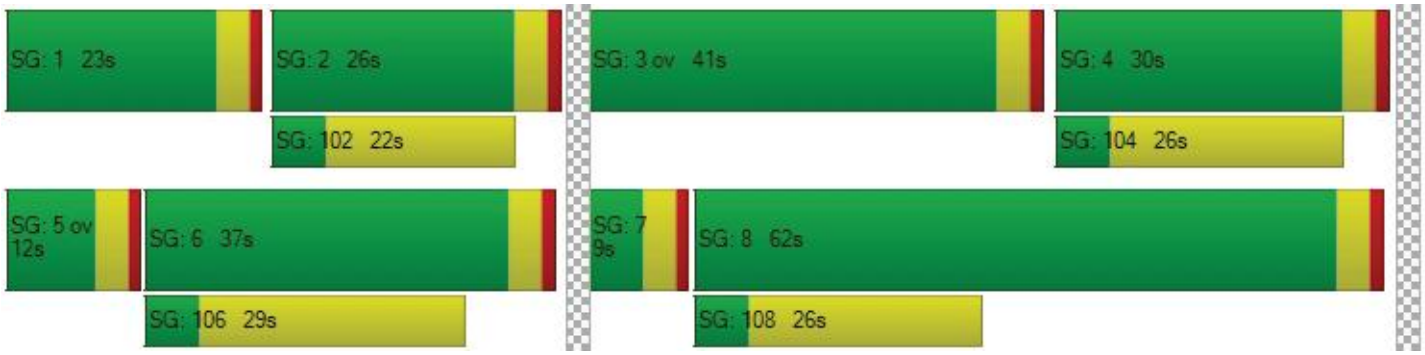
d_M, Delay for Movement [s/veh]	69.18	43.25	38.35	75.56	27.86	9.46	61.95	31.13	31.17	61.56	49.87	33.70
Movement LOS	E	D	D	E	C	A	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	43.41			29.58			39.35			47.29		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.96											
Intersection LOS	D											
Intersection V/C	0.755											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.739	2.812	2.791	2.946
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	367	967	433
d_b, Bicycle Delay [s]	31.54	40.02	16.02	36.82
l_b,int, Bicycle LOS Score for Intersection	2.633	2.031	2.824	2.315
Bicycle LOS	B	B	C	B

Sequence

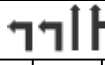
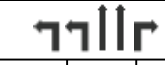
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	38.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	35	857	66	377	983	405	440	672	84	60	177	364
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	31	0	0	23	5	8	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	0	48	12	12	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	1039	74	422	1172	471	513	753	94	67	198	408
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	273	19	111	308	124	135	198	25	18	52	107
Total Analysis Volume [veh/h]	41	1094	78	444	1234	496	540	793	99	71	208	429
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	33	0	20	44	44	24	58	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	50	50	16	62	86	20	34	34	5	18	38
g / C, Green / Cycle	0.03	0.42	0.42	0.13	0.52	0.72	0.17	0.28	0.28	0.04	0.15	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.23	0.23	0.13	0.25	0.32	0.16	0.25	0.25	0.02	0.06	0.28
s, saturation flow rate [veh/h]	1714	3427	1739	3329	4903	1530	3329	1800	1731	3329	3427	1530
c, Capacity [veh/h]	54	1422	722	444	2535	1097	555	505	486	126	520	487
d1, Uniform Delay [s]	57.67	26.56	26.57	52.00	18.71	7.11	49.73	41.50	41.62	56.75	45.97	38.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.14	0.11	0.11	0.36
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.60	1.51	2.97	19.92	0.67	1.35	12.50	7.25	8.20	3.90	0.50	15.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.55	0.55	1.00	0.49	0.45	0.97	0.90	0.90	0.56	0.40	0.88
d, Delay for Lane Group [s/veh]	77.27	28.07	29.53	71.92	19.38	8.46	62.24	48.76	49.82	60.65	46.46	54.01
Lane Group LOS	E	C	C	F	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.53	8.64	9.07	7.89	7.41	5.20	8.99	13.79	13.53	1.13	2.85	13.90
50th-Percentile Queue Length [ft/ln]	38.20	216.0	226.8	197.1	185.2	130.0	224.6	344.7	338.2	28.18	71.23	347.5
95th-Percentile Queue Length [veh/ln]	2.75	13.46	14.01	12.49	11.88	8.94	13.90	19.88	19.56	2.03	5.13	20.02
95th-Percentile Queue Length [ft/ln]	68.76	336.5	350.3	312.3	296.8	223.5	347.5	497.0	489.1	50.72	128.2	500.4

Movement, Approach, & Intersection Results

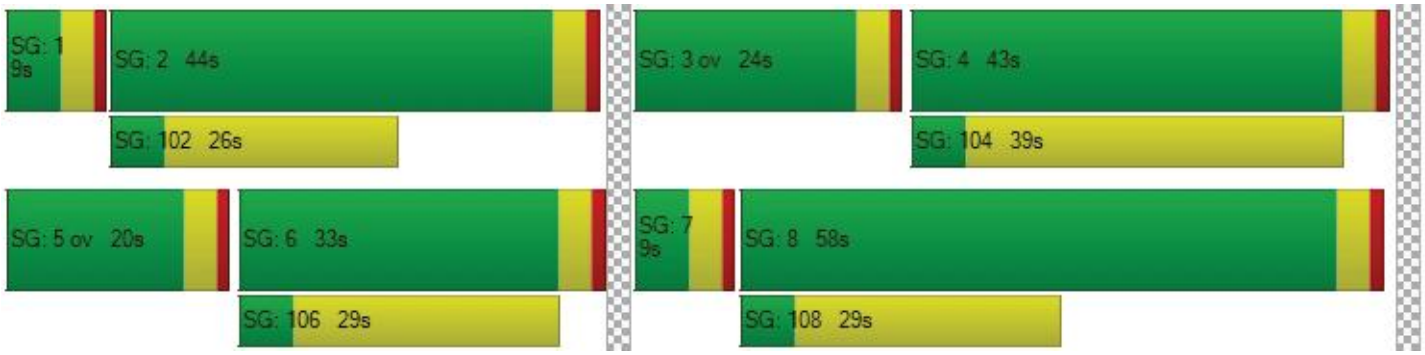
d_M, Delay for Movement [s/veh]	77.27	28.50	29.53	71.92	19.38	8.46	62.24	49.21	49.82	60.65	46.46	54.01
Movement LOS	E	C	C	F	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	30.21			27.62			54.16			52.46		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.25											
Intersection LOS	D											
Intersection V/C	0.708											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.060	3.395	2.822	2.891
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	667	900	650
d_b, Bicycle Delay [s]	34.50	26.67	18.15	27.34
l_b,int, Bicycle LOS Score for Intersection	2.227	2.755	2.741	2.144
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	605.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	43.372

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	601	29	67	890	130	243	49	30	13	21	83
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120	1.120
In-Process Volume [veh/h]	0	8	0	13	5	5	8	0	0	0	0	15
Site-Generated Trips [veh/h]	0	12	0	24	12	12	12	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	693	32	112	1014	163	292	55	34	15	24	132
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	182	8	29	267	43	77	14	9	4	6	35
Total Analysis Volume [veh/h]	9	729	34	118	1067	172	307	58	36	16	25	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	12	12	5	16	16	91	91	91	91
g / C, Green / Cycle	0.01	0.10	0.10	0.04	0.13	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.15	0.07	0.24	0.24	43.12	0.02	0.64	0.09
s, saturation flow rate [veh/h]	1714	3427	1759	1714	3427	1675	8	1530	64	1530
c, Capacity [veh/h]	19	348	179	71	454	222	62	1158	90	1158
d1, Uniform Delay [s]	59.02	53.91	53.91	57.50	52.05	52.05	55.25	3.64	35.67	3.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.36	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.41	216.2	232.3	306.6	383.5	392.3	2249.34	0.01	11.43	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	1.45	1.45	1.65	1.83	1.83	5.92	0.03	0.45	0.12
d, Delay for Lane Group [s/veh]	77.43	270.1	286.2	364.1	435.6	444.4	2304.59	3.65	47.10	3.95
Lane Group LOS	E	F	F	F	F	F	F	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.37	15.70	16.92	8.25	31.00	30.84	40.39	0.20	1.29	0.81
50th-Percentile Queue Length [ft/ln]	9.17	392.5	422.9	206.2	774.9	771.0	1009.73	4.88	32.17	20.23
95th-Percentile Queue Length [veh/ln]	0.66	25.14	26.86	14.38	48.83	48.61	72.70	0.35	2.32	1.46
95th-Percentile Queue Length [ft/ln]	16.51	628.4	671.5	359.5	1220.	1215.	1817.52	8.78	57.90	36.42

Movement, Approach, & Intersection Results

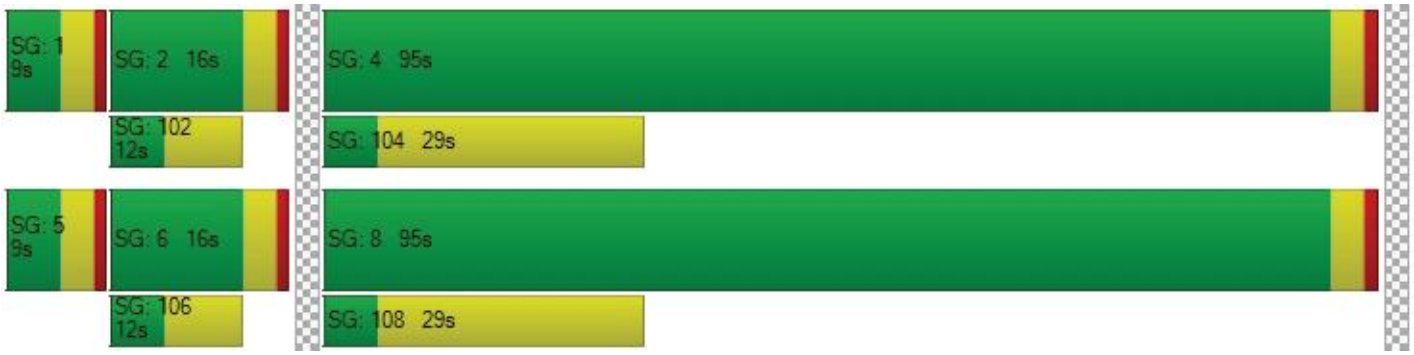
d_M, Delay for Movement [s/veh]	77.43	275.1	286.2	364.1	437.5	444.4	2304.	2304.	3.65	47.10	47.10	3.95
Movement LOS	E	F	F	F	F	F	F	F	A	D	D	A
d_A, Approach Delay [s/veh]	273.30			432.05			2098.02			13.78		
Approach LOS	F			F			F			B		
d_I, Intersection Delay [s/veh]	605.56											
Intersection LOS	F											
Intersection V/C	43.372											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.895	3.399	2.153	2.082
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	1.984	2.306	2.221	1.857
Bicycle LOS	A	B	B	A

Sequence

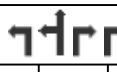
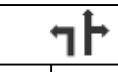
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	344	52	0	0	66	456	428	0	298	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	344	52	0	0	66	456	428	0	298	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	86	13	0	0	17	114	107	0	75	0	0	0
Total Analysis Volume [veh/h]	344	52	0	0	66	456	428	0	298	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	55	69	0	9	23	23	0	33	0	0	9	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	84	84	0	57	85	20	20	20	0	0
g / C, Green / Cycle	0.22	0.70	0.70	0.00	0.48	0.71	0.16	0.16	0.16	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.20	0.01	0.01	0.00	0.02	0.30	0.13	0.13	0.11	0.00	0.00
s, saturation flow rate [veh/h]	1687	3373	1772	1687	3373	1506	1687	1687	2665	1687	1772
c, Capacity [veh/h]	376	2365	1242	1	1615	1070	278	278	439	1	1
d1, Uniform Delay [s]	45.53	5.41	5.41	0.00	16.63	7.21	47.93	47.93	47.12	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.03	0.01	0.02	0.00	0.05	1.24	4.48	4.48	1.84	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.01	0.01	0.00	0.04	0.43	0.77	0.77	0.68	0.00	0.00
d, Delay for Lane Group [s/veh]	54.55	5.42	5.43	0.00	16.68	8.45	52.41	52.41	48.96	0.00	0.00
Lane Group LOS	D	A	A	A	B	A	D	D	D	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	10.89	0.13	0.14	0.00	0.50	4.79	6.46	6.46	4.30	0.00	0.00
50th-Percentile Queue Length [ft/ln]	272.3	3.13	3.38	0.00	12.45	119.7	161.5	161.5	107.4	0.00	0.00
95th-Percentile Queue Length [veh/ln]	16.31	0.23	0.24	0.00	0.90	8.38	10.63	10.63	7.70	0.00	0.00
95th-Percentile Queue Length [ft/ln]	407.6	5.64	6.08	0.00	22.41	209.5	265.7	265.7	192.5	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.55	5.43	5.43	0.00	16.68	8.45	52.41	52.41	48.96	0.00	0.00	0.00
Movement LOS	D	A	A	A	B	A	D	D	D	A	A	A
d_A, Approach Delay [s/veh]	48.10			9.49			50.99			0.00		
Approach LOS	D			A			D			A		
d_I, Intersection Delay [s/veh]	37.12											
Intersection LOS	D											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.715	0.000	2.716	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317	483	83
d_b, Bicycle Delay [s]	12.60	42.50	34.50	55.10
l_b,int, Bicycle LOS Score for Intersection	1.777	1.990	2.758	1.560
Bicycle LOS	A	A	C	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-6

INTERSECTION ANALYSIS
WORKSHEETS –
HORIZON YEAR 2040

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Report File: K:\...\7 HY 2040 AM.pdf

Scenario 7 HY 2040 AM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.596	29.1	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.657	28.3	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.454	19.4	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.604	25.2	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.727	29.0	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.498	18.6	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	SB Left	0.465	33.6	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.632	37.9	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	WB Left	0.665	35.2	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.816	60.2	E
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Thru	0.699	26.7	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	NB Right	0.584	27.7	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.741	38.5	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.498	39.0	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.928	54.0	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.591	33.6	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.600	45.9	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.893	31.4	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.634	24.4	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.785	42.6	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.744	49.7	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	8.079	3,717.8	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.766	48.3	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.740	44.0	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.917	72.4	E
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.805	48.3	D
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.576	25.4	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.843	57.6	E
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	SB Left	0.612	35.7	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.728	24.7	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.769	37.6	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.653	90.2	F
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.521	18.5	B
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.649	29.2	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	1.285	93.4	F
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.589	30.4	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	NB Left	0.605	40.1	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.676	31.7	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.605	33.1	C
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	SB Thru	1.147	95.9	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	SB Thru	1.538	150.1	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.588	34.0	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	NB Left	0.629	30.9	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.763	43.9	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	SB Right	0.606	49.3	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.607	35.2	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.507	30.5	C
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.328	16.2	C
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.630	36.3	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.548	32.5	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SWB Thru	0.666	40.2	D
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.647	38.6	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	NB Left	0.704	30.8	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Left	1.588	147.2	F
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.535	31.3	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.481	32.5	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.739	43.8	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.660	37.3	D
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	16.416	10,000.0	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Right	0.881	61.3	E
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	NB Left	0.736	34.9	C
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.585	23.2	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	SB Thru	0.845	32.5	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.566	21.1	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.846	30.9	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.804	34.3	C
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.746	33.5	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	0.789	28.9	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.657	37.1	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.893	88.7	F
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.670	32.0	C
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	32.708	662.1	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	200	489	0	0	917	224	0	0	0	420	4	331
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	489	0	0	917	224	0	0	0	420	4	331
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	53	129	0	0	241	59	0	0	0	111	1	87
Total Analysis Volume [veh/h]	211	515	0	0	965	236	0	0	0	442	4	348
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	53	0	0	32	0	0	0	0	0	67	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	16	79	59	59		33	33
g / C, Green / Cycle	0.13	0.66	0.50	0.50		0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.14	0.22	0.23		0.25	0.22
s, saturation flow rate [veh/h]	1810	3618	3618	1721		1810	1615
c, Capacity [veh/h]	239	2386	1788	851		496	442
d1, Uniform Delay [s]	51.19	8.11	19.70	19.99		41.99	40.34
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	10.40	0.21	0.81	1.87		6.20	3.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.22	0.45	0.47		0.90	0.79
d, Delay for Lane Group [s/veh]	61.59	8.32	20.51	21.85		48.19	43.48
Lane Group LOS	E	A	C	C		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	6.91	2.60	7.37	7.71		13.49	9.86
50th-Percentile Queue Length [ft/ln]	172.82	65.07	184.26	192.87		337.18	246.40
95th-Percentile Queue Length [veh/ln]	11.22	4.68	11.82	12.27		19.51	15.00
95th-Percentile Queue Length [ft/ln]	280.62	117.12	295.56	306.74		487.75	375.12

Movement, Approach, & Intersection Results

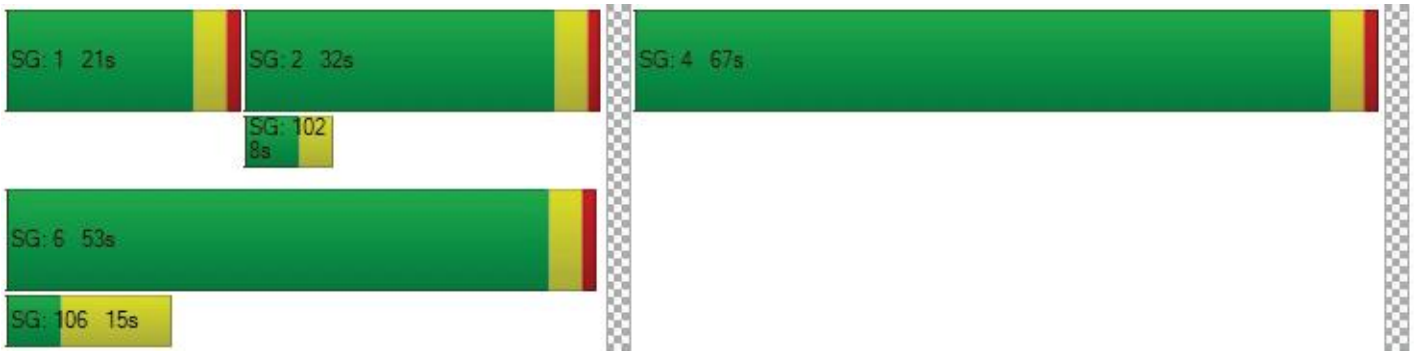
d_M, Delay for Movement [s/veh]	61.59	8.32	0.00	0.00	20.74	21.85	0.00	0.00	0.00	48.19	48.19	43.48
Movement LOS	E	A			C	C				D	D	D
d_A, Approach Delay [s/veh]	23.80			20.96			0.00			46.13		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	29.06											
Intersection LOS	C											
Intersection V/C	0.596											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.878	2.213
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	467	0	1050
d_b, Bicycle Delay [s]	21.00	35.27	60.00	13.54
l_b,int, Bicycle LOS Score for Intersection	2.159	2.220	4.132	2.870
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	338	1029	0	0	925	398	0	0	0	477	1	439
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	338	1029	0	0	925	398	0	0	0	477	1	439
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	89	271	0	0	243	105	0	0	0	126	0	116
Total Analysis Volume [veh/h]	356	1083	0	0	974	419	0	0	0	502	1	462
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	49	0	0	28	0	0	0	0	0	71	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	74	56	56		38	38	38
g / C, Green / Cycle	0.12	0.62	0.47	0.47		0.31	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.10	0.30	0.27	0.26		0.14	0.14	0.29
s, saturation flow rate [veh/h]	3514	3618	3618	1615		1810	1810	1615
c, Capacity [veh/h]	419	2238	1686	753		569	569	508
d1, Uniform Delay [s]	51.79	12.45	23.40	23.09		32.74	32.74	39.48
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.88	0.75	1.45	2.96		0.54	0.54	6.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.48	0.58	0.56		0.44	0.44	0.91
d, Delay for Lane Group [s/veh]	56.67	13.20	24.85	26.05		33.28	33.28	46.09
Lane Group LOS	E	B	C	C		C	C	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.53	7.82	10.26	9.04		5.92	5.92	13.86
50th-Percentile Queue Length [ft/ln]	138.23	195.40	256.55	226.06		148.0	148.0	346.5
95th-Percentile Queue Length [veh/ln]	9.39	12.40	15.52	13.97		9.91	9.91	19.97
95th-Percentile Queue Length [ft/ln]	234.64	310.02	387.89	349.35		247.7	247.7	499.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.67	13.20	0.00	0.00	24.85	26.05	0.00	0.00	0.00	33.28	33.28	46.09
Movement LOS	E	B			C	C				C	C	D
d_A, Approach Delay [s/veh]	23.95			25.21			0.00			39.41		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	28.34											
Intersection LOS	C											
Intersection V/C	0.657											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.108	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	400	0	1117
d_b, Bicycle Delay [s]	23.44	38.40	60.00	11.70
l_b,int, Bicycle LOS Score for Intersection	2.747	2.709	4.132	3.152
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.454

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1006	0	0	1212	0	0	0	0	580	0	373
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1006	0	0	1212	0	0	0	0	580	0	373
Peak Hour Factor	1.000	0.950	1.000	1.000	0.950	1.000	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	265	0	0	319	0	0	0	0	153	0	98
Total Analysis Volume [veh/h]	0	1059	0	0	1276	0	0	0	0	611	0	393
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	65	0	0	65	0	0	0	0	0	55	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83		29	29	29
g / C, Green / Cycle	0.69	0.69		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.20	0.25		0.18	0.19	0.21
s, saturation flow rate [veh/h]	5176	5176		1810	1772	1615
c, Capacity [veh/h]	3590	3590		434	425	387
d1, Uniform Delay [s]	7.08	7.47		42.56	42.77	43.76
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.28		2.95	3.29	5.87
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.36		0.77	0.79	0.86
d, Delay for Lane Group [s/veh]	7.29	7.75		45.51	46.06	49.63
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.31	4.21		9.59	9.67	10.12
50th-Percentile Queue Length [ft/ln]	82.71	105.28		239.7	241.6	253.1
95th-Percentile Queue Length [veh/ln]	5.96	7.58		14.67	14.77	15.34
95th-Percentile Queue Length [ft/ln]	148.88	189.42		366.7	369.1	383.5

Movement, Approach, & Intersection Results

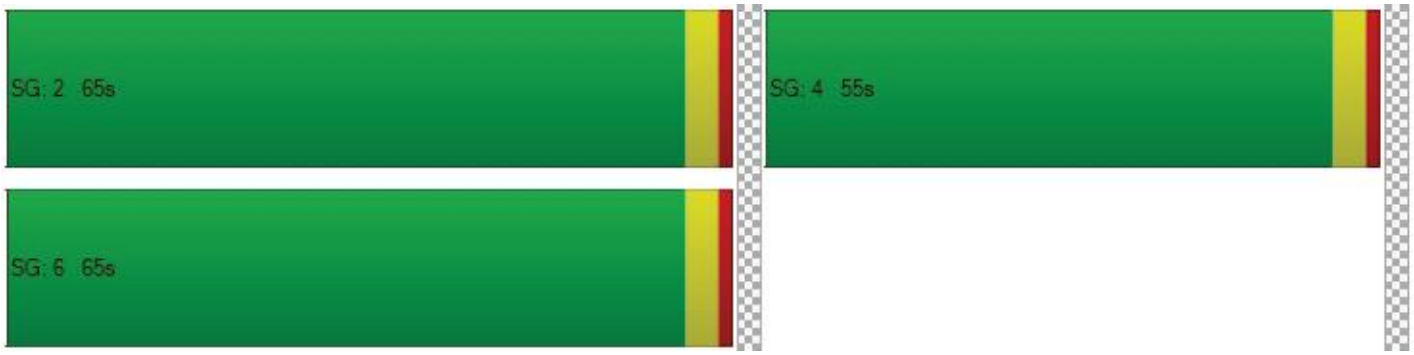
d_M, Delay for Movement [s/veh]	0.00	7.29	0.00	0.00	7.75	0.00	0.00	0.00	0.00	45.76	46.06	49.10
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	7.29			7.75			0.00			47.07		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.42											
Intersection LOS	B											
Intersection V/C	0.454											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1017	0	850
d_b, Bicycle Delay [s]	14.50	14.50	60.00	19.84
l_b,int, Bicycle LOS Score for Intersection	2.142	2.261	4.132	3.216
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	533	379	228	981	0	253	7	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	533	379	228	981	0	253	7	344	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	140	100	60	258	0	67	2	91	0	0	0
Total Analysis Volume [veh/h]	0	561	399	240	1033	0	266	7	362	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	24	65	0	0	55	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	60	60	18	82	30	30	
g / C, Green / Cycle	0.50	0.50	0.15	0.69	0.25	0.25	
(v / s)_i Volume / Saturation Flow Rate	0.16	0.25	0.13	0.29	0.15	0.22	
s, saturation flow rate [veh/h]	3618	1615	1810	3618	1812	1615	
c, Capacity [veh/h]	1819	812	268	2476	451	402	
d1, Uniform Delay [s]	17.56	19.70	50.18	8.37	39.85	43.62	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.44	2.12	10.12	0.52	1.31	7.84	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.31	0.49	0.89	0.42	0.61	0.90	
d, Delay for Lane Group [s/veh]	18.00	21.83	60.30	8.89	41.16	51.46	
Lane Group LOS	B	C	E	A	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	4.65	7.72	7.81	5.68	7.29	11.22	
50th-Percentile Queue Length [ft/ln]	116.19	192.99	195.33	142.09	182.28	280.52	
95th-Percentile Queue Length [veh/ln]	8.18	12.28	12.40	9.59	11.72	16.71	
95th-Percentile Queue Length [ft/ln]	204.58	306.90	309.94	239.84	292.99	417.87	

Movement, Approach, & Intersection Results

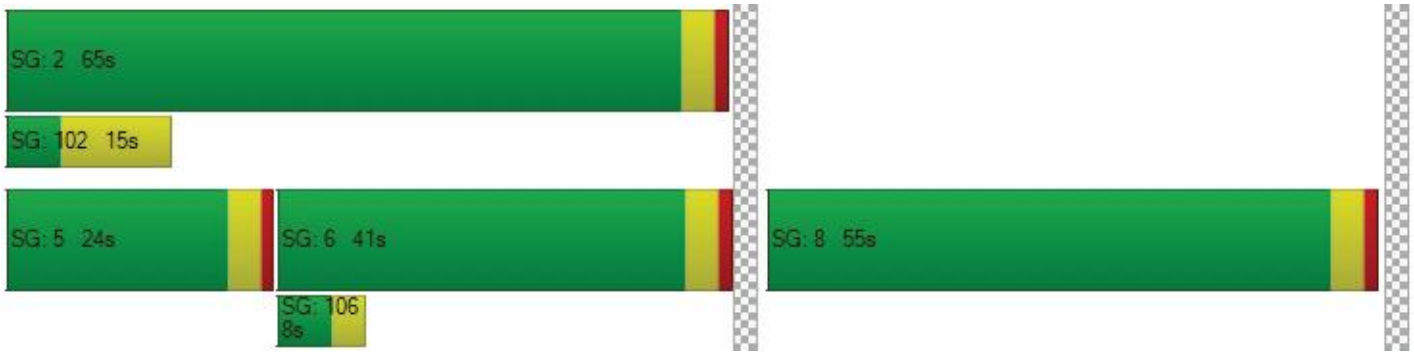
d_M, Delay for Movement [s/veh]	0.00	18.00	21.83	60.30	8.89	0.00	41.16	41.16	51.46	0.00	0.00	0.00
Movement LOS		B	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	19.59			18.58			47.03			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	25.22											
Intersection LOS	C											
Intersection V/C	0.604											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.162	2.068
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	1017	850	0
d_b, Bicycle Delay [s]	28.70	14.50	19.84	60.00
l_b,int, Bicycle LOS Score for Intersection	2.088	2.610	2.607	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	921	464	338	1052	0	460	0	450	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	921	464	338	1052	0	460	0	450	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	242	122	89	277	0	121	0	118	0	0	0
Total Analysis Volume [veh/h]	0	969	488	356	1107	0	484	0	474	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	19	71	0	0	49	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	67	67	14	85	27	27	27	
g / C, Green / Cycle	0.55	0.55	0.12	0.71	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.38	0.43	0.10	0.31	0.18	0.19	0.20	
s, saturation flow rate [veh/h]	1900	1699	3514	3618	1810	1709	1615	
c, Capacity [veh/h]	1053	941	413	2550	414	391	369	
d1, Uniform Delay [s]	19.35	20.89	52.00	7.53	43.40	43.92	44.47	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.74	6.17	5.44	0.54	3.14	4.25	6.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.69	0.77	0.86	0.43	0.78	0.82	0.86	
d, Delay for Lane Group [s/veh]	23.09	27.06	57.45	8.07	46.54	48.16	50.59	
Lane Group LOS	C	C	E	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	15.22	16.86	5.57	5.72	9.26	9.44	9.68	
50th-Percentile Queue Length [ft/ln]	380.44	421.43	139.21	142.99	231.6	235.9	242.0	
95th-Percentile Queue Length [veh/ln]	21.62	23.59	9.44	9.64	14.26	14.48	14.78	
95th-Percentile Queue Length [ft/ln]	540.38	589.77	235.95	241.04	356.4	361.8	369.6	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	24.08	27.06	57.45	8.07	0.00	47.09	48.16	49.79	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	25.07			20.09			48.43			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.96											
Intersection LOS	C											
Intersection V/C	0.727											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.380	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	1117	750	0
d_b, Bicycle Delay [s]	21.60	11.70	23.44	60.00
l_b,int, Bicycle LOS Score for Intersection	2.762	2.767	3.140	4.132
Bicycle LOS	C	C	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1066	899	0	1454	26	299	0	619	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1066	899	0	1454	26	299	0	619	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	281	237	0	383	7	79	0	163	0	0	0
Total Analysis Volume [veh/h]	0	1122	946	0	1531	26	315	0	652	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	67	0	0	67	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	84	84	28	28	28	
g / C, Green / Cycle	0.70	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.30	0.17	0.20	0.20	
s, saturation flow rate [veh/h]	5176	5176	1810	1615	1615	
c, Capacity [veh/h]	3617	3617	424	379	379	
d1, Uniform Delay [s]	6.94	7.72	42.58	44.06	44.06	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.22	0.36	2.59	5.83	5.83	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.31	0.42	0.74	0.86	0.86	
d, Delay for Lane Group [s/veh]	7.17	8.09	45.17	49.89	49.89	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.48	5.29	8.95	9.87	9.87	
50th-Percentile Queue Length [ft/ln]	86.93	132.14	223.7	246.7	246.7	
95th-Percentile Queue Length [veh/ln]	6.26	9.06	13.85	15.02	15.02	
95th-Percentile Queue Length [ft/ln]	156.47	226.40	346.3	375.5	375.5	

Movement, Approach, & Intersection Results

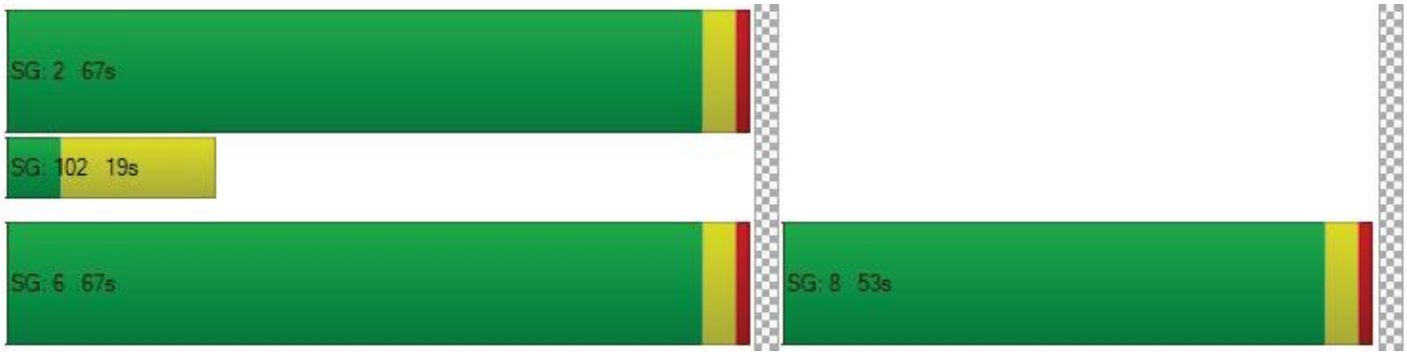
d_M, Delay for Movement [s/veh]	0.00	7.17	0.00	0.00	8.09	0.00	45.17	49.89	49.89	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	7.17			8.09			48.35			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	18.56											
Intersection LOS	B											
Intersection V/C	0.498											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.382	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1050	817	0
d_b, Bicycle Delay [s]	13.54	13.54	21.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.177	2.402	3.155	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	727	109	62	632	110	131	237	118	149	323	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	727	109	62	632	110	131	237	118	149	323	68
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	191	29	16	166	29	34	62	31	39	85	18
Total Analysis Volume [veh/h]	78	765	115	65	665	116	138	249	124	157	340	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	49	0	11	44	0	19	26	0	34	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	71	71	6	70	70	11	15	15	12	17	17
g / C, Green / Cycle	0.06	0.59	0.59	0.05	0.58	0.58	0.09	0.13	0.13	0.10	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.24	0.04	0.21	0.21	0.08	0.10	0.11	0.09	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1814	1810	1900	1803	1810	1900	1692	1810	1900	1787
c, Capacity [veh/h]	100	1120	1069	84	1103	1046	166	241	214	189	265	249
d1, Uniform Delay [s]	55.94	13.26	13.26	56.60	13.39	13.40	53.59	51.00	51.14	52.71	50.01	50.08
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.09	1.08	1.13	14.04	0.93	0.98	10.23	6.42	8.05	9.12	5.49	6.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.40	0.40	0.78	0.36	0.36	0.83	0.81	0.83	0.83	0.80	0.81
d, Delay for Lane Group [s/veh]	68.03	14.33	14.38	70.64	14.32	14.38	63.82	57.41	59.20	61.83	55.50	56.17
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.67	6.70	6.41	2.28	5.91	5.63	4.56	6.13	5.70	5.12	6.54	6.26
50th-Percentile Queue Length [ft/ln]	66.72	167.4	160.2	56.90	147.8	140.7	114.1	153.2	142.4	127.9	163.4	156.4
95th-Percentile Queue Length [veh/ln]	4.80	10.94	10.56	4.10	9.90	9.52	8.07	10.19	9.61	8.83	10.73	10.36
95th-Percentile Queue Length [ft/ln]	120.0	273.5	264.1	102.4	247.5	238.0	201.7	254.6	240.3	220.6	268.3	259.0

Movement, Approach, & Intersection Results

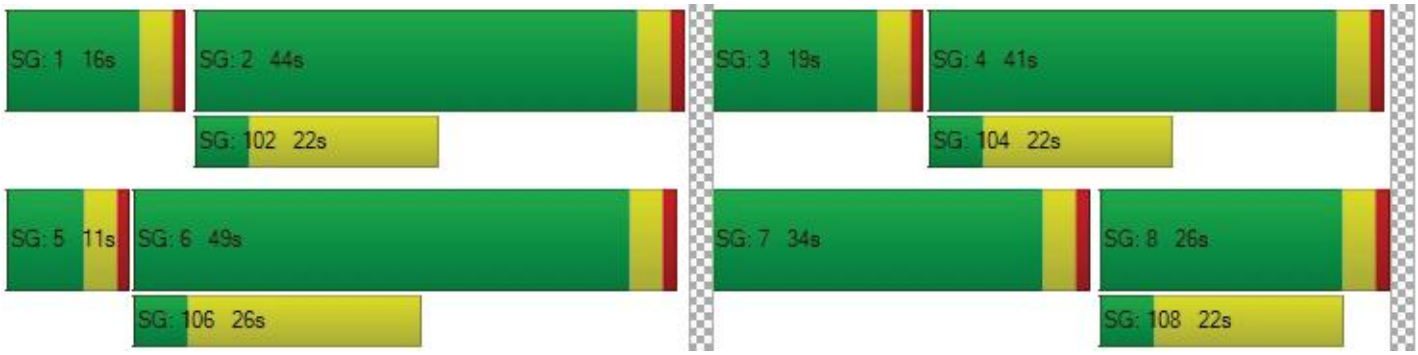
d_M, Delay for Movement [s/veh]	68.03	14.35	14.38	70.64	14.34	14.38	63.82	57.80	59.20	61.83	55.75	56.17
Movement LOS	E	B	B	E	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	18.73			18.67			59.76			57.48		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	33.63											
Intersection LOS	C											
Intersection V/C	0.465											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.686	2.670	2.519	2.630
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	667	367	617
d_b, Bicycle Delay [s]	23.44	26.67	40.02	28.70
l_b,int, Bicycle LOS Score for Intersection	2.350	2.258	1.981	2.029
Bicycle LOS	B	B	A	B

Sequence

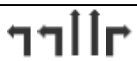
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	825	99	428	1064	189	241	269	59	114	315	294
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	825	99	428	1064	189	241	269	59	114	315	294
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	217	26	113	280	50	63	71	16	30	83	77
Total Analysis Volume [veh/h]	107	868	104	451	1120	199	254	283	62	120	332	309
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	38	0	23	48	0	15	37	0	22	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	50	50	17	59	59	11	27	27	10	26	26
g / C, Green / Cycle	0.07	0.42	0.42	0.15	0.49	0.49	0.09	0.22	0.22	0.08	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.24	0.06	0.13	0.31	0.12	0.07	0.08	0.04	0.07	0.17	0.19
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	3514	3618	1615	1810	1900	1615
c, Capacity [veh/h]	132	1509	674	511	1771	791	310	800	357	150	411	349
d1, Uniform Delay [s]	54.82	26.82	21.79	50.28	22.64	17.83	53.78	39.48	37.84	54.04	44.68	45.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.21	1.60	0.49	5.23	1.73	0.76	5.38	0.27	0.23	9.35	3.83	9.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.58	0.15	0.88	0.63	0.25	0.82	0.35	0.17	0.80	0.81	0.89
d, Delay for Lane Group [s/veh]	66.03	28.42	22.27	55.51	24.37	18.59	59.16	39.74	38.07	63.38	48.51	55.05
Lane Group LOS	E	C	C	E	C	B	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.60	9.77	1.93	7.00	11.87	3.37	4.00	3.57	1.51	3.95	9.80	9.81
50th-Percentile Queue Length [ft/ln]	89.93	244.1	48.18	174.9	296.6	84.24	99.95	89.28	37.75	98.78	244.9	245.1
95th-Percentile Queue Length [veh/ln]	6.48	14.89	3.47	11.33	17.52	6.06	7.20	6.43	2.72	7.11	14.93	14.94
95th-Percentile Queue Length [ft/ln]	161.8	372.3	86.73	283.3	437.9	151.6	179.9	160.7	67.96	177.8	373.2	373.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.03	28.42	22.27	55.51	24.37	18.59	59.16	39.74	38.07	63.38	48.51	55.05
Movement LOS	E	C	C	E	C	B	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	31.56			31.65			47.81			53.51		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.88											
Intersection LOS	D											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.855	3.055	2.781	2.728
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	733	550	667
d_b, Bicycle Delay [s]	30.82	24.07	31.54	26.67
l_b,int, Bicycle LOS Score for Intersection	2.450	3.020	2.054	2.815
Bicycle LOS	B	C	B	C

Sequence

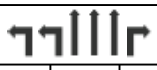
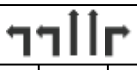
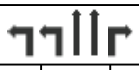
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	339	1082	67	245	1340	492	326	362	270	23	395	223
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	339	1082	67	245	1340	492	326	362	270	23	395	223
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	89	285	18	64	353	129	86	95	71	6	104	59
Total Analysis Volume [veh/h]	357	1139	71	258	1411	518	343	381	284	24	416	235
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	35	0	20	33	0	21	56	0	9	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	59	59	11	55	55	14	32	32	3	21	21
g / C, Green / Cycle	0.12	0.49	0.49	0.09	0.46	0.46	0.12	0.26	0.26	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.22	0.04	0.07	0.27	0.32	0.10	0.11	0.18	0.01	0.11	0.15
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	422	2524	788	323	2378	742	406	955	426	82	621	277
d1, Uniform Delay [s]	51.72	20.19	16.47	53.40	24.10	25.80	52.01	36.34	39.45	57.64	46.53	48.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.76	0.59	0.23	4.56	1.10	5.39	4.86	0.27	1.80	1.97	1.26	7.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.45	0.09	0.80	0.59	0.70	0.84	0.40	0.67	0.29	0.67	0.85
d, Delay for Lane Group [s/veh]	56.48	20.78	16.70	57.96	25.19	31.19	56.87	36.61	41.25	59.61	47.79	55.30
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.53	7.03	1.10	4.02	10.01	12.63	5.33	4.65	7.68	0.38	5.93	7.35
50th-Percentile Queue Length [ft/ln]	138.3	175.8	27.54	100.4	250.2	315.7	133.2	116.2	192.0	9.52	148.1	183.8
95th-Percentile Queue Length [veh/ln]	9.39	11.38	1.98	7.23	15.20	18.46	9.12	8.19	12.22	0.69	9.92	11.80
95th-Percentile Queue Length [ft/ln]	234.8	284.5	49.57	180.8	379.9	461.5	227.8	204.6	305.6	17.14	247.9	295.0

Movement, Approach, & Intersection Results

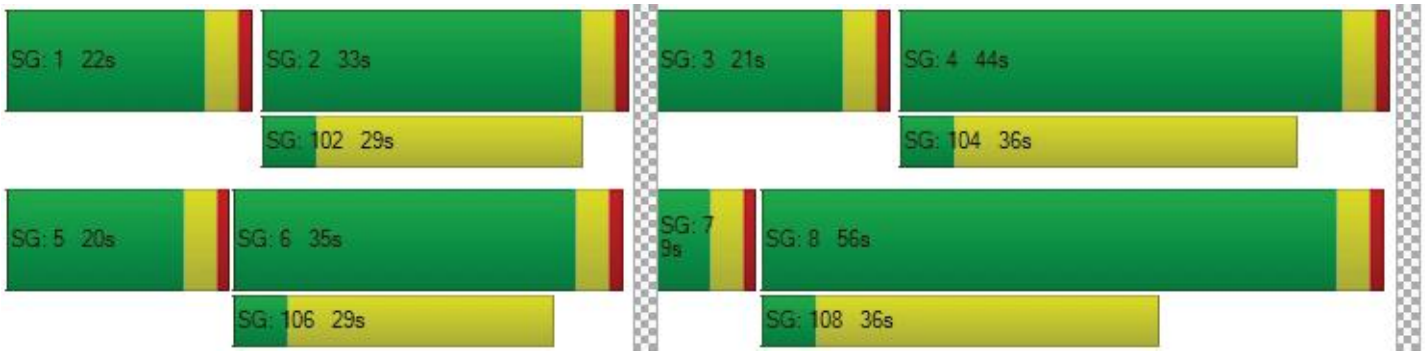
d_M, Delay for Movement [s/veh]	56.48	20.78	16.70	57.96	25.19	31.19	56.87	36.61	41.25	59.61	47.79	55.30
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	28.73			30.48			44.81			50.83		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.16											
Intersection LOS	D											
Intersection V/C	0.665											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.220	3.287	2.929	2.802
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	483	867	667
d_b, Bicycle Delay [s]	33.00	34.50	19.27	26.67
l_b,int, Bicycle LOS Score for Intersection	2.421	2.762	2.391	2.116
Bicycle LOS	B	C	B	B

Sequence

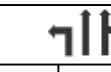
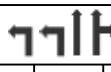
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	60.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	306	134	165	344	288	120	649	113	291	1377	266
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	306	134	165	344	288	120	649	113	291	1377	266
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	81	35	43	91	76	32	171	30	77	362	70
Total Analysis Volume [veh/h]	140	322	141	174	362	303	126	683	119	306	1449	280
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	36	36	15	41	0	12	51	0	18	57	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	32	49	11	37	37	8	48	48	13	53	53
g / C, Green / Cycle	0.05	0.27	0.40	0.09	0.31	0.31	0.07	0.40	0.40	0.10	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.09	0.10	0.19	0.19	0.07	0.15	0.15	0.09	0.46	0.48
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1618	1810	3618	1760	3514	1900	1797
c, Capacity [veh/h]	176	507	655	166	586	499	121	1457	709	371	839	794
d1, Uniform Delay [s]	56.40	38.85	23.23	54.50	35.39	35.41	56.00	25.14	25.18	52.58	33.50	33.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.49	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.98	5.98	0.75	46.07	4.73	5.56	50.20	0.16	0.33	4.66	38.87	58.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.64	0.22	1.05	0.61	0.61	1.04	0.37	0.37	0.82	1.03	1.09
d, Delay for Lane Group [s/veh]	64.38	44.83	23.98	100.5	40.11	40.97	106.2	25.30	25.51	57.24	72.37	92.44
Lane Group LOS	E	D	C	F	D	D	F	C	C	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.29	9.20	2.76	7.13	9.69	8.39	5.33	5.40	5.35	4.76	32.70	35.35
50th-Percentile Queue Length [ft/ln]	57.33	230.0	68.89	178.1	242.2	209.7	133.2	135.0	133.7	118.9	817.4	883.8
95th-Percentile Queue Length [veh/ln]	4.13	14.17	4.96	11.71	14.79	13.14	9.24	9.21	9.14	8.33	43.07	48.08
95th-Percentile Queue Length [ft/ln]	103.1	354.3	124.0	292.6	369.8	328.5	231.0	230.3	228.5	208.3	1076.	1202.

Movement, Approach, & Intersection Results

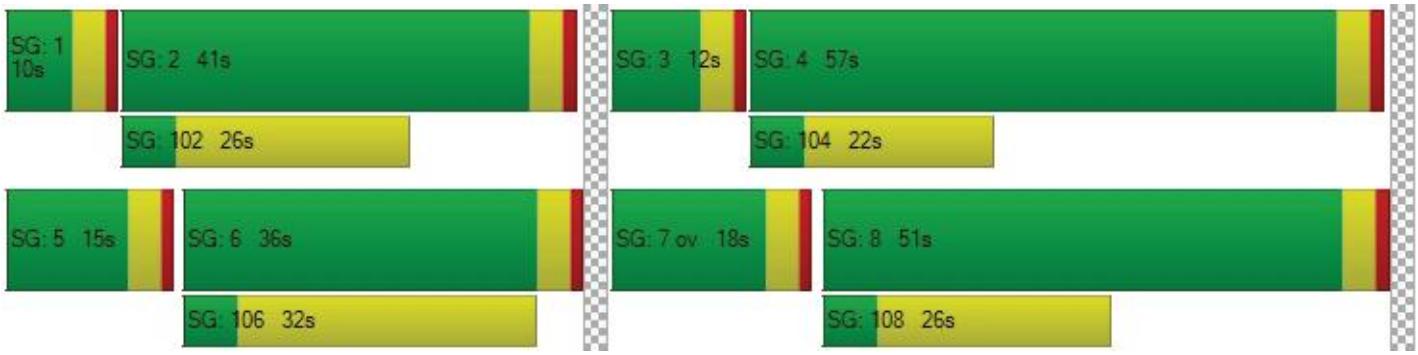
d_M, Delay for Movement [s/veh]	64.38	44.83	23.98	100.5	40.12	40.97	106.2	25.34	25.51	57.24	80.47	92.44
Movement LOS	E	D	C	F	D	D	F	C	C	E	F	F
d_A, Approach Delay [s/veh]	44.49			52.96			36.34			78.62		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	60.15											
Intersection LOS	E											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.694	2.621	2.926	3.110
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	617	783	883
d_b, Bicycle Delay [s]	32.27	28.70	22.20	18.70
l_b,int, Bicycle LOS Score for Intersection	2.555	2.252	2.070	3.238
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	26.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	411	0	1297	0	1088	264	0	1060	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	411	0	1297	0	1088	264	0	1060	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	341	0	286	69	0	279	0
Total Analysis Volume [veh/h]	0	0	0	433	0	1365	0	1145	278	0	1116	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	94	0	0	0	26	0	0	26	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		64	64	48	48
g / C, Green / Cycle		0.54	0.54	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate		0.12	0.48	0.22	0.22
s, saturation flow rate [veh/h]		3514	2859	5176	5176
c, Capacity [veh/h]		1886	1534	2053	2053
d1, Uniform Delay [s]		14.69	24.64	28.05	27.85
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.06	1.97	1.10	1.04
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.23	0.89	0.56	0.54
d, Delay for Lane Group [s/veh]		14.75	26.61	29.15	28.89
Lane Group LOS		B	C	C	C
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.12	16.83	8.65	8.37
50th-Percentile Queue Length [ft/ln]		77.94	420.64	216.30	209.19
95th-Percentile Queue Length [veh/ln]		5.61	23.55	13.48	13.11
95th-Percentile Queue Length [ft/ln]		140.29	588.82	336.90	327.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	14.75	0.00	26.61	0.00	29.15	0.00	0.00	28.89	0.00
Movement LOS				B		C		C			C	
d_A, Approach Delay [s/veh]	0.00			23.75			29.15			28.89		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	26.69											
Intersection LOS	C											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.666	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1500	367	367
d_b, Bicycle Delay [s]	60.00	3.75	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.189	2.173
Bicycle LOS	D	A	B	B

Sequence

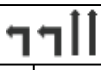
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	363	3	427	0	0	0	396	652	0	0	1954	219
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	363	3	427	0	0	0	396	652	0	0	1954	219
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	96	1	112	0	0	0	104	172	0	0	514	58
Total Analysis Volume [veh/h]	382	3	449	0	0	0	417	686	0	0	2057	231
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	23	0	0	0	0	60	97	0	0	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27		17	85	64
g / C, Green / Cycle	0.22	0.22	0.22		0.14	0.71	0.53
(v / s)_i Volume / Saturation Flow Rate	0.16	0.16	0.17		0.12	0.13	0.30
s, saturation flow rate [veh/h]	1810	1680	1615		3514	5176	6901
c, Capacity [veh/h]	406	377	363		501	3668	3677
d1, Uniform Delay [s]	42.88	43.18	43.34		50.04	5.87	18.66
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	11.90	13.10		3.66	0.02	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.73	0.75		0.83	0.19	0.56
d, Delay for Lane Group [s/veh]	52.80	55.08	56.45		53.71	5.89	18.79
Lane Group LOS	D	E	E		D	A	B
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	8.96	8.85	8.79		6.33	1.80	9.31
50th-Percentile Queue Length [ft/ln]	224.0	221.2	219.8		158.36	45.01	232.75
95th-Percentile Queue Length [veh/ln]	13.87	13.73	13.66		10.46	3.24	14.31
95th-Percentile Queue Length [ft/ln]	346.7	343.2	341.4		261.56	81.02	357.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.40	55.08	55.92	0.00	0.00	0.00	53.71	5.89	0.00	0.00	18.79	0.00
Movement LOS	D	E	E				D	A			B	
d_A, Approach Delay [s/veh]	54.74			0.00			23.97			18.79		
Approach LOS	D			A			C			B		
d_I, Intersection Delay [s/veh]	27.73											
Intersection LOS	C											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.350	1.935	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	0	1550	550
d_b, Bicycle Delay [s]	42.50	60.00	3.04	31.54
l_b,int, Bicycle LOS Score for Intersection	2.936	4.132	2.166	2.408
Bicycle LOS	C	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	38.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.741

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	107	661	219	77	959	492	260	562	183	497	1527	74
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	661	219	77	959	492	260	562	183	497	1527	74
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	174	58	20	252	129	68	148	48	131	402	19
Total Analysis Volume [veh/h]	113	696	231	81	1009	518	274	592	193	523	1607	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	15	40	0	28	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	45	45	5	45	45	11	34	34	20	43	43
g / C, Green / Cycle	0.04	0.37	0.37	0.04	0.37	0.37	0.09	0.29	0.29	0.17	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.14	0.02	0.19	0.32	0.08	0.11	0.12	0.15	0.31	0.05
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	146	1932	603	137	1918	599	322	1475	460	595	1877	586
d1, Uniform Delay [s]	56.93	27.23	27.50	56.71	29.52	34.99	53.69	34.64	34.84	48.63	35.34	25.61
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.31	0.52	1.84	4.00	1.04	15.41	6.29	0.18	0.61	4.38	1.21	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.36	0.38	0.59	0.53	0.87	0.85	0.40	0.42	0.88	0.86	0.13
d, Delay for Lane Group [s/veh]	65.24	27.75	29.34	60.71	30.56	50.40	59.98	34.81	35.45	53.01	36.55	25.71
Lane Group LOS	E	C	C	E	C	D	E	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.87	4.92	5.16	1.28	7.74	16.35	4.35	4.69	4.67	7.99	14.49	1.52
50th-Percentile Queue Length [ft/ln]	46.64	122.8	128.9	32.12	193.4	408.7	108.7	117.2	116.7	199.7	362.1	38.06
95th-Percentile Queue Length [veh/ln]	3.36	8.55	8.88	2.31	12.30	22.98	7.77	8.24	8.21	12.62	20.73	2.74
95th-Percentile Queue Length [ft/ln]	83.94	213.7	222.0	57.81	307.4	574.5	194.3	206.0	205.3	315.5	518.1	68.52

Movement, Approach, & Intersection Results

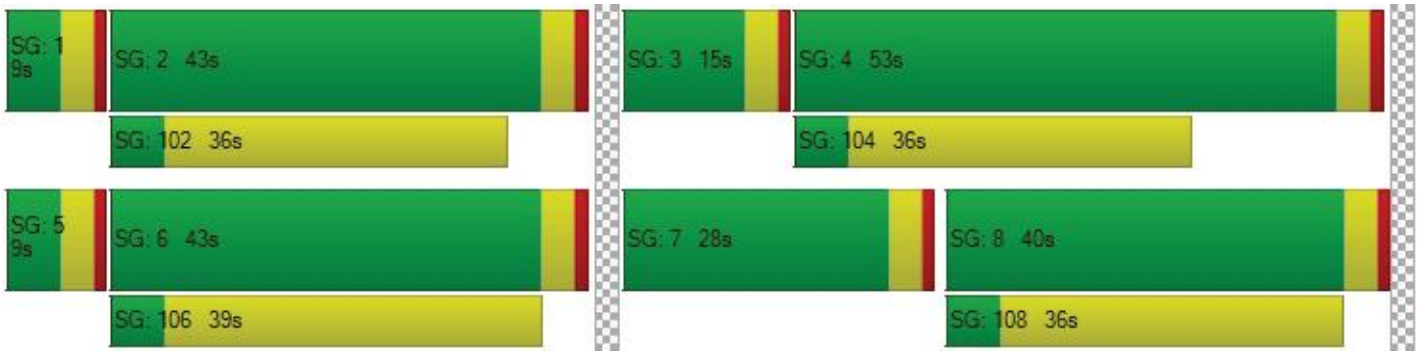
d_M, Delay for Movement [s/veh]	65.24	27.75	29.34	60.71	30.56	50.40	59.98	34.81	35.45	53.01	36.55	25.71
Movement LOS	E	C	C	E	C	D	E	C	D	D	D	C
d_A, Approach Delay [s/veh]	32.18			38.47			41.44			40.07		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.49											
Intersection LOS	D											
Intersection V/C	0.741											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.164	3.152	3.386	3.285
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	650	600	817
d_b, Bicycle Delay [s]	27.34	27.34	29.40	21.00
l_b,int, Bicycle LOS Score for Intersection	2.132	2.444	2.142	2.774
Bicycle LOS	B	B	B	C

Sequence

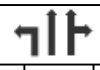
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	432	25	114	434	221	148	507	61	105	695	120
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	432	25	114	434	221	148	507	61	105	695	120
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	114	7	30	114	58	39	133	16	28	183	32
Total Analysis Volume [veh/h]	100	455	26	120	457	233	156	534	64	111	732	126
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	0	17	40	0	22	36	0	31	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	59	59	10	61	61	12	26	26	9	23	23
g / C, Green / Cycle	0.07	0.49	0.49	0.08	0.51	0.51	0.10	0.21	0.21	0.08	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.02	0.07	0.20	0.20	0.09	0.10	0.04	0.06	0.16	0.16
s, saturation flow rate [veh/h]	1810	3618	1615	1810	1870	1660	1810	5176	1589	1781	3618	1761
c, Capacity [veh/h]	124	1785	797	147	946	840	185	1102	338	141	686	334
d1, Uniform Delay [s]	55.08	17.62	15.65	54.25	18.20	18.22	52.89	41.44	38.73	54.26	46.86	46.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.36	0.34	0.08	10.45	1.19	1.35	9.77	0.33	0.27	9.33	2.84	5.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.25	0.03	0.82	0.39	0.39	0.84	0.48	0.19	0.79	0.84	0.85
d, Delay for Lane Group [s/veh]	66.44	17.96	15.73	64.70	19.39	19.57	62.66	41.77	38.99	63.60	49.70	52.83
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.37	3.72	0.39	3.99	6.46	5.80	5.12	4.67	1.58	3.66	8.53	8.67
50th-Percentile Queue Length [ft/ln]	84.33	93.07	9.66	99.82	161.6	144.9	127.9	116.6	39.55	91.52	213.3	216.7
95th-Percentile Queue Length [veh/ln]	6.07	6.70	0.70	7.19	10.63	9.75	8.83	8.21	2.85	6.59	13.32	13.50
95th-Percentile Queue Length [ft/ln]	151.7	167.5	17.38	179.6	265.8	243.6	220.7	205.2	71.18	164.7	333.0	337.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.44	17.96	15.73	64.70	19.43	19.57	62.66	41.77	38.99	63.60	50.37	52.83
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.21			26.17			45.86			52.21		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.05											
Intersection LOS	D											
Intersection V/C	0.498											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.665	2.719	3.062	2.942
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	533	683
d_b, Bicycle Delay [s]	32.27	29.40	32.27	26.00
l_b,int, Bicycle LOS Score for Intersection	2.039	2.228	1.974	2.093
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	54.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.928

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	144	642	823	139	864	281	318	1048	122	177	1060	114
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	144	642	823	139	864	281	318	1048	122	177	1060	114
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	38	169	217	37	227	74	84	276	32	47	279	30
Total Analysis Volume [veh/h]	152	676	866	146	909	296	335	1103	128	186	1116	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	21	62	0	13	54	0	15	34	0	11	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	58	58	9	55	55	11	30	30	7	26	39
g / C, Green / Cycle	0.10	0.48	0.48	0.08	0.46	0.46	0.09	0.25	0.25	0.06	0.22	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.36	0.54	0.08	0.25	0.18	0.10	0.21	0.08	0.05	0.22	0.07
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	182	918	781	136	1656	739	322	1294	404	205	1121	525
d1, Uniform Delay [s]	53.00	24.86	31.00	55.50	23.56	21.59	54.50	42.89	36.66	56.18	46.94	29.53
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.63	5.24	66.54	58.02	1.31	1.62	34.41	1.69	0.45	13.93	11.43	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.74	1.11	1.08	0.55	0.40	1.04	0.85	0.32	0.91	1.00	0.23
d, Delay for Lane Group [s/veh]	62.63	30.10	97.54	113.5	24.87	23.21	88.91	44.58	37.10	70.11	58.37	29.75
Lane Group LOS	E	C	F	F	C	C	F	D	D	E	E	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.99	16.38	36.09	6.29	9.51	5.83	6.40	10.54	3.12	3.20	12.20	2.57
50th-Percentile Queue Length [ft/ln]	124.6	409.5	902.2	157.1	237.8	145.7	159.9	263.4	78.11	79.89	305.0	64.37
95th-Percentile Queue Length [veh/ln]	8.65	23.02	49.71	10.65	14.57	9.79	10.70	15.86	5.62	5.75	17.93	4.63
95th-Percentile Queue Length [ft/ln]	216.1	575.4	1242.	266.3	364.2	244.7	267.3	396.4	140.6	143.8	448.2	115.8

Movement, Approach, & Intersection Results

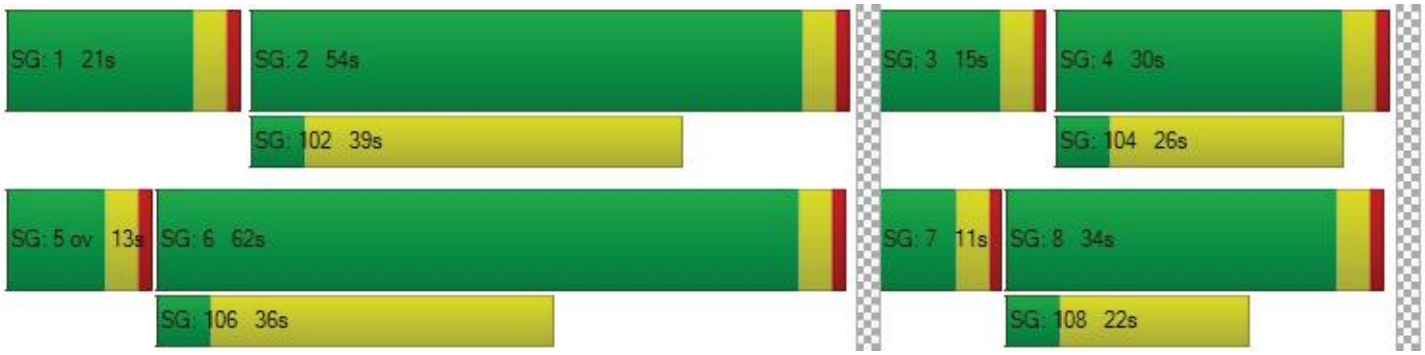
d_M, Delay for Movement [s/veh]	62.63	30.10	97.54	113.5	24.87	23.21	88.91	44.58	37.10	70.11	58.37	29.75
Movement LOS	E	C	F	F	C	C	F	D	D	E	E	C
d_A, Approach Delay [s/veh]	67.50			34.09			53.45			57.49		
Approach LOS	E			C			D			E		
d_I, Intersection Delay [s/veh]	54.01											
Intersection LOS	D											
Intersection V/C	0.928											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.884	2.871	3.204	3.327
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	833	500	433
d_b, Bicycle Delay [s]	16.02	20.42	33.75	36.82
l_b,int, Bicycle LOS Score for Intersection	2.957	2.674	2.421	2.342
Bicycle LOS	C	B	B	B

Sequence

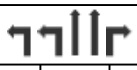
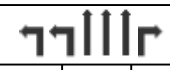
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	192	923	81	250	1228	122	115	460	122	141	640	218
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	923	81	250	1228	122	115	460	122	141	640	218
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	243	21	66	323	32	30	121	32	37	168	57
Total Analysis Volume [veh/h]	202	972	85	263	1293	128	121	484	128	148	674	229
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	43	0	21	51	0	9	45	0	11	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	67	67	11	69	69	5	19	19	7	21	21
g / C, Green / Cycle	0.07	0.56	0.56	0.09	0.58	0.58	0.04	0.16	0.16	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.05	0.07	0.36	0.08	0.03	0.09	0.08	0.04	0.13	0.14
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	257	2874	897	329	2083	930	146	828	258	203	911	284
d1, Uniform Delay [s]	54.68	14.61	12.53	53.27	16.81	11.73	57.07	46.70	45.98	55.62	46.83	47.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.23	0.32	0.21	4.47	1.40	0.31	11.07	0.66	1.47	4.98	1.20	5.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.34	0.09	0.80	0.62	0.14	0.83	0.58	0.50	0.73	0.74	0.81
d, Delay for Lane Group [s/veh]	59.91	14.93	12.74	57.74	18.21	12.04	68.14	47.36	47.44	60.60	48.03	52.79
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.19	4.84	1.12	4.09	11.71	1.64	2.05	4.52	3.60	2.34	6.46	6.99
50th-Percentile Queue Length [ft/ln]	79.71	120.9	28.03	102.2	292.8	41.06	51.15	113.0	89.98	58.60	161.3	174.6
95th-Percentile Queue Length [veh/ln]	5.74	8.44	2.02	7.36	17.33	2.96	3.68	8.01	6.48	4.22	10.62	11.32
95th-Percentile Queue Length [ft/ln]	143.4	211.1	50.46	184.0	433.1	73.90	92.07	200.2	161.9	105.4	265.5	282.9

Movement, Approach, & Intersection Results

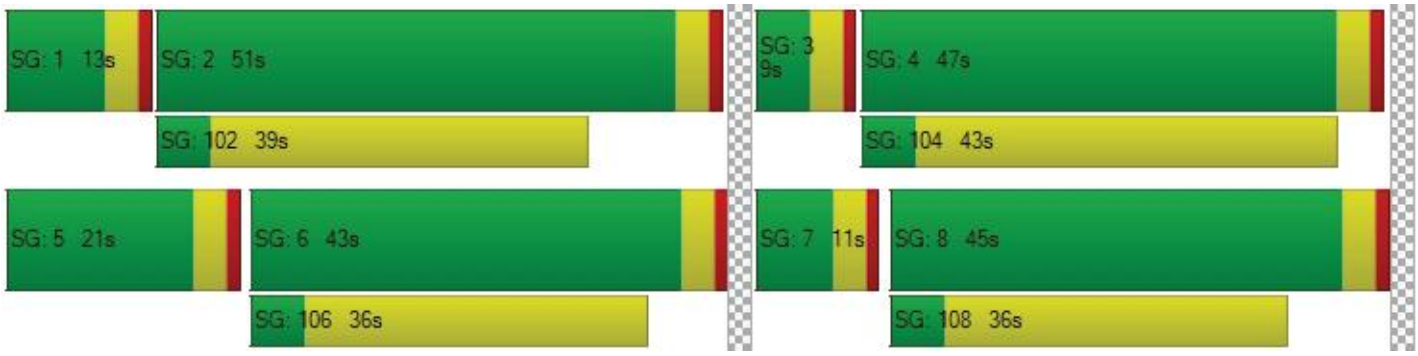
d_M, Delay for Movement [s/veh]	59.91	14.93	12.74	57.74	18.21	12.04	68.14	47.36	47.44	60.60	48.03	52.79
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.00			23.92			50.80			50.84		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.56											
Intersection LOS	C											
Intersection V/C	0.591											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.171	3.360	3.151	3.068
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	783	683	717
d_b, Bicycle Delay [s]	27.34	22.20	26.00	24.70
l_b,int, Bicycle LOS Score for Intersection	2.252	2.949	1.963	2.138
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	45.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	280	163	85	444	142	97	279	149	130	520	77
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	280	163	85	444	142	97	279	149	130	520	77
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	74	43	22	117	37	26	73	39	34	137	20
Total Analysis Volume [veh/h]	166	295	172	89	467	149	102	294	157	137	547	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	32	0	12	25	25	0	32	0	0	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	45	45	7	40	40	22	22	29	29
g / C, Green / Cycle	0.11	0.38	0.38	0.06	0.33	0.33	0.19	0.19	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.09	0.13	0.13	0.05	0.13	0.09	0.16	0.16	0.22	0.22
s, saturation flow rate [veh/h]	1810	1900	1670	1810	3618	1615	1868	1559	1868	1663
c, Capacity [veh/h]	194	717	630	112	1201	536	347	290	451	401
d1, Uniform Delay [s]	52.64	26.72	26.78	55.52	30.73	29.48	47.34	47.48	44.10	44.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.20	0.20
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.17	1.31	1.52	11.83	0.95	1.29	6.32	8.19	11.32	12.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.34	0.35	0.79	0.39	0.28	0.86	0.87	0.90	0.90
d, Delay for Lane Group [s/veh]	62.80	28.03	28.30	67.35	31.68	30.77	53.67	55.67	55.42	56.68
Lane Group LOS	E	C	C	E	C	C	D	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.46	5.32	4.79	3.03	5.35	3.37	9.26	8.01	13.00	11.72
50th-Percentile Queue Length [ft/ln]	136.5	133.0	119.8	75.64	133.6	84.20	231.44	200.21	324.88	292.99
95th-Percentile Queue Length [veh/ln]	9.29	9.11	8.38	5.45	9.14	6.06	14.25	12.65	18.91	17.33
95th-Percentile Queue Length [ft/ln]	232.3	227.6	209.5	136.1	228.4	151.5	356.19	316.23	472.68	433.35

Movement, Approach, & Intersection Results

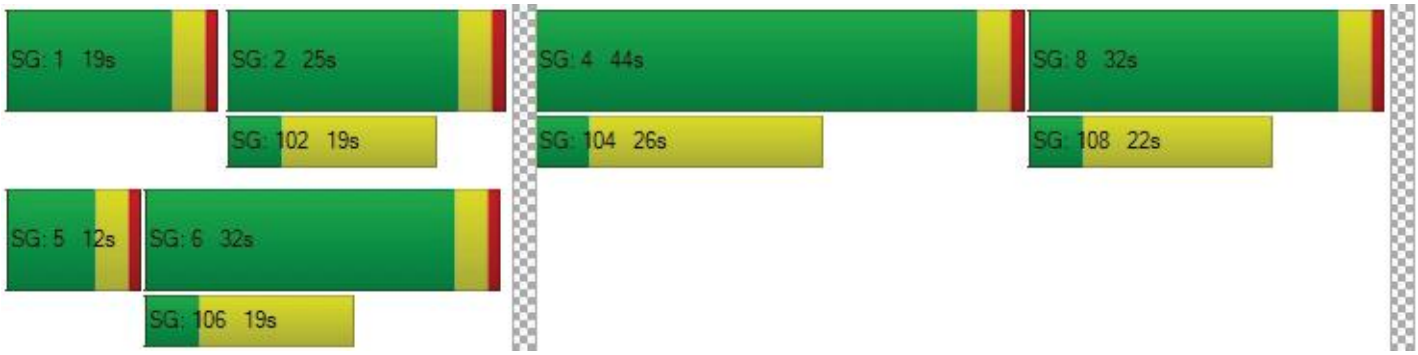
d_M, Delay for Movement [s/veh]	62.80	28.08	28.30	67.35	31.68	30.77	53.67	54.33	55.67	55.42	56.06	56.68
Movement LOS	E	C	C	E	C	C	D	D	E	E	E	E
d_A, Approach Delay [s/veh]	37.24			35.99			54.59			56.01		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	45.93											
Intersection LOS	D											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.587	2.660	2.491	2.468
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	350	467	667
d_b, Bicycle Delay [s]	35.27	40.84	35.27	26.67
l_b,int, Bicycle LOS Score for Intersection	2.082	2.141	2.016	2.191
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	194	0	951	0	693	894	0	1774	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	194	0	951	0	693	894	0	1774	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	51	0	250	0	182	235	0	467	0
Total Analysis Volume [veh/h]	0	0	0	204	0	1001	0	729	941	0	1867	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	43	0	0	0	77	0	0	77	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		39	39	39	73	73	73
g / C, Green / Cycle		0.32	0.32	0.32	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.11	0.31	0.31	0.14	0.58	0.36
s, saturation flow rate [veh/h]		1810	1615	1615	5176	1615	5176
c, Capacity [veh/h]		585	522	522	3158	985	3158
d1, Uniform Delay [s]		30.97	39.82	39.82	10.62	21.86	14.27
k, delay calibration		0.11	0.43	0.43	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.36	27.55	27.55	0.17	19.67	0.82
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.35	0.96	0.96	0.23	0.96	0.59
d, Delay for Lane Group [s/veh]		31.33	67.38	67.38	10.79	41.53	15.09
Lane Group LOS		C	E	E	B	D	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		4.58	18.27	18.27	2.91	28.17	10.08
50th-Percentile Queue Length [ft/ln]		114.5	456.7	456.7	72.71	704.31	251.97
95th-Percentile Queue Length [veh/ln]		8.09	25.28	25.28	5.24	36.88	15.29
95th-Percentile Queue Length [ft/ln]		202.3	631.9	631.9	130.88	921.93	382.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	31.33	0.00	67.38	0.00	10.79	41.53	0.00	15.09	0.00
Movement LOS				C		E		B	D		B	
d_A, Approach Delay [s/veh]	0.00			61.27			28.11			15.09		
Approach LOS	A			E			C			B		
d_I, Intersection Delay [s/veh]	31.41											
Intersection LOS	C											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.440	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	1217	1217
d_b, Bicycle Delay [s]	60.00	27.34	9.20	9.20
l_b,int, Bicycle LOS Score for Intersection	4.132	3.548	2.478	2.586
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	978	0	553	0	0	0	0	640	0	0	1480	257
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	978	0	553	0	0	0	0	640	0	0	1480	257
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	257	0	146	0	0	0	0	168	0	0	389	68
Total Analysis Volume [veh/h]	1029	0	582	0	0	0	0	674	0	0	1558	271
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	81	0	0	0	0	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45		67	67	67
g / C, Green / Cycle	0.37	0.37	0.37		0.56	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.30	0.30	0.33		0.13	0.30	0.17
s, saturation flow rate [veh/h]	1810	1791	1615		5176	5176	1615
c, Capacity [veh/h]	676	670	604		2896	2896	904
d1, Uniform Delay [s]	33.46	33.60	35.25		13.38	16.65	13.98
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.17	2.29	4.90		0.19	0.72	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.80	0.89		0.23	0.54	0.30
d, Delay for Lane Group [s/veh]	35.63	35.90	40.15		13.57	17.37	14.84
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.17	14.24	15.32		3.09	8.94	4.05
50th-Percentile Queue Length [ft/ln]	354.1	356.1	382.9		77.27	223.45	101.16
95th-Percentile Queue Length [veh/ln]	20.34	20.43	21.74		5.56	13.84	7.28
95th-Percentile Queue Length [ft/ln]	508.4	510.8	543.3		139.08	346.03	182.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.76	0.00	39.83	0.00	0.00	0.00	0.00	13.57	0.00	0.00	17.37	14.84
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	37.23			0.00			13.57			17.00		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	24.36											
Intersection LOS	C											
Intersection V/C	0.634											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.539	0.000	0.000	3.039
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1283	0	583	583
d_b, Bicycle Delay [s]	7.70	60.00	30.10	30.10
l_b,int, Bicycle LOS Score for Intersection	4.218	4.132	1.930	2.566
Bicycle LOS	D	D	A	B

Sequence

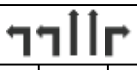
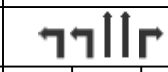
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	42.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	223	236	76	57	419	296	118	558	282	383	1399	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	223	236	76	57	419	296	118	558	282	383	1399	129
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	59	62	20	15	110	78	31	147	74	101	368	34
Total Analysis Volume [veh/h]	235	248	80	60	441	312	124	587	297	403	1473	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	20	44	0	12	36	0	9	40	40	24	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	43	43	5	32	32	5	40	60	16	51	51
g / C, Green / Cycle	0.13	0.36	0.36	0.04	0.27	0.27	0.04	0.33	0.50	0.13	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.05	0.03	0.21	0.21	0.04	0.16	0.18	0.11	0.41	0.08
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1642	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	241	682	579	80	512	443	146	1190	801	473	1527	682
d1, Uniform Delay [s]	51.79	28.38	25.96	56.69	40.63	40.67	57.12	32.24	18.70	50.74	33.81	21.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.26	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.37	1.50	0.50	13.07	11.60	13.41	12.44	0.32	0.68	4.42	5.24	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	0.36	0.14	0.75	0.79	0.79	0.85	0.49	0.37	0.85	0.96	0.20
d, Delay for Lane Group [s/veh]	73.16	29.88	26.46	69.76	52.23	54.08	69.56	32.56	19.38	55.16	39.05	22.03
Lane Group LOS	E	C	C	E	D	D	E	C	B	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.46	5.55	1.63	2.09	12.64	11.19	2.12	6.87	5.21	6.20	21.46	2.46
50th-Percentile Queue Length [ft/ln]	211.3	138.8	40.86	52.25	315.9	279.6	53.02	171.7	130.2	155.1	536.6	61.49
95th-Percentile Queue Length [veh/ln]	13.22	9.42	2.94	3.76	18.47	16.67	3.82	11.17	8.95	10.29	29.06	4.43
95th-Percentile Queue Length [ft/ln]	330.6	235.4	73.55	94.05	461.6	416.7	95.43	279.2	223.8	257.2	726.5	110.6

Movement, Approach, & Intersection Results

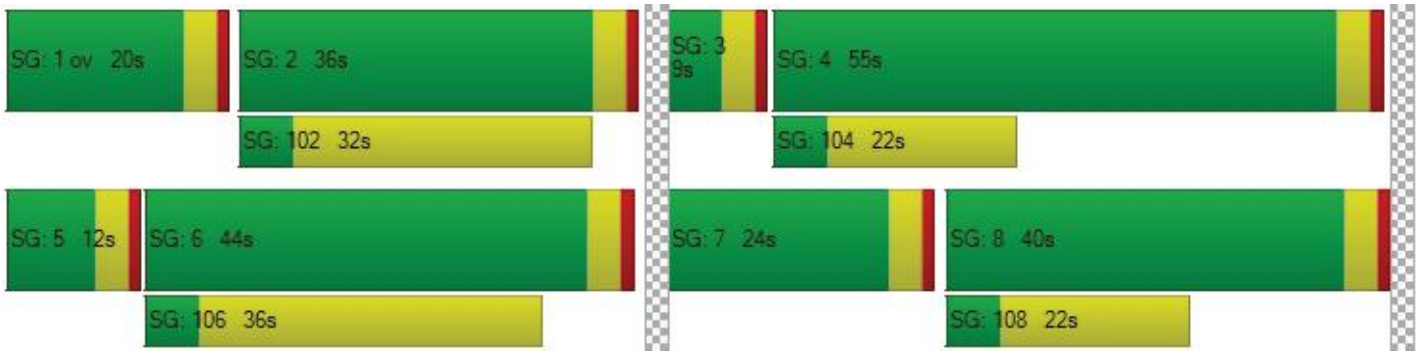
d_M, Delay for Movement [s/veh]	73.16	29.88	26.46	69.76	52.39	54.08	69.56	32.56	19.38	55.16	39.05	22.03
Movement LOS	E	C	C	E	D	D	E	C	B	E	D	C
d_A, Approach Delay [s/veh]	47.46			54.32			33.23			41.13		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	42.57											
Intersection LOS	D											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.647	2.573	3.110	3.161
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	600	850
d_b, Bicycle Delay [s]	26.67	32.27	29.40	19.84
l_b,int, Bicycle LOS Score for Intersection	2.489	2.230	2.391	3.220
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	49.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	380	575	172	184	960	227	206	468	204	337	1306	110
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	380	575	172	184	960	227	206	468	204	337	1306	110
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	100	151	45	48	253	60	54	123	54	89	344	29
Total Analysis Volume [veh/h]	400	605	181	194	1011	239	217	493	215	355	1375	116
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	29	50	0	19	40	40	11	36	0	15	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	25	48	48	15	37	48	7	31	31	11	35	53
g / C, Green / Cycle	0.21	0.40	0.40	0.12	0.31	0.40	0.06	0.26	0.26	0.09	0.29	0.45
(v / s)_i Volume / Saturation Flow Rate	0.22	0.12	0.11	0.11	0.20	0.15	0.06	0.10	0.13	0.10	0.27	0.07
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	377	2047	639	222	1602	648	205	1331	415	322	1503	721
d1, Uniform Delay [s]	47.50	24.83	24.70	51.76	35.55	25.25	56.50	36.59	38.19	54.50	41.13	19.82
k, delay calibration	0.37	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	56.83	0.37	1.11	10.43	1.90	1.61	46.01	0.17	1.00	56.52	2.59	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.06	0.30	0.28	0.88	0.63	0.37	1.06	0.37	0.52	1.10	0.91	0.16
d, Delay for Lane Group [s/veh]	104.3	25.20	25.81	62.19	37.45	26.87	102.5	36.77	39.19	111.0	43.72	19.93
Lane Group LOS	F	C	C	E	D	C	F	D	D	F	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	17.14	4.01	3.71	6.37	8.71	5.08	4.41	4.00	5.54	7.39	13.33	1.97
50th-Percentile Queue Length [ft/ln]	428.6	100.2	92.84	159.3	217.6	126.9	110.3	99.93	138.6	184.6	333.2	49.24
95th-Percentile Queue Length [veh/ln]	24.73	7.22	6.68	10.51	13.55	8.77	7.94	7.20	9.41	12.26	19.32	3.55
95th-Percentile Queue Length [ft/ln]	618.1	180.4	167.1	262.8	338.6	219.3	198.5	179.8	235.1	306.5	482.9	88.63

Movement, Approach, & Intersection Results

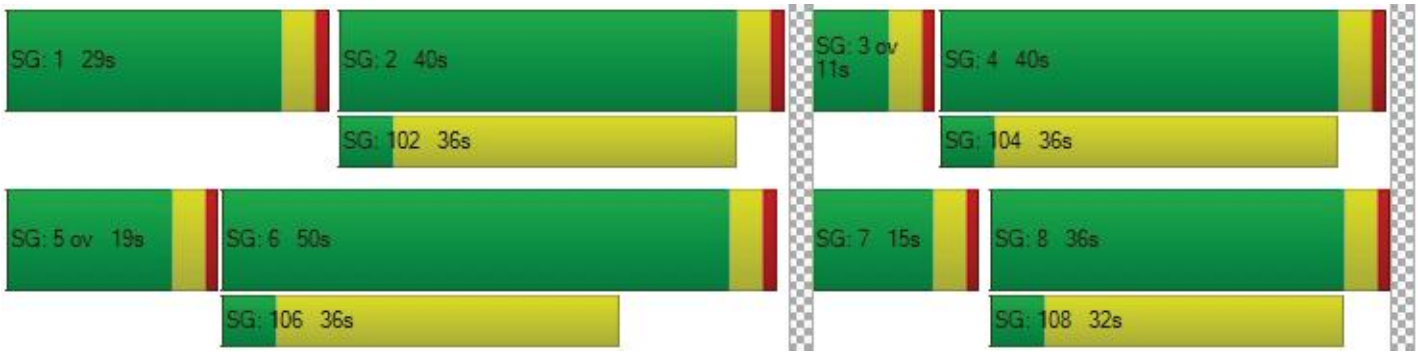
d_M, Delay for Movement [s/veh]	104.3	25.20	25.81	62.19	37.45	26.87	102.5	36.77	39.19	111.0	43.72	19.93
Movement LOS	F	C	C	E	D	C	F	D	D	F	D	B
d_A, Approach Delay [s/veh]	51.98			39.02			52.75			55.17		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	49.74											
Intersection LOS	D											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.078	3.123	3.183	3.158
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	600	533	600
d_b, Bicycle Delay [s]	22.82	29.40	32.27	29.40
l_b,int, Bicycle LOS Score for Intersection	2.212	2.354	2.068	2.575
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	3,717.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	8.079

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	108	0	202	0	0	0	0	725	123	282	1728	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	0	202	0	0	0	0	725	123	282	1728	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	0	53	0	0	0	0	191	32	74	455	0
Total Analysis Volume [veh/h]	114	0	213	0	0	0	0	763	129	297	1819	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	8.08	0.00	0.38	0.00	0.00	0.00	0.00	0.01	0.00	0.39	0.02	0.00
d_M, Delay for Movement [s/veh]	3717.	4076.	3469.	939.5	682.7	17.80	15.54	0.00	0.00	12.60	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	39.17	39.17	39.17	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.00	0.00
95th-Percentile Queue Length [ft/ln]	979.2	979.2	979.2	0.00	0.00	0.00	0.00	0.00	0.00	45.81	0.00	0.00
d_A, Approach Delay [s/veh]	3555.77			546.70			0.00			1.77		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	349.77											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	48.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	586	120	151	813	181	167	502	128	365	998	107
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	586	120	151	813	181	167	502	128	365	998	107
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	154	32	40	214	48	44	132	34	96	263	28
Total Analysis Volume [veh/h]	168	617	126	159	856	191	176	528	135	384	1051	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	42	0	16	42	0	17	28	0	34	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	41	41	12	41	41	13	23	23	27	38	38
g / C, Green / Cycle	0.10	0.34	0.34	0.10	0.34	0.34	0.11	0.20	0.20	0.23	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.09	0.20	0.20	0.09	0.28	0.28	0.10	0.15	0.08	0.21	0.29	0.07
s, saturation flow rate [veh/h]	1810	1900	1790	1810	1900	1782	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	181	652	614	181	652	611	196	706	315	414	1141	509
d1, Uniform Delay [s]	53.57	32.44	32.44	53.28	36.17	36.23	52.84	45.52	42.42	45.31	39.63	30.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.34	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.91	3.85	4.08	12.64	11.56	12.44	13.48	1.62	0.92	22.49	3.61	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.59	0.59	0.88	0.83	0.83	0.90	0.75	0.43	0.93	0.92	0.22
d, Delay for Lane Group [s/veh]	71.49	36.29	36.52	65.92	47.73	48.66	66.32	47.14	43.35	67.80	43.25	30.45
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.92	9.80	9.27	5.36	16.40	15.59	5.97	7.56	3.61	13.72	15.36	2.46
50th-Percentile Queue Length [ft/ln]	148.0	244.8	231.7	134.0	409.9	389.8	149.1	189.0	90.21	343.0	383.9	61.40
95th-Percentile Queue Length [veh/ln]	9.91	14.93	14.26	9.16	23.04	22.07	9.97	12.07	6.50	19.80	21.78	4.42
95th-Percentile Queue Length [ft/ln]	247.8	373.2	356.5	228.9	575.9	551.7	249.3	301.7	162.3	494.9	544.5	110.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.49	36.38	36.52	65.92	48.08	48.66	66.32	47.14	43.35	67.80	43.25	30.45
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	42.87			50.52			50.55			48.40		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	48.25											
Intersection LOS	D											
Intersection V/C	0.766											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.761	2.727	2.834	2.852
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	400	683
d_b, Bicycle Delay [s]	28.02	28.02	38.40	26.00
l_b,int, Bicycle LOS Score for Intersection	2.311	2.555	2.252	2.837
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	44.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.740

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	129	722	138	216	996	143	239	434	125	233	811	169
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	722	138	216	996	143	239	434	125	233	811	169
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	190	36	57	262	38	63	114	33	61	213	44
Total Analysis Volume [veh/h]	136	760	145	227	1048	151	252	457	132	245	854	178
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	34	0	22	41	0	24	37	0	27	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	37	37	17	43	43	19	32	32	18	31	31
g / C, Green / Cycle	0.09	0.31	0.31	0.14	0.36	0.36	0.15	0.26	0.26	0.15	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.09	0.13	0.29	0.09	0.14	0.13	0.08	0.14	0.24	0.11
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	162	1116	498	255	1300	581	280	957	427	277	950	424
d1, Uniform Delay [s]	53.75	36.32	31.52	50.65	34.66	27.15	49.81	37.15	35.35	49.79	42.70	36.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.13	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.73	3.36	1.48	10.32	5.41	1.09	11.57	0.37	0.41	9.66	3.38	0.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.68	0.29	0.89	0.81	0.26	0.90	0.48	0.31	0.89	0.90	0.42
d, Delay for Lane Group [s/veh]	64.48	39.69	33.00	60.96	40.07	28.24	61.38	37.52	35.76	59.45	46.07	37.32
Lane Group LOS	E	D	C	E	D	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.52	10.21	3.41	7.42	14.59	3.25	8.31	5.71	3.16	7.93	12.58	4.42
50th-Percentile Queue Length [ft/ln]	113.0	255.2	85.32	185.4	364.6	81.20	207.6	142.6	78.93	198.3	314.4	110.4
95th-Percentile Queue Length [veh/ln]	8.01	15.45	6.14	11.88	20.85	5.85	13.03	9.62	5.68	12.55	18.39	7.87
95th-Percentile Queue Length [ft/ln]	200.2	386.2	153.5	297.0	521.2	146.1	325.8	240.5	142.0	313.8	459.8	196.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.48	39.69	33.00	60.96	40.07	28.24	61.38	37.52	35.76	59.45	46.07	37.32
Movement LOS	E	D	C	E	D	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	41.99			42.14			44.39			47.42		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.99											
Intersection LOS	D											
Intersection V/C	0.740											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.953	3.060	2.790	2.810
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	617	550	600
d_b, Bicycle Delay [s]	33.75	28.70	31.54	29.40
l_b,int, Bicycle LOS Score for Intersection	2.418	2.736	2.253	2.613
Bicycle LOS	B	B	B	B

Sequence

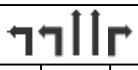
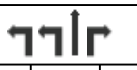
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	72.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	398	246	65	163	519	439	104	848	209	277	1753	167
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	398	246	65	163	519	439	104	848	209	277	1753	167
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	105	65	17	43	137	116	27	223	55	73	461	44
Total Analysis Volume [veh/h]	419	259	68	172	546	462	109	893	220	292	1845	176
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	17	30	30	17	30	30	9	59	59	14	64	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	26	40	13	26	35	5	55	72	10	60	60
g / C, Green / Cycle	0.11	0.22	0.33	0.11	0.22	0.29	0.04	0.46	0.60	0.08	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.04	0.10	0.15	0.29	0.03	0.47	0.14	0.08	0.53	0.55
s, saturation flow rate [veh/h]	3514	3618	1615	1810	3618	1615	3514	1900	1615	3514	1900	1843
c, Capacity [veh/h]	381	784	538	196	784	471	146	871	969	293	950	922
d1, Uniform Delay [s]	53.50	39.66	27.84	52.71	43.36	42.17	56.87	32.50	11.11	54.99	30.00	30.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.49	0.12	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	54.55	1.13	0.48	11.71	5.08	36.98	7.28	36.89	0.13	23.77	47.68	59.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.33	0.13	0.88	0.70	0.98	0.74	1.03	0.23	1.00	1.06	1.10
d, Delay for Lane Group [s/veh]	108.0	40.78	28.32	64.43	48.44	79.14	64.14	69.39	11.24	78.76	77.68	89.55
Lane Group LOS	F	D	C	E	D	E	E	F	B	E	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.61	3.36	1.44	5.74	8.02	18.25	1.78	33.31	2.70	5.37	38.77	40.65
50th-Percentile Queue Length [ft/ln]	215.3	84.07	36.12	143.4	200.5	456.2	44.56	832.8	67.39	134.3	969.2	1016.
95th-Percentile Queue Length [veh/ln]	13.94	6.05	2.60	9.67	12.67	25.26	3.21	43.64	4.85	9.17	51.47	54.94
95th-Percentile Queue Length [ft/ln]	348.4	151.3	65.02	241.6	316.6	631.4	80.21	1091.	121.3	229.3	1286.	1373.

Movement, Approach, & Intersection Results

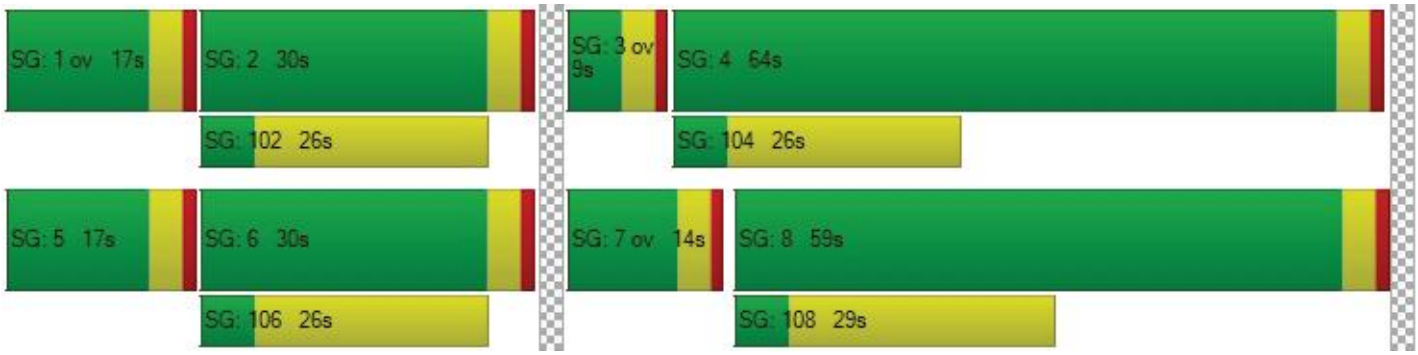
d_M, Delay for Movement [s/veh]	108.0	40.78	28.32	64.43	48.44	79.14	64.14	69.39	11.24	78.76	83.05	89.55
Movement LOS	F	D	C	E	D	E	E	F	B	E	F	F
d_A, Approach Delay [s/veh]	77.43			62.79			58.45			83.00		
Approach LOS	E			E			E			F		
d_I, Intersection Delay [s/veh]	72.38											
Intersection LOS	E											
Intersection V/C	0.917											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.860	2.748	3.159	3.028
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	917	1000
d_b, Bicycle Delay [s]	36.82	36.82	17.60	15.00
l_b,int, Bicycle LOS Score for Intersection	2.175	2.533	3.576	3.468
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	48.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.805

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	136	1033	168	59	1220	106	81	437	104	221	763	87
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	1033	168	59	1220	106	81	437	104	221	763	87
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	272	44	16	321	28	21	115	27	58	201	23
Total Analysis Volume [veh/h]	143	1087	177	62	1284	112	85	460	109	233	803	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	41	0	9	36	0	10	47	0	23	60	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	40	40	5	35	35	6	41	41	17	53	53
g / C, Green / Cycle	0.08	0.34	0.34	0.04	0.29	0.29	0.05	0.34	0.34	0.14	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.23	0.03	0.26	0.26	0.05	0.24	0.07	0.13	0.42	0.06
s, saturation flow rate [veh/h]	1810	3618	1767	1810	3618	1823	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	151	1216	594	75	1066	537	90	653	555	263	834	709
d1, Uniform Delay [s]	54.74	34.55	34.55	57.06	40.17	40.17	56.82	34.10	27.72	50.33	32.73	20.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.21	0.11	0.11	0.40	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.53	3.34	6.68	19.24	9.78	17.43	31.13	2.66	0.17	9.78	20.35	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.70	0.70	0.82	0.87	0.87	0.94	0.70	0.20	0.89	0.96	0.13
d, Delay for Lane Group [s/veh]	78.27	37.89	41.23	76.30	49.94	57.60	87.95	36.77	27.89	60.11	53.08	20.12
Lane Group LOS	E	D	D	E	D	E	F	D	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.28	11.24	11.53	2.27	14.32	15.58	3.35	12.00	2.24	7.57	26.73	1.56
50th-Percentile Queue Length [ft/ln]	132.0	280.9	288.2	56.72	358.0	389.4	83.74	300.0	56.12	189.2	668.1	39.01
95th-Percentile Queue Length [veh/ln]	9.05	16.74	17.10	4.08	20.53	22.05	6.03	17.68	4.04	12.08	35.21	2.81
95th-Percentile Queue Length [ft/ln]	226.2	418.3	427.4	102.0	513.2	551.2	150.7	442.0	101.0	302.0	880.1	70.21

Movement, Approach, & Intersection Results

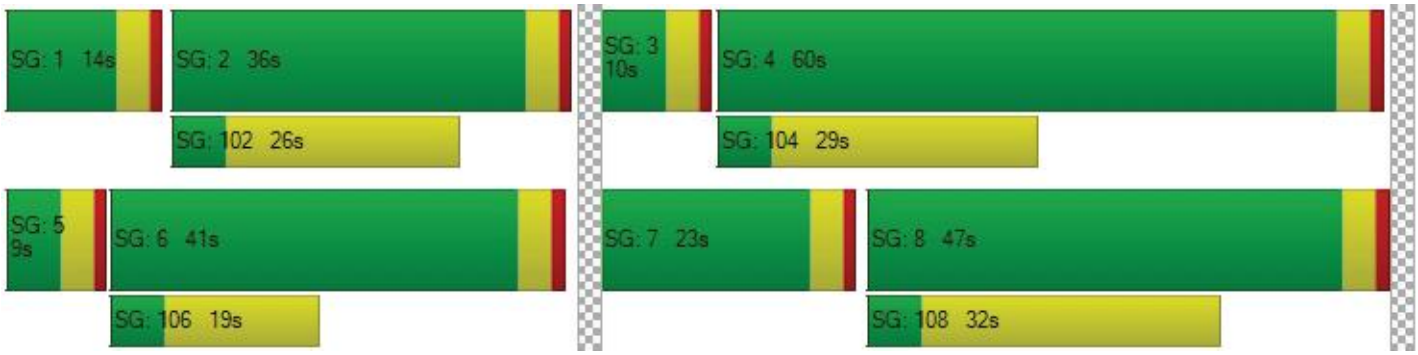
d_M, Delay for Movement [s/veh]	78.27	38.62	41.23	76.30	52.06	57.60	87.95	36.77	27.89	60.11	53.08	20.12
Movement LOS	E	D	D	E	D	E	F	D	C	E	D	C
d_A, Approach Delay [s/veh]	42.98			53.52			41.94			51.84		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	48.29											
Intersection LOS	D											
Intersection V/C	0.805											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.110	2.988	2.746	2.592
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	533	717	933
d_b, Bicycle Delay [s]	28.70	32.27	24.70	17.07
l_b,int, Bicycle LOS Score for Intersection	2.333	2.362	2.639	3.421
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	107	260	156	24	260	137	68	397	65	189	780	45
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	260	156	24	260	137	68	397	65	189	780	45
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	68	41	6	68	36	18	104	17	50	205	12
Total Analysis Volume [veh/h]	113	274	164	25	274	144	72	418	68	199	821	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	47	47	47	47	47	47	65	65	65	65	65	65
g / C, Green / Cycle	0.39	0.39	0.39	0.39	0.39	0.39	0.54	0.54	0.54	0.54	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.11	0.14	0.10	0.03	0.14	0.09	0.11	0.22	0.04	0.22	0.43	0.03
s, saturation flow rate [veh/h]	984	1900	1615	966	1900	1615	648	1900	1615	924	1900	1615
c, Capacity [veh/h]	349	750	638	344	750	638	149	1023	870	403	1023	870
d1, Uniform Delay [s]	33.83	25.68	24.46	30.74	25.68	24.13	50.16	16.38	13.34	30.21	22.50	13.16
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.19	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.45	1.37	0.97	0.41	1.37	0.82	2.40	0.26	0.04	0.94	2.69	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.37	0.26	0.07	0.37	0.23	0.48	0.41	0.08	0.49	0.80	0.05
d, Delay for Lane Group [s/veh]	36.29	27.05	25.43	31.15	27.05	24.95	52.55	16.64	13.38	31.15	25.20	13.19
Lane Group LOS	D	C	C	C	C	C	D	B	B	C	C	B
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.88	5.82	3.33	0.57	5.82	2.88	2.19	6.77	0.90	4.69	18.84	0.61
50th-Percentile Queue Length [ft/ln]	71.89	145.5	83.21	14.24	145.5	71.97	54.84	169.3	22.41	117.1	470.9	15.28
95th-Percentile Queue Length [veh/ln]	5.18	9.78	5.99	1.03	9.78	5.18	3.95	11.04	1.61	8.24	25.95	1.10
95th-Percentile Queue Length [ft/ln]	129.4	244.4	149.7	25.63	244.4	129.5	98.70	276.0	40.34	205.9	648.8	27.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.29	27.05	25.43	31.15	27.05	24.95	52.55	16.64	13.38	31.15	25.20	13.19
Movement LOS	D	C	C	C	C	C	D	B	B	C	C	B
d_A, Approach Delay [s/veh]	28.46			26.60			20.88			25.78		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.44											
Intersection LOS	C											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.696	2.453	2.706	2.677
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	1383	1383
d_b, Bicycle Delay [s]	34.50	34.50	5.70	5.70
l_b,int, Bicycle LOS Score for Intersection	2.469	2.291	2.480	3.320
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	57.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.843

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	268	714	233	108	888	178	90	297	123	262	596	160
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	714	233	108	888	178	90	297	123	262	596	160
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	71	188	61	28	234	47	24	78	32	69	157	42
Total Analysis Volume [veh/h]	282	752	245	114	935	187	95	313	129	276	627	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	51	0	13	41	0	11	26	0	30	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	47	47	9	37	37	7	28	28	20	41	41
g / C, Green / Cycle	0.16	0.39	0.39	0.08	0.31	0.31	0.06	0.23	0.23	0.17	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.16	0.27	0.27	0.06	0.30	0.30	0.05	0.09	0.08	0.15	0.33	0.10
s, saturation flow rate [veh/h]	1810	1900	1743	1810	1900	1792	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	287	745	683	136	587	553	106	829	370	308	648	551
d1, Uniform Delay [s]	50.35	30.49	30.58	54.79	41.16	41.23	56.15	39.03	38.75	48.72	38.86	29.06
k, delay calibration	0.17	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.16	0.44	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.80	5.31	5.92	12.78	33.12	35.13	22.20	0.28	0.56	12.84	25.92	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.70	0.70	0.84	0.98	0.99	0.90	0.38	0.35	0.89	0.97	0.30
d, Delay for Lane Group [s/veh]	78.15	35.80	36.50	67.57	74.27	76.36	78.36	39.31	39.31	61.56	64.78	29.36
Lane Group LOS	E	D	D	E	E	E	E	D	D	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.62	13.48	12.61	3.88	22.07	21.22	3.51	3.94	3.25	9.17	22.52	3.62
50th-Percentile Queue Length [ft/ln]	265.5	336.9	315.1	97.05	551.7	530.4	87.73	98.40	81.30	229.3	562.9	90.59
95th-Percentile Queue Length [veh/ln]	15.97	19.50	18.43	6.99	29.78	28.77	6.32	7.08	5.85	14.14	30.30	6.52
95th-Percentile Queue Length [ft/ln]	399.1	487.4	460.7	174.6	744.3	719.2	157.9	177.1	146.3	353.5	757.5	163.0

Movement, Approach, & Intersection Results

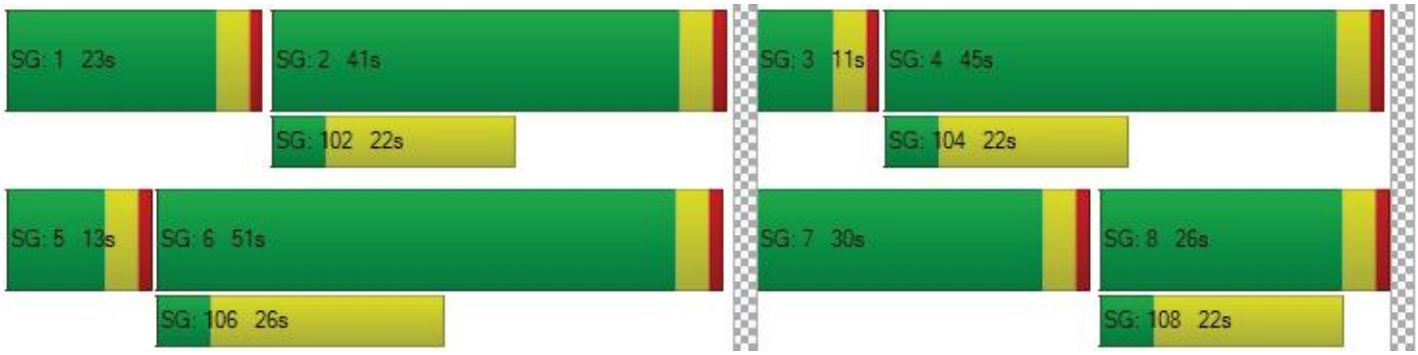
d_M, Delay for Movement [s/veh]	78.15	36.02	36.50	67.57	75.07	76.36	78.36	39.31	39.31	61.56	64.78	29.36
Movement LOS	E	D	D	E	E	E	E	D	D	E	E	C
d_A, Approach Delay [s/veh]	45.40			74.58			46.22			58.39		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	57.63											
Intersection LOS	E											
Intersection V/C	0.843											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.826	2.754	2.634	2.751
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	617	367	683
d_b, Bicycle Delay [s]	22.20	28.70	40.02	26.00
l_b,int, Bicycle LOS Score for Intersection	2.615	2.579	2.003	3.327
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.612

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	112	837	43	76	988	94	94	453	92	79	592	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	837	43	76	988	94	94	453	92	79	592	72
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	220	11	20	260	25	25	119	24	21	156	19
Total Analysis Volume [veh/h]	118	881	45	80	1040	99	99	477	97	83	623	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	50	0	11	47	0	12	48	0	11	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	64	64	7	61	61	8	27	27	7	25	25
g / C, Green / Cycle	0.08	0.53	0.53	0.06	0.51	0.51	0.07	0.22	0.22	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.07	0.25	0.25	0.04	0.30	0.30	0.05	0.16	0.16	0.05	0.19	0.19
s, saturation flow rate [veh/h]	1810	1900	1868	1810	1900	1843	1810	1900	1790	1810	1900	1829
c, Capacity [veh/h]	144	1008	991	102	964	935	121	421	397	105	405	390
d1, Uniform Delay [s]	54.39	17.53	17.53	55.92	20.93	20.94	55.29	43.00	43.05	55.79	45.70	45.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.92	1.53	1.56	12.49	2.75	2.85	12.74	2.11	2.28	12.32	6.24	6.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.46	0.46	0.79	0.60	0.60	0.82	0.70	0.70	0.79	0.88	0.88
d, Delay for Lane Group [s/veh]	65.31	19.06	19.09	68.41	23.68	23.79	68.03	45.12	45.33	68.11	51.94	52.25
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.95	8.31	8.18	2.74	11.95	11.65	3.38	8.30	7.89	2.84	10.94	10.57
50th-Percentile Queue Length [ft/ln]	98.64	207.8	204.5	68.62	298.7	291.1	84.58	207.4	197.2	71.00	273.4	264.3
95th-Percentile Queue Length [veh/ln]	7.10	13.04	12.87	4.94	17.62	17.24	6.09	13.02	12.49	5.11	16.36	15.91
95th-Percentile Queue Length [ft/ln]	177.5	326.0	321.7	123.5	440.5	431.0	152.2	325.5	312.3	127.8	409.0	397.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.31	19.07	19.09	68.41	23.73	23.79	68.03	45.20	45.33	68.11	52.07	52.25
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.30			26.67			48.58			53.79		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.67											
Intersection LOS	D											
Intersection V/C	0.612											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.757	2.838	2.610	2.585
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	717	733	717
d_b, Bicycle Delay [s]	22.82	24.70	24.07	24.70
l_b,int, Bicycle LOS Score for Intersection	2.421	2.565	2.115	2.205
Bicycle LOS	B	B	B	B

Sequence

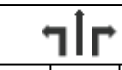
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	24.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	572	171	89	941	0	0	0	0	262	0	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	572	171	89	941	0	0	0	0	262	0	153
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	151	45	23	248	0	0	0	0	69	0	40
Total Analysis Volume [veh/h]	0	602	180	94	991	0	0	0	0	276	0	161
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	69	0	19	79	0	0	32	0	0	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	73	73	8	81	81	27	27	27	27
g / C, Green / Cycle	0.00	0.61	0.61	0.07	0.68	0.68	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.11	0.05	0.52	0.00	0.00	0.00	0.21	0.10
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1795	1615	1335	1615
c, Capacity [veh/h]	2	1162	988	121	1287	1094	428	358	356	358
d1, Uniform Delay [s]	0.00	13.26	10.19	55.09	13.07	0.00	0.00	0.00	46.87	40.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.32	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.65	0.41	10.09	4.49	0.00	0.00	0.00	10.30	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.52	0.18	0.78	0.77	0.00	0.00	0.00	0.78	0.45
d, Delay for Lane Group [s/veh]	0.00	14.91	10.60	65.18	17.57	0.00	0.00	0.00	57.18	41.27
Lane Group LOS	A	B	B	E	B	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	9.40	2.15	3.14	17.93	0.00	0.00	0.00	9.07	4.21
50th-Percentile Queue Length [ft/ln]	0.00	235.1	53.77	78.49	448.2	0.00	0.00	0.00	226.72	105.20
95th-Percentile Queue Length [veh/ln]	0.00	14.43	3.87	5.65	24.88	0.00	0.00	0.00	14.01	7.57
95th-Percentile Queue Length [ft/ln]	0.00	360.8	96.78	141.2	621.8	0.00	0.00	0.00	350.19	189.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	14.91	10.60	65.18	17.57	0.00	0.00	0.00	0.00	57.18	57.18	41.27
Movement LOS	A	B	B	E	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	13.92			21.69			0.00			51.32		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	24.67											
Intersection LOS	C											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.107	0.000	1.955	2.187
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	1250	467	467
d_b, Bicycle Delay [s]	12.60	8.44	35.27	35.27
l_b,int, Bicycle LOS Score for Intersection	2.850	3.350	1.560	2.281
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	37.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	251	1239	148	39	1300	103	34	34	224	169	152	76
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	251	1239	148	39	1300	103	34	34	224	169	152	76
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	66	326	39	10	342	27	9	9	59	44	40	20
Total Analysis Volume [veh/h]	264	1304	156	41	1368	108	36	36	236	178	160	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	64	0	9	42	0	13	29	0	18	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	67	67	4	51	51	4	20	20	14	30
g / C, Green / Cycle	0.16	0.56	0.56	0.03	0.43	0.43	0.03	0.16	0.16	0.11	0.25
(v / s)_i Volume / Saturation Flow Rate	0.15	0.39	0.40	0.02	0.38	0.07	0.02	0.02	0.15	0.10	0.13
s, saturation flow rate [veh/h]	1810	1900	1830	1810	3618	1615	1810	1900	1615	1810	1794
c, Capacity [veh/h]	296	1061	1022	57	1542	688	55	311	264	205	442
d1, Uniform Delay [s]	49.14	19.10	19.37	57.60	31.78	21.18	57.53	42.78	49.15	52.32	39.34
k, delay calibration	0.14	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.70	3.74	4.16	15.81	7.96	0.49	12.19	0.16	13.04	10.60	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.69	0.71	0.72	0.89	0.16	0.65	0.12	0.89	0.87	0.54
d, Delay for Lane Group [s/veh]	60.84	22.83	23.52	73.40	39.73	21.66	69.72	42.95	62.19	62.92	40.38
Lane Group LOS	E	C	C	E	D	C	E	D	E	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	8.69	15.29	15.35	1.48	19.54	1.97	1.27	0.93	7.87	5.87	6.29
50th-Percentile Queue Length [ft/ln]	217.3	382.1	383.7	37.07	488.5	49.25	31.73	23.29	196.7	146.74	157.13
95th-Percentile Queue Length [veh/ln]	13.53	21.70	21.78	2.67	26.79	3.55	2.28	1.68	12.47	9.84	10.40
95th-Percentile Queue Length [ft/ln]	338.2	542.4	544.4	66.73	669.8	88.65	57.11	41.93	311.7	246.07	259.92

Movement, Approach, & Intersection Results

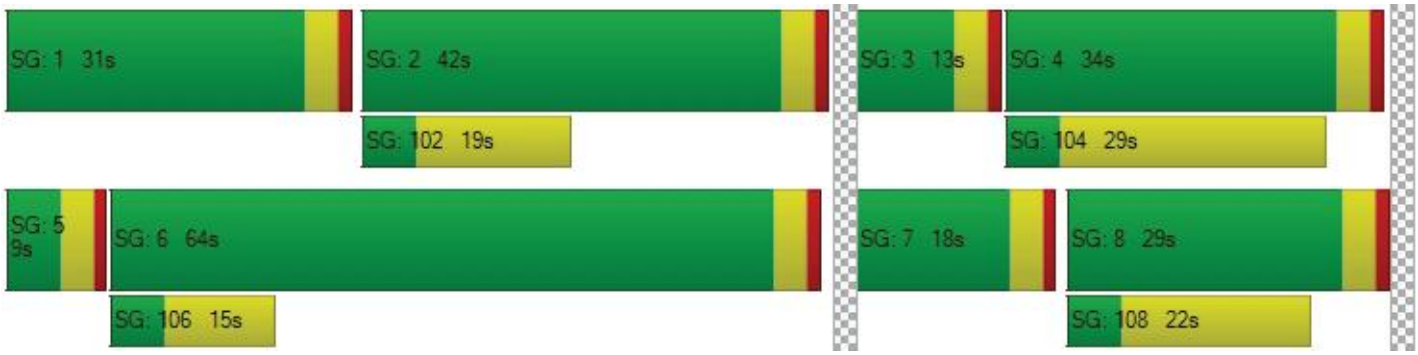
d_M, Delay for Movement [s/veh]	60.84	23.13	23.52	73.40	39.73	21.66	69.72	42.95	62.19	62.92	40.38	40.38
Movement LOS	E	C	C	E	D	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	28.94			39.36			60.82			49.98		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	37.62											
Intersection LOS	D											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.038	3.018	2.351	2.167
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	633	417	500
d_b, Bicycle Delay [s]	15.00	28.02	37.60	33.75
l_b,int, Bicycle LOS Score for Intersection	2.982	2.811	2.068	2.249
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	90.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	150	487	0	0	421	125	64	0	74	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	487	0	0	421	125	64	0	74	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	128	0	0	111	33	17	0	19	0	0	0
Total Analysis Volume [veh/h]	158	513	0	0	443	132	67	0	78	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.01	0.00	0.00	0.00	0.00	0.65	0.00	0.14	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.23	0.00	0.00	0.00	0.00	0.00	90.15	0.00	12.34	0.00	0.00	0.00
Movement LOS	A	A			A	A	F		B			
95th-Percentile Queue Length [veh/ln]	0.55	0.55	0.00	0.00	0.00	0.00	3.26	0.00	0.47	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.87	13.87	0.00	0.00	0.00	0.00	81.50	0.00	11.84	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.17			0.00			48.30			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	6.08											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	849	298	113	1074	1	0	0	2	204	0	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	849	298	113	1074	1	0	0	2	204	0	129
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	223	78	30	283	0	0	0	1	54	0	34
Total Analysis Volume [veh/h]	1	894	314	119	1131	1	0	0	2	215	0	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	35	0	31	50	0	0	9	0	0	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	77	77	10	86	86	0	0	17	17
g / C, Green / Cycle	0.00	0.64	0.64	0.08	0.72	0.72	0.00	0.00	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.33	0.07	0.30	0.30	0.00	0.00	0.12	0.08
s, saturation flow rate [veh/h]	1810	1900	1734	1810	1900	1899	1900	1470	1781	1615
c, Capacity [veh/h]	3	1217	1110	148	1369	1368	5	4	253	229
d1, Uniform Delay [s]	59.82	11.62	11.65	54.15	6.69	6.69	0.00	59.74	50.26	48.25
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	48.84	1.58	1.75	9.73	0.92	0.92	0.00	66.76	7.89	2.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.52	0.52	0.80	0.41	0.41	0.00	0.48	0.85	0.59
d, Delay for Lane Group [s/veh]	108.6	13.20	13.39	63.89	7.61	7.61	0.00	126.50	58.14	50.70
Lane Group LOS	F	B	B	E	A	A	A	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	9.11	8.42	3.93	5.53	5.53	0.00	0.14	6.84	3.98
50th-Percentile Queue Length [ft/ln]	1.84	227.6	210.5	98.30	138.3	138.3	0.00	3.45	171.10	99.41
95th-Percentile Queue Length [veh/ln]	0.13	14.06	13.18	7.08	9.39	9.39	0.00	0.25	11.13	7.16
95th-Percentile Queue Length [ft/ln]	3.30	351.3	329.5	176.9	234.7	234.7	0.00	6.22	278.36	178.94

Movement, Approach, & Intersection Results

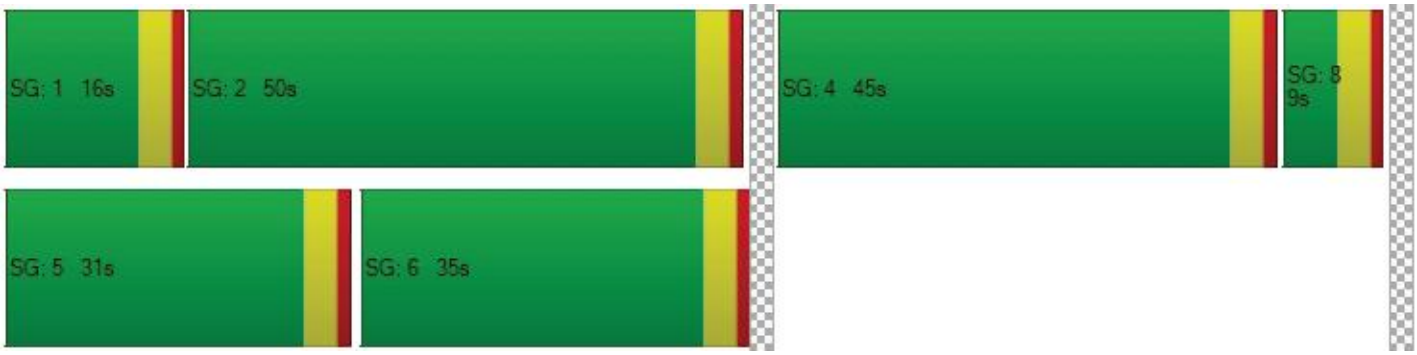
d_M, Delay for Movement [s/veh]	108.6	13.25	13.39	63.89	7.61	7.61	0.00	63.25	126.5	58.14	58.14	50.70
Movement LOS	F	B	B	E	A	A	A	E	F	E	E	D
d_A, Approach Delay [s/veh]	13.37			12.97			126.50			55.26		
Approach LOS	B			B			F			E		
d_I, Intersection Delay [s/veh]	18.50											
Intersection LOS	B											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	767	83	683
d_b, Bicycle Delay [s]	33.00	22.82	55.10	26.00
l_b,int, Bicycle LOS Score for Intersection	2.557	2.592	1.561	2.139
Bicycle LOS	B	B	A	B

Sequence

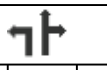
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	146	1237	0	0	0	0	145	0	419
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	813	117	146	1237	0	0	0	0	145	0	419
Peak Hour Factor	0.913	0.913	0.913	0.950	0.913	0.950	0.950	0.950	0.913	0.913	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	223	32	38	339	0	0	0	0	40	0	110
Total Analysis Volume [veh/h]	3	890	128	154	1355	0	0	0	0	159	0	441
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	32	0	16	39	0	25	38	0	34	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	57	57	12	68	68	0	23	13	35
g / C, Green / Cycle	0.00	0.47	0.47	0.10	0.57	0.57	0.00	0.19	0.10	0.29
(v / s)_i Volume / Saturation Flow Rate	0.00	0.25	0.08	0.09	0.37	0.00	0.00	0.00	0.09	0.27
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1810	1615
c, Capacity [veh/h]	7	1711	764	181	2058	919	1	359	190	473
d1, Uniform Delay [s]	59.61	22.10	18.09	53.14	17.84	0.00	0.00	0.00	52.68	41.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	31.59	1.13	0.47	10.73	1.67	0.00	0.00	0.00	9.27	8.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.52	0.17	0.85	0.66	0.00	0.00	0.00	0.84	0.93
d, Delay for Lane Group [s/veh]	91.19	23.23	18.57	63.87	19.51	0.00	0.00	0.00	61.95	49.96
Lane Group LOS	F	C	B	E	B	A	A	A	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	8.93	2.14	5.10	12.91	0.00	0.00	0.00	5.19	13.69
50th-Percentile Queue Length [ft/ln]	3.91	223.1	53.49	127.5	322.7	0.00	0.00	0.00	129.69	342.29
95th-Percentile Queue Length [veh/ln]	0.28	13.83	3.85	8.81	18.80	0.00	0.00	0.00	8.92	19.76
95th-Percentile Queue Length [ft/ln]	7.04	345.6	96.29	220.2	470.0	0.00	0.00	0.00	223.07	494.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	91.19	23.23	18.57	63.87	19.51	0.00	0.00	0.00	0.00	61.95	49.96	49.96
Movement LOS	F	C	B	E	B	A	A	A	A	E	D	D
d_A, Approach Delay [s/veh]	22.85			24.04			0.00			53.14		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	29.23											
Intersection LOS	C											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.962	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	583	567	717
d_b, Bicycle Delay [s]	35.27	30.10	30.82	24.70
l_b,int, Bicycle LOS Score for Intersection	2.402	2.805	1.560	2.550
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	93.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.285

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	251	65	65	241	132	159	143	79	84	397	210
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	251	65	65	241	132	159	143	79	84	397	210
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	20	66	17	17	63	35	42	38	21	22	104	55
Total Analysis Volume [veh/h]	79	264	68	68	254	139	167	151	83	88	418	221
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	383	418	461	375	415	506	430
Degree of Utilization, x	0.90	0.16	1.17	0.85	0.20	1.29	0.51

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.13	0.57	17.88	7.94	0.74	22.48	2.86
95th-Percentile Queue Length [ft]	228.14	14.37	446.95	198.44	18.40	562.04	71.53
Approach Delay [s/veh]	47.72		128.06	40.67		126.41	
Approach LOS	E		F	E		F	
Intersection Delay [s/veh]	93.43						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	835	32	68	1077	117	165	186	54	52	265	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	835	32	68	1077	117	165	186	54	52	265	115
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	220	8	18	283	31	43	49	14	14	70	30
Total Analysis Volume [veh/h]	78	879	34	72	1134	123	174	196	57	55	279	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	52	0	11	52	0	31	34	0	23	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	68	68	6	68	68	14	25	25	5	16	16
g / C, Green / Cycle	0.05	0.57	0.57	0.05	0.56	0.56	0.11	0.21	0.21	0.04	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.24	0.04	0.34	0.34	0.10	0.05	0.04	0.03	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1875	1810	1900	1836	1810	3618	1615	1810	1900	1710
c, Capacity [veh/h]	99	1078	1064	92	1071	1035	206	749	334	75	255	229
d1, Uniform Delay [s]	56.01	14.81	14.81	56.27	17.20	17.24	52.10	39.90	39.12	56.88	50.50	50.68
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.67	1.23	1.25	13.17	2.44	2.56	8.98	0.18	0.24	13.09	6.24	7.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.43	0.43	0.78	0.60	0.60	0.84	0.26	0.17	0.74	0.81	0.84
d, Delay for Lane Group [s/veh]	68.68	16.04	16.06	69.44	19.65	19.80	61.09	40.09	39.36	69.97	56.75	58.62
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.68	7.35	7.25	2.49	11.90	11.61	5.65	2.46	1.41	1.92	6.50	6.14
50th-Percentile Queue Length [ft/ln]	67.06	183.6	181.3	62.34	297.6	290.2	141.2	61.47	35.34	48.06	162.4	153.4
95th-Percentile Queue Length [veh/ln]	4.83	11.79	11.67	4.49	17.56	17.20	9.55	4.43	2.54	3.46	10.68	10.20
95th-Percentile Queue Length [ft/ln]	120.7	294.7	291.8	112.2	439.0	429.9	238.6	110.6	63.61	86.50	267.0	254.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.68	16.05	16.06	69.44	19.71	19.80	61.09	40.09	39.36	69.97	57.23	58.62
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	20.19			22.41			48.55			59.14		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.43											
Intersection LOS	C											
Intersection V/C	0.589											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.751	2.875	2.615	2.591
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	500	367
d_b, Bicycle Delay [s]	21.60	21.60	33.75	40.02
l_b,int, Bicycle LOS Score for Intersection	2.377	2.656	1.912	1.935
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	794	102	51	1141	64	71	387	106	150	418	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	794	102	51	1141	64	71	387	106	150	418	58
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	209	27	13	300	17	19	102	28	39	110	15
Total Analysis Volume [veh/h]	68	836	107	54	1201	67	75	407	112	158	440	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	65	0	9	65	0	12	30	0	16	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	44	44	5	44	44	6	43	43	12	49	49
g / C, Green / Cycle	0.04	0.37	0.37	0.04	0.37	0.37	0.05	0.36	0.36	0.10	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.25	0.03	0.34	0.34	0.04	0.14	0.14	0.09	0.13	0.13
s, saturation flow rate [veh/h]	1810	1900	1825	1810	1900	1865	1810	1900	1761	1810	1900	1820
c, Capacity [veh/h]	75	704	676	70	698	685	97	679	630	181	767	735
d1, Uniform Delay [s]	57.26	31.84	31.84	57.14	36.17	36.21	56.05	28.84	28.89	53.25	24.64	24.66
k, delay calibration	0.11	0.11	0.11	0.11	0.22	0.22	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.73	1.18	1.23	16.05	9.69	10.08	12.11	1.72	1.88	12.19	1.17	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.68	0.68	0.77	0.92	0.92	0.77	0.39	0.40	0.87	0.33	0.33
d, Delay for Lane Group [s/veh]	85.98	33.02	33.07	73.19	45.86	46.29	68.17	30.55	30.77	65.44	25.81	25.88
Lane Group LOS	F	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.65	11.89	11.44	1.94	19.42	19.20	2.57	6.10	5.75	5.31	5.25	5.07
50th-Percentile Queue Length [ft/ln]	66.37	297.3	285.9	48.39	485.5	479.9	64.26	152.4	143.8	132.6	131.3	126.7
95th-Percentile Queue Length [veh/ln]	4.78	17.55	16.98	3.48	26.65	26.38	4.63	10.15	9.69	9.08	9.01	8.76
95th-Percentile Queue Length [ft/ln]	119.4	438.7	424.5	87.11	666.2	659.5	115.6	253.7	242.1	227.1	225.2	219.0

Movement, Approach, & Intersection Results

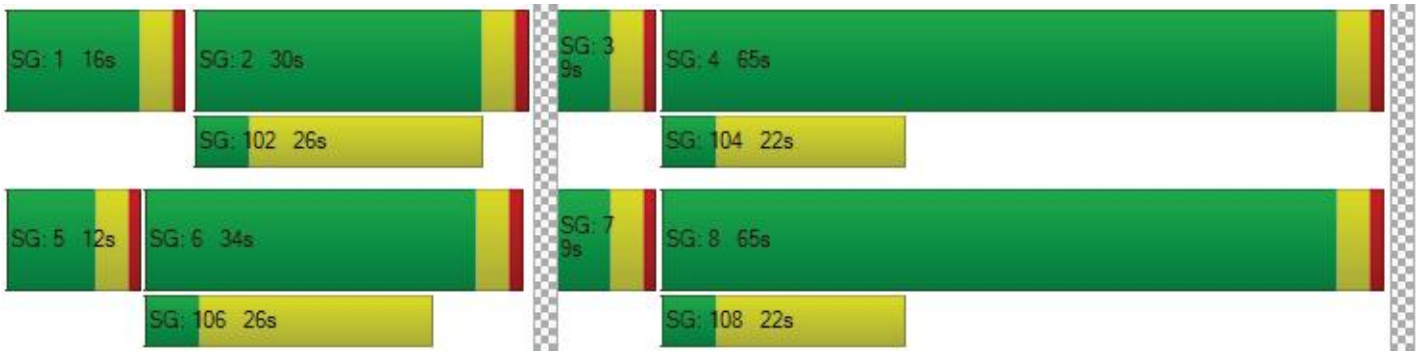
d_M, Delay for Movement [s/veh]	85.98	33.04	33.07	73.19	46.06	46.29	68.17	30.63	30.77	65.44	25.84	25.88
Movement LOS	F	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	36.61			47.18			35.40			35.34		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.07											
Intersection LOS	D											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.871	2.841	2.543	2.554
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1017	433	500
d_b, Bicycle Delay [s]	14.50	14.50	36.82	33.75
l_b,int, Bicycle LOS Score for Intersection	2.394	2.650	2.050	2.103
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.676

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	724	84	26	979	361	230	168	17	88	220	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	724	84	26	979	361	230	168	17	88	220	40
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	191	22	7	258	95	61	44	4	23	58	11
Total Analysis Volume [veh/h]	49	762	88	27	1031	380	242	177	18	93	232	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	52	0	9	52	0	33	31	0	28	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	66	66	3	65	65	18	27	27	8	17	17
g / C, Green / Cycle	0.04	0.55	0.55	0.02	0.54	0.54	0.15	0.23	0.23	0.07	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.01	0.38	0.39	0.13	0.09	0.01	0.05	0.12	0.03
s, saturation flow rate [veh/h]	1810	1900	1832	1810	1900	1729	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	64	1043	1006	45	1024	932	274	429	364	121	268	228
d1, Uniform Delay [s]	57.41	15.80	15.80	57.90	20.73	21.01	49.85	39.67	36.38	55.07	50.44	45.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.61	1.22	1.26	11.95	4.25	4.99	9.12	0.64	0.06	9.73	8.29	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.41	0.41	0.60	0.71	0.73	0.88	0.41	0.05	0.77	0.87	0.18
d, Delay for Lane Group [s/veh]	75.03	17.01	17.06	69.86	24.98	26.00	58.97	40.31	36.44	64.80	58.73	45.85
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.79	7.15	6.91	0.96	16.03	15.25	7.79	4.55	0.42	3.10	7.42	1.14
50th-Percentile Queue Length [ft/ln]	44.64	178.6	172.6	24.05	400.8	381.2	194.8	113.7	10.57	77.41	185.5	28.38
95th-Percentile Queue Length [veh/ln]	3.21	11.53	11.22	1.73	22.60	21.66	12.37	8.05	0.76	5.57	11.89	2.04
95th-Percentile Queue Length [ft/ln]	80.35	288.3	280.3	43.29	565.0	541.4	309.2	201.1	19.02	139.3	297.2	51.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.03	17.03	17.06	69.86	25.28	26.00	58.97	40.31	36.44	64.80	58.73	45.85
Movement LOS	E	B	B	E	C	C	E	D	D	E	E	D
d_A, Approach Delay [s/veh]	20.20			26.31			50.48			58.80		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	31.72											
Intersection LOS	C											
Intersection V/C	0.676											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.713	2.799	2.414	2.307
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	450	367
d_b, Bicycle Delay [s]	21.60	21.60	36.04	40.02
l_b,int, Bicycle LOS Score for Intersection	2.301	2.746	2.281	2.165
Bicycle LOS	B	B	B	B

Sequence

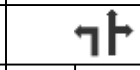
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	128	838	116	156	1207	9	0	124	96	248	97	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	128	838	116	156	1207	9	0	124	96	248	97	109
Peak Hour Factor	0.950	0.915	0.950	0.915	0.915	0.915	0.915	0.950	0.950	0.950	0.950	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	229	31	43	330	2	0	33	25	65	26	30
Total Analysis Volume [veh/h]	135	916	122	170	1319	10	0	131	101	261	102	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	25	0	23	33	0	13	33	0	39	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	53	53	13	56	56	0	18	19	37
g / C, Green / Cycle	0.09	0.44	0.44	0.11	0.47	0.47	0.00	0.15	0.16	0.31
(v / s)_i Volume / Saturation Flow Rate	0.07	0.19	0.19	0.09	0.25	0.01	0.00	0.13	0.14	0.13
s, saturation flow rate [veh/h]	1810	3618	1788	1810	5176	1615	1810	1764	1810	1735
c, Capacity [veh/h]	161	1606	794	199	2406	751	1	265	294	541
d1, Uniform Delay [s]	53.79	22.96	22.97	52.43	23.05	17.28	0.00	49.91	49.17	32.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.78	0.85	1.72	9.83	0.90	0.03	0.00	8.97	8.87	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.43	0.43	0.85	0.55	0.01	0.00	0.88	0.89	0.41
d, Delay for Lane Group [s/veh]	64.57	23.81	24.69	62.26	23.95	17.32	0.00	58.88	58.05	33.04
Lane Group LOS	E	C	C	E	C	B	A	E	E	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.49	6.91	7.04	5.57	9.02	0.16	0.00	7.46	8.36	5.15
50th-Percentile Queue Length [ft/ln]	112.2	172.6	175.9	139.2	225.4	3.93	0.00	186.46	209.02	128.80
95th-Percentile Queue Length [veh/ln]	7.97	11.22	11.39	9.44	13.94	0.28	0.00	11.94	13.10	8.87
95th-Percentile Queue Length [ft/ln]	199.1	280.4	284.7	235.9	348.5	7.07	0.00	298.44	327.57	221.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.57	24.02	24.69	62.26	23.95	17.32	0.00	58.88	58.88	58.05	33.04	33.04
Movement LOS	E	C	C	E	C	B	A	E	E	E	C	C
d_A, Approach Delay [s/veh]	28.76			28.25			58.88			46.58		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	33.14											
Intersection LOS	C											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.007	3.229	2.111	2.250
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	350	483	483	917
d_b, Bicycle Delay [s]	40.84	34.50	34.50	17.60
l_b,int, Bicycle LOS Score for Intersection	2.205	2.384	1.942	2.355
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	95.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.147

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	290	58	7	302	110	66	258	28	44	296	44
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	290	58	7	302	110	66	258	28	44	296	44
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	7	76	15	2	79	29	17	68	7	12	78	12
Total Analysis Volume [veh/h]	29	305	61	7	318	116	69	272	29	46	312	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	395	441	377	404
Degree of Utilization, x	1.04	1.15	0.98	1.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	13.06	16.87	11.36	13.90
95th-Percentile Queue Length [ft]	326.43	421.86	284.08	347.50
Approach Delay [s/veh]	87.36	122.51	73.61	95.50
Approach LOS	F	F	F	F
Intersection Delay [s/veh]	95.87			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	150.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.538

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	67	242	86	68	1	75	436	32	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	67	242	86	68	1	75	436	32	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	18	64	23	18	0	20	115	8	3
Total Analysis Volume [veh/h]	4	71	255	91	72	1	79	459	34	11
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	493	584
Degree of Utilization, x	1.28	1.54

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	21.87	32.31
95th-Percentile Queue Length [ft]	546.86	807.78
Approach Delay [s/veh]	171.41	279.15
Approach LOS	F	F
Intersection Delay [s/veh]	150.13	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	52	24	211	104	0	30	92	253	27	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	24	211	104	0	30	92	253	27	4
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	6	56	27	0	8	24	67	7	1
Total Analysis Volume [veh/h]	55	25	222	109	0	32	97	266	28	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	411	427
Degree of Utilization, x	1.07	1.13

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	14.24	16.05
95th-Percentile Queue Length [ft]	355.91	401.26
Approach Delay [s/veh]	97.50	116.68
Approach LOS	F	F
Intersection Delay [s/veh]	150.13	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	15	74	26	1	15	50	138	36	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	15	74	26	1	15	50	138	36	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	19	7	0	4	13	36	9	2
Total Analysis Volume [veh/h]	2	16	78	27	1	16	53	145	38	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	400	382	419
Degree of Utilization, x	0.31	0.56	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.30	3.31	0.36
95th-Percentile Queue Length [ft]	32.47	82.85	8.95
Approach Delay [s/veh]	15.99	21.61	
Approach LOS	C	C	
Intersection Delay [s/veh]	150.13		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	34.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.588

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	662	220	117	951	64	92	183	193	140	163	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	662	220	117	951	64	92	183	193	140	163	95
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	44	174	58	31	250	17	24	48	51	37	43	25
Total Analysis Volume [veh/h]	175	697	232	123	1001	67	97	193	203	147	172	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	46	0	21	40	0	27	37	0	16	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	65	65	10	61	61	8	18	18	12	21	21
g / C, Green / Cycle	0.11	0.54	0.54	0.08	0.51	0.51	0.07	0.15	0.15	0.10	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.26	0.07	0.28	0.28	0.05	0.05	0.13	0.08	0.09	0.06
s, saturation flow rate [veh/h]	1810	1900	1740	1810	1900	1858	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	206	1025	939	152	968	947	125	533	238	174	331	281
d1, Uniform Delay [s]	52.15	17.07	17.08	54.05	20.17	20.18	54.92	46.09	49.90	53.37	45.01	43.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.30	1.56	1.71	9.91	2.32	2.37	9.71	0.41	8.44	10.66	1.27	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.47	0.47	0.81	0.56	0.56	0.77	0.36	0.85	0.85	0.52	0.36
d, Delay for Lane Group [s/veh]	61.45	18.63	18.79	63.96	22.48	22.55	64.64	46.50	58.35	64.03	46.27	44.40
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.70	8.53	7.87	4.07	10.75	10.55	3.22	2.64	6.49	4.87	4.78	2.69
50th-Percentile Queue Length [ft/ln]	142.4	213.3	196.7	101.7	268.8	263.6	80.62	65.89	162.2	121.8	119.4	67.15
95th-Percentile Queue Length [veh/ln]	9.61	13.32	12.47	7.32	16.13	15.87	5.80	4.74	10.67	8.50	8.36	4.83
95th-Percentile Queue Length [ft/ln]	240.3	333.1	311.7	183.0	403.2	396.8	145.1	118.6	266.7	212.3	209.0	120.8

Movement, Approach, & Intersection Results

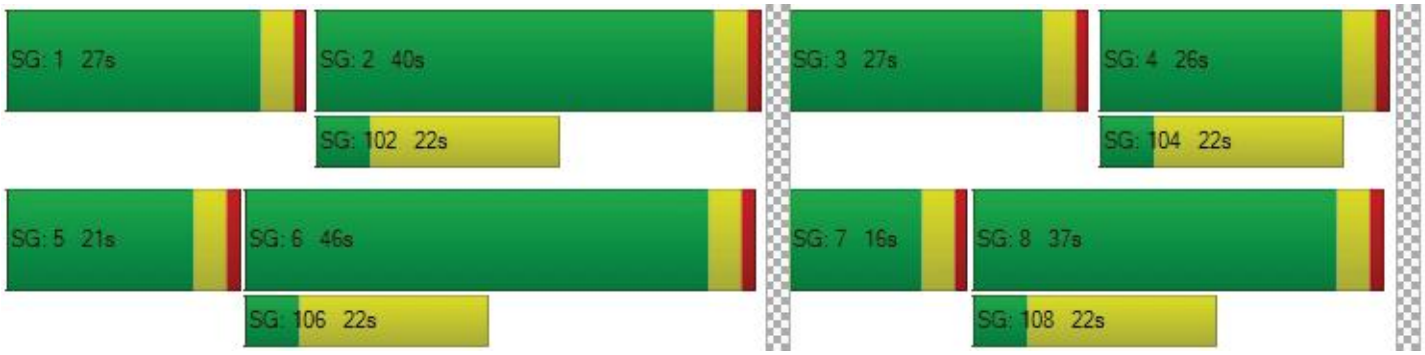
d_M, Delay for Movement [s/veh]	61.45	18.68	18.79	63.96	22.51	22.55	64.64	46.50	58.35	64.03	46.27	44.40
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	25.48			26.80			54.95			52.05		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.97											
Intersection LOS	C											
Intersection V/C	0.588											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.794	2.722	2.492	2.625
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	600	550	367
d_b, Bicycle Delay [s]	25.35	29.40	31.54	40.02
l_b,int, Bicycle LOS Score for Intersection	2.470	2.542	1.966	2.251
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.629

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	876	64	30	1276	48	73	247	136	195	253	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	876	64	30	1276	48	73	247	136	195	253	75
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	231	17	8	336	13	19	65	36	51	67	20
Total Analysis Volume [veh/h]	58	922	67	32	1343	51	77	260	143	205	266	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	51	0	9	51	0	17	34	0	26	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	69	69	3	67	67	7	16	16	16	25	25
g / C, Green / Cycle	0.04	0.57	0.57	0.03	0.56	0.56	0.05	0.14	0.14	0.13	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.26	0.02	0.37	0.37	0.04	0.11	0.11	0.11	0.09	0.10
s, saturation flow rate [veh/h]	1810	1900	1855	1810	1900	1876	1810	1900	1679	1810	1900	1753
c, Capacity [veh/h]	75	1087	1062	50	1061	1047	100	260	230	235	402	371
d1, Uniform Delay [s]	56.96	14.90	14.90	57.76	18.53	18.56	55.93	50.30	50.50	51.20	41.16	41.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.44	1.40	1.44	12.94	3.23	3.29	11.72	6.04	7.86	9.55	0.77	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.46	0.46	0.64	0.66	0.66	0.77	0.81	0.84	0.87	0.44	0.45
d, Delay for Lane Group [s/veh]	72.39	16.30	16.34	70.70	21.76	21.85	67.66	56.34	58.36	60.75	41.93	42.07
Lane Group LOS	E	B	B	E	C	C	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.06	8.13	7.95	1.14	14.06	13.96	2.63	6.58	6.12	6.66	4.69	4.40
50th-Percentile Queue Length [ft/ln]	51.58	203.2	198.7	28.53	351.4	348.8	65.68	164.5	153.0	166.5	117.1	110.1
95th-Percentile Queue Length [veh/ln]	3.71	12.81	12.57	2.05	20.21	20.08	4.73	10.79	10.18	10.90	8.24	7.85
95th-Percentile Queue Length [ft/ln]	92.84	320.1	314.3	51.36	505.2	502.0	118.2	269.7	254.4	272.4	205.9	196.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.39	16.32	16.34	70.70	21.80	21.85	67.66	56.72	58.36	60.75	41.97	42.07
Movement LOS	E	B	B	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	19.42			22.90			58.97			48.99		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	30.90											
Intersection LOS	C											
Intersection V/C	0.629											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.991	2.875	2.482	2.492
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	783	500	650
d_b, Bicycle Delay [s]	22.20	22.20	33.75	27.34
l_b,int, Bicycle LOS Score for Intersection	2.423	2.736	1.956	2.013
Bicycle LOS	B	B	A	B

Sequence

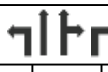
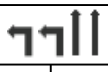
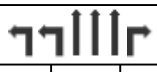
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	43.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	96	58	86	166	276	991	336	452	66	150	1395	330
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	58	86	166	276	991	336	452	66	150	1395	330
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	15	23	44	73	261	88	119	17	39	367	87
Total Analysis Volume [veh/h]	101	61	91	175	291	1043	354	476	69	158	1468	347
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	38	0	20	46	0	18	47	0	15	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	38	38	14	44	44	44	14	45	45	7	38	38
g / C, Green / Cycle	0.07	0.32	0.32	0.11	0.37	0.37	0.37	0.12	0.37	0.37	0.06	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.10	0.15	0.32	0.32	0.10	0.09	0.04	0.04	0.28	0.21
s, saturation flow rate [veh/h]	1810	3618	1615	181	190	161	161	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	121	1157	517	204	696	591	591	407	1918	599	222	1645	513
d1, Uniform Delay [s]	55.36	28.23	29.41	52.2	28.4	35.6	35.6	52.15	26.17	24.82	55.14	38.96	35.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.20
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.93	0.09	0.74	9.80	1.85	17.1	17.1	5.79	0.07	0.08	4.20	1.88	2.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.05	0.18	0.86	0.42	0.88	0.88	0.87	0.25	0.12	0.71	0.89	0.68
d, Delay for Lane Group [s/veh]	69.29	28.32	30.16	62.0	30.3	52.7	52.7	57.94	26.24	24.91	59.34	40.85	38.37
Lane Group LOS	E	C	C	E	C	D	D	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.49	0.63	2.01	5.73	6.62	16.8	16.8	5.56	3.17	1.32	2.48	13.85	9.18
50th-Percentile Queue Length [ft/ln]	87.16	15.68	50.31	143.	165.	421.	421.	139.0	79.25	32.92	61.91	346.3	229.4
95th-Percentile Queue Length [veh/ln]	6.28	1.13	3.62	9.65	10.8	23.6	23.6	9.43	5.71	2.37	4.46	19.96	14.15
95th-Percentile Queue Length [ft/ln]	156.8	28.22	90.57	241.	271.	589.	589.	235.6	142.6	59.26	111.4	498.8	353.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.29	28.32	30.16	62.06	30.31	52.76	57.94	26.24	24.91	59.34	40.85	38.37
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	45.34			49.51			38.62			41.89		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.93											
Intersection LOS	D											
Intersection V/C	0.763											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.593	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	700	717	667
d_b, Bicycle Delay [s]	30.82	25.35	24.70	26.67
l_b,int, Bicycle LOS Score for Intersection	1.768	2.805	2.054	2.645
Bicycle LOS	A	C	B	B

Sequence

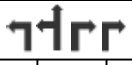
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	49.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	28	38	424	55	1070	286	468	28	34	372	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	28	38	424	55	1070	286	468	28	34	372	106
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	7	10	112	14	282	75	123	7	9	98	28
Total Analysis Volume [veh/h]	52	29	40	446	58	1126	301	493	29	36	392	112
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	44	44	44	13	51	51	4	42	42
g / C, Green / Cycle	0.05	0.05	0.05	0.37	0.37	0.37	0.11	0.42	0.42	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.02	0.14	0.14	0.39	0.09	0.10	0.02	0.02	0.09	0.10
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1830	2859	3514	5176	1615	1810	3618	1698
c, Capacity [veh/h]	84	88	75	663	671	1048	372	2197	685	53	1258	590
d1, Uniform Delay [s]	56.18	55.41	55.95	27.96	27.91	38.00	52.47	21.97	20.24	57.69	28.15	28.28
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.26	2.15	5.80	0.36	0.35	38.55	4.24	0.24	0.12	14.21	0.53	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.33	0.53	0.38	0.38	1.07	0.81	0.22	0.04	0.68	0.27	0.28
d, Delay for Lane Group [s/veh]	63.44	57.57	61.76	28.32	28.26	76.55	56.71	22.21	20.36	71.90	28.68	29.46
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.72	0.90	1.31	5.40	5.39	20.69	4.65	3.01	0.50	1.29	3.61	3.66
50th-Percentile Queue Length [ft/ln]	42.92	22.60	32.66	135.0	134.8	517.3	116.1	75.20	12.58	32.29	90.29	91.48
95th-Percentile Queue Length [veh/ln]	3.09	1.63	2.35	9.21	9.20	29.54	8.18	5.41	0.91	2.32	6.50	6.59
95th-Percentile Queue Length [ft/ln]	77.26	40.68	58.79	230.3	230.0	738.5	204.5	135.3	22.65	58.12	162.5	164.6

Movement, Approach, & Intersection Results

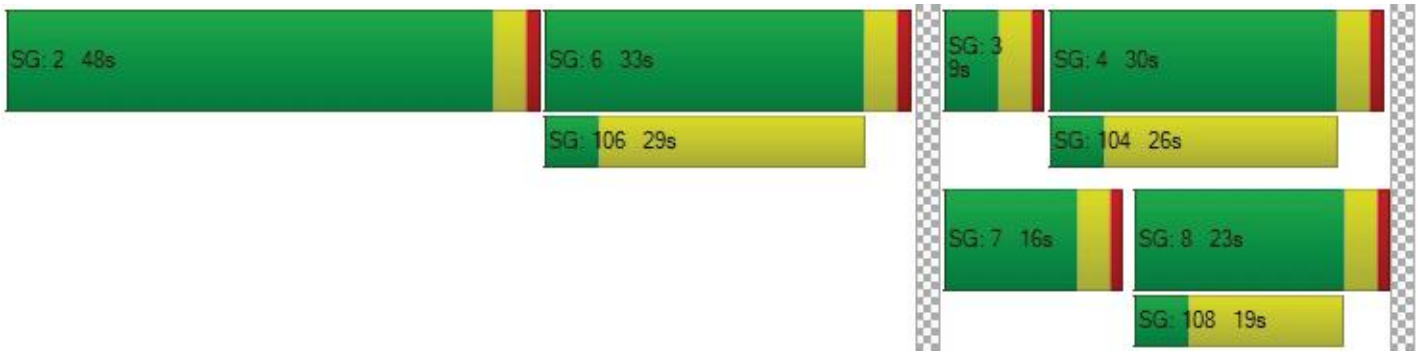
d_M, Delay for Movement [s/veh]	63.44	57.57	61.76	28.29	28.26	76.55	56.71	22.21	20.36	71.90	28.78	29.46
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	61.48			61.63			34.76			31.80		
Approach LOS	E			E			C			C		
d_I, Intersection Delay [s/veh]	49.35											
Intersection LOS	D											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.206	2.805	0.000	2.821
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.659	4.249	2.012	1.857
Bicycle LOS	A	D	B	A

Sequence

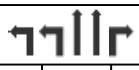
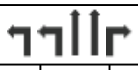
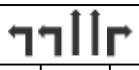
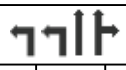
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.607

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	298	894	97	69	1010	196	194	196	103	217	502	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	298	894	97	69	1010	196	194	196	103	217	502	82
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	78	235	26	18	266	52	51	52	27	57	132	22
Total Analysis Volume [veh/h]	314	941	102	73	1063	206	204	206	108	228	528	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	59	0	9	50	0	13	36	0	16	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	68	5	60	60	9	22	22	10	23	23
g / C, Green / Cycle	0.11	0.57	0.04	0.50	0.50	0.07	0.18	0.18	0.08	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.09	0.26	0.02	0.29	0.13	0.06	0.06	0.07	0.06	0.17	0.17
s, saturation flow rate [veh/h]	3514	3618	3514	3618	1615	3514	3618	1615	3514	1900	1808
c, Capacity [veh/h]	372	2044	134	1799	803	259	656	293	288	360	343
d1, Uniform Delay [s]	52.67	15.34	56.69	21.47	17.38	54.65	42.63	43.08	54.07	47.21	47.22
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.14	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.25	0.75	3.42	1.43	0.77	5.25	0.27	0.77	4.87	8.11	8.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.46	0.54	0.59	0.26	0.79	0.31	0.37	0.79	0.87	0.87
d, Delay for Lane Group [s/veh]	57.93	16.08	60.11	22.90	18.15	59.90	42.90	43.86	58.94	55.33	55.76
Lane Group LOS	E	B	E	C	B	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.91	7.58	1.15	10.78	3.44	3.22	2.69	2.89	3.57	9.91	9.48
50th-Percentile Queue Length [ft/ln]	122.83	189.53	28.78	269.4	86.02	80.50	67.29	72.22	89.37	247.7	237.1
95th-Percentile Queue Length [veh/ln]	8.55	12.10	2.07	16.16	6.19	5.80	4.84	5.20	6.43	15.07	14.53
95th-Percentile Queue Length [ft/ln]	213.71	302.42	51.81	404.0	154.8	144.9	121.1	130.0	160.8	376.8	363.3

Movement, Approach, & Intersection Results

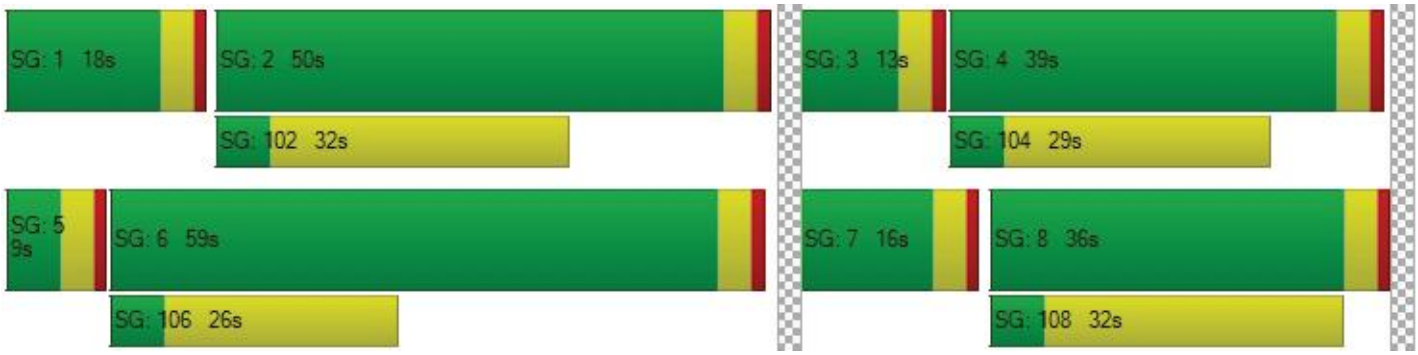
d_M, Delay for Movement [s/veh]	57.93	16.08	0.00	60.11	22.90	18.15	59.90	42.90	43.86	58.94	55.50	55.76
Movement LOS	E	B		E	C	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	26.55			24.19			49.79			56.46		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	35.16											
Intersection LOS	D											
Intersection V/C	0.607											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.064	2.968	2.932	2.650
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	767	533	583
d_b, Bicycle Delay [s]	17.60	22.82	32.27	30.10
l_b,int, Bicycle LOS Score for Intersection	2.595	2.667	1.987	2.254
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	87	3	285	12	9	0	1	260	37	381	808	5
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	285	12	9	0	1	260	37	381	808	5
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	75	3	2	0	0	68	10	100	213	1
Total Analysis Volume [veh/h]	92	3	300	13	9	0	1	274	39	401	851	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	39	0	9	33	0	18	26	0	46	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	25	33	0	47	47	29	75	75
g / C, Green / Cycle	0.27	0.27	0.21	0.27	0.00	0.39	0.39	0.24	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.19	0.02	0.00	0.08	0.02	0.22	0.23	0.23
s, saturation flow rate [veh/h]	1428	1472	1615	1130	1810	3618	1615	1810	1900	1896
c, Capacity [veh/h]	373	516	333	379	3	1402	626	436	1191	1188
d1, Uniform Delay [s]	33.02	33.02	46.46	32.30	59.82	24.34	23.05	44.42	10.79	10.79
k, delay calibration	0.11	0.11	0.18	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	0.09	13.38	0.06	45.21	0.31	0.19	8.32	0.85	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.11	0.90	0.06	0.30	0.20	0.06	0.92	0.36	0.36
d, Delay for Lane Group [s/veh]	33.14	33.11	59.84	32.37	105.0	24.65	23.24	52.73	11.64	11.64
Lane Group LOS	C	C	E	C	F	C	C	D	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.91	1.23	9.93	0.48	0.07	2.66	0.73	12.56	5.55	5.55
50th-Percentile Queue Length [ft/ln]	22.67	30.70	248.1	12.08	1.79	66.41	18.33	313.9	138.8	138.6
95th-Percentile Queue Length [veh/ln]	1.63	2.21	15.09	0.87	0.13	4.78	1.32	18.37	9.42	9.41
95th-Percentile Queue Length [ft/ln]	40.80	55.27	377.3	21.75	3.23	119.5	32.99	459.2	235.5	235.1

Movement, Approach, & Intersection Results

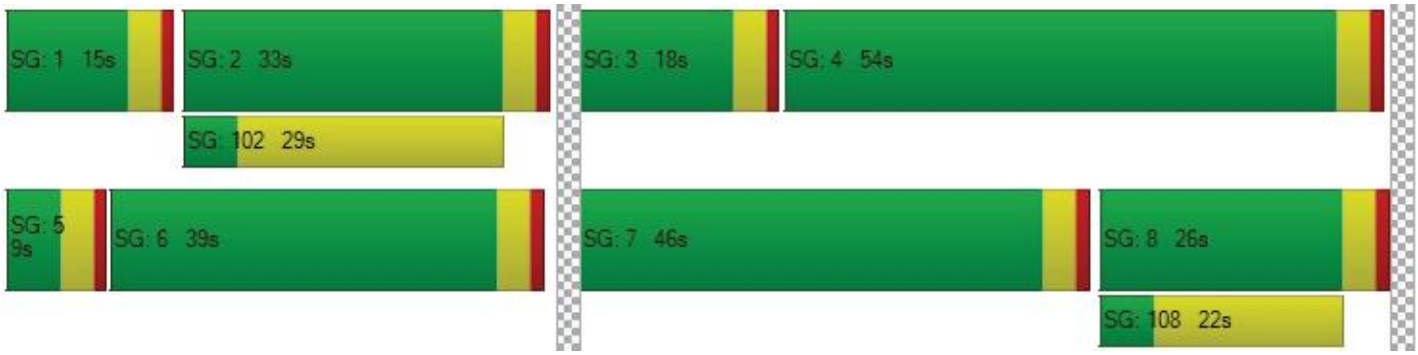
d_M, Delay for Movement [s/veh]	33.14	33.11	59.84	32.37	32.37	32.37	105.0	24.65	23.24	52.73	11.64	11.64
Movement LOS	C	C	E	C	C	C	F	C	C	D	B	B
d_A, Approach Delay [s/veh]	53.42			32.37			24.73			24.75		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	30.53											
Intersection LOS	C											
Intersection V/C	0.507											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.480	0.000	2.919	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	367	833
d_b, Bicycle Delay [s]	24.07	24.07	40.02	20.42
l_b,int, Bicycle LOS Score for Intersection	2.211	1.596	1.819	2.597
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.328

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	149	0	505	1059	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	149	0	505	1059	1
Peak Hour Factor	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	39	0	133	279	0
Total Analysis Volume [veh/h]	0	157	0	532	1115	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.33	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	34.81	16.16	10.79	0.00	0.00	0.00
Movement LOS	D	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.42	1.42	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	35.40	35.40	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.16		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.41					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	1096	122	111	1143	432	263	90	158	237	457	110
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	1096	122	111	1143	432	263	90	158	237	457	110
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	288	32	29	301	114	69	24	42	62	120	29
Total Analysis Volume [veh/h]	148	1154	128	117	1203	455	277	95	166	249	481	116
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	39	0	13	36	36	26	40	0	28	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	52	52	9	49	74	21	24	18	22	22
g / C, Green / Cycle	0.10	0.43	0.43	0.08	0.41	0.62	0.17	0.20	0.15	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.24	0.24	0.06	0.23	0.28	0.15	0.03	0.14	0.16	0.16
s, saturation flow rate [veh/h]	1810	3618	1804	1810	5176	1615	1810	3618	1810	1900	1774
c, Capacity [veh/h]	175	1567	782	136	2131	997	312	739	279	354	330
d1, Uniform Delay [s]	53.34	25.24	25.24	54.89	27.06	12.23	48.54	39.01	49.78	47.45	47.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.17	0.11	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.68	1.37	2.73	14.52	1.09	1.51	12.27	0.08	10.61	6.73	7.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.55	0.55	0.86	0.56	0.46	0.89	0.13	0.89	0.87	0.87
d, Delay for Lane Group [s/veh]	64.02	26.61	27.97	69.41	28.15	13.74	60.81	39.09	60.39	54.17	54.66
Lane Group LOS	E	C	C	E	C	B	E	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.91	9.25	9.53	4.04	8.94	6.67	9.15	1.16	8.13	9.59	9.01
50th-Percentile Queue Length [ft/ln]	122.6	231.3	238.1	101.0	223.5	166.7	228.72	29.05	203.2	239.8	225.3
95th-Percentile Queue Length [veh/ln]	8.54	14.24	14.59	7.28	13.85	10.90	14.11	2.09	12.81	14.67	13.94
95th-Percentile Queue Length [ft/ln]	213.5	356.0	364.7	181.9	346.1	272.5	352.74	52.29	320.1	366.8	348.4

Movement, Approach, & Intersection Results

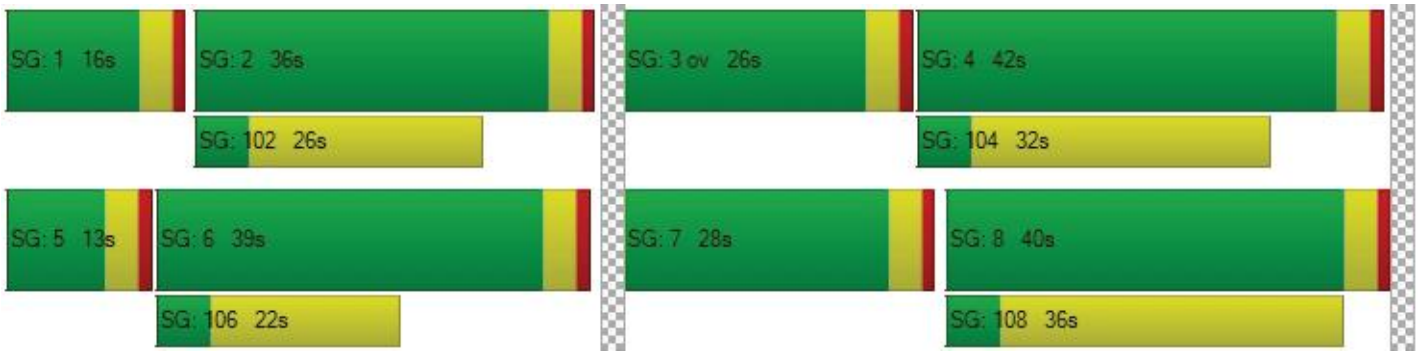
d_M, Delay for Movement [s/veh]	64.02	26.97	27.97	69.41	28.15	13.74	60.81	39.09	0.00	60.39	54.35	54.66
Movement LOS	E	C	C	E	C	B	E	D		E	D	D
d_A, Approach Delay [s/veh]	30.89			27.17			55.26			56.17		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	36.28											
Intersection LOS	D											
Intersection V/C	0.630											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.177	3.146	2.705	2.546
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	533	600	633
d_b, Bicycle Delay [s]	30.10	32.27	29.40	28.02
l_b,int, Bicycle LOS Score for Intersection	2.346	2.536	1.867	2.258
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.548

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	67	217	7	50	285	88	67	248	90	18	456	74
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	217	7	50	285	88	67	248	90	18	456	74
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	57	2	13	75	23	18	65	24	5	120	19
Total Analysis Volume [veh/h]	71	228	7	53	300	93	71	261	95	19	480	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	36	0	0	36	0	10	75	0	9	74	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	6	36	2	33	33
g / C, Green / Cycle	0.58	0.58	0.05	0.30	0.02	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.20	0.26	0.04	0.20	0.01	0.25	0.05
s, saturation flow rate [veh/h]	1518	1745	1810	1815	1810	1900	1615
c, Capacity [veh/h]	910	1037	90	553	37	522	444
d1, Uniform Delay [s]	13.09	14.31	56.36	36.10	58.21	42.22	33.15
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.00	1.30	13.73	1.26	10.90	7.09	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.43	0.78	0.64	0.52	0.92	0.18
d, Delay for Lane Group [s/veh]	14.09	15.61	70.09	37.36	69.11	49.31	33.34
Lane Group LOS	B	B	E	D	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.44	7.01	2.47	9.19	0.68	14.72	1.77
50th-Percentile Queue Length [ft/ln]	110.95	175.16	61.80	229.75	17.07	367.9	44.25
95th-Percentile Queue Length [veh/ln]	7.89	11.35	4.45	14.16	1.23	21.01	3.19
95th-Percentile Queue Length [ft/ln]	197.32	283.68	111.24	354.05	30.73	525.2	79.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.09	14.09	14.09	15.61	15.61	15.61	70.09	37.36	37.36	69.11	49.31	33.34
Movement LOS	B	B	B	B	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	14.09			15.61			42.80			47.81		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	32.54											
Intersection LOS	C											
Intersection V/C	0.548											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.081	2.131	2.508	0.000
Crosswalk LOS	B	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	1183	1167
d_b, Bicycle Delay [s]	32.27	32.27	10.00	10.42
l_b,int, Bicycle LOS Score for Intersection	2.065	2.296	2.264	2.512
Bicycle LOS	B	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	40.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	87	157	31	9	0	127	439	77	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	87	157	31	9	0	127	439	77	17
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	23	41	8	2	0	33	116	20	4
Total Analysis Volume [veh/h]	1	92	165	33	9	0	134	462	81	18
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	73	0	0	0	0	73	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	56	56
g / C, Green / Cycle	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.32	0.45
s, saturation flow rate [veh/h]	952	1555
c, Capacity [veh/h]	483	761
d1, Uniform Delay [s]	22.80	31.63
k, delay calibration	0.13	0.31
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	1.61	11.78
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.91
d, Delay for Lane Group [s/veh]	24.42	43.41
Lane Group LOS	C	D
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	6.43	21.51
50th-Percentile Queue Length [ft/ln]	160.84	537.70
95th-Percentile Queue Length [veh/ln]	10.59	29.11
95th-Percentile Queue Length [ft/ln]	264.84	727.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.42	24.42	24.42	24.42	24.42	43.41	43.41	43.41	43.41	43.41
Movement LOS	C	C	C	C	C	D	D	D	D	D
d_A, Approach Delay [s/veh]	24.42					43.41				
Approach LOS	C					D				
d_I, Intersection Delay [s/veh]	40.22									
Intersection LOS	D									
Intersection V/C	0.666									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.168	2.231
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1150	1150
d_b, Bicycle Delay [s]	10.84	10.84
l_b,int, Bicycle LOS Score for Intersection	1.888	2.456
Bicycle LOS	A	B

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	10	83	179	28	6	1	32	189	30	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	83	179	28	6	1	32	189	30	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	22	47	7	2	0	8	50	8	2
Total Analysis Volume [veh/h]	11	87	188	29	6	1	34	199	32	7
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	19	0	0	9	0	19	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	40	33	40	30	30
g / C, Green / Cycle	0.34	0.27	0.34	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.08	0.12	0.03	0.10	0.02
s, saturation flow rate [veh/h]	1295	1849	1262	1900	1615
c, Capacity [veh/h]	428	508	401	476	404
d1, Uniform Delay [s]	28.36	35.87	27.48	37.66	34.55
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.24	2.74	0.09	2.69	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.44	0.09	0.42	0.10
d, Delay for Lane Group [s/veh]	29.60	38.61	27.57	40.35	35.03
Lane Group LOS	C	D	C	D	D
Critical Lane Group	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.14	5.79	0.70	5.27	0.94
50th-Percentile Queue Length [ft/ln]	53.51	144.70	17.42	131.83	23.44
95th-Percentile Queue Length [veh/ln]	3.85	9.73	1.25	9.04	1.69
95th-Percentile Queue Length [ft/ln]	96.32	243.33	31.35	225.98	42.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.60	29.60	38.61	38.61	38.61	27.57	27.57	40.35	35.03	35.03
Movement LOS	C	C	D	D	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	35.86					37.95				
Approach LOS	D					D				
d_I, Intersection Delay [s/veh]	40.22									
Intersection LOS	D									
Intersection V/C	0.666									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.339	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.936	1.942
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	11	40	13	1	3	16	105	87	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	40	13	1	3	16	105	87	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	11	3	0	1	4	28	23	1
Total Analysis Volume [veh/h]	0	12	42	14	1	3	17	111	92	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	12
g / C, Green / Cycle	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.06
s, saturation flow rate [veh/h]	929	1747	1615
c, Capacity [veh/h]	125	204	156
d1, Uniform Delay [s]	51.01	52.72	51.98
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.76	3.38	3.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.64	0.60
d, Delay for Lane Group [s/veh]	54.77	56.10	55.66
Lane Group LOS	D	E	E
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.08	4.04	2.88
50th-Percentile Queue Length [ft/ln]	52.03	100.92	71.88
95th-Percentile Queue Length [veh/ln]	3.75	7.27	5.18
95th-Percentile Queue Length [ft/ln]	93.65	181.65	129.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.77	54.77	54.77	54.77	54.77	56.10	56.10	56.10	55.66	55.66
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	54.77					55.91				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	40.22									
Intersection LOS	D									
Intersection V/C	0.666									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.024	2.311
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.631	1.923
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	130	691	192	122	911	71	151	134	75	157	172	318
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	691	192	122	911	71	151	134	75	157	172	318
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	182	51	32	240	19	40	35	20	41	45	84
Total Analysis Volume [veh/h]	137	727	202	128	959	75	159	141	79	165	181	335
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	41	0	15	41	0	16	38	0	26	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	54	54	10	54	54	12	27	27	13	28	28
g / C, Green / Cycle	0.09	0.45	0.45	0.09	0.45	0.45	0.10	0.22	0.22	0.11	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.25	0.25	0.07	0.28	0.28	0.09	0.06	0.06	0.09	0.10	0.21
s, saturation flow rate [veh/h]	1810	1900	1760	1810	1900	1852	1810	1900	1678	1810	1900	1615
c, Capacity [veh/h]	163	858	794	154	848	827	181	420	371	197	437	371
d1, Uniform Delay [s]	53.72	24.21	24.21	54.02	25.38	25.39	53.28	38.75	38.86	52.41	39.32	44.89
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.77	2.66	2.87	10.70	3.35	3.45	12.64	0.35	0.42	8.98	0.63	10.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.56	0.56	0.83	0.62	0.62	0.88	0.27	0.28	0.84	0.41	0.90
d, Delay for Lane Group [s/veh]	64.50	26.87	27.08	64.72	28.73	28.84	65.92	39.09	39.28	61.39	39.95	55.05
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.56	10.57	9.85	4.26	12.02	11.75	5.36	2.85	2.64	5.37	4.64	10.69
50th-Percentile Queue Length [ft/ln]	113.9	264.3	246.1	106.5	300.5	293.8	134.0	71.23	66.11	134.1	115.9	267.1
95th-Percentile Queue Length [veh/ln]	8.06	15.91	14.99	7.65	17.71	17.38	9.16	5.13	4.76	9.16	8.17	16.05
95th-Percentile Queue Length [ft/ln]	201.4	397.6	374.8	191.1	442.7	434.4	228.9	128.2	119.0	229.0	204.2	401.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.50	26.94	27.08	64.72	28.78	28.84	65.92	39.13	39.28	61.39	39.95	55.05
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	31.79			32.74			50.40			52.57		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.58											
Intersection LOS	D											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.758	2.780	2.466	2.655
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	617	567	733
d_b, Bicycle Delay [s]	28.70	28.70	30.82	24.07
l_b,int, Bicycle LOS Score for Intersection	2.439	2.518	1.872	2.121
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	866	181	15	1414	116	42	212	95	289	344	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	866	181	15	1414	116	42	212	95	289	344	46
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	15	228	48	4	372	31	11	56	25	76	91	12
Total Analysis Volume [veh/h]	60	912	191	16	1488	122	44	223	100	304	362	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	26	0	9	26	0	33	36	0	49	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	66	66	2	63	63	4	14	14	22	32	32
g / C, Green / Cycle	0.04	0.55	0.55	0.02	0.53	0.53	0.03	0.11	0.11	0.19	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.12	0.01	0.41	0.08	0.02	0.09	0.09	0.17	0.11	0.11
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1707	1810	1900	1823
c, Capacity [veh/h]	75	1988	887	32	1900	848	61	214	193	338	506	485
d1, Uniform Delay [s]	56.99	16.29	13.81	58.45	22.98	14.63	57.42	51.77	51.98	47.67	36.31	36.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.97	0.77	0.56	12.07	3.31	0.36	14.80	6.02	7.90	8.57	0.54	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.46	0.22	0.51	0.78	0.14	0.72	0.78	0.81	0.90	0.41	0.41
d, Delay for Lane Group [s/veh]	73.96	17.05	14.37	70.52	26.29	14.99	72.22	57.79	59.88	56.23	36.85	36.89
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.16	7.60	2.76	0.59	17.21	1.79	1.57	5.24	5.01	9.66	5.14	4.95
50th-Percentile Queue Length [ft/ln]	53.97	189.9	69.03	14.70	430.2	44.74	39.36	131.0	125.2	241.3	128.4	123.7
95th-Percentile Queue Length [veh/ln]	3.89	12.12	4.97	1.06	24.01	3.22	2.83	9.00	8.68	14.75	8.86	8.60
95th-Percentile Queue Length [ft/ln]	97.15	302.9	124.2	26.45	600.3	80.54	70.84	224.9	217.0	368.7	221.4	214.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.96	17.05	14.37	70.52	26.29	14.99	72.22	58.31	59.88	56.23	36.86	36.89
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	19.55			25.88			60.41			45.11		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	30.80											
Intersection LOS	C											
Intersection V/C	0.704											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.113	2.895	2.493	2.538
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	533	800
d_b, Bicycle Delay [s]	40.02	40.02	32.27	21.60
I_b,int, Bicycle LOS Score for Intersection	2.519	2.901	1.862	2.149
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	147.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.588

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	7	221	86	24	381	50	24	138	7	386	263	25
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	221	86	24	381	50	24	138	7	386	263	25
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	58	23	6	100	13	6	36	2	102	69	7
Total Analysis Volume [veh/h]	7	233	91	25	401	53	25	145	7	406	277	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	454	479	403	683	489
Degree of Utilization, x	0.73	1.01	0.44	1.59	0.05

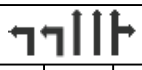
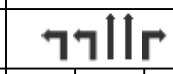
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.86	13.58	2.19	38.30	0.17
95th-Percentile Queue Length [ft]	146.51	339.46	54.66	957.49	4.21
Approach Delay [s/veh]	29.53	70.39	18.79	286.12	
Approach LOS	D	F	C	F	
Intersection Delay [s/veh]	147.22				
Intersection LOS	F				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	327	1213	103	56	1182	48	28	360	143	320	251	128
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	327	1213	103	56	1182	48	28	360	143	320	251	128
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	86	319	27	15	311	13	7	95	38	84	66	34
Total Analysis Volume [veh/h]	344	1277	108	59	1244	51	29	379	151	337	264	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	28	61	0	10	43	0	15	22	0	27	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	70	70	5	60	60	3	15	15	14	26	26
g / C, Green / Cycle	0.12	0.58	0.58	0.04	0.50	0.50	0.03	0.13	0.13	0.12	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.25	0.03	0.24	0.24	0.02	0.10	0.09	0.10	0.07	0.08
s, saturation flow rate [veh/h]	3514	3618	1825	1810	3618	1862	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	419	2098	1059	76	1820	937	49	462	206	411	787	351
d1, Uniform Delay [s]	51.60	14.19	14.20	56.90	19.41	19.41	57.75	51.01	50.37	51.76	39.62	40.08
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.06	0.67	1.32	15.07	0.87	1.69	11.17	3.69	4.97	4.12	0.25	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.44	0.44	0.77	0.47	0.47	0.60	0.82	0.73	0.82	0.34	0.38
d, Delay for Lane Group [s/veh]	55.67	14.86	15.53	71.96	20.28	21.10	68.92	54.70	55.34	55.88	39.87	40.77
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.29	7.04	7.31	2.09	7.87	8.31	1.02	5.78	4.65	5.19	3.33	3.48
50th-Percentile Queue Length [ft/ln]	132.1	176.1	182.8	52.27	196.6	207.7	25.56	144.5	116.2	129.6	83.23	87.09
95th-Percentile Queue Length [veh/ln]	9.06	11.40	11.75	3.76	12.46	13.04	1.84	9.73	8.18	8.92	5.99	6.27
95th-Percentile Queue Length [ft/ln]	226.4	284.9	293.7	94.09	311.6	325.9	46.00	243.1	204.5	223.0	149.8	156.7

Movement, Approach, & Intersection Results

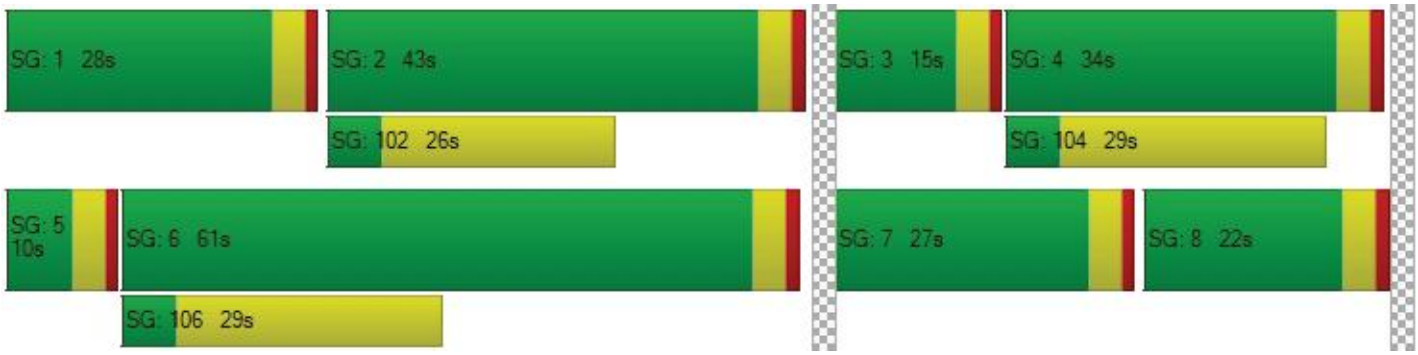
d_M, Delay for Movement [s/veh]	55.67	15.05	15.53	71.96	20.53	21.10	68.92	54.70	55.34	55.88	39.87	40.77
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	23.16			22.80			55.61			47.37		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	31.26											
Intersection LOS	C											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.998	2.666	2.788
Crosswalk LOS	F	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	650	300	500
d_b, Bicycle Delay [s]	16.54	27.34	43.35	33.75
l_b,int, Bicycle LOS Score for Intersection	2.511	2.304	2.021	2.167
Bicycle LOS	B	B	B	B

Sequence

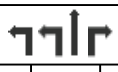
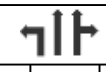
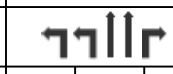
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	315	446	9	430	47	20	120	46	503	478	34
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	315	446	9	430	47	20	120	46	503	478	34
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	83	117	2	113	12	5	32	12	132	126	9
Total Analysis Volume [veh/h]	140	332	469	9	453	49	21	126	48	529	503	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	58	0	10	49	0	9	11	0	41	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	75	75	1	70	70	3	6	6	21	25	25
g / C, Green / Cycle	0.06	0.63	0.63	0.01	0.58	0.58	0.02	0.05	0.05	0.18	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.29	0.00	0.13	0.13	0.01	0.03	0.03	0.15	0.14	0.02
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1836	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	203	1190	1011	21	1102	1065	39	192	86	618	751	335
d1, Uniform Delay [s]	55.48	10.16	11.81	58.93	12.22	12.24	58.15	55.73	55.44	47.98	43.75	38.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.14	0.58	1.53	13.80	0.49	0.51	11.44	3.75	5.59	3.55	1.04	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.28	0.46	0.44	0.23	0.23	0.54	0.66	0.56	0.86	0.67	0.11
d, Delay for Lane Group [s/veh]	59.62	10.74	13.34	72.73	12.71	12.75	69.59	59.48	61.02	51.53	44.79	38.66
Lane Group LOS	E	B	B	E	B	B	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.20	4.04	6.74	0.35	3.41	3.33	0.75	1.97	1.55	7.96	6.98	0.88
50th-Percentile Queue Length [ft/ln]	54.93	100.8	168.5	8.78	85.17	83.16	18.86	49.30	38.80	199.1	174.5	21.99
95th-Percentile Queue Length [veh/ln]	3.96	7.26	11.00	0.63	6.13	5.99	1.36	3.55	2.79	12.59	11.32	1.58
95th-Percentile Queue Length [ft/ln]	98.88	181.5	275.0	15.80	153.3	149.6	33.95	88.74	69.84	314.8	282.9	39.58

Movement, Approach, & Intersection Results

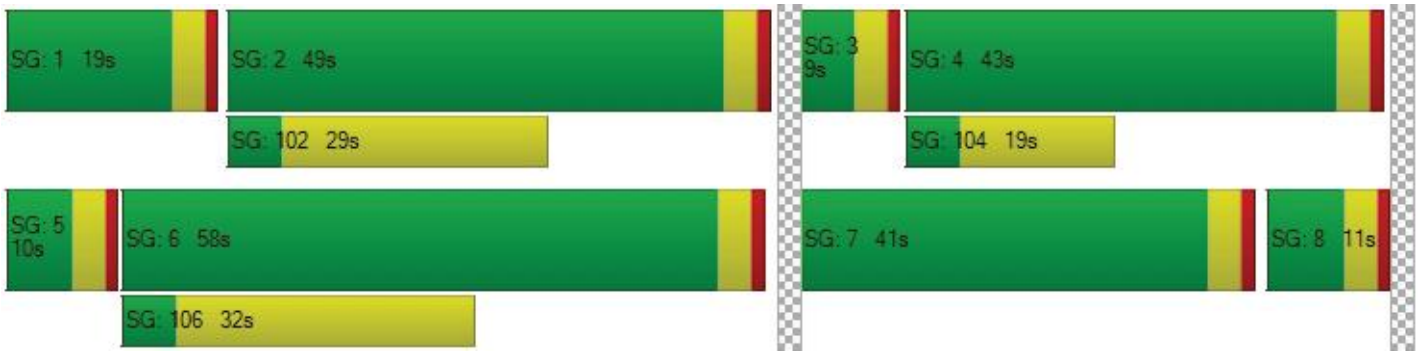
d_M, Delay for Movement [s/veh]	59.62	10.74	13.34	72.73	12.73	12.75	69.59	59.48	61.02	51.53	44.79	38.66
Movement LOS	E	B	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	19.31			13.79			60.95			47.92		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	32.52											
Intersection LOS	C											
Intersection V/C	0.481											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.366	2.733	2.944
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	750	117	650
d_b, Bicycle Delay [s]	18.15	23.44	53.20	27.34
l_b,int, Bicycle LOS Score for Intersection	3.112	1.981	1.720	2.441
Bicycle LOS	C	A	A	B

Sequence

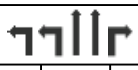
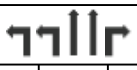
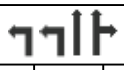
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	43.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.739

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	522	1233	425	118	1405	87	96	130	299	567	375	96
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	522	1233	425	118	1405	87	96	130	299	567	375	96
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	137	324	112	31	370	23	25	34	79	149	99	25
Total Analysis Volume [veh/h]	549	1298	447	124	1479	92	101	137	315	597	395	101
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	21	44	0	13	36	0	13	40	40	23	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	65	65	9	57	57	5	11	32	19	25	25
g / C, Green / Cycle	0.14	0.54	0.54	0.08	0.47	0.47	0.04	0.09	0.27	0.16	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.16	0.36	0.28	0.07	0.29	0.06	0.03	0.04	0.20	0.17	0.14	0.14
s, saturation flow rate [veh/h]	3514	3618	1615	1810	5176	1615	3514	3618	1615	3514	1900	1768
c, Capacity [veh/h]	498	1953	872	136	2450	764	157	338	433	556	393	366
d1, Uniform Delay [s]	51.50	19.80	17.56	55.11	23.30	17.65	56.37	51.26	39.90	50.50	43.64	43.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.29	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	53.50	1.80	2.15	20.02	1.11	0.32	4.32	0.78	6.10	41.06	1.84	1.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.66	0.51	0.91	0.60	0.12	0.64	0.41	0.73	1.07	0.65	0.65
d, Delay for Lane Group [s/veh]	105.0	21.60	19.70	75.13	24.41	17.97	60.69	52.05	46.00	91.56	45.48	45.63
Lane Group LOS	F	C	B	E	C	B	E	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.16	13.09	8.22	4.48	10.38	1.50	1.60	1.98	9.15	11.49	7.19	6.71
50th-Percentile Queue Length [ft/ln]	279.0	327.2	205.4	111.8	259.5	37.50	40.02	49.58	228.7	287.3	179.7	167.8
95th-Percentile Queue Length [veh/ln]	17.37	19.03	12.92	7.94	15.66	2.70	2.88	3.57	14.11	17.63	11.59	10.96
95th-Percentile Queue Length [ft/ln]	434.3	475.6	322.9	198.6	391.6	67.49	72.03	89.24	352.7	440.6	289.6	274.0

Movement, Approach, & Intersection Results

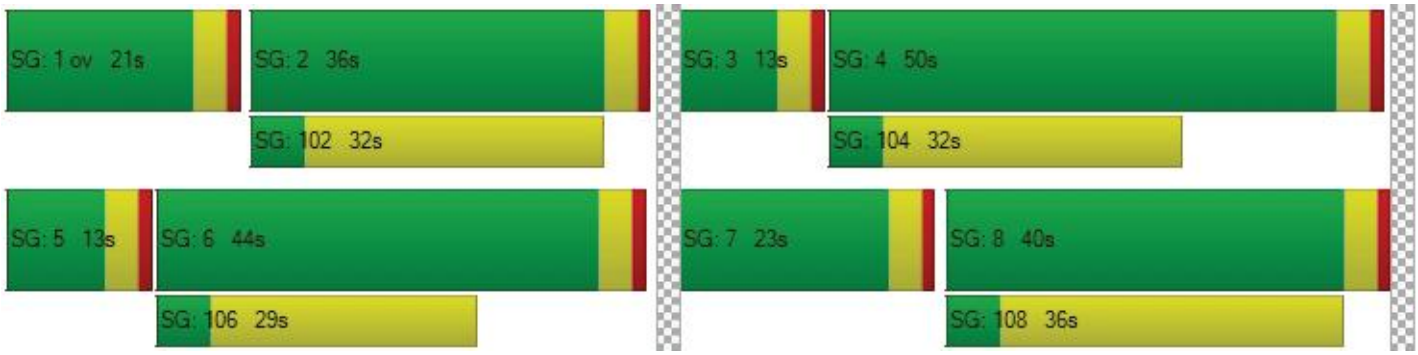
d_M, Delay for Movement [s/veh]	105.0	21.60	19.70	75.13	24.41	17.97	60.69	52.05	46.00	91.56	45.53	45.63
Movement LOS	F	C	B	E	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	41.19			27.78			50.18			70.68		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	43.76											
Intersection LOS	D											
Intersection V/C	0.739											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.372	3.130	2.934	2.860
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	533	600	767
d_b, Bicycle Delay [s]	26.67	32.27	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	3.452	2.492	2.016	2.461
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	37.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	9	10	4	26	1	149	10	202	29	134	390	13
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	10	4	26	1	149	10	202	29	134	390	13
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	3	1	7	0	39	3	53	8	35	103	3
Total Analysis Volume [veh/h]	9	11	4	27	1	157	11	213	31	141	411	14
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	35	0	0	0	0	35	0	9	0	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	31	31	56	50	50
g / C, Green / Cycle	0.26	0.26	0.47	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.20	0.11	0.11
s, saturation flow rate [veh/h]	1591	1562	879	1900	1878
c, Capacity [veh/h]	444	443	379	791	782
d1, Uniform Delay [s]	34.15	43.49	20.82	23.04	23.05
k, delay calibration	0.11	0.41	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	16.49	3.88	0.84	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.86	0.45	0.27	0.27
d, Delay for Lane Group [s/veh]	34.27	59.98	24.70	23.88	23.90
Lane Group LOS	C	E	C	C	C
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.16	13.08	3.22	4.17	4.13
50th-Percentile Queue Length [ft/ln]	29.11	326.94	80.47	104.18	103.24
95th-Percentile Queue Length [veh/ln]	2.10	19.01	5.79	7.50	7.43
95th-Percentile Queue Length [ft/ln]	52.40	475.21	144.84	187.53	185.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.27	34.27	34.27	34.27	59.98	59.98	59.98	59.98	24.70	24.70	23.89	23.90
Movement LOS	C	C	C	C	E	E	E	E	C	C	C	C
d_A, Approach Delay [s/veh]	34.27				59.98				24.12			
Approach LOS	C				E				C			
d_I, Intersection Delay [s/veh]	37.27											
Intersection LOS	D											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.782	0.000	2.755
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	517	400
d_b, Bicycle Delay [s]	33.00	33.00	38.40
l_b,int, Bicycle LOS Score for Intersection	1.599	1.931	1.936
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	18	610	55	20	11	10	217	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	610	55	20	11	10	217	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	161	14	5	3	3	57	0
Total Analysis Volume [veh/h]	19	642	58	21	12	11	228	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	28	0	0	0	48	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	47	47	47	21
g / C, Green / Cycle	0.02	0.39	0.39	0.39	0.17
(v / s)_i Volume / Saturation Flow Rate	0.01	0.13	0.21	0.05	0.15
s, saturation flow rate [veh/h]	1810	1900	1900	1615	1634
c, Capacity [veh/h]	36	746	746	634	284
d1, Uniform Delay [s]	58.25	25.50	27.82	23.25	48.43
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.46	1.23	2.60	0.40	9.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.34	0.52	0.12	0.89
d, Delay for Lane Group [s/veh]	69.70	26.73	30.43	23.66	57.58
Lane Group LOS	E	C	C	C	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.69	5.30	9.04	1.51	8.07
50th-Percentile Queue Length [ft/ln]	17.17	132.47	225.95	37.78	201.84
95th-Percentile Queue Length [veh/ln]	1.24	9.07	13.97	2.72	12.73
95th-Percentile Queue Length [ft/ln]	30.90	226.85	349.21	68.00	318.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.70	28.97	30.43	23.66	57.58	57.58	57.58	57.58
Movement LOS	E	C	C	C	E	E	E	E
d_A, Approach Delay [s/veh]	29.45				57.58			
Approach LOS	C				E			
d_I, Intersection Delay [s/veh]	37.27							
Intersection LOS	D							
Intersection V/C	0.660							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.259
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	733
d_b, Bicycle Delay [s]	38.40	24.07
l_b,int, Bicycle LOS Score for Intersection	2.153	1.974
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	16.416

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	187	96	229	162	442	146	59	448	321	238	678	130
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	187	96	229	162	442	146	59	448	321	238	678	130
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	25	60	43	116	38	16	118	84	63	178	34
Total Analysis Volume [veh/h]	197	101	241	171	465	154	62	472	338	251	714	137
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

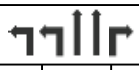
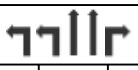
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	3.08	0.40	0.00	16.42	0.26	0.08	0.00	0.00	0.30	0.01	0.00
d_M, Delay for Movement [s/veh]	10000	10000	10000	10000	10000	13.38	9.90	0.00	0.00	11.26	0.00	0.00
Movement LOS	F	F	F	F	F	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	70.25	70.25	70.25	82.39	82.39	1.06	0.25	0.00	0.00	1.29	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1756.	1756.	1756.	2059.	2059.	26.41	6.32	0.00	0.00	32.23	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			8053.24			0.70			2.57		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	3559.04											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	61.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.881

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	492	681	161	94	882	35	39	316	520	465	421	99
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	492	681	161	94	882	35	39	316	520	465	421	99
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	129	179	42	25	232	9	10	83	137	122	111	26
Total Analysis Volume [veh/h]	518	717	169	99	928	37	41	333	547	489	443	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	43	0	12	34	0	11	44	0	21	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	39	39	8	30	30	4	40	40	17	53	53
g / C, Green / Cycle	0.14	0.33	0.33	0.07	0.25	0.25	0.03	0.33	0.33	0.14	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.10	0.05	0.26	0.26	0.01	0.09	0.34	0.14	0.15	0.15
s, saturation flow rate [veh/h]	3514	3618	1615	1810	1900	1874	3514	3618	1615	3514	1900	1777
c, Capacity [veh/h]	498	1176	525	121	475	469	112	1206	538	498	842	787
d1, Uniform Delay [s]	51.50	34.10	30.53	55.29	45.00	45.00	56.90	29.37	40.00	51.35	21.86	21.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.47	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.30	2.36	1.62	12.74	47.15	47.47	1.99	0.12	41.89	15.02	0.23	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.61	0.32	0.82	1.02	1.02	0.37	0.28	1.02	0.98	0.34	0.34
d, Delay for Lane Group [s/veh]	81.80	36.46	32.15	68.03	92.15	92.47	58.88	29.49	81.89	66.36	22.09	22.11
Lane Group LOS	F	D	C	E	F	F	E	C	F	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.56	9.16	3.94	3.38	20.23	20.00	0.64	3.57	21.88	8.35	5.26	4.92
50th-Percentile Queue Length [ft/ln]	238.9	228.9	98.47	84.58	505.7	499.9	16.02	89.17	547.0	208.6	131.3	122.9
95th-Percentile Queue Length [veh/ln]	14.89	14.12	7.09	6.09	27.99	27.71	1.15	6.42	29.88	13.08	9.02	8.56
95th-Percentile Queue Length [ft/ln]	372.2	352.9	177.2	152.2	699.6	692.7	28.83	160.5	746.9	327.0	225.3	213.9

Movement, Approach, & Intersection Results

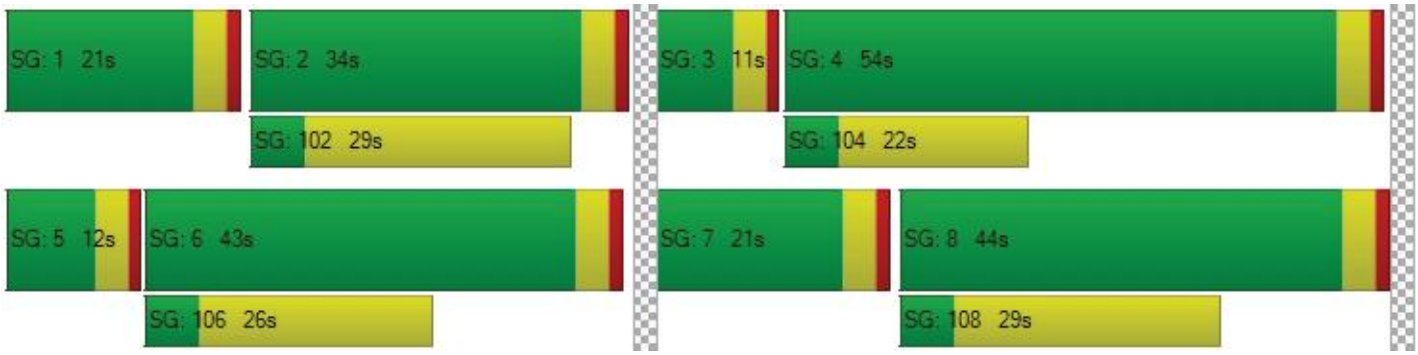
d_M, Delay for Movement [s/veh]	81.80	36.46	32.15	68.03	92.30	92.47	58.88	29.49	81.89	66.36	22.10	22.11
Movement LOS	F	D	C	E	F	F	E	C	F	E	C	C
d_A, Approach Delay [s/veh]	52.67			90.05			61.92			42.99		
Approach LOS	D			F			E			D		
d_I, Intersection Delay [s/veh]	61.32											
Intersection LOS	E											
Intersection V/C	0.881											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.078	2.691	2.876	2.940
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	500	667	833
d_b, Bicycle Delay [s]	27.34	33.75	26.67	20.42
l_b,int, Bicycle LOS Score for Intersection	2.718	2.437	2.319	2.414
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.736

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	222	1373	756	128	1600	132	203	290	191	612	469	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	222	1373	756	128	1600	132	203	290	191	612	469	109
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	58	361	199	34	421	35	53	76	50	161	123	29
Total Analysis Volume [veh/h]	234	1445	796	135	1684	139	214	305	201	644	494	115
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	10	37	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	57	84	6	54	54	10	18	18	23	31	41
g / C, Green / Cycle	0.08	0.48	0.70	0.05	0.45	0.45	0.08	0.15	0.15	0.19	0.26	0.34
(v / s)_i Volume / Saturation Flow Rate	0.07	0.28	0.49	0.04	0.33	0.34	0.06	0.08	0.12	0.18	0.14	0.04
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1827	3514	3618	1615	3514	3618	2859
c, Capacity [veh/h]	264	2469	1134	176	1636	826	287	535	239	674	933	976
d1, Uniform Delay [s]	55.00	22.76	10.50	56.31	27.06	27.12	53.89	47.58	49.76	48.00	38.26	27.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.78	1.02	3.64	6.89	3.05	5.99	3.86	0.96	7.79	8.73	0.47	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.59	0.70	0.77	0.74	0.74	0.75	0.57	0.84	0.96	0.53	0.12
d, Delay for Lane Group [s/veh]	64.78	23.78	14.14	63.20	30.10	33.10	57.75	48.53	57.55	56.73	38.73	27.18
Lane Group LOS	E	C	B	E	C	C	E	D	E	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.86	9.95	12.19	2.19	14.65	15.57	3.31	4.32	6.38	10.30	6.31	1.15
50th-Percentile Queue Length [ft/ln]	96.54	248.7	304.8	54.71	366.3	389.3	82.87	108.0	159.4	257.5	157.7	28.74
95th-Percentile Queue Length [veh/ln]	6.95	15.12	17.92	3.94	20.93	22.04	5.97	7.73	10.52	15.57	10.43	2.07
95th-Percentile Queue Length [ft/ln]	173.7	378.0	447.9	98.48	523.3	551.0	149.1	193.3	262.9	389.1	260.7	51.73

Movement, Approach, & Intersection Results

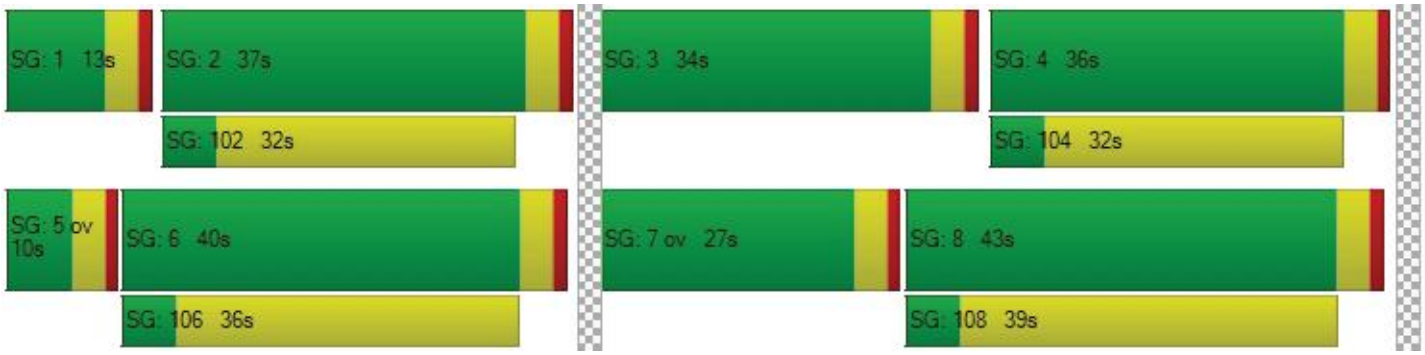
d_M, Delay for Movement [s/veh]	64.78	23.78	14.14	63.20	30.95	33.10	57.75	48.53	57.55	56.73	38.73	27.18
Movement LOS	E	C	B	E	C	C	E	D	E	E	D	C
d_A, Approach Delay [s/veh]	24.56			33.33			53.79			46.92		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.90											
Intersection LOS	C											
Intersection V/C	0.736											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.470	3.196	2.934	3.134
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	550	650	533
d_b, Bicycle Delay [s]	29.40	31.54	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.921	2.637	1.956	2.593
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1092	445	0	1012	655	0	0	0	637	0	595
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1092	445	0	1012	655	0	0	0	637	0	595
Peak Hour Factor	1.000	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	287	111	0	266	172	0	0	0	168	0	157
Total Analysis Volume [veh/h]	0	1149	445	0	1065	689	0	0	0	671	0	626
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	34	0	0	34	0	0	0	0	86	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	75	75		37	37	37
g / C, Green / Cycle	0.63	0.63		0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.32	0.21		0.24	0.25	0.27
s, saturation flow rate [veh/h]	3618	5176		1810	1717	1615
c, Capacity [veh/h]	2273	3252		552	524	493
d1, Uniform Delay [s]	12.15	10.44		38.08	38.73	39.57
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.81	0.27		2.48	3.37	5.18
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.33		0.78	0.83	0.88
d, Delay for Lane Group [s/veh]	12.95	10.71		40.56	42.10	44.75
Lane Group LOS	B	B		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.23	4.32		11.92	12.23	12.70
50th-Percentile Queue Length [ft/ln]	205.85	107.94		297.9	305.6	317.4
95th-Percentile Queue Length [veh/ln]	12.94	7.73		17.58	17.96	18.54
95th-Percentile Queue Length [ft/ln]	323.50	193.13		439.4	449.0	463.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.95	0.00	0.00	10.71	0.00	0.00	0.00	0.00	41.11	0.00	43.93
Movement LOS		B			B					D		D
d_A, Approach Delay [s/veh]	12.95			10.71			0.00			42.47		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	23.18											
Intersection LOS	C											
Intersection V/C	0.585											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	0	1367
d_b, Bicycle Delay [s]	33.75	33.75	60.00	6.02
l_b,int, Bicycle LOS Score for Intersection	2.508	2.145	4.132	3.700
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.845

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1164	608	0	2082	0	0	0	0	949	0	808
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1164	608	0	2082	0	0	0	0	949	0	808
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	306	160	0	548	0	0	0	0	250	0	213
Total Analysis Volume [veh/h]	0	1225	640	0	2192	0	0	0	0	999	0	851
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	19	0	0	19	0	0	0	0	101	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	44	44		68	68
g / C, Green / Cycle	0.37	0.37		0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.24	0.32		0.28	0.53
s, saturation flow rate [veh/h]	5176	6901		3514	1615
c, Capacity [veh/h]	1898	2530		1991	915
d1, Uniform Delay [s]	31.53	35.27		15.74	23.82
k, delay calibration	0.50	0.50		0.11	0.22
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.71	4.30		0.20	8.84
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.87		0.50	0.93
d, Delay for Lane Group [s/veh]	33.24	39.57		15.94	32.65
Lane Group LOS	C	D		B	C
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	10.04	15.38		8.14	23.08
50th-Percentile Queue Length [ft/ln]	251.02	384.47		203.38	576.89
95th-Percentile Queue Length [veh/ln]	15.24	21.81		12.81	30.95
95th-Percentile Queue Length [ft/ln]	380.93	545.25		320.33	773.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	33.24	0.00	0.00	39.57	0.00	0.00	0.00	0.00	15.94	0.00	32.65
Movement LOS		C			D					B		C
d_A, Approach Delay [s/veh]	33.24			39.57			0.00			23.63		
Approach LOS	C			D			A			C		
d_I, Intersection Delay [s/veh]	32.50											
Intersection LOS	C											
Intersection V/C	0.845											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	0	1617
d_b, Bicycle Delay [s]	45.94	45.94	60.00	2.20
l_b,int, Bicycle LOS Score for Intersection	2.233	2.464	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	736	272	0	1133	466	0	0	0	407	0	529
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	736	272	0	1133	466	0	0	0	407	0	529
Peak Hour Factor	1.000	0.950	0.868	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	194	78	0	298	117	0	0	0	107	0	139
Total Analysis Volume [veh/h]	0	775	313	0	1193	466	0	0	0	428	0	557
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	53	0	0	53	0	0	0	0	67	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	80	80		32	32
g / C, Green / Cycle	0.67	0.67		0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.15	0.33		0.24	0.19
s, saturation flow rate [veh/h]	5176	3618		1810	2859
c, Capacity [veh/h]	3440	2404		486	768
d1, Uniform Delay [s]	7.94	10.07		42.03	39.85
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.15	0.73		5.35	1.32
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.50		0.88	0.73
d, Delay for Lane Group [s/veh]	8.09	10.81		47.37	41.17
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.56	7.60		12.79	7.58
50th-Percentile Queue Length [ft/ln]	64.01	190.10		319.64	189.61
95th-Percentile Queue Length [veh/ln]	4.61	12.13		18.65	12.10
95th-Percentile Queue Length [ft/ln]	115.22	303.15		466.24	302.53

Movement, Approach, & Intersection Results

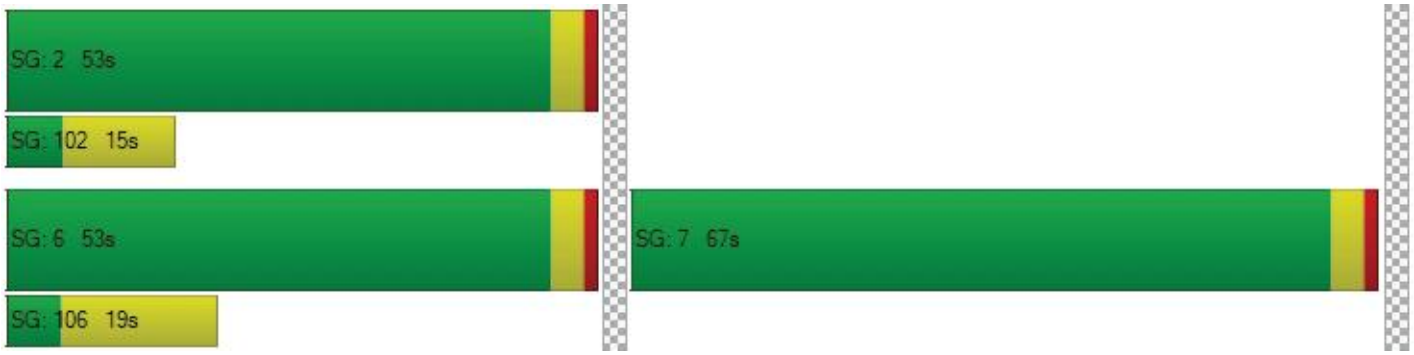
d_M, Delay for Movement [s/veh]	0.00	8.09	0.00	0.00	10.81	0.00	0.00	0.00	0.00	47.37	0.00	41.17
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	8.09			10.81			0.00			43.87		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	21.12											
Intersection LOS	C											
Intersection V/C	0.566											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.386
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	817	0	1050
d_b, Bicycle Delay [s]	21.00	21.00	60.00	13.54
l_b,int, Bicycle LOS Score for Intersection	1.986	2.544	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1329	381	0	1366	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1329	381	0	1366	238	308	0	671	0	0	0
Peak Hour Factor	1.000	0.950	1.000	1.000	0.950	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	350	95	0	359	60	83	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1399	381	0	1438	238	332	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	55	55	57	57	
g / C, Green / Cycle	0.46	0.46	0.47	0.47	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.40	0.09	0.45	
s, saturation flow rate [veh/h]	5176	3618	3514	1615	
c, Capacity [veh/h]	2373	1659	1668	767	
d1, Uniform Delay [s]	24.10	29.19	18.28	30.00	
k, delay calibration	0.50	0.50	0.11	0.14	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.08	6.38	0.06	8.45	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.59	0.87	0.20	0.94	
d, Delay for Lane Group [s/veh]	25.19	35.57	18.34	38.46	
Lane Group LOS	C	D	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.92	19.56	2.70	21.00	
50th-Percentile Queue Length [ft/ln]	248.07	488.88	67.40	525.07	
95th-Percentile Queue Length [veh/ln]	15.09	26.81	4.85	28.52	
95th-Percentile Queue Length [ft/ln]	377.22	670.18	121.31	712.97	

Movement, Approach, & Intersection Results

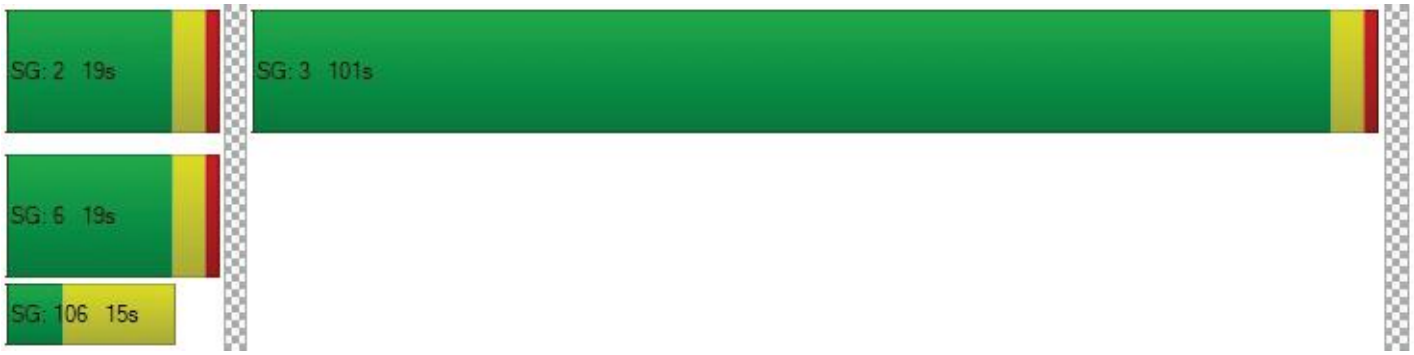
d_M, Delay for Movement [s/veh]	0.00	25.19	0.00	0.00	35.57	0.00	18.34	0.00	38.46	0.00	0.00	0.00
Movement LOS		C			D		B		D			
d_A, Approach Delay [s/veh]	25.19			35.57			32.13			0.00		
Approach LOS	C			D			C			A		
d_I, Intersection Delay [s/veh]	30.91											
Intersection LOS	C											
Intersection V/C	0.846											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.329	2.746	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1403	541	609	1701	0	543	8	691	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1403	541	609	1701	0	543	8	691	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	369	142	160	448	0	143	2	182	0	0	0
Total Analysis Volume [veh/h]	0	1477	569	641	1791	0	572	8	727	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	44	0	31	75	0	0	45	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	24	76	36	36	36	
g / C, Green / Cycle	0.40	0.40	0.20	0.63	0.30	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.35	0.18	0.35	0.24	0.26	0.27	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	1810	1676	1615	
c, Capacity [veh/h]	2064	644	711	3284	541	501	483	
d1, Uniform Delay [s]	30.34	33.47	46.70	12.26	38.85	39.86	40.39	
k, delay calibration	0.50	0.50	0.11	0.50	0.24	0.28	0.31	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.16	16.17	4.56	0.66	6.25	11.44	15.61	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.72	0.88	0.90	0.55	0.81	0.87	0.90	
d, Delay for Lane Group [s/veh]	32.49	49.64	51.26	12.91	45.10	51.29	56.00	
Lane Group LOS	C	D	D	B	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	12.21	17.94	9.75	8.68	12.70	13.66	14.32	
50th-Percentile Queue Length [ft/ln]	305.28	448.48	243.71	216.92	317.5	341.5	358.1	
95th-Percentile Queue Length [veh/ln]	17.94	24.89	14.87	13.51	18.55	19.72	20.53	
95th-Percentile Queue Length [ft/ln]	448.56	622.13	371.72	337.70	463.7	493.0	513.2	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	32.49	49.64	51.26	12.91	0.00	46.58	51.29	54.11	0.00	0.00	0.00
Movement LOS		C	D	D	B		D	D	D			
d_A, Approach Delay [s/veh]	37.26			23.02			50.80			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	34.33											
Intersection LOS	C											
Intersection V/C	0.804											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.465	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1183	683	0
d_b, Bicycle Delay [s]	26.67	10.00	26.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.685	2.897	3.716	4.132
Bicycle LOS	B	C	D	D

Sequence

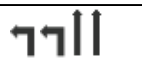
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	33.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	733	372	624	959	0	340	9	478	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	733	372	624	959	0	340	9	478	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	193	98	164	252	0	89	2	126	0	0	0
Total Analysis Volume [veh/h]	0	772	392	657	1009	0	358	9	503	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	33	42	0	0	78	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	25	71	41	41	
g / C, Green / Cycle	0.35	0.35	0.21	0.59	0.34	0.34	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.24	0.19	0.28	0.10	0.32	
s, saturation flow rate [veh/h]	3618	1615	3514	3618	3514	1619	
c, Capacity [veh/h]	1260	562	732	2134	1207	556	
d1, Uniform Delay [s]	32.40	33.66	46.27	14.00	28.79	37.81	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.23	7.00	4.28	0.75	0.14	6.79	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.70	0.90	0.47	0.30	0.92	
d, Delay for Lane Group [s/veh]	34.63	40.66	50.55	14.76	28.92	44.60	
Lane Group LOS	C	D	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.63	10.84	9.94	7.77	3.81	15.28	
50th-Percentile Queue Length [ft/ln]	240.71	270.96	248.41	194.15	95.27	382.02	
95th-Percentile Queue Length [veh/ln]	14.72	16.24	15.11	12.34	6.86	21.69	
95th-Percentile Queue Length [ft/ln]	367.93	405.94	377.65	308.41	171.49	542.29	

Movement, Approach, & Intersection Results

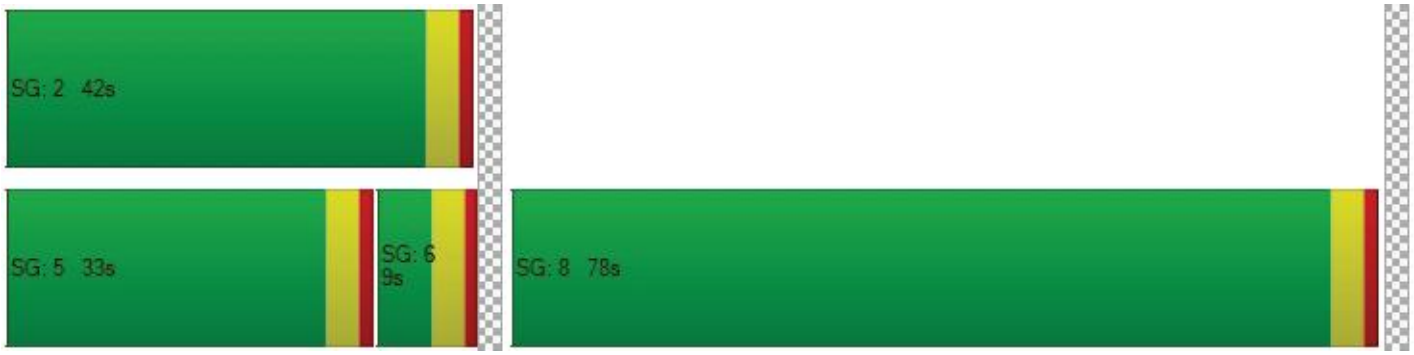
d_M, Delay for Movement [s/veh]	0.00	34.63	40.66	50.55	14.76	0.00	28.92	44.60	44.60	0.00	0.00	0.00
Movement LOS		C	D	D	B		C	D	D			
d_A, Approach Delay [s/veh]	36.66			28.87			38.15			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	33.50											
Intersection LOS	C											
Intersection V/C	0.746											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	633	1233	0
d_b, Bicycle Delay [s]	55.10	28.02	8.82	60.00
l_b,int, Bicycle LOS Score for Intersection	2.200	2.934	2.995	4.132
Bicycle LOS	B	C	C	D

Sequence

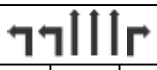
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.789

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	470	808	400	610	984	920	958	0	561	493	0	665
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	470	808	400	610	984	920	958	0	561	493	0	665
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	124	213	105	161	259	242	252	0	148	130	0	175
Total Analysis Volume [veh/h]	495	851	421	642	1036	968	1008	0	591	519	0	700
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	66	0	0	66	0	54	0	0	54	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	74	74	74	74	38	38
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.46	0.16	0.50	0.20	0.29	0.15
s, saturation flow rate [veh/h]	1074	5176	1278	5176	3514	3514
c, Capacity [veh/h]	585	3185	712	3185	1117	1117
d1, Uniform Delay [s]	29.11	10.62	28.93	11.09	39.15	32.76
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.09	0.21	16.80	0.27	3.01	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.27	0.90	0.33	0.90	0.46
d, Delay for Lane Group [s/veh]	43.20	10.82	45.73	11.36	42.16	33.06
Lane Group LOS	D	B	D	B	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.64	3.43	10.32	4.36	14.51	6.10
50th-Percentile Queue Length [ft/ln]	190.90	85.64	257.98	109.00	362.84	152.45
95th-Percentile Queue Length [veh/ln]	12.17	6.17	15.59	7.78	20.76	10.15
95th-Percentile Queue Length [ft/ln]	304.20	154.16	389.68	194.61	519.04	253.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.20	10.82	0.00	45.73	11.36	0.00	42.16	0.00	0.00	33.06	0.00	0.00
Movement LOS	D	B		D	B		D			C		
d_A, Approach Delay [s/veh]	22.73			24.51			42.16			33.06		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.87											
Intersection LOS	C											
Intersection V/C	0.789											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.312	3.455
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	1033	833	833
d_b, Bicycle Delay [s]	14.02	14.02	20.42	20.42
l_b,int, Bicycle LOS Score for Intersection	2.300	2.483	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	197	373	94	132	920	254	86	462	132	181	1240	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	373	94	132	920	254	86	462	132	181	1240	121
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	98	25	35	242	67	23	122	35	48	326	32
Total Analysis Volume [veh/h]	207	393	99	139	968	267	91	486	139	191	1305	127
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	28	0	12	27	0	11	57	0	23	69	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	42	42	7	40	40	7	41	41	15	48	48
g / C, Green / Cycle	0.07	0.35	0.35	0.06	0.33	0.33	0.06	0.34	0.34	0.12	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.06	0.04	0.19	0.17	0.05	0.13	0.09	0.11	0.36	0.08
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	262	1805	563	197	1708	533	106	1227	548	222	1460	652
d1, Uniform Delay [s]	54.60	27.55	27.12	55.67	33.12	32.26	56.02	30.27	28.68	51.60	33.37	23.16
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.29	0.28	0.68	4.60	1.37	3.34	17.88	0.21	0.24	9.27	2.14	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.22	0.18	0.71	0.57	0.50	0.86	0.40	0.25	0.86	0.89	0.19
d, Delay for Lane Group [s/veh]	59.89	27.82	27.80	60.28	34.49	35.60	73.90	30.48	28.92	60.87	35.51	23.30
Lane Group LOS	E	C	C	E	C	D	E	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.27	2.71	2.09	2.19	7.93	6.71	3.26	5.41	2.95	6.21	17.79	2.37
50th-Percentile Queue Length [ft/ln]	81.70	67.81	52.25	54.87	198.2	167.7	81.39	135.1	73.66	155.1	444.7	59.25
95th-Percentile Queue Length [veh/ln]	5.88	4.88	3.76	3.95	12.55	10.96	5.86	9.22	5.30	10.29	24.71	4.27
95th-Percentile Queue Length [ft/ln]	147.0	122.0	94.04	98.77	313.7	274.0	146.5	230.4	132.5	257.2	617.6	106.6

Movement, Approach, & Intersection Results

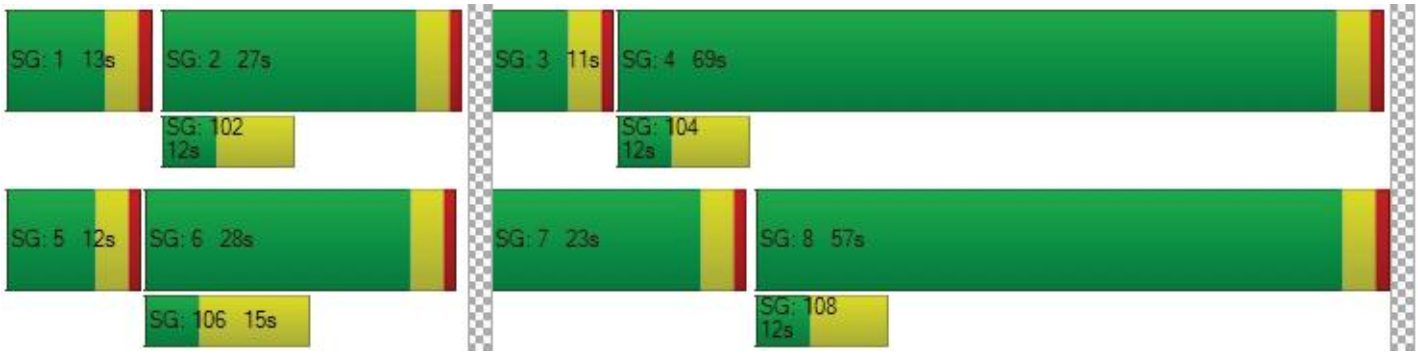
d_M, Delay for Movement [s/veh]	59.89	27.82	27.80	60.28	34.49	35.60	73.90	30.48	28.92	60.87	35.51	23.30
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	37.32			37.32			35.70			37.54		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.14											
Intersection LOS	D											
Intersection V/C	0.657											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.081	3.079	2.874	2.849
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	383	883	1083
d_b, Bicycle Delay [s]	38.40	39.20	18.70	12.60
l_b,int, Bicycle LOS Score for Intersection	1.944	2.315	2.150	2.899
Bicycle LOS	A	B	B	C

Sequence

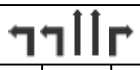
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	88.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	190	187	444	437	302	132	757	77	310	1498	326
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	190	187	444	437	302	132	757	77	310	1498	326
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	50	49	117	115	79	35	199	20	82	394	86
Total Analysis Volume [veh/h]	58	200	197	467	460	318	139	797	81	326	1577	343
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	12	33	0	29	50	50	12	41	0	17	46	46
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	29	29	25	49	61	8	37	37	13	42	71
g / C, Green / Cycle	0.04	0.24	0.24	0.21	0.41	0.51	0.07	0.31	0.31	0.11	0.35	0.59
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.12	0.26	0.13	0.20	0.08	0.23	0.23	0.09	0.44	0.21
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1839	3514	3618	1615
c, Capacity [veh/h]	78	874	390	377	1473	819	121	587	568	379	1266	956
d1, Uniform Delay [s]	56.78	36.52	39.30	47.50	24.16	18.15	56.00	37.47	37.47	52.63	39.00	12.70
k, delay calibration	0.11	0.50	0.50	0.47	0.50	0.50	0.11	0.28	0.28	0.11	0.18	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.25	0.61	4.61	127.3	0.55	1.39	87.59	5.24	5.41	5.74	113.0	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.23	0.50	1.24	0.31	0.39	1.15	0.76	0.76	0.86	1.25	0.36
d, Delay for Lane Group [s/veh]	70.04	37.13	43.90	174.8	24.72	19.54	143.5	42.71	42.88	58.37	152.0	13.06
Lane Group LOS	E	D	D	F	C	B	F	D	D	E	F	B
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.03	2.44	5.52	24.52	4.55	5.67	6.58	12.61	12.23	5.13	38.17	4.77
50th-Percentile Queue Length [ft/ln]	50.65	61.11	138.0	613.0	113.8	141.7	164.5	315.1	305.7	128.1	954.3	119.1
95th-Percentile Queue Length [veh/ln]	3.65	4.40	9.38	36.39	8.05	9.58	11.27	18.43	17.97	8.84	55.38	8.35
95th-Percentile Queue Length [ft/ln]	91.18	110.0	234.4	909.8	201.3	239.3	281.7	460.7	449.1	221.0	1384.	208.6

Movement, Approach, & Intersection Results

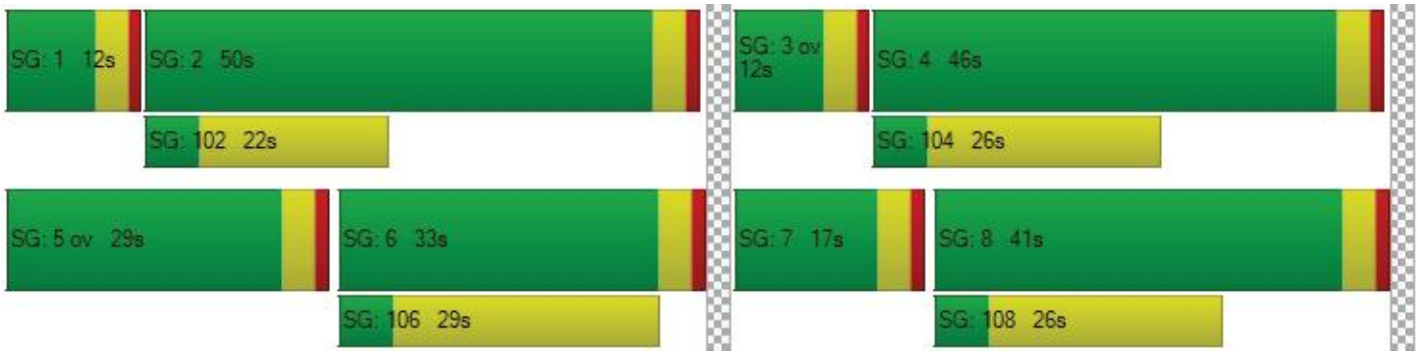
d_M, Delay for Movement [s/veh]	70.04	37.13	43.90	174.8	24.72	19.54	143.5	42.79	42.88	58.37	152.0	13.06
Movement LOS	E	D	D	F	C	B	F	D	D	E	F	B
d_A, Approach Delay [s/veh]	44.26			79.69			56.57			117.22		
Approach LOS	D			E			E			F		
d_I, Intersection Delay [s/veh]	88.69											
Intersection LOS	F											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.683	2.781	2.894	3.125
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	767	617	700
d_b, Bicycle Delay [s]	34.50	22.82	28.70	25.35
l_b,int, Bicycle LOS Score for Intersection	1.935	2.587	2.399	3.413
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	1144	67	458	1531	613	460	246	52	68	289	393
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	1144	67	458	1531	613	460	246	52	68	289	393
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	301	18	121	403	161	121	65	14	18	76	103
Total Analysis Volume [veh/h]	39	1204	71	482	1612	645	484	259	55	72	304	414
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	34	0	21	46	46	22	56	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	54	54	17	67	89	18	29	29	5	15	36
g / C, Green / Cycle	0.03	0.45	0.45	0.14	0.56	0.74	0.15	0.24	0.24	0.04	0.13	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.23	0.23	0.14	0.31	0.40	0.14	0.09	0.09	0.02	0.08	0.26
s, saturation flow rate [veh/h]	1810	3618	1846	3514	5176	1615	3514	1900	1786	3514	3618	1615
c, Capacity [veh/h]	55	1617	825	498	2888	1197	527	456	429	134	463	489
d1, Uniform Delay [s]	57.62	23.93	23.94	51.23	17.03	6.68	50.27	37.88	37.89	56.69	49.81	39.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.91	1.21	2.36	12.63	0.78	1.74	6.96	0.47	0.50	3.35	1.59	10.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.52	0.52	0.97	0.56	0.54	0.92	0.35	0.36	0.54	0.66	0.85
d, Delay for Lane Group [s/veh]	72.53	25.14	26.29	63.86	17.81	8.43	57.24	38.35	38.38	60.04	51.39	49.85
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.40	8.83	9.28	8.06	9.45	6.73	7.65	4.03	3.80	1.13	4.45	12.78
50th-Percentile Queue Length [ft/ln]	35.08	220.7	231.9	201.4	236.2	168.2	191.3	100.6	94.95	28.37	111.2	319.5
95th-Percentile Queue Length [veh/ln]	2.53	13.70	14.27	12.72	14.49	10.98	12.19	7.25	6.84	2.04	7.91	18.64
95th-Percentile Queue Length [ft/ln]	63.14	342.5	356.8	317.8	362.2	274.5	304.7	181.2	170.9	51.07	197.6	466.0

Movement, Approach, & Intersection Results

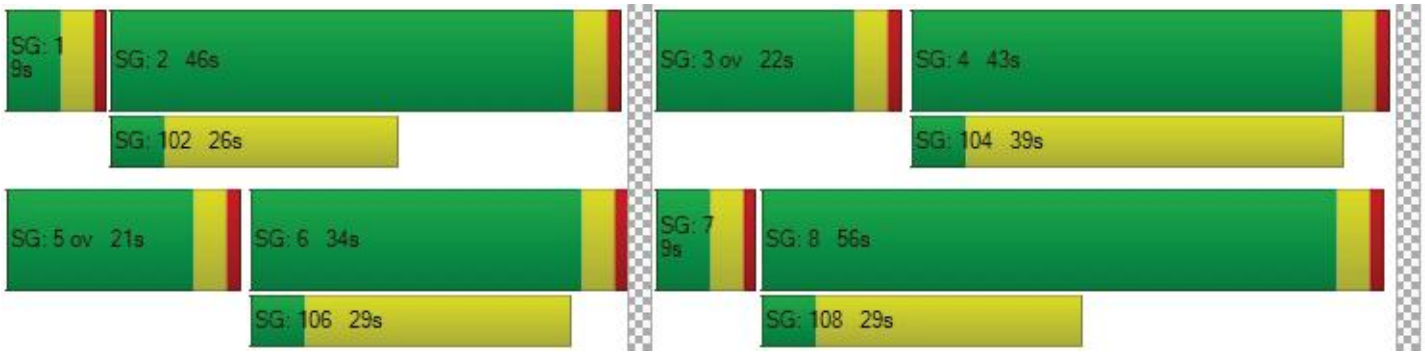
d_M, Delay for Movement [s/veh]	72.53	25.49	26.29	63.86	17.81	8.43	57.24	38.36	38.38	60.04	51.39	49.85
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.93			23.70			49.81			51.37		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.02											
Intersection LOS	C											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.113	3.454	2.758	2.832
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	700	867	650
d_b, Bicycle Delay [s]	33.75	25.35	19.27	27.34
l_b,int, Bicycle LOS Score for Intersection	2.282	3.066	2.218	2.211
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	662.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	32.708

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	54	857	20	142	812	377	278	62	106	31	70	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	857	20	142	812	377	278	62	106	31	70	144
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	226	5	37	214	99	73	16	28	8	18	38
Total Analysis Volume [veh/h]	57	902	21	149	855	397	293	65	112	33	74	152
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	12	12	5	12	12	91	91	91	91
g / C, Green / Cycle	0.04	0.10	0.10	0.04	0.10	0.10	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.03	0.17	0.17	0.08	0.24	0.25	32.43	0.07	1.12	0.09
s, saturation flow rate [veh/h]	1810	3618	1878	1810	3618	1615	11	1615	96	1615
c, Capacity [veh/h]	74	365	190	75	369	165	63	1223	112	1223
d1, Uniform Delay [s]	57.01	53.94	53.94	57.50	53.88	53.88	49.88	3.80	45.78	3.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.65	309.6	320.8	449.5	601.2	652.7	2144.84	0.03	74.71	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	1.66	1.66	1.98	2.32	2.41	5.69	0.09	0.96	0.12
d, Delay for Lane Group [s/veh]	72.66	363.5	374.7	507.0	655.1	706.6	2194.72	3.83	120.49	3.95
Lane Group LOS	E	F	F	F	F	F	F	A	F	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.03	21.23	22.63	11.70	36.37	34.83	39.40	0.64	4.24	0.89
50th-Percentile Queue Length [ft/ln]	50.81	530.6	565.7	292.5	909.2	870.7	984.96	15.88	105.90	22.15
95th-Percentile Queue Length [veh/ln]	3.66	33.71	35.69	19.69	56.98	54.91	70.92	1.14	7.61	1.59
95th-Percentile Queue Length [ft/ln]	91.46	842.8	892.3	492.1	1424.	1372.	1772.93	28.59	190.29	39.87

Movement, Approach, & Intersection Results

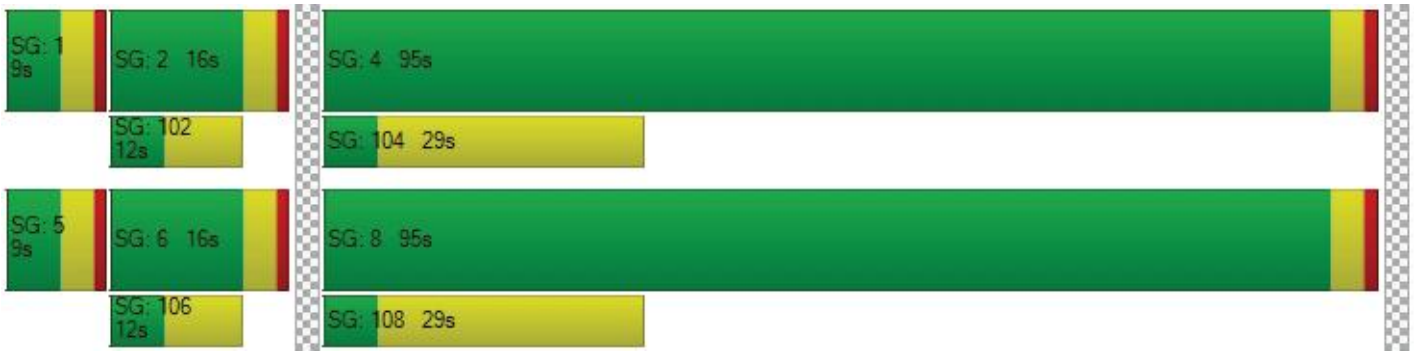
d_M, Delay for Movement [s/veh]	72.66	367.2	374.7	507.0	655.1	706.6	2194.	2194.	3.83	120.4	120.4	3.95
Movement LOS	E	F	F	F	F	F	F	F	A	F	F	A
d_A, Approach Delay [s/veh]	350.27			653.98			1672.63			52.09		
Approach LOS	F			F			F			D		
d_I, Intersection Delay [s/veh]	662.10											
Intersection LOS	F											
Intersection V/C	32.708											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.932	3.409	2.280	2.116
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.099	2.330	2.335	1.987
Bicycle LOS	B	B	B	A

Sequence

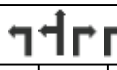
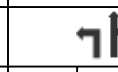
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1781	3560	1870	1781	3560	1589	1781	1870	2813	1781	1870
c, Capacity [veh/h]	1	3082	1619	1	3081	1483	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

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Report File: K:\...\7 HY 2040 PM.pdf

Scenario 7 HY 2040 PM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Left	0.604	29.2	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.651	26.2	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.452	16.3	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.604	24.9	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.735	31.3	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.492	15.7	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.526	36.1	D
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.707	41.3	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.844	50.5	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.506	40.1	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.567	19.2	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.632	33.8	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.682	39.5	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.580	42.8	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.737	41.3	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.576	36.6	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.547	43.2	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.877	20.5	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.579	22.1	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.731	49.7	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.733	61.6	E
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	33.884	10,000.0	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.948	80.3	F
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	SB Left	0.892	58.9	E
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	EB Thru	1.345	161.2	F
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.906	68.8	E
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	NB Left	0.664	28.4	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.745	45.5	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.644	38.0	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.892	37.5	D
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.890	59.4	E
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	1.421	361.9	F
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.665	26.4	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.811	39.3	D
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	SB Thru	1.874	218.9	F
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.564	30.7	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	SB Left	0.695	42.8	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.638	34.2	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.638	32.1	C
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	1.238	123.8	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	NB Thru	1.720	156.5	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.514	27.9	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	EB Left	0.711	35.5	D
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	WB Right	0.890	53.0	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.536	38.6	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.612	37.4	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	WB Left	0.882	61.6	E
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.219	11.3	B
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.790	45.0	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.793	37.4	D
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	EB Thru	0.820	49.5	D
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.568	32.5	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	SB Left	0.721	40.9	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	NB Thru	2.025	249.1	F
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.676	37.7	D
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	EB Right	0.958	71.3	E
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	WB Left	1.048	70.0	E
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.472	15.5	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	NB Thru	335.374	10,000.0	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.788	45.6	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.893	52.3	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.670	22.0	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.754	26.5	C
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.520	18.6	B
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.677	20.4	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	NB Right	0.889	44.7	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.711	30.4	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	EB Left	1.152	69.8	E
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.752	39.5	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	1.004	87.2	F
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.732	36.9	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	35.648	687.5	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition		0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	353	822	0	0	680	253	0	0	0	347	0	204
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	353	822	0	0	680	253	0	0	0	347	0	204
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	93	216	0	0	179	67	0	0	0	91	0	54
Total Analysis Volume [veh/h]	372	865	0	0	716	266	0	0	0	365	0	215
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	82	0	0	38	0	0	0	0	0	38	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	27	85	54	54		27	27
g / C, Green / Cycle	0.22	0.71	0.45	0.45		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.21	0.24	0.18	0.20		0.20	0.13
s, saturation flow rate [veh/h]	1810	3618	3618	1662		1810	1615
c, Capacity [veh/h]	407	2570	1637	752		403	360
d1, Uniform Delay [s]	45.39	6.61	21.97	22.40		45.40	41.81
k, delay calibration	0.18	0.50	0.50	0.50		0.24	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	12.60	0.35	0.73	1.83		15.28	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.34	0.40	0.44		0.91	0.60
d, Delay for Lane Group [s/veh]	57.98	6.96	22.70	24.24		60.68	43.40
Lane Group LOS	E	A	C	C		E	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	12.18	3.97	6.30	6.64		12.24	5.87
50th-Percentile Queue Length [ft/ln]	304.51	99.15	157.45	165.92		306.06	146.79
95th-Percentile Queue Length [veh/ln]	17.90	7.14	10.41	10.86		17.98	9.85
95th-Percentile Queue Length [ft/ln]	447.61	178.47	260.34	271.54		449.52	246.13

Movement, Approach, & Intersection Results

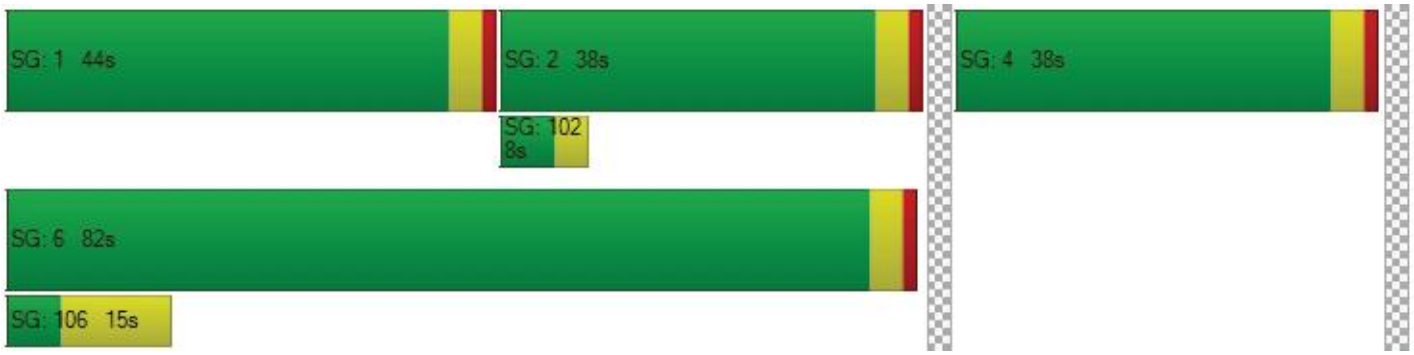
d_M, Delay for Movement [s/veh]	57.98	6.96	0.00	0.00	22.83	24.24	0.00	0.00	0.00	60.68	60.68	43.40
Movement LOS	E	A			C	C				E	E	D
d_A, Approach Delay [s/veh]	22.31			23.21			0.00			54.28		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	29.25											
Intersection LOS	C											
Intersection V/C	0.604											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.061	2.144
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1300	567	0	567
d_b, Bicycle Delay [s]	7.35	30.82	60.00	30.82
l_b,int, Bicycle LOS Score for Intersection	2.580	2.100	4.132	2.517
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	362	1187	0	0	857	460	0	0	0	389	0	372
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	362	1187	0	0	857	460	0	0	0	389	0	372
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	95	312	0	0	226	121	0	0	0	102	0	98
Total Analysis Volume [veh/h]	381	1249	0	0	902	484	0	0	0	409	0	392
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	59	0	0	38	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	80	61	61		32	32	32
g / C, Green / Cycle	0.13	0.66	0.51	0.51		0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.35	0.25	0.30		0.11	0.11	0.24
s, saturation flow rate [veh/h]	3514	3618	3618	1615		1810	1810	1615
c, Capacity [veh/h]	442	2400	1825	815		488	488	436
d1, Uniform Delay [s]	51.44	10.37	19.62	21.03		36.07	36.07	42.25
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.11	0.81	0.96	3.18		0.57	0.57	6.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.52	0.49	0.59		0.42	0.42	0.90
d, Delay for Lane Group [s/veh]	56.55	11.18	20.58	24.21		36.64	36.64	49.18
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.93	8.20	8.42	10.12		5.03	5.03	11.96
50th-Percentile Queue Length [ft/ln]	148.13	204.92	210.45	253.07		125.7	125.7	298.9
95th-Percentile Queue Length [veh/ln]	9.92	12.89	13.18	15.34		8.71	8.71	17.63
95th-Percentile Queue Length [ft/ln]	247.93	322.31	329.40	383.51		217.6	217.6	440.6

Movement, Approach, & Intersection Results

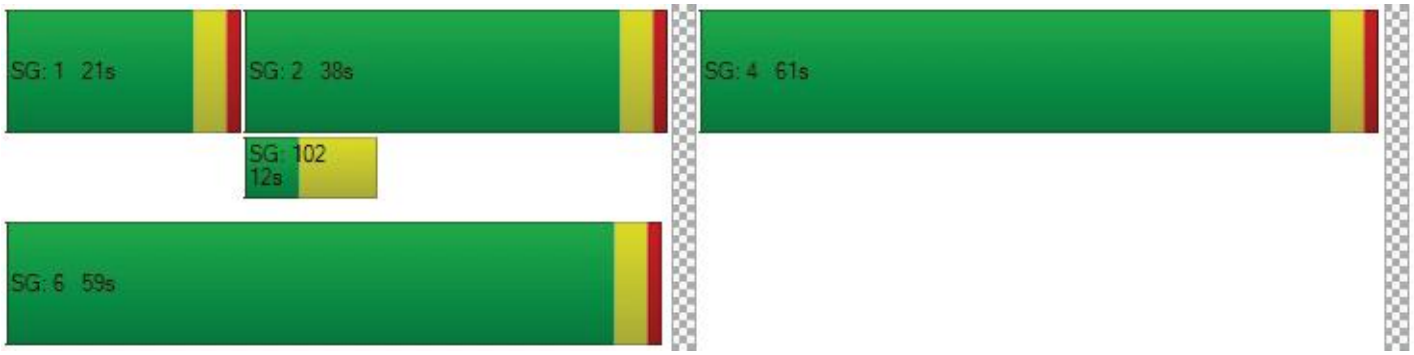
d_M, Delay for Movement [s/veh]	56.55	11.18	0.00	0.00	20.58	24.21	0.00	0.00	0.00	36.64	36.64	49.18
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	21.79			21.85			0.00			42.78		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.22											
Intersection LOS	C											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.152	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	567	0	950
d_b, Bicycle Delay [s]	17.60	30.82	60.00	16.54
l_b,int, Bicycle LOS Score for Intersection	2.904	2.703	4.132	2.881
Bicycle LOS	C	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.452

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1273	0	0	1404	0	0	0	0	337	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1273	0	0	1404	0	0	0	0	337	0	448
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	335	0	0	369	0	0	0	0	89	0	118
Total Analysis Volume [veh/h]	0	1340	0	0	1478	0	0	0	0	355	0	472
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	52	0	0	52	0	0	0	0	0	68	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	88	88		24	24	24
g / C, Green / Cycle	0.74	0.74		0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.26	0.29		0.16	0.16	0.17
s, saturation flow rate [veh/h]	5176	5176		1810	1660	1615
c, Capacity [veh/h]	3809	3809		357	328	319
d1, Uniform Delay [s]	5.64	5.85		45.90	46.26	46.37
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.30		4.16	5.50	6.04
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.39		0.80	0.83	0.84
d, Delay for Lane Group [s/veh]	5.90	6.15		50.06	51.76	52.42
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.64	4.17		8.52	8.30	8.24
50th-Percentile Queue Length [ft/ln]	90.97	104.13		212.9	207.5	205.9
95th-Percentile Queue Length [veh/ln]	6.55	7.50		13.30	13.03	12.94
95th-Percentile Queue Length [ft/ln]	163.74	187.44		332.5	325.6	323.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.90	0.00	0.00	6.15	0.00	0.00	0.00	0.00	50.43	51.76	52.14
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	5.90			6.15			0.00			51.39		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.32											
Intersection LOS	B											
Intersection V/C	0.452											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	0	1067
d_b, Bicycle Delay [s]	21.60	21.60	60.00	13.07
l_b,int, Bicycle LOS Score for Intersection	2.297	2.373	4.132	2.924
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	854	366	121	819	0	288	3	418	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	854	366	121	819	0	288	3	418	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	225	96	32	216	0	76	1	110	0	0	0
Total Analysis Volume [veh/h]	0	899	385	127	862	0	303	3	440	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	22	0	15	37	0	0	83	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	62	62	10	76	36	36	
g / C, Green / Cycle	0.52	0.52	0.08	0.64	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.26	0.07	0.24	0.17	0.27	
s, saturation flow rate [veh/h]	3618	1640	1810	3618	1810	1615	
c, Capacity [veh/h]	1869	847	153	2297	540	482	
d1, Uniform Delay [s]	18.35	18.96	54.05	10.50	35.54	40.59	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.81	2.15	10.70	0.47	0.94	7.15	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.51	0.83	0.38	0.57	0.91	
d, Delay for Lane Group [s/veh]	19.16	21.11	64.74	10.97	36.47	47.74	
Lane Group LOS	B	C	E	B	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	7.61	8.15	4.23	5.39	7.70	13.37	
50th-Percentile Queue Length [ft/ln]	190.23	203.71	105.73	134.75	192.48	334.28	
95th-Percentile Queue Length [veh/ln]	12.13	12.83	7.60	9.20	12.25	19.37	
95th-Percentile Queue Length [ft/ln]	303.32	320.75	190.04	229.94	306.24	484.20	

Movement, Approach, & Intersection Results

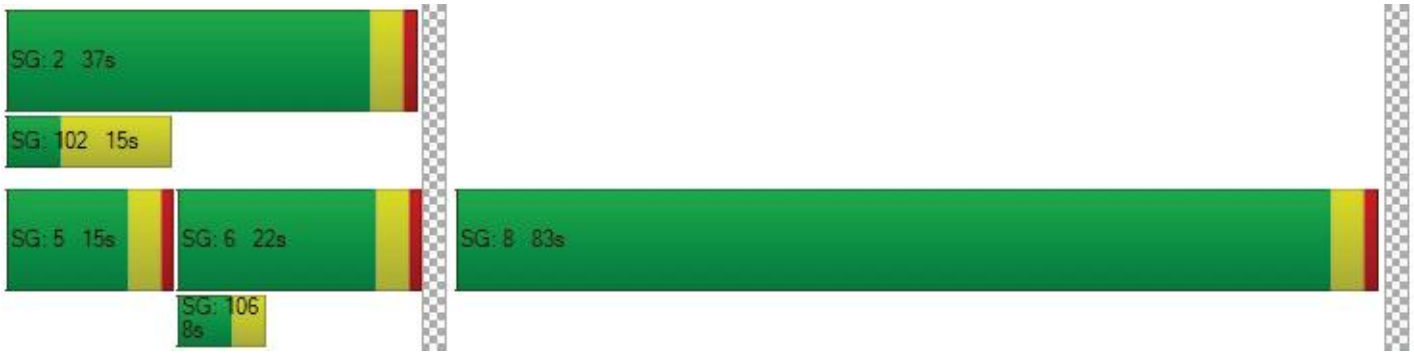
d_M, Delay for Movement [s/veh]	0.00	19.26	21.11	64.74	10.97	0.00	36.47	36.47	47.74	0.00	0.00	0.00
Movement LOS		B	C	E	B		D	D	D			
d_A, Approach Delay [s/veh]	19.81			17.88			43.12			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	24.94											
Intersection LOS	C											
Intersection V/C	0.604											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.198	1.941
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	300	550	1317	0
d_b, Bicycle Delay [s]	43.35	31.54	7.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.266	2.376	2.791	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1173	308	287	779	0	578	0	385	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1173	308	287	779	0	578	0	385	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	309	81	76	205	0	152	0	101	0	0	0
Total Analysis Volume [veh/h]	0	1235	324	302	820	0	608	0	405	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	64	0	16	80	0	0	40	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	68	68	12	84	28	28	28	
g / C, Green / Cycle	0.56	0.56	0.10	0.70	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.41	0.44	0.09	0.23	0.19	0.19	0.21	
s, saturation flow rate [veh/h]	1900	1770	3514	3618	1810	1767	1615	
c, Capacity [veh/h]	1068	995	351	2516	431	420	384	
d1, Uniform Delay [s]	19.51	20.56	53.17	7.20	42.84	43.07	44.05	
k, delay calibration	0.50	0.50	0.11	0.50	0.18	0.19	0.23	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.40	6.16	6.16	0.35	5.14	6.17	12.83	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.73	0.78	0.86	0.33	0.78	0.80	0.88	
d, Delay for Lane Group [s/veh]	23.91	26.72	59.33	7.55	47.97	49.25	56.89	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	16.75	17.98	4.78	3.96	9.97	10.13	10.99	
50th-Percentile Queue Length [ft/ln]	418.80	449.51	119.51	99.02	249.3	253.2	274.8	
95th-Percentile Queue Length [veh/ln]	23.46	24.93	8.37	7.13	15.15	15.35	16.43	
95th-Percentile Queue Length [ft/ln]	586.61	623.36	209.15	178.23	378.8	383.8	410.8	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	24.95	26.72	59.33	7.55	0.00	48.54	49.25	55.62	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	25.32			21.48			51.37			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.30											
Intersection LOS	C											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.393	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1267	600	0
d_b, Bicycle Delay [s]	15.00	8.07	29.40	60.00
l_b,int, Bicycle LOS Score for Intersection	2.846	2.485	3.231	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.492

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1592	1202	0	1465	41	333	0	458	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1592	1202	0	1465	41	333	0	458	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	419	316	0	386	11	88	0	121	0	0	0
Total Analysis Volume [veh/h]	0	1676	1265	0	1542	43	351	0	482	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	77	0	0	77	0	0	43	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	88	88	24	24	24	
g / C, Green / Cycle	0.74	0.74	0.20	0.20	0.20	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.30	0.16	0.17	0.17	
s, saturation flow rate [veh/h]	5176	5176	1810	1656	1615	
c, Capacity [veh/h]	3807	3807	358	328	319	
d1, Uniform Delay [s]	6.21	5.98	45.90	46.29	46.40	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.37	0.32	4.23	5.71	6.24	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.44	0.41	0.80	0.84	0.85	
d, Delay for Lane Group [s/veh]	6.58	6.30	50.14	51.99	52.63	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.01	4.44	8.58	8.38	8.33	
50th-Percentile Queue Length [ft/ln]	125.23	110.90	214.5	209.5	208.2	
95th-Percentile Queue Length [veh/ln]	8.68	7.89	13.39	13.13	13.06	
95th-Percentile Queue Length [ft/ln]	216.99	197.25	334.6	328.2	326.5	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.58	0.00	0.00	6.30	0.00	50.51	51.99	52.36	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	6.58			6.30			51.56			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	15.72											
Intersection LOS	B											
Intersection V/C	0.492											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.349	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1217	1217	650	0
d_b, Bicycle Delay [s]	9.20	9.20	27.34	60.00
l_b,int, Bicycle LOS Score for Intersection	2.481	2.408	2.934	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.526

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	588	161	112	524	60	73	432	146	133	275	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	588	161	112	524	60	73	432	146	133	275	92
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	155	42	29	138	16	19	114	38	35	72	24
Total Analysis Volume [veh/h]	69	619	169	118	552	63	77	455	154	140	289	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	30	0	14	33	0	26	59	0	17	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	60	10	64	64	7	23	23	11	28	28
g / C, Green / Cycle	0.05	0.50	0.50	0.08	0.53	0.53	0.06	0.19	0.19	0.09	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.07	0.16	0.16	0.04	0.17	0.17	0.08	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1761	1810	1900	1833	1810	1900	1738	1810	1900	1740
c, Capacity [veh/h]	89	953	884	144	1011	975	102	367	336	167	435	399
d1, Uniform Delay [s]	56.41	18.99	18.99	54.40	15.73	15.74	55.78	46.87	46.94	53.56	39.84	39.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.47	1.41	1.52	10.95	0.80	0.83	10.58	6.09	6.92	10.44	0.76	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.43	0.43	0.82	0.31	0.31	0.75	0.86	0.87	0.84	0.46	0.47
d, Delay for Lane Group [s/veh]	69.87	20.40	20.52	65.35	16.53	16.57	66.36	52.96	53.86	64.00	40.60	40.78
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.40	7.51	7.00	3.95	4.97	4.82	2.60	9.76	9.08	4.64	5.18	4.85
50th-Percentile Queue Length [ft/ln]	59.98	187.7	174.9	98.67	124.3	120.4	65.00	244.0	227.0	115.9	129.5	121.2
95th-Percentile Queue Length [veh/ln]	4.32	12.00	11.34	7.10	8.63	8.42	4.68	14.88	14.02	8.17	8.92	8.46
95th-Percentile Queue Length [ft/ln]	107.9	300.0	283.4	177.6	215.8	210.4	117.0	372.1	350.6	204.2	222.9	211.6

Movement, Approach, & Intersection Results

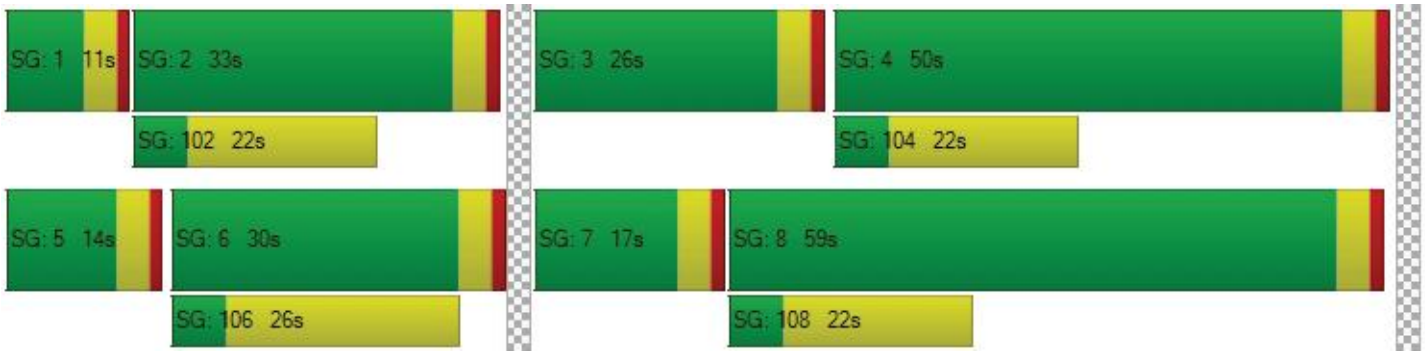
d_M, Delay for Movement [s/veh]	69.87	20.44	20.52	65.35	16.55	16.57	66.36	53.24	53.86	64.00	40.65	40.78
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.43			24.40			54.85			46.89		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.09											
Intersection LOS	D											
Intersection V/C	0.526											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.647	2.613	2.531	2.674
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	483	917	767
d_b, Bicycle Delay [s]	36.82	34.50	17.60	22.82
l_b,int, Bicycle LOS Score for Intersection	2.267	2.164	2.126	1.994
Bicycle LOS	B	B	B	A

Sequence

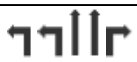
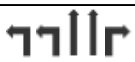
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	41.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	73	852	92	329	715	119	245	480	81	177	435	441
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	852	92	329	715	119	245	480	81	177	435	441
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	224	24	87	188	31	64	126	21	47	114	116
Total Analysis Volume [veh/h]	77	897	97	346	753	125	258	505	85	186	458	464
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	33	0	18	40	0	15	47	0	22	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	42	42	14	49	49	11	34	34	14	38	38
g / C, Green / Cycle	0.05	0.35	0.35	0.11	0.41	0.41	0.09	0.28	0.28	0.12	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.06	0.10	0.21	0.08	0.07	0.14	0.05	0.10	0.24	0.29
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	3514	3618	1615	1810	1900	1615
c, Capacity [veh/h]	98	1264	565	400	1480	661	313	1025	458	217	597	507
d1, Uniform Delay [s]	56.03	33.76	27.01	52.25	26.46	22.71	53.72	35.81	32.53	51.81	37.21	39.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.15	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.56	3.39	0.66	5.64	1.25	0.63	5.41	0.37	0.19	9.44	2.91	13.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.71	0.17	0.86	0.51	0.19	0.82	0.49	0.19	0.86	0.77	0.92
d, Delay for Lane Group [s/veh]	68.59	37.14	27.67	57.89	27.71	23.34	59.13	36.18	32.72	61.25	40.11	52.86
Lane Group LOS	E	D	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.65	11.79	2.04	5.43	8.24	2.39	4.06	6.22	1.91	6.06	12.55	14.89
50th-Percentile Queue Length [ft/ln]	66.17	294.7	51.02	135.7	205.9	59.77	101.5	155.4	47.73	151.4	313.8	372.2
95th-Percentile Queue Length [veh/ln]	4.76	17.42	3.67	9.25	12.95	4.30	7.31	10.31	3.44	10.09	18.36	21.22
95th-Percentile Queue Length [ft/ln]	119.1	435.5	91.84	231.2	323.6	107.5	182.7	257.6	85.91	252.3	459.1	530.4

Movement, Approach, & Intersection Results

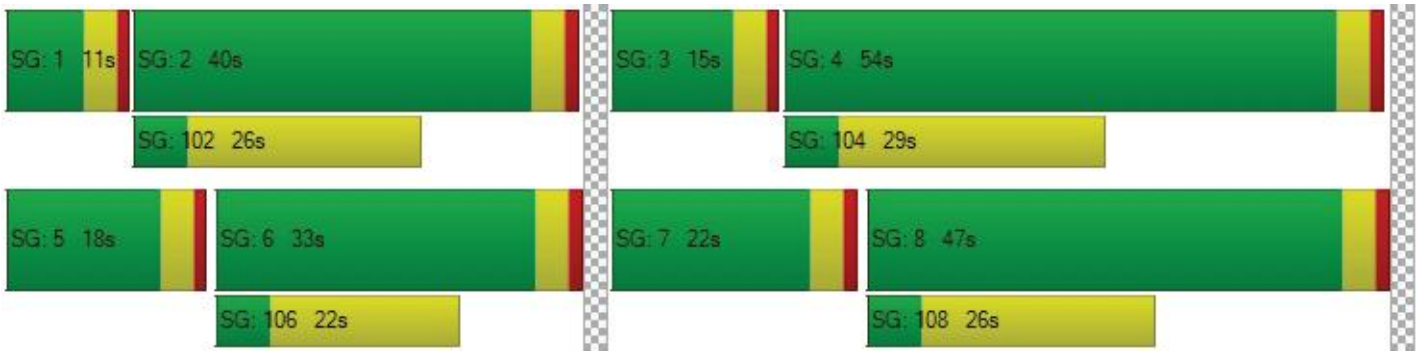
d_M, Delay for Movement [s/veh]	68.59	37.14	27.67	57.89	27.71	23.34	59.13	36.18	32.72	61.25	40.11	52.86
Movement LOS	E	D	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	38.55			35.80			42.82			49.00		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.33											
Intersection LOS	D											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.809	3.005	2.819	2.802
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	600	717	833
d_b, Bicycle Delay [s]	34.50	29.40	24.70	20.42
l_b,int, Bicycle LOS Score for Intersection	2.443	2.569	2.259	3.388
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	50.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	172	1482	118	400	1207	318	551	526	162	132	347	396
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	172	1482	118	400	1207	318	551	526	162	132	347	396
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	390	31	105	318	84	145	138	43	35	91	104
Total Analysis Volume [veh/h]	181	1560	124	421	1271	335	580	554	171	139	365	417
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	37	0	19	45	0	24	51	0	13	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	36	36	15	44	44	20	46	46	7	33	33
g / C, Green / Cycle	0.06	0.30	0.30	0.13	0.37	0.37	0.17	0.39	0.39	0.06	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.05	0.30	0.08	0.12	0.25	0.21	0.17	0.15	0.11	0.04	0.10	0.26
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	205	1544	482	439	1889	589	586	1399	625	199	1001	447
d1, Uniform Delay [s]	56.09	42.10	32.00	52.19	32.07	30.53	49.90	26.65	25.24	55.60	34.92	42.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.36
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.71	25.46	1.29	12.31	1.93	3.94	15.16	0.18	0.23	4.39	0.22	22.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	1.01	0.26	0.96	0.67	0.57	0.99	0.40	0.27	0.70	0.36	0.93
d, Delay for Lane Group [s/veh]	67.80	67.57	33.29	64.50	34.00	34.47	65.06	26.83	25.47	59.98	35.14	65.09
Lane Group LOS	E	F	C	E	C	C	E	C	C	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.05	18.68	2.93	7.04	10.60	8.37	9.88	5.78	3.40	2.19	4.34	14.76
50th-Percentile Queue Length [ft/ln]	76.33	466.8	73.14	175.9	265.0	209.2	246.9	144.3	84.92	54.73	108.5	369.0
95th-Percentile Queue Length [veh/ln]	5.50	25.94	5.27	11.39	15.94	13.11	15.03	9.72	6.11	3.94	7.76	21.06
95th-Percentile Queue Length [ft/ln]	137.3	648.3	131.6	284.6	398.5	327.8	375.8	242.9	152.8	98.52	193.9	526.6

Movement, Approach, & Intersection Results

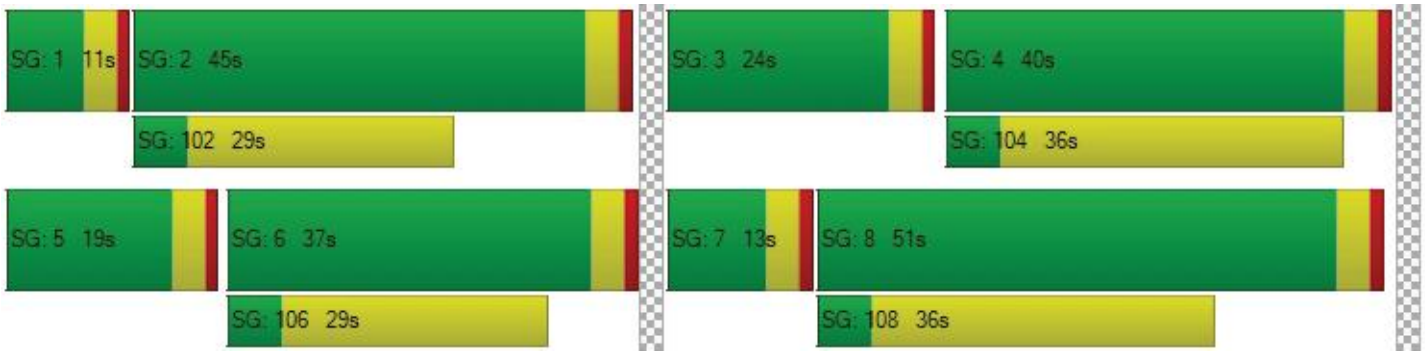
d_M, Delay for Movement [s/veh]	67.80	67.57	33.29	64.50	34.00	34.47	65.06	26.83	25.47	59.98	35.14	65.09
Movement LOS	E	F	C	E	C	C	E	C	C	E	D	E
d_A, Approach Delay [s/veh]	65.31			40.41			43.64			52.45		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	50.50											
Intersection LOS	D											
Intersection V/C	0.844											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.238	3.361	2.914	2.891
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	683	783	600
d_b, Bicycle Delay [s]	31.54	26.00	22.20	29.40
l_b,int, Bicycle LOS Score for Intersection	2.585	2.674	2.636	2.319
Bicycle LOS	B	B	B	B

Sequence

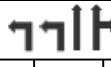
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	122	193	231	55	113	71	104	1286	170	169	787	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	193	231	55	113	71	104	1286	170	169	787	58
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	32	51	61	14	30	19	27	338	45	44	207	15
Total Analysis Volume [veh/h]	128	203	243	58	119	75	109	1354	179	178	828	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	36	36	9	31	0	13	64	0	11	62	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	53	64	5	52	52	9	39	39	7	37	37
g / C, Green / Cycle	0.05	0.44	0.53	0.04	0.43	0.43	0.07	0.33	0.33	0.06	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.15	0.03	0.05	0.06	0.06	0.28	0.28	0.05	0.24	0.24
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1666	1810	3618	1789	3514	1900	1855
c, Capacity [veh/h]	187	838	860	75	815	714	134	1180	583	205	590	576
d1, Uniform Delay [s]	55.81	21.00	15.43	56.96	20.65	20.73	54.74	38.03	38.05	56.04	37.39	37.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.35	0.69	0.82	15.43	0.31	0.38	11.18	2.12	5.54	10.61	2.08	2.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.24	0.28	0.77	0.12	0.13	0.81	0.87	0.87	0.87	0.76	0.76
d, Delay for Lane Group [s/veh]	60.15	21.69	16.26	72.39	20.96	21.12	65.93	40.15	43.59	66.65	39.47	39.53
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.02	3.74	3.83	2.06	1.77	1.68	3.66	14.37	14.78	2.97	12.20	11.92
50th-Percentile Queue Length [ft/ln]	50.46	93.44	95.63	51.58	44.29	42.06	91.54	359.1	369.4	74.36	304.9	297.8
95th-Percentile Queue Length [veh/ln]	3.63	6.73	6.89	3.71	3.19	3.03	6.59	20.58	21.08	5.35	17.92	17.58
95th-Percentile Queue Length [ft/ln]	90.83	168.1	172.1	92.84	79.72	75.71	164.7	514.5	527.1	133.8	448.0	439.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.15	21.69	16.26	72.39	20.98	21.12	65.93	40.99	43.59	66.65	39.50	39.53
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	27.97			32.85			42.93			44.03		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.11											
Intersection LOS	D											
Intersection V/C	0.506											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.639	2.437	2.902	3.072
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	450	1000	967
d_b, Bicycle Delay [s]	32.27	36.04	15.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.507	1.768	2.463	2.440
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	289	0	633	0	1642	189	0	625	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	289	0	633	0	1642	189	0	625	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	76	0	167	0	432	50	0	164	0
Total Analysis Volume [veh/h]	0	0	0	304	0	666	0	1728	199	0	658	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	65	0	0	0	55	0	0	55	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	80	80
g / C, Green / Cycle		0.27	0.27	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate		0.09	0.23	0.33	0.13
s, saturation flow rate [veh/h]		3514	2859	5176	5176
c, Capacity [veh/h]		939	763	3448	3448
d1, Uniform Delay [s]		35.28	42.02	10.03	7.66
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.20	3.29	0.52	0.12
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.32	0.87	0.50	0.19
d, Delay for Lane Group [s/veh]		35.48	45.31	10.56	7.78
Lane Group LOS		D	D	B	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.62	9.72	7.27	2.10
50th-Percentile Queue Length [ft/ln]		90.39	242.88	181.73	52.58
95th-Percentile Queue Length [veh/ln]		6.51	14.83	11.69	3.79
95th-Percentile Queue Length [ft/ln]		162.70	370.68	292.27	94.64

Movement, Approach, & Intersection Results

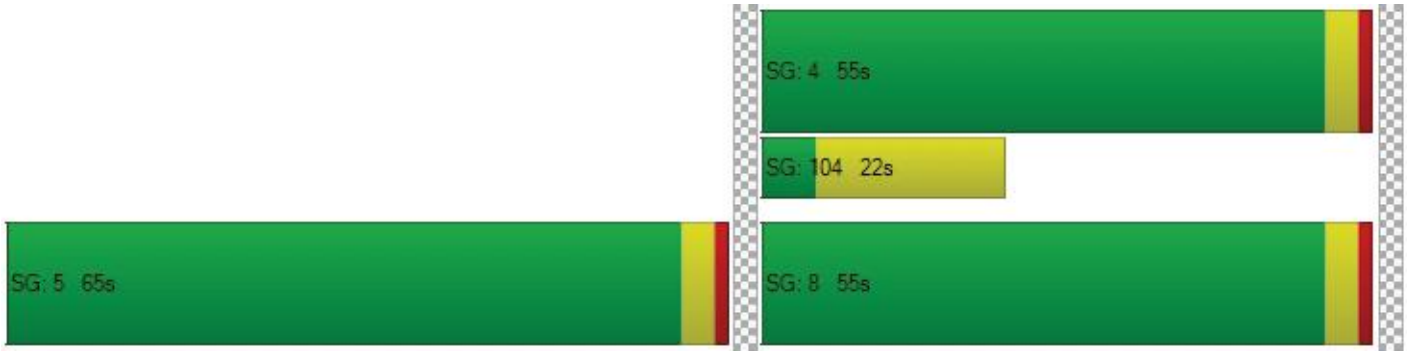
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.48	0.00	45.31	0.00	10.56	0.00	0.00	7.78	0.00
Movement LOS				D		D		B			A	
d_A, Approach Delay [s/veh]	0.00			42.23			10.56			7.78		
Approach LOS	A			D			B			A		
d_I, Intersection Delay [s/veh]	19.17											
Intersection LOS	B											
Intersection V/C	0.567											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.504	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1017	850	850
d_b, Bicycle Delay [s]	60.00	14.50	19.84	19.84
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.510	1.922
Bicycle LOS	D	A	B	A

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	33.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	445	0	853	0	0	0	627	1074	0	0	1061	269
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	445	0	853	0	0	0	627	1074	0	0	1061	269
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	117	0	224	0	0	0	165	283	0	0	279	71
Total Analysis Volume [veh/h]	468	0	898	0	0	0	660	1131	0	0	1117	283
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	45	0	0	0	0	48	75	0	0	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58	58		26	54	24
g / C, Green / Cycle	0.48	0.48	0.48		0.22	0.45	0.20
(v / s)_i Volume / Saturation Flow Rate	0.25	0.28	0.28		0.19	0.22	0.16
s, saturation flow rate [veh/h]	1810	1620	1615		3514	5176	6901
c, Capacity [veh/h]	870	779	777		759	2341	1401
d1, Uniform Delay [s]	21.59	22.48	22.50		45.41	23.03	45.48
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.24	3.19	3.22		3.24	0.16	1.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.58	0.59		0.87	0.48	0.80
d, Delay for Lane Group [s/veh]	23.84	25.67	25.73		48.65	23.19	46.56
Lane Group LOS	C	C	C		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	9.31	9.81	9.83		9.80	7.46	7.99
50th-Percentile Queue Length [ft/ln]	232.6	245.3	245.7		244.97	186.38	199.77
95th-Percentile Queue Length [veh/ln]	14.31	14.95	14.97		14.93	11.93	12.63
95th-Percentile Queue Length [ft/ln]	357.7	373.7	374.2		373.31	298.33	315.67

Movement, Approach, & Intersection Results

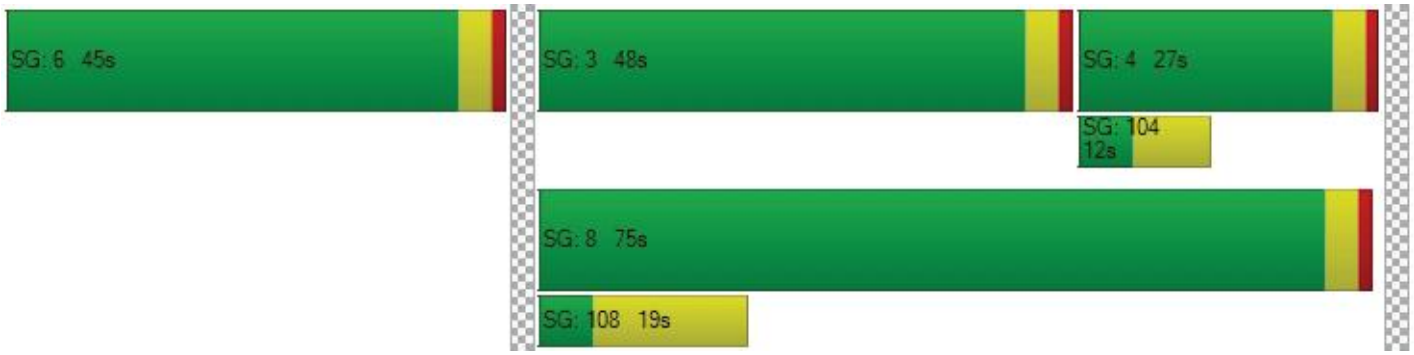
d_M, Delay for Movement [s/veh]	23.89	25.67	25.70	0.00	0.00	0.00	48.65	23.19	0.00	0.00	46.56	0.00
Movement LOS	C	C	C				D	C			D	
d_A, Approach Delay [s/veh]	25.08			0.00			32.57			46.56		
Approach LOS	C			A			C			D		
d_I, Intersection Delay [s/veh]	33.83											
Intersection LOS	C											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.479	2.052	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	0	1183	383
d_b, Bicycle Delay [s]	26.00	60.00	10.00	39.20
l_b,int, Bicycle LOS Score for Intersection	3.814	4.132	2.545	2.020
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.682

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	1079	418	120	537	113	394	1263	141	390	687	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	1079	418	120	537	113	394	1263	141	390	687	68
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	61	284	110	32	141	30	104	332	37	103	181	18
Total Analysis Volume [veh/h]	244	1136	440	126	565	119	415	1329	148	411	723	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	45	0	10	40	0	24	43	0	22	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	46	46	6	42	42	16	36	36	16	35	35
g / C, Green / Cycle	0.09	0.39	0.39	0.05	0.35	0.35	0.14	0.30	0.30	0.13	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.07	0.22	0.27	0.04	0.11	0.07	0.12	0.26	0.09	0.12	0.14	0.04
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	301	1998	623	176	1813	566	484	1532	478	473	1516	473
d1, Uniform Delay [s]	53.90	28.98	31.09	56.16	28.43	27.34	50.58	40.01	32.73	50.89	34.87	31.40
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.20	1.18	6.60	5.38	0.45	0.85	4.50	1.62	0.36	5.02	0.23	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.57	0.71	0.72	0.31	0.21	0.86	0.87	0.31	0.87	0.48	0.15
d, Delay for Lane Group [s/veh]	59.10	30.16	37.68	61.55	28.88	28.18	55.08	41.62	33.10	55.90	35.11	31.55
Lane Group LOS	E	C	D	E	C	C	E	D	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.84	8.74	11.77	2.01	4.04	2.54	6.39	12.50	3.40	6.37	5.83	1.58
50th-Percentile Queue Length [ft/ln]	95.89	218.5	294.1	50.30	100.9	63.55	159.7	312.4	85.05	159.3	145.6	39.45
95th-Percentile Queue Length [veh/ln]	6.90	13.59	17.39	3.62	7.27	4.58	10.54	18.30	6.12	10.51	9.78	2.84
95th-Percentile Queue Length [ft/ln]	172.6	339.7	434.8	90.54	181.7	114.3	263.4	457.4	153.1	262.8	244.6	71.00

Movement, Approach, & Intersection Results

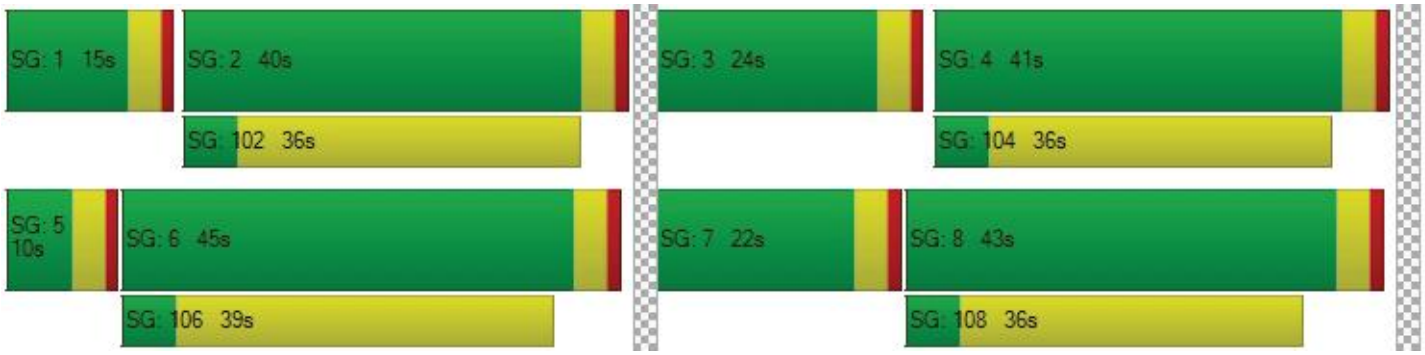
d_M, Delay for Movement [s/veh]	59.10	30.16	37.68	61.55	28.88	28.18	55.08	41.62	33.10	55.90	35.11	31.55
Movement LOS	E	C	D	E	C	C	E	D	C	E	D	C
d_A, Approach Delay [s/veh]	35.86			33.86			43.91			41.98		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.52											
Intersection LOS	D											
Intersection V/C	0.682											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.183	3.128	3.357	3.284
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	600	650	617
d_b, Bicycle Delay [s]	26.00	29.40	27.34	28.70
l_b,int, Bicycle LOS Score for Intersection	2.561	2.005	2.600	2.223
Bicycle LOS	B	B	B	B

Sequence

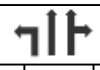
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	170	542	61	179	413	101	236	1129	129	150	672	150
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	170	542	61	179	413	101	236	1129	129	150	672	150
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	143	16	47	109	27	62	297	34	39	177	39
Total Analysis Volume [veh/h]	179	571	64	188	435	106	248	1188	136	158	707	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	38	0	20	40	0	32	45	0	17	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	45	45	14	46	46	19	32	32	12	26	26
g / C, Green / Cycle	0.11	0.37	0.37	0.12	0.38	0.38	0.15	0.27	0.27	0.10	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.10	0.16	0.04	0.10	0.15	0.15	0.14	0.23	0.09	0.09	0.16	0.16
s, saturation flow rate [veh/h]	1810	3618	1615	1810	1870	1745	1810	5176	1589	1781	3618	1729
c, Capacity [veh/h]	206	1351	603	216	709	661	281	1399	430	185	791	378
d1, Uniform Delay [s]	52.29	27.98	24.53	51.92	27.21	27.23	49.60	41.47	34.94	52.90	43.69	43.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.62	0.97	0.35	10.26	1.64	1.77	9.65	1.53	0.42	10.74	1.37	3.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.42	0.11	0.87	0.39	0.40	0.88	0.85	0.32	0.86	0.74	0.74
d, Delay for Lane Group [s/veh]	62.91	28.95	24.89	62.18	28.85	29.00	59.26	43.00	35.36	63.65	45.06	47.20
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.90	6.28	1.26	6.17	6.17	5.81	8.02	11.22	3.24	5.23	8.21	8.14
50th-Percentile Queue Length [ft/ln]	147.5	157.0	31.45	154.2	154.2	145.2	200.5	280.5	81.00	130.7	205.2	203.4
95th-Percentile Queue Length [veh/ln]	9.89	10.39	2.26	10.24	10.24	9.76	12.67	16.72	5.83	8.98	12.91	12.82
95th-Percentile Queue Length [ft/ln]	247.1	259.7	56.61	256.0	256.0	244.0	316.6	417.9	145.8	224.5	322.7	320.4

Movement, Approach, & Intersection Results

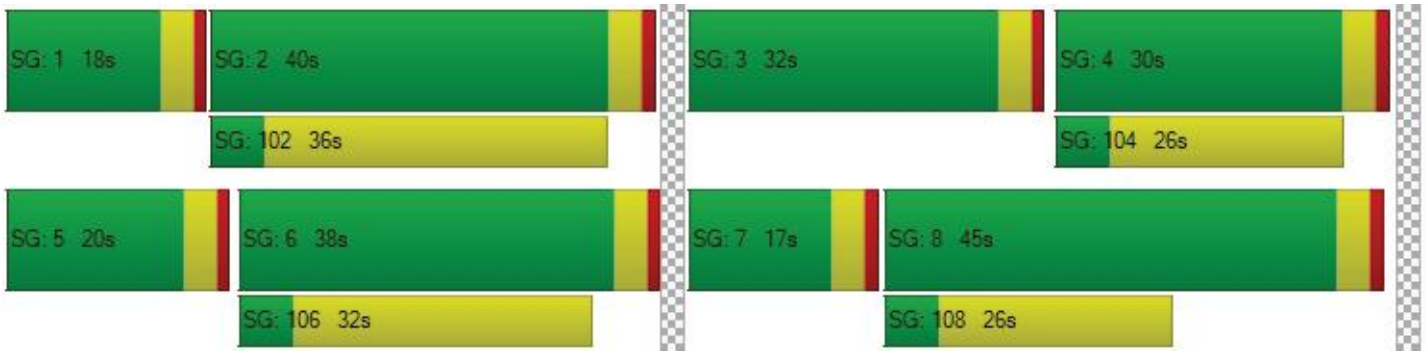
d_M, Delay for Movement [s/veh]	62.91	28.95	24.89	62.18	28.90	29.00	59.26	43.00	35.36	63.65	45.43	47.20
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	36.10			37.50			44.90			48.52		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.76											
Intersection LOS	D											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.719	2.745	3.142	3.041
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	600	683	433
d_b, Bicycle Delay [s]	30.82	29.40	26.00	36.82
l_b,int, Bicycle LOS Score for Intersection	2.231	2.161	2.424	2.122
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	41.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	682	97	188	496	134	345	1701	129	202	625	77
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	682	97	188	496	134	345	1701	129	202	625	77
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	179	26	49	131	35	91	448	34	53	164	20
Total Analysis Volume [veh/h]	112	718	102	198	522	141	363	1791	136	213	658	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	0	19	46	0	18	49	0	12	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	37	37	15	42	42	14	45	45	8	39	57
g / C, Green / Cycle	0.08	0.30	0.30	0.12	0.35	0.35	0.12	0.37	0.37	0.07	0.32	0.48
(v / s)_i Volume / Saturation Flow Rate	0.06	0.22	0.22	0.11	0.14	0.09	0.10	0.35	0.08	0.06	0.13	0.05
s, saturation flow rate [veh/h]	1810	1900	1818	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	136	577	552	225	1277	570	410	1925	601	234	1666	775
d1, Uniform Delay [s]	54.72	37.31	37.31	51.66	29.34	27.51	52.21	36.20	25.85	55.64	31.61	17.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.77	7.77	8.10	10.60	0.97	1.03	6.51	2.50	0.19	12.68	0.15	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.73	0.73	0.88	0.41	0.25	0.89	0.93	0.23	0.91	0.39	0.10
d, Delay for Lane Group [s/veh]	66.50	45.08	45.42	62.26	30.31	28.54	58.72	38.70	26.04	68.32	31.76	17.17
Lane Group LOS	E	D	D	E	C	C	E	D	C	E	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.78	12.16	11.69	6.51	5.87	3.05	5.75	16.94	2.71	3.61	4.98	1.25
50th-Percentile Queue Length [ft/ln]	94.52	304.0	292.2	162.7	146.6	76.18	143.6	423.4	67.86	90.32	124.5	31.19
95th-Percentile Queue Length [veh/ln]	6.81	17.88	17.30	10.70	9.84	5.49	9.68	23.69	4.89	6.50	8.64	2.25
95th-Percentile Queue Length [ft/ln]	170.1	447.0	432.4	267.4	245.9	137.1	241.9	592.2	122.1	162.5	216.0	56.14

Movement, Approach, & Intersection Results

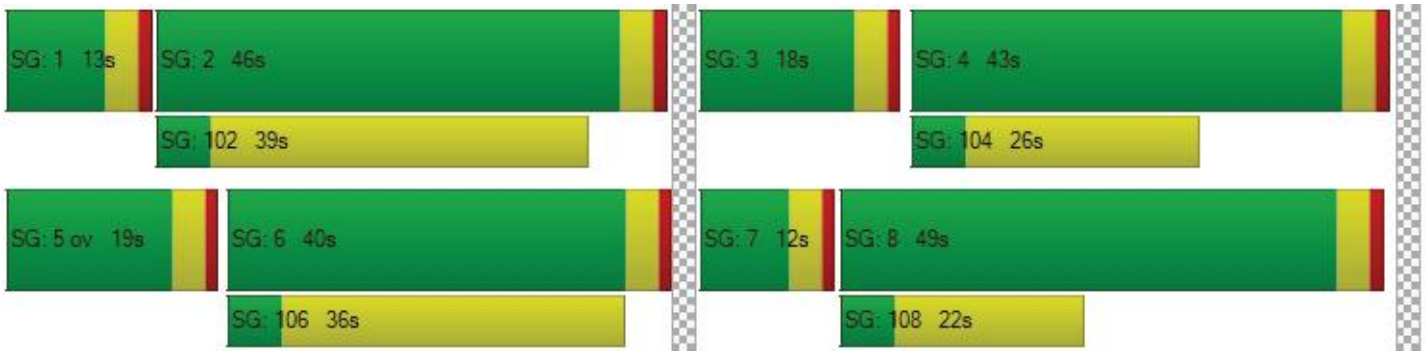
d_M, Delay for Movement [s/veh]	66.50	45.22	45.42	62.26	30.31	28.54	58.72	38.70	26.04	68.32	31.76	17.17
Movement LOS	E	D	D	E	C	C	E	D	C	E	C	B
d_A, Approach Delay [s/veh]	47.80			37.37			41.12			38.70		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.26											
Intersection LOS	D											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.667	2.797	3.211	3.278
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	700	750	650
d_b, Bicycle Delay [s]	29.40	25.35	23.44	27.34
l_b,int, Bicycle LOS Score for Intersection	2.329	2.270	2.819	2.083
Bicycle LOS	B	B	C	B

Sequence

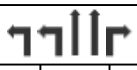
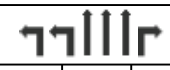
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	151	1259	100	335	814	76	161	804	131	139	791	263
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	151	1259	100	335	814	76	161	804	131	139	791	263
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	40	331	26	88	214	20	42	212	34	37	208	69
Total Analysis Volume [veh/h]	159	1325	105	353	857	80	169	846	138	146	833	277
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	40	0	22	47	0	11	48	0	10	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	58	58	14	64	64	7	26	26	6	25	25
g / C, Green / Cycle	0.06	0.48	0.48	0.12	0.54	0.54	0.06	0.22	0.22	0.05	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.07	0.10	0.24	0.05	0.05	0.16	0.09	0.04	0.16	0.17
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	219	2483	775	418	1941	866	205	1128	352	176	1085	339
d1, Uniform Delay [s]	55.27	21.82	17.37	51.78	16.89	13.56	55.89	43.87	40.12	56.50	44.67	45.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.57	0.83	0.36	4.74	0.73	0.21	8.08	1.02	0.71	9.65	1.17	4.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.53	0.14	0.84	0.44	0.09	0.82	0.75	0.39	0.83	0.77	0.82
d, Delay for Lane Group [s/veh]	59.84	22.65	17.73	56.52	17.62	13.77	63.97	44.89	40.84	66.15	45.84	50.12
Lane Group LOS	E	C	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.50	8.76	1.70	5.47	7.24	1.11	2.76	7.93	3.57	2.43	7.89	8.31
50th-Percentile Queue Length [ft/ln]	62.55	219.0	42.50	136.8	181.0	27.67	69.01	198.1	89.24	60.69	197.1	207.6
95th-Percentile Queue Length [veh/ln]	4.50	13.62	3.06	9.31	11.66	1.99	4.97	12.54	6.43	4.37	12.49	13.03
95th-Percentile Queue Length [ft/ln]	112.5	340.4	76.49	232.7	291.4	49.81	124.2	313.5	160.6	109.2	312.2	325.8

Movement, Approach, & Intersection Results

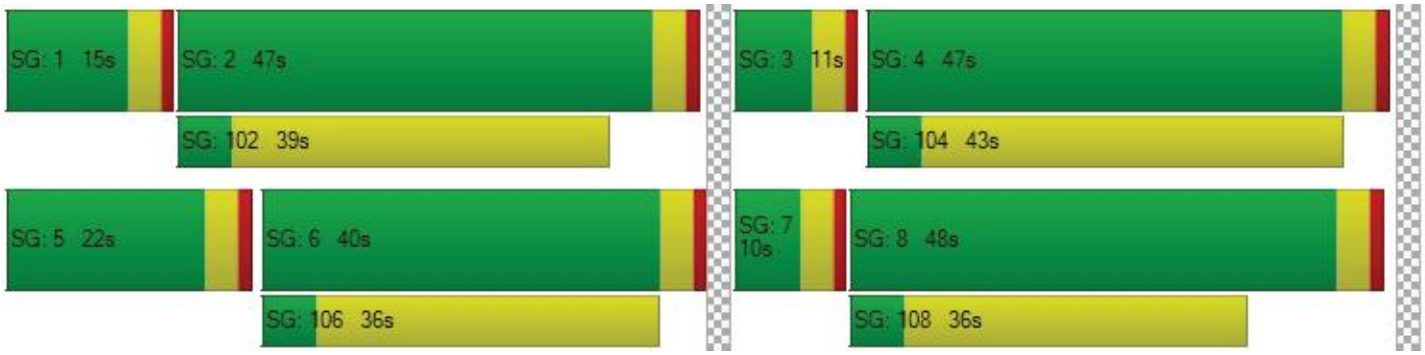
d_M, Delay for Movement [s/veh]	59.84	22.65	17.73	56.52	17.62	13.77	63.97	44.89	40.84	66.15	45.84	50.12
Movement LOS	E	C	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.05			28.03			47.20			49.15		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.63											
Intersection LOS	D											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.160	3.365	3.199	3.142
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	717	733	717
d_b, Bicycle Delay [s]	29.40	24.70	24.07	24.70
l_b,int, Bicycle LOS Score for Intersection	2.434	2.624	2.194	2.250
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	43.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	149	321	146	39	315	108	153	500	187	53	287	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	321	146	39	315	108	153	500	187	53	287	38
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	84	38	10	83	28	40	132	49	14	76	10
Total Analysis Volume [veh/h]	157	338	154	41	332	114	161	526	197	56	302	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	25	0	14	23	23	0	51	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	50	50	4	42	42	34	34	16	16
g / C, Green / Cycle	0.10	0.42	0.42	0.03	0.35	0.35	0.28	0.28	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.14	0.02	0.09	0.07	0.26	0.26	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1702	1810	3618	1615	1868	1593	1875	1666
c, Capacity [veh/h]	181	796	714	58	1270	567	527	449	250	222
d1, Uniform Delay [s]	53.22	23.42	23.47	57.54	27.82	27.19	41.52	41.53	50.73	50.78
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.76	1.08	1.23	14.90	0.50	0.80	6.93	8.01	7.33	8.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.32	0.33	0.71	0.26	0.20	0.90	0.91	0.84	0.85
d, Delay for Lane Group [s/veh]	64.98	24.50	24.69	72.44	28.32	27.99	48.45	49.54	58.06	59.30
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.25	5.15	4.70	1.47	3.51	2.42	14.50	12.50	6.66	6.04
50th-Percentile Queue Length [ft/ln]	131.3	128.7	117.5	36.80	87.81	60.59	362.48	312.59	166.45	151.03
95th-Percentile Queue Length [veh/ln]	9.01	8.87	8.26	2.65	6.32	4.36	20.74	18.30	10.89	10.07
95th-Percentile Queue Length [ft/ln]	225.2	221.8	206.5	66.24	158.0	109.0	518.60	457.57	272.25	251.80

Movement, Approach, & Intersection Results

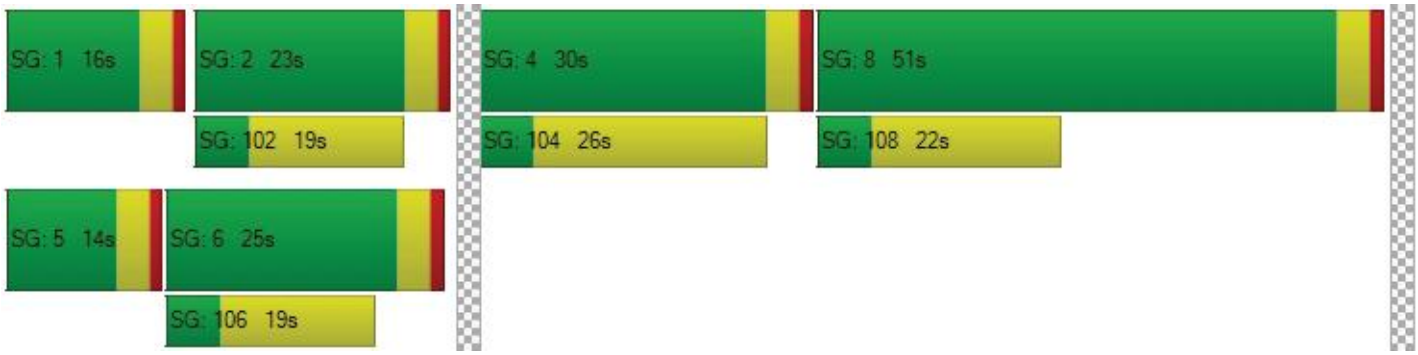
d_M, Delay for Movement [s/veh]	64.98	24.55	24.69	72.44	28.32	27.99	48.45	48.89	49.54	58.06	58.67	59.30
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	34.36			31.96			48.95			58.65		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	43.21											
Intersection LOS	D											
Intersection V/C	0.547											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.556	2.635	2.501	2.419
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	350	317	783	433
d_b, Bicycle Delay [s]	40.84	42.50	22.20	36.82
l_b,int, Bicycle LOS Score for Intersection	2.095	1.961	2.289	1.888
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.877

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	229	0	600	0	2163	1046	0	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	229	0	600	0	2163	1046	0	1526	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	60	0	158	0	569	275	0	402	0
Total Analysis Volume [veh/h]	0	0	0	241	0	632	0	2277	1101	0	1606	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	29	0	0	0	91	0	0	91	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		25	25	25	87	87	87
g / C, Green / Cycle		0.21	0.21	0.21	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate		0.13	0.20	0.20	0.44	0.68	0.31
s, saturation flow rate [veh/h]		1810	1615	1615	5176	1615	5176
c, Capacity [veh/h]		377	336	336	3752	1171	3752
d1, Uniform Delay [s]		43.38	46.75	46.75	8.10	14.26	6.58
k, delay calibration		0.11	0.29	0.29	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.81	25.10	25.10	0.74	15.40	0.36
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.64	0.94	0.94	0.61	0.94	0.43
d, Delay for Lane Group [s/veh]		45.19	71.86	71.86	8.84	29.65	6.94
Lane Group LOS		D	E	E	A	C	A
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		6.72	11.58	11.58	8.77	26.74	5.00
50th-Percentile Queue Length [ft/ln]		168.1	289.5	289.5	219.26	668.52	125.02
95th-Percentile Queue Length [veh/ln]		10.98	17.16	17.16	13.63	35.22	8.67
95th-Percentile Queue Length [ft/ln]		274.4	429.0	429.0	340.68	880.54	216.71

Movement, Approach, & Intersection Results

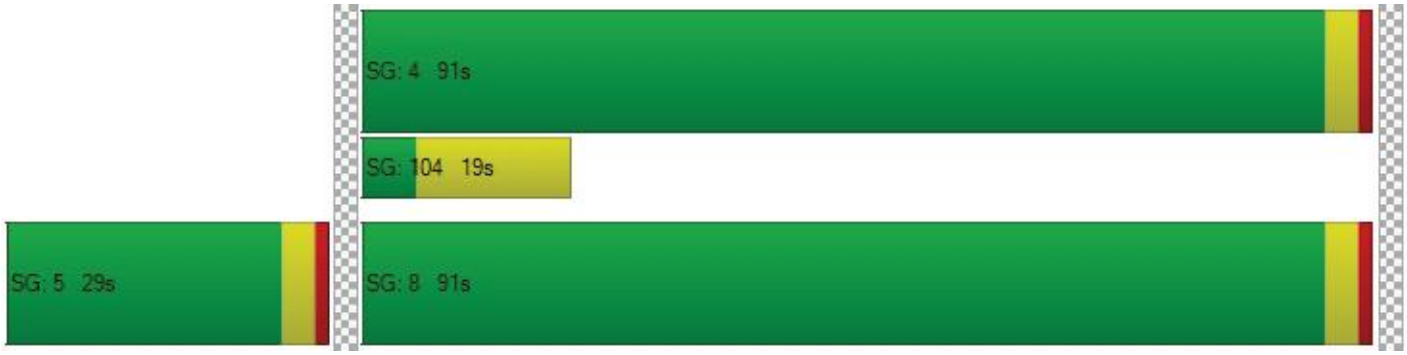
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.19	0.00	71.86	0.00	8.84	29.65	0.00	6.94	0.00
Movement LOS				D		E		A	C		A	
d_A, Approach Delay [s/veh]	0.00			64.50			15.62			6.94		
Approach LOS	A			E			B			A		
d_I, Intersection Delay [s/veh]	20.53											
Intersection LOS	C											
Intersection V/C	0.877											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.359	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	417	1450	1450
d_b, Bicycle Delay [s]	60.00	37.60	4.54	4.54
l_b,int, Bicycle LOS Score for Intersection	4.132	3.000	3.418	2.443
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	819	0	521	0	0	0	0	1415	0	0	1401	362
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	819	0	521	0	0	0	0	1415	0	0	1401	362
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	216	0	137	0	0	0	0	372	0	0	369	95
Total Analysis Volume [veh/h]	862	0	548	0	0	0	0	1489	0	0	1475	381
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	60	0	0	0	0	0	0	60	0	0	60	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39		73	73	73
g / C, Green / Cycle	0.33	0.33	0.33		0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.29		0.29	0.28	0.24
s, saturation flow rate [veh/h]	1810	1774	1615		5176	5176	1615
c, Capacity [veh/h]	594	582	530		3133	3133	977
d1, Uniform Delay [s]	36.59	36.85	38.21		13.13	13.08	12.24
k, delay calibration	0.14	0.15	0.19		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.06	3.63	8.58		0.52	0.51	1.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.81	0.89		0.48	0.47	0.39
d, Delay for Lane Group [s/veh]	39.66	40.48	46.79		13.65	13.59	13.41
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.91	13.08	14.22		7.29	7.19	5.43
50th-Percentile Queue Length [ft/ln]	322.7	327.0	355.4		182.28	179.87	135.70
95th-Percentile Queue Length [veh/ln]	18.80	19.01	20.40		11.72	11.59	9.25
95th-Percentile Queue Length [ft/ln]	470.1	475.2	510.0		292.99	289.84	231.22

Movement, Approach, & Intersection Results

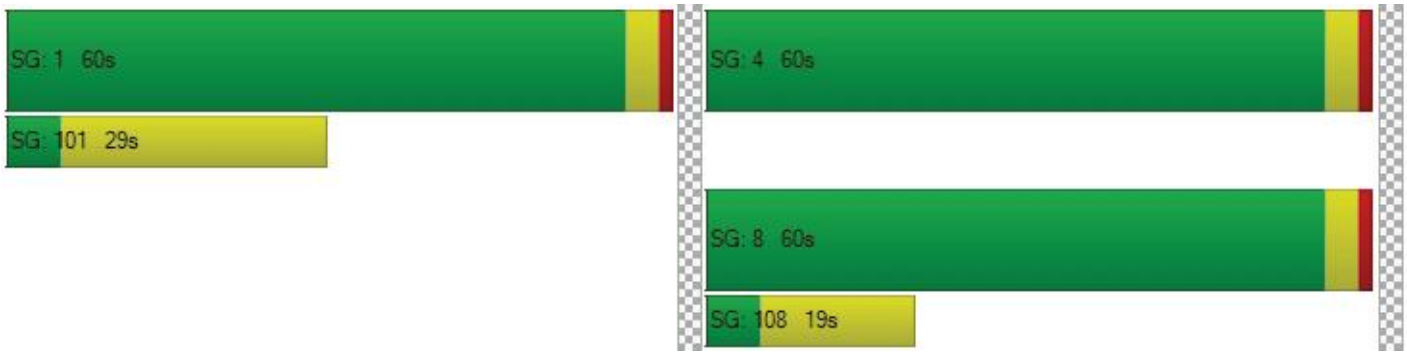
d_M, Delay for Movement [s/veh]	40.03	0.00	45.89	0.00	0.00	0.00	0.00	13.65	0.00	0.00	13.59	13.41
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	42.31			0.00			13.65			13.55		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	22.11											
Intersection LOS	C											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.490	0.000	0.000	3.151
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	0	933	933
d_b, Bicycle Delay [s]	17.07	60.00	17.07	17.07
l_b,int, Bicycle LOS Score for Intersection	3.886	4.132	2.379	2.580
Bicycle LOS	D	D	B	B

Sequence

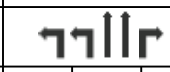
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	49.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	382	400	224	69	251	174	266	1164	287	140	957	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	382	400	224	69	251	174	266	1164	287	140	957	53
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	101	105	59	18	66	46	70	306	76	37	252	14
Total Analysis Volume [veh/h]	402	421	236	73	264	183	280	1225	302	147	1007	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	31	54	0	13	36	0	14	44	44	9	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	53	53	6	32	32	10	40	71	5	35	35
g / C, Green / Cycle	0.23	0.44	0.44	0.05	0.27	0.27	0.08	0.33	0.59	0.04	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.22	0.22	0.15	0.04	0.12	0.13	0.08	0.34	0.19	0.04	0.28	0.03
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1648	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	407	834	708	96	507	439	293	1206	956	146	1055	471
d1, Uniform Delay [s]	46.33	24.28	22.14	56.07	36.85	37.00	54.78	40.00	12.31	57.50	41.72	31.19
k, delay calibration	0.37	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.27	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.35	2.18	1.26	11.69	3.06	3.72	15.99	16.23	0.46	35.54	5.97	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	0.51	0.33	0.76	0.47	0.48	0.96	1.02	0.32	1.00	0.95	0.12
d, Delay for Lane Group [s/veh]	81.68	26.47	23.40	67.77	39.91	40.72	70.78	56.23	12.77	93.04	47.69	31.30
Lane Group LOS	F	C	C	E	D	D	E	F	B	F	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	15.86	9.05	4.62	2.49	6.24	5.67	4.86	20.21	4.11	2.94	15.34	1.22
50th-Percentile Queue Length [ft/ln]	396.4	226.3	115.4	62.37	156.1	141.6	121.5	505.1	102.6	73.57	383.4	30.42
95th-Percentile Queue Length [veh/ln]	22.39	13.99	8.14	4.49	10.34	9.57	8.48	27.88	7.39	5.30	21.76	2.19
95th-Percentile Queue Length [ft/ln]	559.7	349.6	203.5	112.2	258.5	239.2	211.8	696.9	184.8	132.4	543.9	54.76

Movement, Approach, & Intersection Results

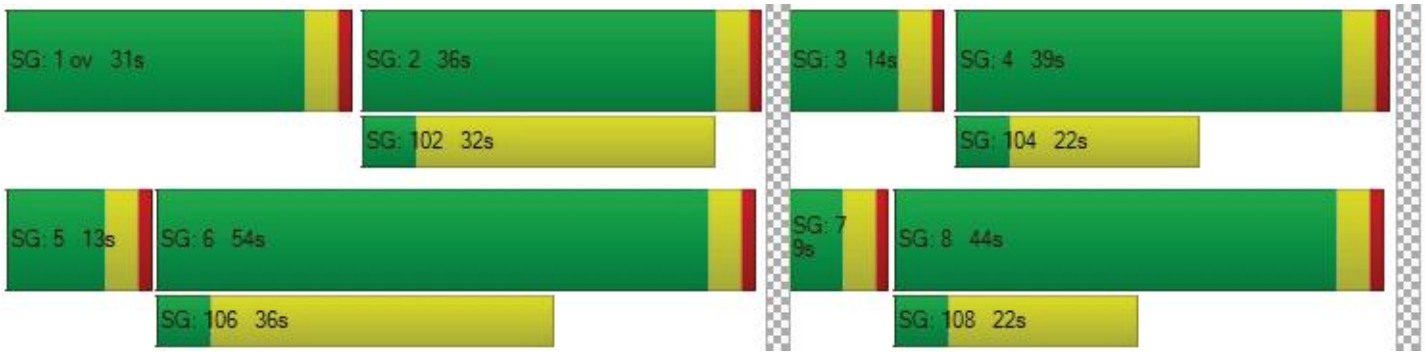
d_M, Delay for Movement [s/veh]	81.68	26.47	23.40	67.77	39.99	40.72	70.78	56.23	12.77	93.04	47.69	31.30
Movement LOS	F	C	C	E	D	D	E	F	B	F	D	C
d_A, Approach Delay [s/veh]	46.74			44.15			51.22			52.44		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	49.71											
Intersection LOS	D											
Intersection V/C	0.731											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.661	2.564	3.155	3.162
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	533	667	583
d_b, Bicycle Delay [s]	20.42	32.27	26.67	30.10
l_b,int, Bicycle LOS Score for Intersection	3.307	1.989	3.050	2.558
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	61.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.733

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	461	1014	285	315	855	219	288	1137	236	200	635	138
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	461	1014	285	315	855	219	288	1137	236	200	635	138
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	121	267	75	83	225	58	76	299	62	53	167	36
Total Analysis Volume [veh/h]	485	1067	300	332	900	231	303	1197	248	211	668	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	28	40	0	28	40	40	12	40	0	12	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	24	40	40	24	40	52	8	32	32	8	32	60
g / C, Green / Cycle	0.20	0.34	0.34	0.20	0.33	0.43	0.07	0.27	0.27	0.07	0.27	0.50
(v / s)_i Volume / Saturation Flow Rate	0.27	0.21	0.19	0.18	0.17	0.14	0.09	0.23	0.15	0.06	0.13	0.09
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	362	1739	542	358	1726	700	234	1379	430	234	1379	803
d1, Uniform Delay [s]	48.00	33.33	32.50	47.31	32.27	22.47	56.00	41.99	38.14	55.61	37.06	16.65
k, delay calibration	0.50	0.50	0.50	0.26	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	170.6	1.63	4.02	20.45	1.13	1.26	138.9	1.80	1.22	11.89	0.26	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.34	0.61	0.55	0.93	0.52	0.33	1.29	0.87	0.58	0.90	0.48	0.18
d, Delay for Lane Group [s/veh]	218.6	34.96	36.52	67.76	33.40	23.73	194.9	43.79	39.36	67.49	37.33	16.76
Lane Group LOS	F	C	D	E	C	C	F	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	27.91	8.88	7.69	11.73	7.20	4.55	8.06	11.43	6.47	3.56	5.55	2.24
50th-Percentile Queue Length [ft/ln]	697.8	222.0	192.3	293.3	179.8	113.8	201.6	285.7	161.7	88.88	138.7	55.90
95th-Percentile Queue Length [veh/ln]	42.05	13.77	12.24	17.35	11.59	8.05	13.71	16.98	10.64	6.40	9.42	4.02
95th-Percentile Queue Length [ft/ln]	1051.	344.1	306.0	433.7	289.8	201.3	342.7	424.4	266.0	159.9	235.3	100.6

Movement, Approach, & Intersection Results

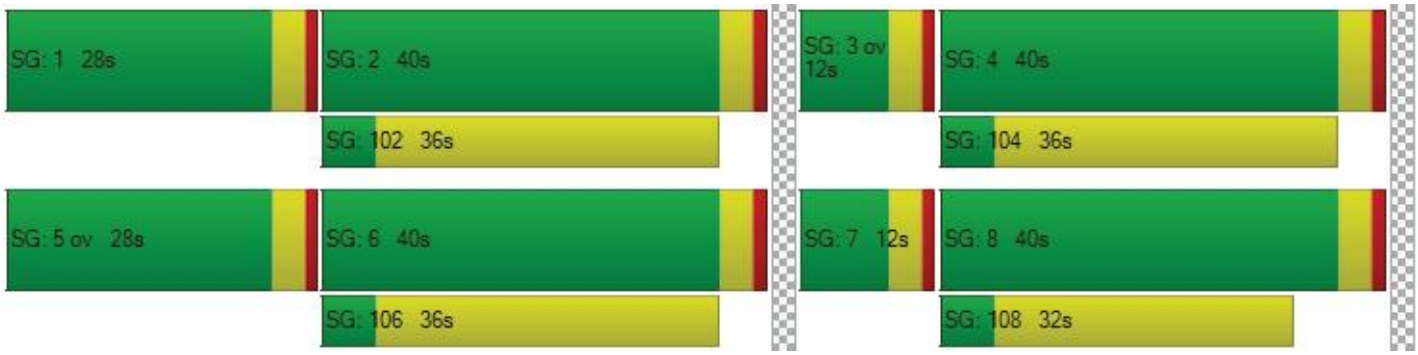
d_M, Delay for Movement [s/veh]	218.6	34.96	36.52	67.76	33.40	23.73	194.9	43.79	39.36	67.49	37.33	16.76
Movement LOS	F	C	D	E	C	C	F	D	D	E	D	B
d_A, Approach Delay [s/veh]	83.32			39.67			69.36			40.63		
Approach LOS	F			D			E			D		
d_I, Intersection Delay [s/veh]	61.64											
Intersection LOS	E											
Intersection V/C	0.733											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.132	3.187	3.204	3.174
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	600	600
d_b, Bicycle Delay [s]	29.40	29.40	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.578	2.364	2.521	2.123
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	33.884

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	214	0	211	0	0	0	0	1511	226	195	887	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	0	211	0	0	0	0	1511	226	195	887	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	56	0	56	0	0	0	0	398	59	51	233	0
Total Analysis Volume [veh/h]	225	0	222	0	0	0	0	1591	238	205	934	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	33.88	0.00	0.80	0.00	0.00	0.00	0.00	0.02	0.00	0.61	0.01	0.00
d_M, Delay for Movement [s/veh]	10000	10000	10000	1203.	864.1	11.57	9.86	0.00	0.00	30.69	0.00	0.00
Movement LOS	F	F	F	F	F	B	A	A	A	D	A	A
95th-Percentile Queue Length [veh/ln]	57.19	57.19	57.19	0.00	0.00	0.00	0.00	0.00	0.00	3.76	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1429.	1429.	1429.	0.00	0.00	0.00	0.00	0.00	0.00	93.99	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			693.17			0.00			5.52		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	1310.77											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	80.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.948

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	155	758	152	189	618	80	287	1101	198	444	647	154
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	758	152	189	618	80	287	1101	198	444	647	154
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	199	40	50	163	21	76	290	52	117	170	41
Total Analysis Volume [veh/h]	163	798	160	199	651	84	302	1159	208	467	681	162
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	34	0	16	36	0	28	38	0	32	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	30	30	12	32	32	22	34	34	28	40	40
g / C, Green / Cycle	0.08	0.25	0.25	0.10	0.27	0.27	0.18	0.28	0.28	0.23	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.09	0.26	0.26	0.11	0.20	0.20	0.17	0.32	0.13	0.26	0.19	0.10
s, saturation flow rate [veh/h]	1810	1900	1791	1810	1900	1825	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	151	475	448	181	507	487	332	1025	458	422	1206	538
d1, Uniform Delay [s]	55.00	45.00	45.00	54.00	40.20	40.20	48.04	43.00	35.37	46.00	32.85	29.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.21	0.13	0.11	0.47	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	58.04	51.32	52.96	62.03	9.36	9.72	16.27	62.68	0.71	74.70	0.42	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	1.04	1.04	1.10	0.74	0.74	0.91	1.13	0.45	1.11	0.56	0.30
d, Delay for Lane Group [s/veh]	113.0	96.32	97.96	116.0	49.56	49.92	64.31	105.6	36.08	120.7	33.26	29.95
Lane Group LOS	F	F	F	F	D	D	E	F	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.98	20.78	19.79	8.57	11.39	10.99	10.33	23.94	5.10	21.25	8.17	3.52
50th-Percentile Queue Length [ft/ln]	174.5	519.4	494.8	214.2	284.6	274.6	258.2	598.5	127.6	531.1	204.2	88.10
95th-Percentile Queue Length [veh/ln]	11.63	28.90	27.72	13.86	16.92	16.42	15.60	34.42	8.81	30.50	12.86	6.34
95th-Percentile Queue Length [ft/ln]	290.6	722.3	693.0	346.5	423.0	410.5	390.0	860.5	220.2	762.5	321.4	158.5

Movement, Approach, & Intersection Results

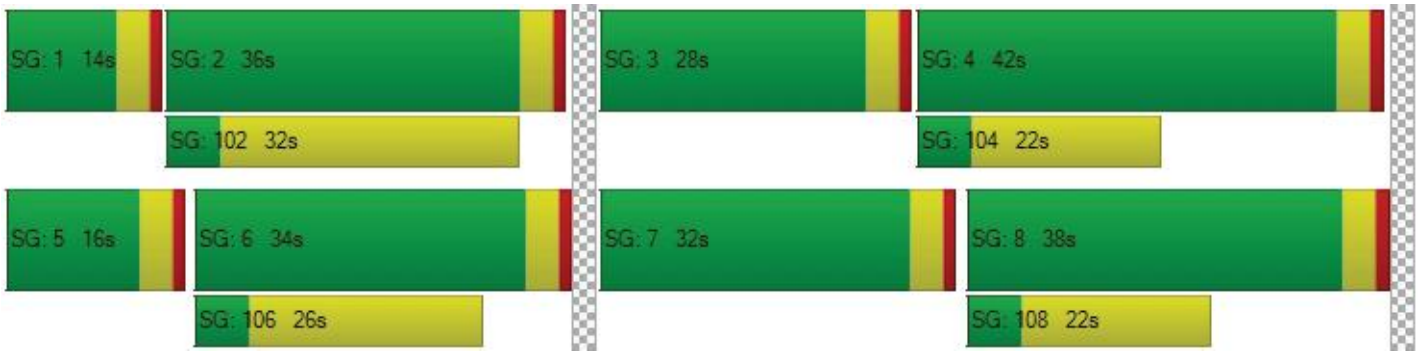
d_M, Delay for Movement [s/veh]	113.0	96.95	97.96	116.0	49.71	49.92	64.31	105.6	36.08	120.7	33.26	29.95
Movement LOS	F	F	F	F	D	D	E	F	D	F	C	C
d_A, Approach Delay [s/veh]	99.43			63.86			89.52			64.02		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	80.33											
Intersection LOS	F											
Intersection V/C	0.948											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.792	2.743	2.890	2.928
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	533	567	633
d_b, Bicycle Delay [s]	33.75	32.27	30.82	28.02
l_b,int, Bicycle LOS Score for Intersection	2.484	2.330	2.937	2.640
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	58.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	1095	230	220	750	156	227	958	199	287	615	181
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	1095	230	220	750	156	227	958	199	287	615	181
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	288	61	58	197	41	60	252	52	76	162	48
Total Analysis Volume [veh/h]	168	1153	242	232	789	164	239	1008	209	302	647	191
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	41	0	19	43	0	24	36	0	24	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	37	37	15	39	39	18	32	32	20	34	34
g / C, Green / Cycle	0.11	0.31	0.31	0.13	0.33	0.33	0.15	0.27	0.27	0.17	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.09	0.32	0.15	0.13	0.22	0.10	0.13	0.28	0.13	0.17	0.18	0.12
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	195	1115	498	226	1178	526	268	965	431	302	1032	461
d1, Uniform Delay [s]	52.67	41.50	33.76	52.50	34.89	30.36	50.17	44.00	37.06	50.00	37.33	34.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.21	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.68	36.01	3.37	34.54	3.03	1.54	9.92	27.18	0.85	33.65	0.63	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	1.03	0.49	1.03	0.67	0.31	0.89	1.04	0.49	1.00	0.63	0.41
d, Delay for Lane Group [s/veh]	63.35	77.51	37.13	87.04	37.93	31.91	60.08	71.18	37.91	83.65	37.97	35.37
Lane Group LOS	E	F	D	F	D	C	E	F	D	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.55	21.84	6.21	8.96	10.38	3.80	7.77	17.82	5.28	11.83	8.34	4.61
50th-Percentile Queue Length [ft/ln]	138.8	546.0	155.2	224.1	259.5	95.04	194.1	445.5	131.9	295.7	208.4	115.2
95th-Percentile Queue Length [veh/ln]	9.42	30.16	10.29	14.03	15.67	6.84	12.34	25.41	9.04	17.48	13.07	8.13
95th-Percentile Queue Length [ft/ln]	235.4	753.9	257.3	350.6	391.6	171.0	308.4	635.3	226.1	437.0	326.7	203.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.35	77.51	37.13	87.04	37.93	31.91	60.08	71.18	37.91	83.65	37.97	35.37
Movement LOS	E	F	D	F	D	C	E	F	D	F	D	D
d_A, Approach Delay [s/veh]	69.73			46.71			64.58			49.63		
Approach LOS	E			D			E			D		
d_I, Intersection Delay [s/veh]	58.94											
Intersection LOS	E											
Intersection V/C	0.892											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.008	3.078	2.864	2.894
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	650	533	533
d_b, Bicycle Delay [s]	28.70	27.34	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.849	2.537	2.761	2.500
Bicycle LOS	C	B	C	B

Sequence

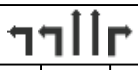
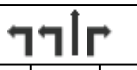
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	161.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.345

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	216	751	240	192	353	128	391	1737	457	177	973	180
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	216	751	240	192	353	128	391	1737	457	177	973	180
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	57	198	63	51	93	34	103	457	120	47	256	47
Total Analysis Volume [veh/h]	227	791	253	202	372	135	412	1828	481	186	1024	189
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	12	30	30	12	30	30	33	69	69	9	45	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	26	35	8	26	47	17	65	77	5	53	53
g / C, Green / Cycle	0.07	0.22	0.29	0.07	0.22	0.39	0.14	0.54	0.64	0.04	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.06	0.22	0.16	0.11	0.10	0.08	0.12	0.96	0.30	0.05	0.33	0.33
s, saturation flow rate [veh/h]	3514	3618	1615	1810	3618	1615	3514	1900	1615	3514	1900	1799
c, Capacity [veh/h]	234	784	471	121	784	634	502	1029	1036	146	837	793
d1, Uniform Delay [s]	55.88	47.00	35.70	56.00	41.04	24.14	49.95	27.50	10.97	57.50	27.87	28.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.28	0.28
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.81	34.42	4.34	311.3	2.06	0.77	3.42	353.2	1.50	133.0	3.30	3.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	1.01	0.54	1.67	0.47	0.21	0.82	1.78	0.46	1.27	0.74	0.75
d, Delay for Lane Group [s/veh]	76.69	81.42	40.04	367.3	43.09	24.91	53.37	380.7	12.47	190.5	31.17	31.70
Lane Group LOS	E	F	D	F	D	C	D	F	B	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.10	15.37	6.79	14.08	5.04	2.69	6.24	128.8	6.64	4.93	15.26	14.75
50th-Percentile Queue Length [ft/ln]	102.5	384.2	169.6	352.0	125.9	67.34	155.9	3220.	165.9	123.1	381.5	368.6
95th-Percentile Queue Length [veh/ln]	7.38	21.91	11.06	23.12	8.72	4.85	10.33	203.4	10.86	8.87	21.67	21.04
95th-Percentile Queue Length [ft/ln]	184.6	547.7	276.4	577.9	218.0	121.2	258.3	5086.	271.5	221.6	541.7	526.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	76.69	81.42	40.04	367.3	43.09	24.91	53.37	380.7	12.47	190.5	31.38	31.70
Movement LOS	E	F	D	F	D	C	D	F	B	F	C	C
d_A, Approach Delay [s/veh]	72.34			132.00			266.07			52.59		
Approach LOS	E			F			F			D		
d_I, Intersection Delay [s/veh]	161.16											
Intersection LOS	F											
Intersection V/C	1.345											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.931	2.810	3.181	3.066
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1083	683
d_b, Bicycle Delay [s]	36.82	36.82	12.60	26.00
l_b,int, Bicycle LOS Score for Intersection	2.608	2.145	6.049	2.714
Bicycle LOS	B	B	F	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	68.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.906

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	162	1374	310	103	1160	115	95	758	123	160	607	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	1374	310	103	1160	115	95	758	123	160	607	67
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	43	362	82	27	305	30	25	199	32	42	160	18
Total Analysis Volume [veh/h]	171	1446	326	108	1221	121	100	798	129	168	639	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	42	0	11	38	0	11	52	0	15	56	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	38	38	7	34	34	7	48	48	11	52	52
g / C, Green / Cycle	0.09	0.32	0.32	0.06	0.28	0.28	0.06	0.40	0.40	0.09	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.09	0.33	0.33	0.06	0.25	0.25	0.06	0.42	0.08	0.09	0.34	0.04
s, saturation flow rate [veh/h]	1810	3618	1728	1810	3618	1814	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	166	1146	547	106	1025	514	106	760	646	166	823	700
d1, Uniform Delay [s]	54.50	41.00	41.00	56.50	40.93	40.93	56.32	36.00	23.48	54.50	29.03	20.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.30	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	40.66	38.65	53.47	46.73	10.17	18.16	29.52	46.54	0.15	35.70	4.39	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.04	1.05	1.02	0.87	0.87	0.95	1.05	0.20	1.01	0.78	0.10
d, Delay for Lane Group [s/veh]	95.16	79.65	94.47	103.2	51.10	59.09	85.84	82.54	23.63	90.20	33.42	20.22
Lane Group LOS	F	F	F	F	D	E	F	F	C	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.88	22.83	24.05	4.57	13.92	15.09	3.88	31.51	2.43	6.65	16.41	1.20
50th-Percentile Queue Length [ft/ln]	171.9	570.6	601.3	114.1	347.9	377.3	97.07	787.6	60.66	166.1	410.3	30.02
95th-Percentile Queue Length [veh/ln]	11.30	31.54	33.23	8.12	20.04	21.46	6.99	42.21	4.37	10.93	23.06	2.16
95th-Percentile Queue Length [ft/ln]	282.5	788.4	830.8	203.1	500.8	536.6	174.7	1055.	109.1	273.1	576.4	54.04

Movement, Approach, & Intersection Results

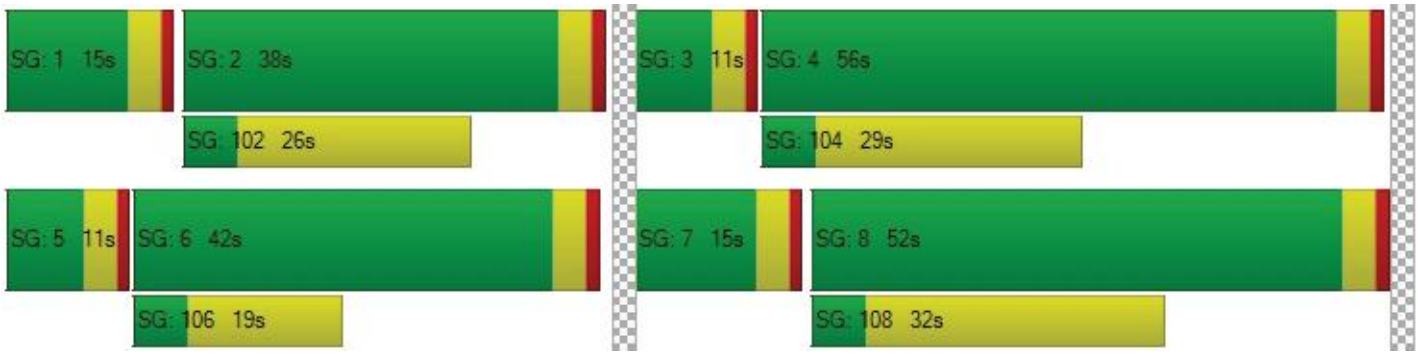
d_M, Delay for Movement [s/veh]	95.16	82.22	94.47	103.2	53.24	59.09	85.84	82.54	23.63	90.20	33.42	20.22
Movement LOS	F	F	F	F	D	E	F	F	C	F	C	C
d_A, Approach Delay [s/veh]	85.42			57.45			75.46			43.21		
Approach LOS	F			E			E			D		
d_I, Intersection Delay [s/veh]	68.84											
Intersection LOS	E											
Intersection V/C	0.906											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.162	3.036	2.786	2.661
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	567	800	867
d_b, Bicycle Delay [s]	28.02	30.82	21.60	19.27
l_b,int, Bicycle LOS Score for Intersection	2.628	2.357	3.254	3.008
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	124	345	276	34	368	42	73	830	117	142	510	56
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	345	276	34	368	42	73	830	117	142	510	56
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	91	73	9	97	11	19	218	31	37	134	15
Total Analysis Volume [veh/h]	131	363	291	36	387	44	77	874	123	149	537	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	41	0	0	41	0	0	79	0	0	79	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39	39	39	39	73	73	73	73	73	73
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.32	0.32	0.61	0.61	0.61	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.13	0.19	0.18	0.05	0.20	0.03	0.09	0.46	0.08	0.26	0.28	0.04
s, saturation flow rate [veh/h]	972	1900	1615	791	1900	1615	835	1900	1615	574	1900	1615
c, Capacity [veh/h]	180	610	518	169	610	518	436	1164	989	219	1164	989
d1, Uniform Delay [s]	53.16	34.21	33.76	46.77	34.76	28.45	19.93	16.68	9.75	42.31	12.56	9.35
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.28	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.36	4.25	4.35	2.87	4.98	0.32	0.19	2.54	0.06	3.67	0.29	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.60	0.56	0.21	0.63	0.08	0.18	0.75	0.12	0.68	0.46	0.06
d, Delay for Lane Group [s/veh]	75.52	38.46	38.11	49.64	39.74	28.77	20.12	19.22	9.81	45.98	12.84	9.38
Lane Group LOS	E	D	D	D	D	C	C	B	A	D	B	A
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	5.10	9.58	7.63	1.11	10.44	0.94	1.33	17.08	1.35	4.49	7.61	0.62
50th-Percentile Queue Length [ft/ln]	127.5	239.4	190.8	27.74	260.9	23.48	33.30	426.9	33.82	112.3	190.3	15.55
95th-Percentile Queue Length [veh/ln]	8.81	14.65	12.17	2.00	15.74	1.69	2.40	23.86	2.43	7.97	12.14	1.12
95th-Percentile Queue Length [ft/ln]	220.2	366.3	304.1	49.94	393.4	42.27	59.95	596.4	60.87	199.2	303.4	27.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.52	38.46	38.11	49.64	39.74	28.77	20.12	19.22	9.81	45.98	12.84	9.38
Movement LOS	E	D	D	D	D	C	C	B	A	D	B	A
d_A, Approach Delay [s/veh]	44.52			39.47			18.21			19.20		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	28.41											
Intersection LOS	C											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.710	2.491	2.768	2.746
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	617	1250	1250
d_b, Bicycle Delay [s]	28.70	28.70	8.44	8.44
l_b,int, Bicycle LOS Score for Intersection	2.855	2.330	3.332	2.789
Bicycle LOS	C	B	C	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	45.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	222	968	191	155	817	90	111	779	237	164	390	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	222	968	191	155	817	90	111	779	237	164	390	103
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	58	255	50	41	215	24	29	205	62	43	103	27
Total Analysis Volume [veh/h]	234	1019	201	163	860	95	117	820	249	173	411	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	47	0	17	42	0	23	39	0	17	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	48	48	13	43	43	10	30	30	13	34	34
g / C, Green / Cycle	0.14	0.40	0.40	0.10	0.36	0.36	0.08	0.25	0.25	0.11	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.33	0.33	0.09	0.26	0.26	0.06	0.23	0.15	0.10	0.22	0.07
s, saturation flow rate [veh/h]	1810	1900	1793	1810	1900	1834	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	261	762	719	190	688	664	146	913	407	196	532	452
d1, Uniform Delay [s]	50.48	32.03	32.24	52.83	32.81	32.82	54.22	43.38	39.66	52.75	39.69	33.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.22	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.59	9.51	10.67	10.63	6.02	6.24	9.75	3.51	1.49	12.12	4.87	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.82	0.83	0.86	0.71	0.71	0.80	0.90	0.61	0.88	0.77	0.24
d, Delay for Lane Group [s/veh]	61.06	41.53	42.92	63.46	38.83	39.06	63.97	46.89	41.15	64.87	44.57	33.60
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.66	17.86	17.40	5.39	13.14	12.74	3.87	12.13	6.66	5.79	11.79	2.48
50th-Percentile Queue Length [ft/ln]	191.4	446.3	434.9	134.7	328.5	318.5	96.74	303.2	166.4	144.8	294.7	61.91
95th-Percentile Queue Length [veh/ln]	12.20	24.79	24.24	9.20	19.09	18.60	6.97	17.84	10.89	9.74	17.42	4.46
95th-Percentile Queue Length [ft/ln]	304.9	619.6	605.9	229.8	477.2	464.9	174.1	446.0	272.2	243.5	435.4	111.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.06	42.07	42.92	63.46	38.93	39.06	63.97	46.89	41.15	64.87	44.57	33.60
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	45.24			42.52			47.37			47.93		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.54											
Intersection LOS	D											
Intersection V/C	0.745											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.849	2.776	2.691	2.773
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	633	583	483
d_b, Bicycle Delay [s]	24.70	28.02	30.10	34.50
l_b,int, Bicycle LOS Score for Intersection	2.759	2.482	2.538	2.701
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	38.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	1135	65	121	824	141	183	535	142	75	353	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	1135	65	121	824	141	183	535	142	75	353	59
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	299	17	32	217	37	48	141	37	20	93	16
Total Analysis Volume [veh/h]	132	1195	68	127	867	148	193	563	149	79	372	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	49	0	14	47	0	19	46	0	11	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	61	61	10	60	60	15	26	26	7	18	18
g / C, Green / Cycle	0.09	0.51	0.51	0.08	0.50	0.50	0.12	0.22	0.22	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.33	0.34	0.07	0.27	0.27	0.11	0.19	0.19	0.04	0.12	0.12
s, saturation flow rate [veh/h]	1810	1900	1864	1810	1900	1805	1810	1900	1765	1810	1900	1807
c, Capacity [veh/h]	159	965	947	151	956	908	220	418	388	101	292	278
d1, Uniform Delay [s]	53.84	21.85	21.89	54.22	20.38	20.40	51.83	45.32	45.32	55.96	48.61	48.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.13	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.49	3.53	3.63	11.80	2.22	2.34	10.61	7.35	7.87	12.55	3.99	4.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.66	0.66	0.84	0.54	0.54	0.88	0.88	0.88	0.79	0.76	0.77
d, Delay for Lane Group [s/veh]	64.33	25.38	25.52	66.03	22.60	22.74	62.43	52.66	53.19	68.51	52.60	53.06
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.38	13.86	13.70	4.27	10.36	9.89	6.35	11.45	10.70	2.71	6.67	6.45
50th-Percentile Queue Length [ft/ln]	109.5	346.5	342.3	106.8	259.0	247.3	158.7	286.3	267.4	67.82	166.7	161.2
95th-Percentile Queue Length [veh/ln]	7.82	19.97	19.76	7.66	15.64	15.05	10.48	17.00	16.06	4.88	10.91	10.61
95th-Percentile Queue Length [ft/ln]	195.3	499.1	494.1	191.6	391.0	376.3	262.1	425.0	401.5	122.0	272.6	265.3

Movement, Approach, & Intersection Results

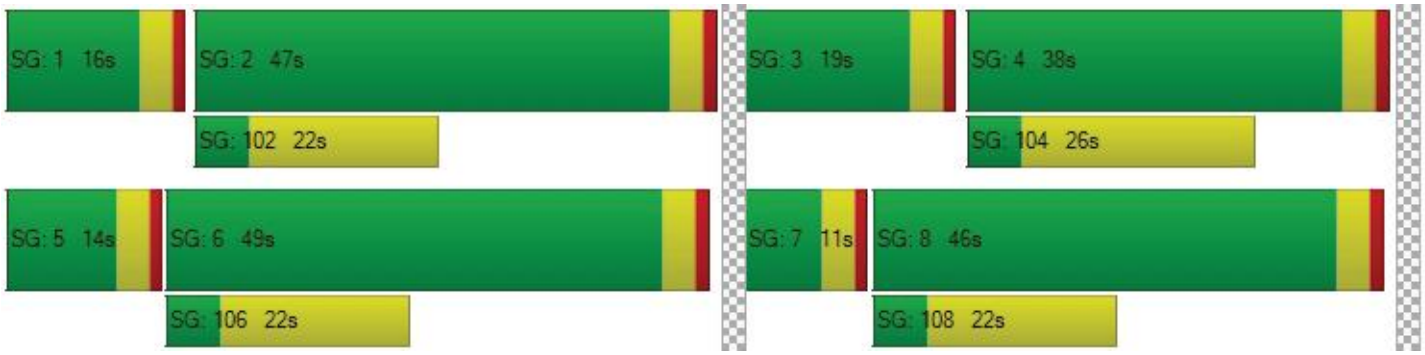
d_M, Delay for Movement [s/veh]	64.33	25.45	25.52	66.03	22.66	22.74	62.43	52.84	53.19	68.51	52.79	53.06
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	29.13			27.49			54.95			55.24		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	37.95											
Intersection LOS	D											
Intersection V/C	0.644											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.801	2.889	2.619	2.563
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	717	700	567
d_b, Bicycle Delay [s]	23.44	24.70	25.35	30.82
l_b,int, Bicycle LOS Score for Intersection	2.710	2.502	2.306	1.983
Bicycle LOS	B	B	B	A

Sequence

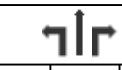
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	37.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1053	317	220	769	0	0	0	0	225	0	107
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1053	317	220	769	0	0	0	0	225	0	107
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	277	83	58	202	0	0	0	0	59	0	28
Total Analysis Volume [veh/h]	0	1108	334	232	809	0	0	0	0	237	0	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	30	74	0	20	64	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	70	70	16	86	86	22	22	22	22
g / C, Green / Cycle	0.00	0.58	0.58	0.13	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.58	0.21	0.13	0.43	0.00	0.00	0.00	0.18	0.07
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1728	1615	1309	1615
c, Capacity [veh/h]	2	1108	942	241	1360	1156	347	296	300	296
d1, Uniform Delay [s]	0.00	24.99	13.13	51.69	8.44	0.00	0.00	0.00	49.88	43.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	26.96	1.05	19.14	1.92	0.00	0.00	0.00	10.13	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	1.00	0.35	0.96	0.59	0.00	0.00	0.00	0.79	0.38
d, Delay for Lane Group [s/veh]	0.00	51.95	14.18	70.84	10.36	0.00	0.00	0.00	60.01	43.84
Lane Group LOS	A	D	B	E	B	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	37.55	4.91	8.20	9.99	0.00	0.00	0.00	7.91	3.02
50th-Percentile Queue Length [ft/ln]	0.00	938.8	122.6	205.0	249.7	0.00	0.00	0.00	197.66	75.59
95th-Percentile Queue Length [veh/ln]	0.00	47.60	8.54	12.90	15.17	0.00	0.00	0.00	12.52	5.44
95th-Percentile Queue Length [ft/ln]	0.00	1190.	213.5	322.5	379.3	0.00	0.00	0.00	312.94	136.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	51.95	14.18	70.84	10.36	0.00	0.00	0.00	0.00	60.01	60.01	43.84
Movement LOS	A	D	B	E	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	43.20			23.84			0.00			54.78		
Approach LOS	D			C			A			D		
d_I, Intersection Delay [s/veh]	37.52											
Intersection LOS	D											
Intersection V/C	0.892											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.137	0.000	1.955	2.253
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1167	1000	367	367
d_b, Bicycle Delay [s]	10.42	15.00	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	3.939	3.277	1.560	2.137
Bicycle LOS	D	C	A	B

Sequence

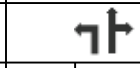
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	59.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	1769	125	43	1113	69	105	158	379	139	75	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	1769	125	43	1113	69	105	158	379	139	75	82
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	466	33	11	293	18	28	42	100	37	20	22
Total Analysis Volume [veh/h]	168	1862	132	45	1172	73	111	166	399	146	79	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	64	0	9	56	0	14	33	0	14	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	61	61	4	52	52	9	29	29	10	30
g / C, Green / Cycle	0.11	0.51	0.51	0.03	0.43	0.43	0.08	0.24	0.24	0.08	0.25
(v / s)_i Volume / Saturation Flow Rate	0.09	0.52	0.54	0.02	0.32	0.05	0.06	0.09	0.25	0.08	0.09
s, saturation flow rate [veh/h]	1810	1900	1857	1810	3618	1615	1810	1900	1615	1810	1740
c, Capacity [veh/h]	195	965	943	61	1570	701	138	459	390	151	433
d1, Uniform Delay [s]	52.66	29.51	29.51	57.47	28.43	20.13	54.56	37.81	45.50	54.84	37.40
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.44	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.66	37.69	45.50	16.15	3.28	0.30	10.46	0.48	48.64	27.12	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	1.03	1.06	0.74	0.75	0.10	0.81	0.36	1.02	0.97	0.38
d, Delay for Lane Group [s/veh]	63.32	67.20	75.01	73.63	31.72	20.43	65.02	38.29	94.14	81.96	37.95
Lane Group LOS	E	F	F	E	C	C	E	D	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.55	36.59	37.80	1.63	14.57	1.28	3.70	4.13	16.80	5.53	4.10
50th-Percentile Queue Length [ft/ln]	138.7	914.7	945.0	40.67	364.2	32.00	92.56	103.3	419.9	138.27	102.55
95th-Percentile Queue Length [veh/ln]	9.42	47.76	50.08	2.93	20.83	2.30	6.66	7.44	23.83	9.39	7.38
95th-Percentile Queue Length [ft/ln]	235.3	1194.	1251.	73.20	520.7	57.60	166.6	186.0	595.7	234.69	184.59

Movement, Approach, & Intersection Results

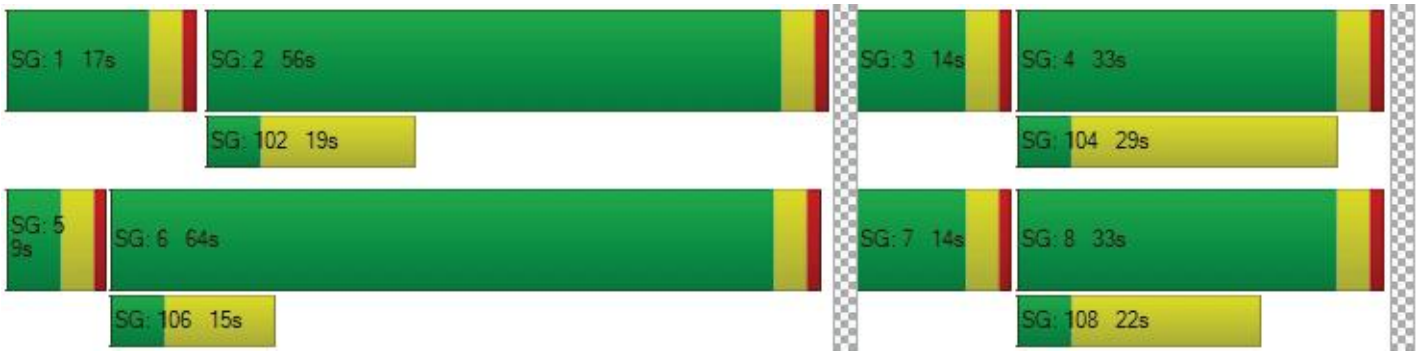
d_M, Delay for Movement [s/veh]	63.32	70.83	75.01	73.63	31.72	20.43	65.02	38.29	94.14	81.96	37.95	37.95
Movement LOS	E	E	E	E	C	C	E	D	F	F	D	D
d_A, Approach Delay [s/veh]	70.50			32.54			75.64			58.61		
Approach LOS	E			C			E			E		
d_I, Intersection Delay [s/veh]	59.42											
Intersection LOS	E											
Intersection V/C	0.890											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.098	3.076	2.389	2.168
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	867	483	483
d_b, Bicycle Delay [s]	15.00	19.27	34.50	34.50
l_b,int, Bicycle LOS Score for Intersection	3.343	2.624	2.675	2.073
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	361.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.421

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	99	681	0	0	642	46	90	0	185	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	681	0	0	642	46	90	0	185	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	179	0	0	169	12	24	0	49	0	0	0
Total Analysis Volume [veh/h]	104	717	0	0	676	48	95	0	195	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.01	0.00	0.00	0.01	0.00	1.42	0.00	0.44	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.59	0.00	0.00	0.00	0.00	0.00	361.9	0.00	19.38	0.00	0.00	0.00
Movement LOS	A	A			A	A	F		C			
95th-Percentile Queue Length [veh/ln]	0.40	0.40	0.00	0.00	0.00	0.00	7.98	0.00	2.20	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.91	9.91	0.00	0.00	0.00	0.00	199.5	0.00	55.11	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.22			0.00			131.58			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	21.34											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1216	155	206	939	0	6	0	34	223	0	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1216	155	206	939	0	6	0	34	223	0	131
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	320	41	54	247	0	2	0	9	59	0	34
Total Analysis Volume [veh/h]	0	1280	163	217	988	0	6	0	36	235	0	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	25	39	0	39	53	0	0	9	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	65	65	17	82	82	4	4	18	18
g / C, Green / Cycle	0.00	0.55	0.55	0.14	0.68	0.68	0.03	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.39	0.39	0.12	0.26	0.26	0.00	0.02	0.13	0.09
s, saturation flow rate [veh/h]	1810	1900	1826	1810	1900	1900	1810	1470	1781	1615
c, Capacity [veh/h]	1	1036	996	250	1297	1297	57	46	270	245
d1, Uniform Delay [s]	0.00	20.18	20.30	50.66	8.16	8.16	56.47	57.70	49.72	47.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	4.06	4.35	8.99	0.85	0.85	0.80	23.95	8.34	2.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.71	0.71	0.87	0.38	0.38	0.11	0.78	0.87	0.56
d, Delay for Lane Group [s/veh]	0.00	24.24	24.65	59.65	9.02	9.02	57.28	81.65	58.06	49.21
Lane Group LOS	A	C	C	E	A	A	E	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	15.79	15.46	7.00	5.43	5.43	0.19	1.39	7.50	3.97
50th-Percentile Queue Length [ft/ln]	0.00	394.7	386.6	174.9	135.8	135.8	4.74	34.81	187.50	99.21
95th-Percentile Queue Length [veh/ln]	0.00	22.31	21.91	11.34	9.26	9.26	0.34	2.51	11.99	7.14
95th-Percentile Queue Length [ft/ln]	0.00	557.6	547.8	283.4	231.4	231.4	8.54	62.66	299.78	178.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	24.42	24.65	59.65	9.02	9.02	57.28	57.28	81.65	58.06	58.06	49.21
Movement LOS	A	C	C	E	A	A	E	E	F	E	E	D
d_A, Approach Delay [s/veh]	24.44			18.13			78.17			54.79		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	26.39											
Intersection LOS	C											
Intersection V/C	0.665											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	817	83	483
d_b, Bicycle Delay [s]	30.10	21.00	55.10	34.50
l_b,int, Bicycle LOS Score for Intersection	2.750	2.554	1.594	2.175
Bicycle LOS	C	B	A	B

Sequence

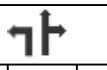
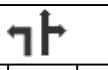
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	372	841	1	0	1	0	107	0	258
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1458	200	372	841	1	0	1	0	107	0	258
Peak Hour Factor	0.946	0.946	0.946	0.950	0.946	0.950	0.950	0.950	0.946	0.946	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	385	53	98	222	0	0	0	0	28	0	68
Total Analysis Volume [veh/h]	1	1541	211	392	889	1	0	1	0	113	0	272
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	43	49	0	28	34	0	24	30	0	13	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	58	58	24	81	81	0	13	9	22
g / C, Green / Cycle	0.00	0.48	0.48	0.20	0.68	0.68	0.00	0.11	0.08	0.19
(v / s)_i Volume / Saturation Flow Rate	0.00	0.43	0.13	0.22	0.25	0.00	0.00	0.00	0.06	0.17
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1810	1615
c, Capacity [veh/h]	5	1740	777	362	2454	1095	1	210	136	299
d1, Uniform Delay [s]	59.72	28.17	18.60	48.00	8.23	6.21	0.00	47.47	54.76	47.91
k, delay calibration	0.11	0.50	0.50	0.35	0.50	0.50	0.11	0.11	0.11	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.55	7.06	0.86	64.11	0.42	0.00	0.00	0.01	12.26	13.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.89	0.27	1.08	0.36	0.00	0.00	0.00	0.83	0.91
d, Delay for Lane Group [s/veh]	80.27	35.22	19.46	112.1	8.65	6.22	0.00	47.48	67.02	61.26
Lane Group LOS	F	D	B	F	A	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.06	21.08	3.69	17.20	4.76	0.01	0.00	0.03	3.83	9.04
50th-Percentile Queue Length [ft/ln]	1.44	527.0	92.24	430.0	118.9	0.21	0.00	0.68	95.77	226.02
95th-Percentile Queue Length [veh/ln]	0.10	28.61	6.64	25.05	8.34	0.01	0.00	0.05	6.90	13.97
95th-Percentile Queue Length [ft/ln]	2.59	715.2	166.0	626.3	208.4	0.37	0.00	1.23	172.39	349.30

Movement, Approach, & Intersection Results

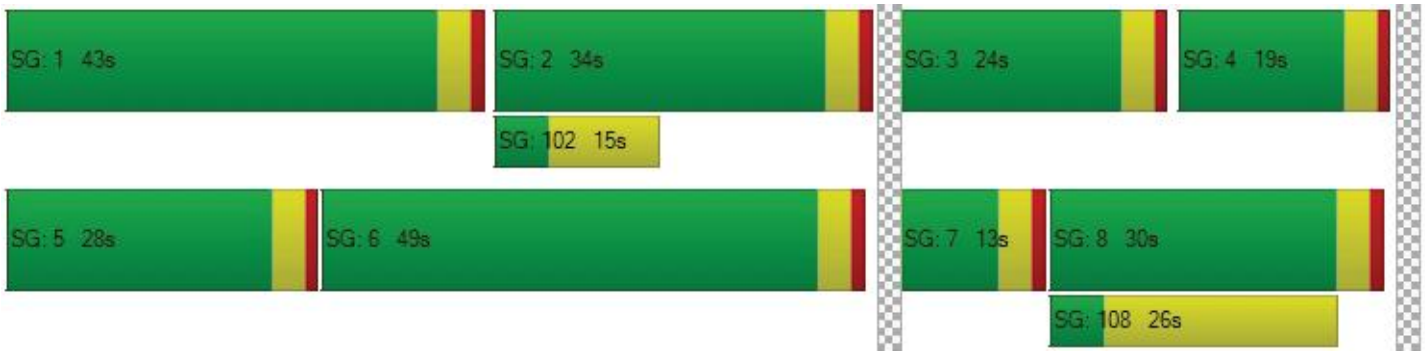
d_M, Delay for Movement [s/veh]	80.27	35.22	19.46	112.1	8.65	6.22	0.00	47.48	47.48	67.02	61.26	61.26
Movement LOS	F	D	B	F	A	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	33.35			40.28			47.48			62.95		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	39.28											
Intersection LOS	D											
Intersection V/C	0.811											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.993	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	500	433	250
d_b, Bicycle Delay [s]	23.44	33.75	36.82	45.94
l_b,int, Bicycle LOS Score for Intersection	3.006	2.617	1.561	2.195
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	218.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.874

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	360	65	223	346	92	235	278	51	36	296	159
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	360	65	223	346	92	235	278	51	36	296	159
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	95	17	59	91	24	62	73	13	9	78	42
Total Analysis Volume [veh/h]	52	379	68	235	364	97	247	293	54	38	312	167
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	431	412	696	540	412	374	406
Degree of Utilization, x	1.14	0.17	1.87	1.45	0.13	0.93	0.41

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	16.35	0.59	46.23	28.12	0.45	10.03	1.97
95th-Percentile Queue Length [ft]	408.69	14.64	1155.63	702.89	11.22	250.80	49.21
Approach Delay [s/veh]	104.54		425.85	220.99		48.29	
Approach LOS	F		F	F		E	
Intersection Delay [s/veh]	218.90						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	1046	50	87	896	112	156	331	78	40	235	152
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	1046	50	87	896	112	156	331	78	40	235	152
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	275	13	23	236	29	41	87	21	11	62	40
Total Analysis Volume [veh/h]	65	1101	53	92	943	118	164	348	82	42	247	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	56	0	13	53	0	23	31	0	20	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	67	67	8	69	69	13	26	26	4	17	17
g / C, Green / Cycle	0.05	0.56	0.56	0.06	0.58	0.58	0.11	0.21	0.21	0.03	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.31	0.05	0.28	0.28	0.09	0.10	0.05	0.02	0.11	0.12
s, saturation flow rate [veh/h]	1810	1900	1869	1810	1900	1827	1810	3618	1615	1810	1900	1658
c, Capacity [veh/h]	85	1059	1042	116	1091	1049	194	768	343	60	262	229
d1, Uniform Delay [s]	56.50	16.93	16.93	55.39	15.20	15.21	52.60	41.20	39.23	57.44	50.22	50.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.96	2.05	2.08	11.59	1.61	1.68	9.68	0.42	0.36	14.00	6.04	8.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.55	0.55	0.80	0.50	0.50	0.85	0.45	0.24	0.70	0.81	0.84
d, Delay for Lane Group [s/veh]	69.46	18.97	19.02	66.98	16.81	16.88	62.29	41.62	39.58	71.44	56.26	58.73
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.26	10.53	10.38	3.12	9.01	8.70	5.37	4.54	2.05	1.50	6.66	6.19
50th-Percentile Queue Length [ft/ln]	56.38	263.1	259.5	77.94	225.2	217.4	134.2	113.5	51.31	37.38	166.4	154.7
95th-Percentile Queue Length [veh/ln]	4.06	15.85	15.67	5.61	13.93	13.53	9.17	8.04	3.69	2.69	10.89	10.27
95th-Percentile Queue Length [ft/ln]	101.4	396.2	391.7	140.2	348.3	338.3	229.2	200.9	92.35	67.29	272.2	256.7

Movement, Approach, & Intersection Results

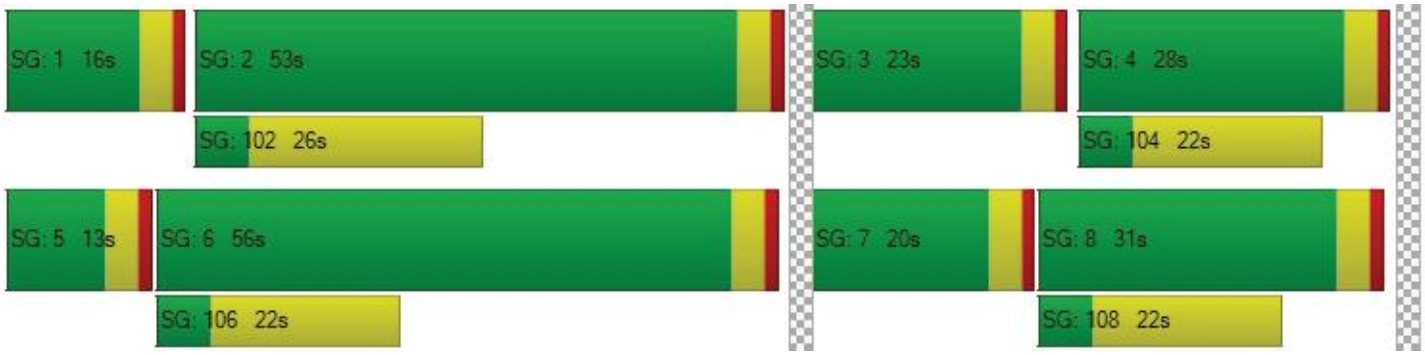
d_M, Delay for Movement [s/veh]	69.46	18.99	19.02	66.98	16.84	16.88	62.29	41.62	39.58	71.44	56.59	58.73
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	21.69			20.85			47.04			58.74		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.69											
Intersection LOS	C											
Intersection V/C	0.564											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.761	2.887	2.635	2.621
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	817	450	400
d_b, Bicycle Delay [s]	19.27	21.00	36.04	38.40
l_b,int, Bicycle LOS Score for Intersection	2.565	2.511	2.050	1.930
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	131	1197	184	82	935	94	124	512	115	124	310	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	1197	184	82	935	94	124	512	115	124	310	55
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	315	48	22	246	25	33	135	30	33	82	14
Total Analysis Volume [veh/h]	138	1260	194	86	984	99	131	539	121	131	326	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	65	0	11	61	0	14	30	0	14	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	51	51	7	47	47	10	36	36	10	36	36
g / C, Green / Cycle	0.09	0.42	0.42	0.06	0.39	0.39	0.08	0.30	0.30	0.08	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.08	0.39	0.40	0.05	0.29	0.29	0.07	0.18	0.18	0.07	0.10	0.10
s, saturation flow rate [veh/h]	1810	1900	1813	1810	1900	1840	1810	1900	1781	1810	1900	1802
c, Capacity [veh/h]	164	808	771	106	746	723	151	569	534	151	569	540
d1, Uniform Delay [s]	53.68	32.38	32.77	55.86	31.14	31.15	54.35	35.84	35.86	54.35	32.81	32.85
k, delay calibration	0.11	0.30	0.31	0.11	0.18	0.18	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.74	10.76	13.28	13.89	2.34	2.44	13.83	4.58	4.90	13.83	1.65	1.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.91	0.93	0.81	0.74	0.74	0.87	0.60	0.60	0.87	0.34	0.35
d, Delay for Lane Group [s/veh]	64.42	43.14	46.05	69.75	33.48	33.59	68.18	40.42	40.76	68.18	34.46	34.62
Lane Group LOS	E	D	D	E	C	C	E	D	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.59	22.04	22.16	2.98	13.93	13.53	4.49	9.20	8.69	4.49	4.73	4.56
50th-Percentile Queue Length [ft/ln]	114.6	550.9	553.8	74.52	348.2	338.2	112.1	229.9	217.2	112.1	118.2	113.9
95th-Percentile Queue Length [veh/ln]	8.10	29.74	29.87	5.37	20.05	19.56	7.96	14.17	13.53	7.96	8.29	8.06
95th-Percentile Queue Length [ft/ln]	202.4	743.4	746.8	134.1	501.2	489.1	199.0	354.3	338.1	199.0	207.3	201.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.42	44.35	46.05	69.75	33.53	33.59	68.18	40.55	40.76	68.18	34.52	34.62
Movement LOS	E	D	D	E	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	46.30			36.20			45.16			43.10		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.77											
Intersection LOS	D											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.928	2.894	2.579	2.575
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	950	433	433
d_b, Bicycle Delay [s]	14.50	16.54	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.873	2.524	2.212	1.984
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	974	77	41	767	297	352	370	16	57	188	24
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	974	77	41	767	297	352	370	16	57	188	24
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	256	20	11	202	78	93	97	4	15	49	6
Total Analysis Volume [veh/h]	34	1025	81	43	807	313	371	389	17	60	198	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	23	0	9	23	0	62	64	0	24	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	58	58	4	59	59	27	36	36	5	15	15
g / C, Green / Cycle	0.03	0.49	0.49	0.03	0.49	0.49	0.22	0.30	0.30	0.04	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.29	0.02	0.31	0.31	0.21	0.20	0.01	0.03	0.10	0.02
s, saturation flow rate [veh/h]	1810	1900	1852	1810	1900	1722	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	52	925	901	58	931	844	407	576	490	81	234	199
d1, Uniform Delay [s]	57.72	22.42	22.42	57.60	22.57	22.60	45.34	36.63	29.44	56.61	51.50	46.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.48	2.94	3.02	17.16	3.23	3.59	8.16	1.39	0.03	12.26	8.18	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.61	0.61	0.75	0.63	0.63	0.91	0.68	0.03	0.74	0.85	0.13
d, Delay for Lane Group [s/veh]	71.20	25.35	25.44	74.76	25.79	26.19	53.50	38.02	29.47	68.87	59.67	47.14
Lane Group LOS	E	C	C	E	C	C	D	D	C	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.22	12.03	11.75	1.57	12.79	11.73	11.64	10.17	0.35	2.07	6.36	0.68
50th-Percentile Queue Length [ft/ln]	30.38	300.7	293.8	39.24	319.6	293.2	291.0	254.2	8.83	51.87	158.9	17.12
95th-Percentile Queue Length [veh/ln]	2.19	17.72	17.38	2.83	18.65	17.35	17.24	15.40	0.64	3.73	10.49	1.23
95th-Percentile Queue Length [ft/ln]	54.68	442.9	434.4	70.63	466.3	433.6	430.9	385.0	15.90	93.37	262.2	30.81

Movement, Approach, & Intersection Results

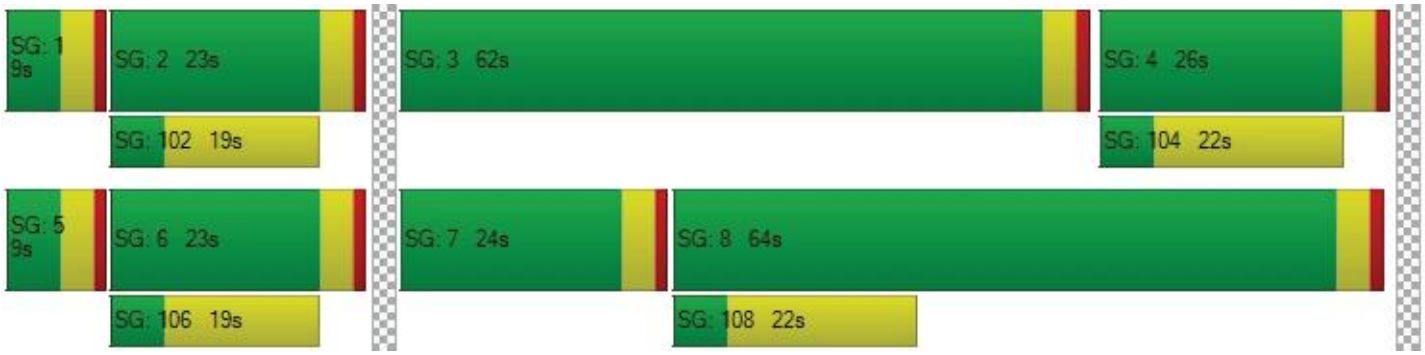
d_M, Delay for Movement [s/veh]	71.20	25.39	25.44	74.76	25.90	26.19	53.50	38.02	29.47	68.87	59.67	47.14
Movement LOS	E	C	C	E	C	C	D	D	C	E	E	D
d_A, Approach Delay [s/veh]	26.76			27.79			45.23			60.52		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	34.22											
Intersection LOS	C											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.710	2.819	2.469	2.340
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1000	367
d_b, Bicycle Delay [s]	42.50	42.50	15.00	40.02
l_b,int, Bicycle LOS Score for Intersection	2.500	2.519	2.842	2.027
Bicycle LOS	B	B	C	B

Sequence

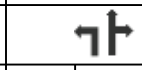
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	162	1461	183	160	882	2	5	108	99	185	116	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	1461	183	160	882	2	5	108	99	185	116	124
Peak Hour Factor	0.950	0.972	0.950	0.972	0.972	0.972	0.972	0.950	0.950	0.950	0.950	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	43	376	48	41	227	1	1	28	26	49	31	32
Total Analysis Volume [veh/h]	171	1503	193	165	907	2	5	114	104	195	122	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	39	19	0	47	27	0	9	33	0	21	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	59	59	13	59	59	1	17	15	31
g / C, Green / Cycle	0.11	0.49	0.49	0.11	0.49	0.49	0.01	0.14	0.12	0.26
(v / s)_i Volume / Saturation Flow Rate	0.09	0.31	0.31	0.09	0.18	0.00	0.00	0.12	0.11	0.14
s, saturation flow rate [veh/h]	1810	3618	1792	1810	5176	1615	1810	1752	1810	1743
c, Capacity [veh/h]	204	1778	881	198	2529	789	12	249	223	451
d1, Uniform Delay [s]	52.19	22.58	22.63	52.34	19.03	15.71	59.37	50.41	51.69	38.48
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.91	1.76	3.55	8.72	0.40	0.01	21.08	9.32	10.27	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.64	0.64	0.83	0.36	0.00	0.41	0.87	0.87	0.55
d, Delay for Lane Group [s/veh]	61.10	24.34	26.18	61.06	19.42	15.72	80.45	59.73	61.96	39.54
Lane Group LOS	E	C	C	E	B	B	F	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.55	12.01	12.41	5.35	5.28	0.03	0.22	7.05	6.39	6.50
50th-Percentile Queue Length [ft/ln]	138.7	300.2	310.2	133.7	131.9	0.74	5.56	176.17	159.83	162.57
95th-Percentile Queue Length [veh/ln]	9.41	17.69	18.19	9.14	9.05	0.05	0.40	11.40	10.54	10.69
95th-Percentile Queue Length [ft/ln]	235.2	442.2	454.6	228.5	226.1	1.33	10.00	285.00	263.50	267.13

Movement, Approach, & Intersection Results

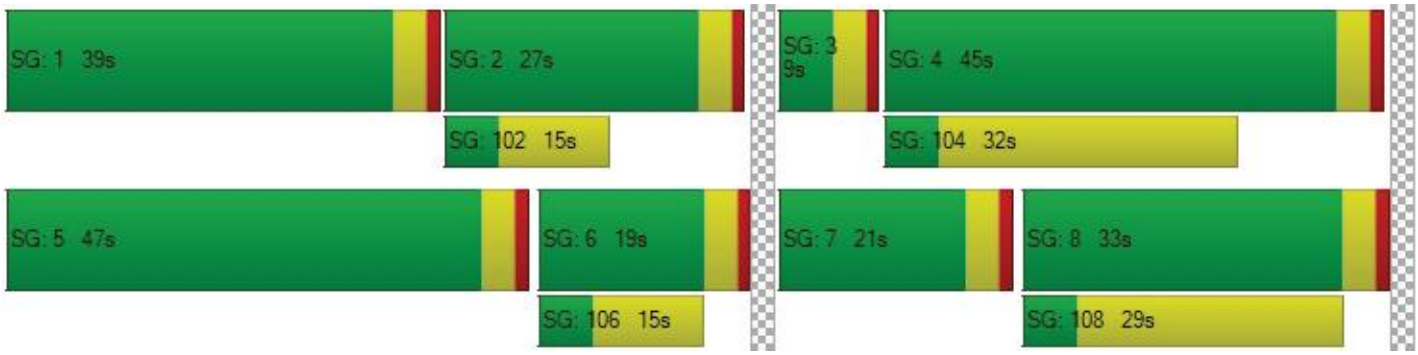
d_M, Delay for Movement [s/veh]	61.10	24.79	26.18	61.06	19.42	15.72	80.45	59.73	59.73	61.96	39.54	39.54
Movement LOS	E	C	C	E	B	B	F	E	E	E	D	D
d_A, Approach Delay [s/veh]	28.26			25.81			60.19			49.37		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	32.11											
Intersection LOS	C											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.037	3.246	2.124	2.253
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	383	483	683
d_b, Bicycle Delay [s]	45.94	39.20	34.50	26.00
l_b,int, Bicycle LOS Score for Intersection	2.586	2.150	1.928	2.294
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	123.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.238

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	376	24	45	336	43	77	327	48	19	271	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	376	24	45	336	43	77	327	48	19	271	47
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	99	6	12	88	11	20	86	13	5	71	12
Total Analysis Volume [veh/h]	33	396	25	47	354	45	81	344	51	20	285	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	454	446	476	379
Degree of Utilization, x	1.18	1.16	1.24	0.93

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	18.14	17.31	20.26	10.05
95th-Percentile Queue Length [ft]	453.57	432.81	506.49	251.31
Approach Delay [s/veh]	135.15	126.65	155.93	62.42
Approach LOS	F	F	F	F
Intersection Delay [s/veh]	123.79			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	156.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.720

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	65	444	87	22	4	34	320	22	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	65	444	87	22	4	34	320	22	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	17	117	23	6	1	9	84	6	0
Total Analysis Volume [veh/h]	0	68	467	92	23	4	36	337	23	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	650	401
Degree of Utilization, x	1.72	1.07

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	40.10	13.98
95th-Percentile Queue Length [ft]	1002.50	349.56
Approach Delay [s/veh]	358.04	97.76
Approach LOS	F	F
Intersection Delay [s/veh]	156.54	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	44	15	275	49	4	13	68	291	22	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	15	275	49	4	13	68	291	22	6
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	4	72	13	1	3	18	77	6	2
Total Analysis Volume [veh/h]	46	16	289	52	4	14	72	306	23	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	407	421
Degree of Utilization, x	1.08	1.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	14.40	15.80
95th-Percentile Queue Length [ft]	360.06	394.89
Approach Delay [s/veh]	101.33	115.57
Approach LOS	F	F
Intersection Delay [s/veh]	156.54	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	18	269	45	0	6	44	106	38	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	18	269	45	0	6	44	106	38	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	71	12	0	2	12	28	10	2
Total Analysis Volume [veh/h]	3	19	283	47	0	6	46	112	40	8
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	408	361	394
Degree of Utilization, x	0.86	0.45	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.51	2.29	0.41
95th-Percentile Queue Length [ft]	212.64	57.27	10.30
Approach Delay [s/veh]	47.08	19.02	
Approach LOS	E	C	
Intersection Delay [s/veh]	156.54		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.514

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	105	979	130	96	710	29	24	239	104	64	235	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	979	130	96	710	29	24	239	104	64	235	71
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	258	34	25	187	8	6	63	27	17	62	19
Total Analysis Volume [veh/h]	111	1031	137	101	747	31	25	252	109	67	247	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	57	0	19	56	0	9	26	0	18	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	75	75	8	74	74	3	15	15	6	18	18
g / C, Green / Cycle	0.08	0.62	0.62	0.07	0.62	0.62	0.02	0.12	0.12	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.06	0.31	0.31	0.06	0.21	0.21	0.01	0.07	0.07	0.04	0.13	0.05
s, saturation flow rate [veh/h]	1810	1900	1823	1810	1900	1873	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	139	1183	1135	128	1171	1155	43	452	202	88	285	242
d1, Uniform Delay [s]	54.51	12.45	12.47	54.91	11.12	11.12	57.97	49.39	49.27	56.37	49.84	45.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.15	1.53	1.61	10.45	0.77	0.78	11.70	1.08	2.24	12.41	7.89	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.50	0.51	0.79	0.33	0.33	0.58	0.56	0.54	0.76	0.87	0.31
d, Delay for Lane Group [s/veh]	64.66	13.98	14.08	65.36	11.89	11.91	69.67	50.47	51.52	68.78	57.73	46.19
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.69	8.88	8.59	3.38	5.12	5.06	0.89	3.63	3.20	2.31	7.85	2.05
50th-Percentile Queue Length [ft/ln]	92.27	221.9	214.7	84.43	128.0	126.4	22.30	90.70	79.96	57.77	196.3	51.28
95th-Percentile Queue Length [veh/ln]	6.64	13.77	13.40	6.08	8.84	8.74	1.61	6.53	5.76	4.16	12.45	3.69
95th-Percentile Queue Length [ft/ln]	166.0	344.1	334.9	151.9	220.9	218.6	40.14	163.2	143.9	103.9	311.2	92.31

Movement, Approach, & Intersection Results

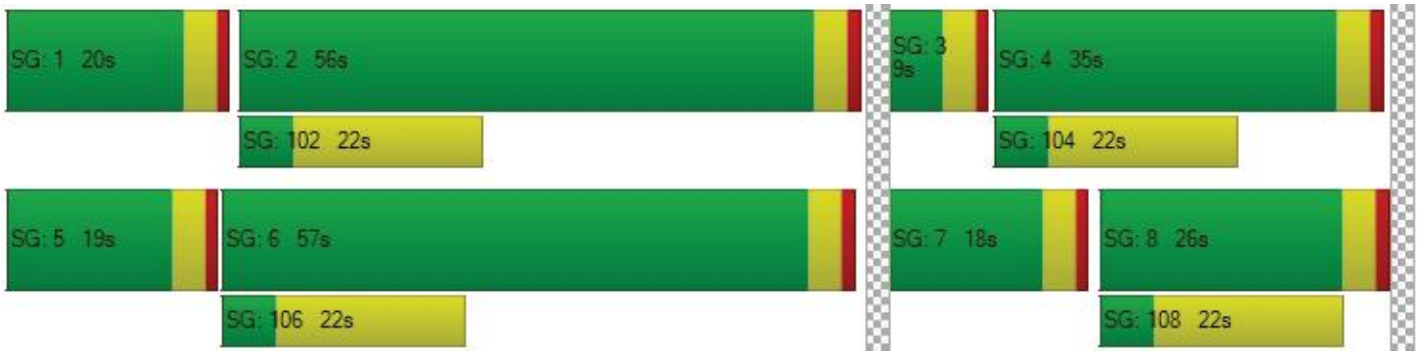
d_M, Delay for Movement [s/veh]	64.66	14.02	14.08	65.36	11.90	11.91	69.67	50.47	51.52	68.78	57.73	46.19
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	D
d_A, Approach Delay [s/veh]	18.42			18.04			52.01			57.41		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	27.90											
Intersection LOS	C											
Intersection V/C	0.514											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.744	2.707	2.466	2.611
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	883	867	367	517
d_b, Bicycle Delay [s]	18.70	19.27	40.02	33.00
l_b,int, Bicycle LOS Score for Intersection	2.615	2.285	1.878	2.201
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	1336	182	118	923	78	93	302	104	153	203	96
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	1336	182	118	923	78	93	302	104	153	203	96
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	352	48	31	243	21	24	79	27	40	53	25
Total Analysis Volume [veh/h]	117	1406	192	124	972	82	98	318	109	161	214	101
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	45	0	14	45	0	14	35	0	26	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	65	65	10	65	65	8	17	17	13	21	21
g / C, Green / Cycle	0.08	0.54	0.54	0.08	0.54	0.54	0.07	0.14	0.14	0.11	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.42	0.43	0.07	0.28	0.28	0.05	0.12	0.12	0.09	0.09	0.09
s, saturation flow rate [veh/h]	1810	1900	1822	1810	1900	1849	1810	1900	1738	1810	1900	1699
c, Capacity [veh/h]	143	1020	978	150	1027	1000	123	268	245	192	341	305
d1, Uniform Delay [s]	54.43	22.37	22.78	54.19	17.60	17.61	55.13	50.09	50.21	52.63	44.22	44.34
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.96	6.24	7.22	10.92	1.88	1.94	11.24	6.32	7.53	9.36	1.05	1.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.79	0.81	0.83	0.52	0.52	0.80	0.82	0.84	0.84	0.48	0.50
d, Delay for Lane Group [s/veh]	65.39	28.61	30.00	65.11	19.48	19.55	66.37	56.41	57.75	61.99	45.28	45.59
Lane Group LOS	E	C	C	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.91	19.31	19.52	4.14	9.74	9.51	3.30	6.92	6.53	5.26	4.50	4.16
50th-Percentile Queue Length [ft/ln]	97.86	482.8	487.8	103.5	243.5	237.7	82.60	172.8	163.2	131.4	112.4	104.0
95th-Percentile Queue Length [veh/ln]	7.05	26.52	26.76	7.45	14.86	14.57	5.95	11.23	10.72	9.02	7.98	7.49
95th-Percentile Queue Length [ft/ln]	176.1	663.0	669.0	186.3	371.5	364.1	148.6	280.7	268.0	225.4	199.4	187.2

Movement, Approach, & Intersection Results

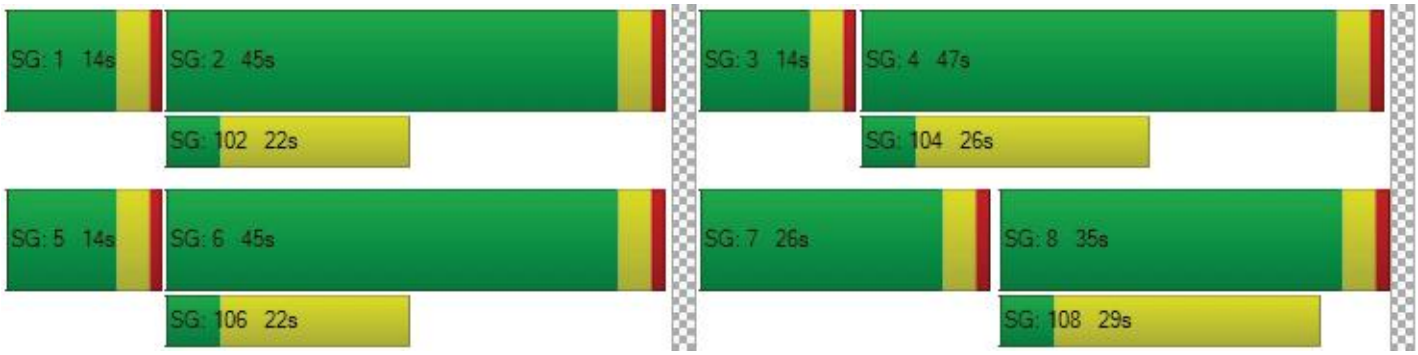
d_M, Delay for Movement [s/veh]	65.39	29.20	30.00	65.11	19.51	19.55	66.37	56.82	57.75	61.99	45.35	45.59
Movement LOS	E	C	C	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	31.76			24.32			58.79			51.03		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.51											
Intersection LOS	D											
Intersection V/C	0.711											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.021	2.920	2.498	2.532
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	683	517	717
d_b, Bicycle Delay [s]	26.00	26.00	33.00	24.70
l_b,int, Bicycle LOS Score for Intersection	2.974	2.531	1.993	1.952
Bicycle LOS	C	B	A	A

Sequence

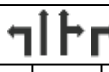
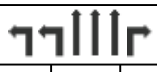
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	53.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	133	233	434	131	316	598	915	1261	105	170	683	394
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	233	434	131	316	598	915	1261	105	170	683	394
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	61	114	34	83	157	241	332	28	45	180	104
Total Analysis Volume [veh/h]	140	245	457	138	333	629	963	1327	111	179	719	415
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	37	0	13	30	0	36	58	0	12	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	33	33	9	31	31	31	32	54	54	8	30	30
g / C, Green / Cycle	0.09	0.28	0.28	0.08	0.26	0.26	0.26	0.27	0.45	0.45	0.07	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.28	0.08	0.18	0.19	0.19	0.27	0.26	0.07	0.05	0.14	0.26
s, saturation flow rate [veh/h]	1810	3618	1615	181	190	161	161	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	169	995	444	136	487	414	414	937	2329	727	234	1294	404
d1, Uniform Delay [s]	53.43	33.83	43.50	55.5	40.2	41.2	41.2	44.00	24.40	19.48	55.08	39.20	45.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.47
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.72	0.59	50.33	40.2	7.58	12.3	12.3	21.41	0.22	0.10	5.16	0.38	50.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.25	1.03	1.02	0.68	0.76	0.76	1.03	0.57	0.15	0.76	0.56	1.03
d, Delay for Lane Group [s/veh]	63.15	34.42	93.83	95.7	47.8	53.5	53.5	65.41	24.62	19.58	60.24	39.57	95.81
Lane Group LOS	E	C	F	F	D	D	D	F	C	B	E	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.61	2.88	19.25	5.62	9.86	9.97	9.97	16.56	9.24	1.86	2.83	6.20	17.60
50th-Percentile Queue Length [ft/ln]	115.1	71.95	481.1	140.	246.	249.	249.	414.0	230.9	46.51	70.74	155.0	440.1
95th-Percentile Queue Length [veh/ln]	8.13	5.18	26.92	9.56	15.0	15.1	15.1	23.62	14.22	3.35	5.09	10.28	24.89
95th-Percentile Queue Length [ft/ln]	203.1	129.5	673.0	238.	375.	378.	378.	590.6	355.5	83.73	127.3	257.1	622.3

Movement, Approach, & Intersection Results

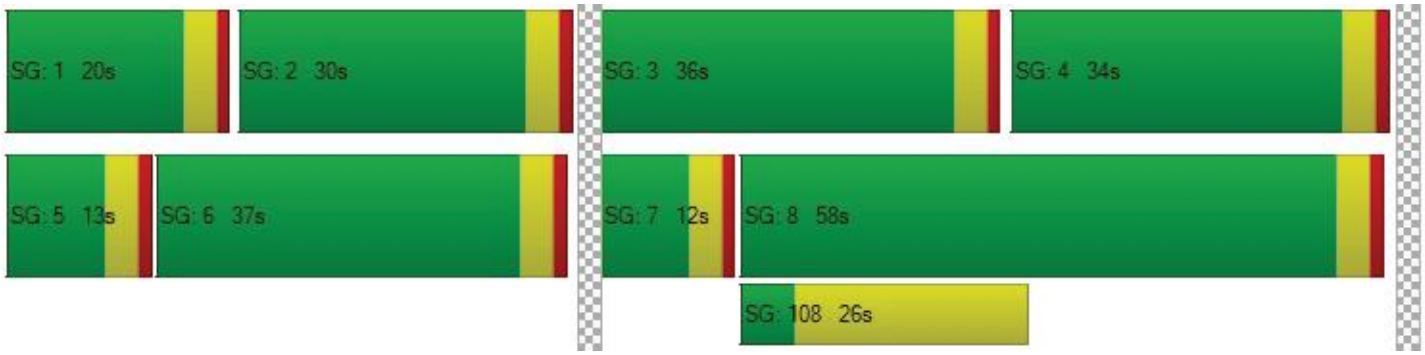
d_M, Delay for Movement [s/veh]	63.15	34.42	93.83	95.70	47.81	53.53	65.41	24.62	19.58	60.24	39.57	95.81
Movement LOS	E	C	F	F	D	D	F	C	B	E	D	F
d_A, Approach Delay [s/veh]	71.44			57.09			40.75			60.16		
Approach LOS	E			E			D			E		
d_I, Intersection Delay [s/veh]	53.00											
Intersection LOS	D											
Intersection V/C	0.890											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.706	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	433	900	500
d_b, Bicycle Delay [s]	31.54	36.82	18.15	33.75
l_b,int, Bicycle LOS Score for Intersection	2.254	2.467	2.880	2.282
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.536

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	54	51	179	47	402	755	367	71	41	381	165
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	54	51	179	47	402	755	367	71	41	381	165
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	14	13	47	12	106	199	97	19	11	100	43
Total Analysis Volume [veh/h]	87	57	54	188	49	423	795	386	75	43	401	174
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	29	0	28	23	0	35	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	20	20	20	31	72	72	4	45	45
g / C, Green / Cycle	0.07	0.07	0.07	0.17	0.17	0.17	0.26	0.60	0.60	0.03	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.06	0.06	0.15	0.23	0.07	0.05	0.02	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1846	2859	3514	5176	1615	1810	3618	1629
c, Capacity [veh/h]	123	129	109	307	313	484	896	3089	964	59	1355	610
d1, Uniform Delay [s]	54.78	53.76	53.95	44.26	44.25	48.57	43.04	10.54	10.23	57.52	26.31	26.47
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.36	2.38	3.42	0.79	0.77	5.07	3.21	0.08	0.16	15.68	0.54	1.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.44	0.49	0.38	0.38	0.87	0.89	0.12	0.08	0.73	0.29	0.30
d, Delay for Lane Group [s/veh]	62.15	56.15	57.37	45.04	45.02	53.65	46.25	10.62	10.38	73.20	26.85	27.75
Lane Group LOS	E	E	E	D	D	D	D	B	B	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.83	1.74	1.68	3.18	3.24	6.50	11.67	1.49	0.87	1.55	4.03	3.95
50th-Percentile Queue Length [ft/ln]	70.70	43.56	41.98	79.56	80.90	162.4	291.8	37.20	21.76	38.77	100.7	98.86
95th-Percentile Queue Length [veh/ln]	5.09	3.14	3.02	5.73	5.83	10.68	17.28	2.68	1.57	2.79	7.26	7.12
95th-Percentile Queue Length [ft/ln]	127.2	78.40	75.57	143.2	145.6	266.9	431.9	66.96	39.17	69.79	181.4	177.9

Movement, Approach, & Intersection Results

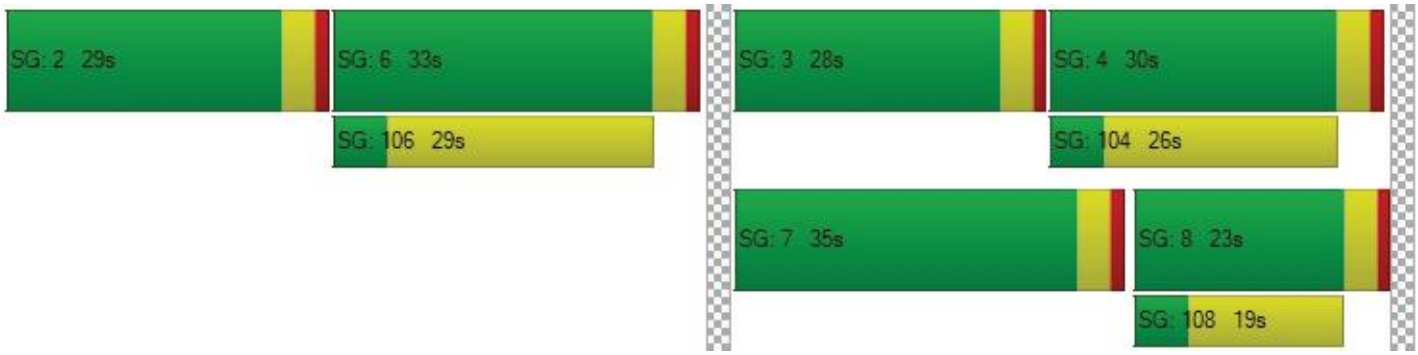
d_M, Delay for Movement [s/veh]	62.15	56.15	57.37	45.03	45.02	53.65	46.25	10.62	10.38	73.20	26.88	27.75
Movement LOS	E	E	E	D	D	D	D	B	B	E	C	C
d_A, Approach Delay [s/veh]	59.12			50.55			33.16			30.34		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	38.61											
Intersection LOS	D											
Intersection V/C	0.536											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.235	2.742	0.000	2.783
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	417	317	433
d_b, Bicycle Delay [s]	34.50	37.60	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.723	2.649	2.250	1.900
Bicycle LOS	A	B	B	A

Sequence

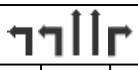
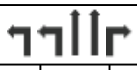
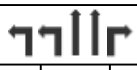
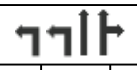
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.612

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	199	967	109	185	893	223	257	767	358	138	354	108
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	967	109	185	893	223	257	767	358	138	354	108
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	254	29	49	235	59	68	202	94	36	93	28
Total Analysis Volume [veh/h]	209	1018	115	195	940	235	271	807	377	145	373	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	39	0	13	37	0	24	58	0	10	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	57	9	57	57	12	32	32	6	27	27
g / C, Green / Cycle	0.08	0.48	0.07	0.47	0.47	0.10	0.27	0.27	0.05	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.06	0.26	0.15	0.08	0.22	0.23	0.04	0.13	0.13
s, saturation flow rate [veh/h]	3514	3618	3514	3618	1615	3514	3618	1615	3514	1900	1750
c, Capacity [veh/h]	268	1723	251	1705	761	344	973	434	176	420	387
d1, Uniform Delay [s]	54.43	22.90	54.78	22.65	19.62	52.92	41.27	41.83	56.48	41.97	42.03
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.88	1.50	5.14	1.29	1.05	4.04	1.90	5.40	9.34	1.38	1.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.59	0.78	0.55	0.31	0.79	0.83	0.87	0.83	0.60	0.61
d, Delay for Lane Group [s/veh]	59.31	24.40	59.91	23.94	20.67	56.96	43.17	47.23	65.82	43.35	43.57
Lane Group LOS	E	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.28	10.67	3.08	9.65	4.27	4.19	11.42	11.23	2.40	6.87	6.42
50th-Percentile Queue Length [ft/ln]	82.08	266.63	76.92	241.1	106.7	104.7	285.6	280.6	60.11	171.8	160.4
95th-Percentile Queue Length [veh/ln]	5.91	16.02	5.54	14.74	7.66	7.54	16.97	16.72	4.33	11.17	10.57
95th-Percentile Queue Length [ft/ln]	147.74	400.52	138.4	368.4	191.4	188.4	424.1	418.0	108.2	279.3	264.3

Movement, Approach, & Intersection Results

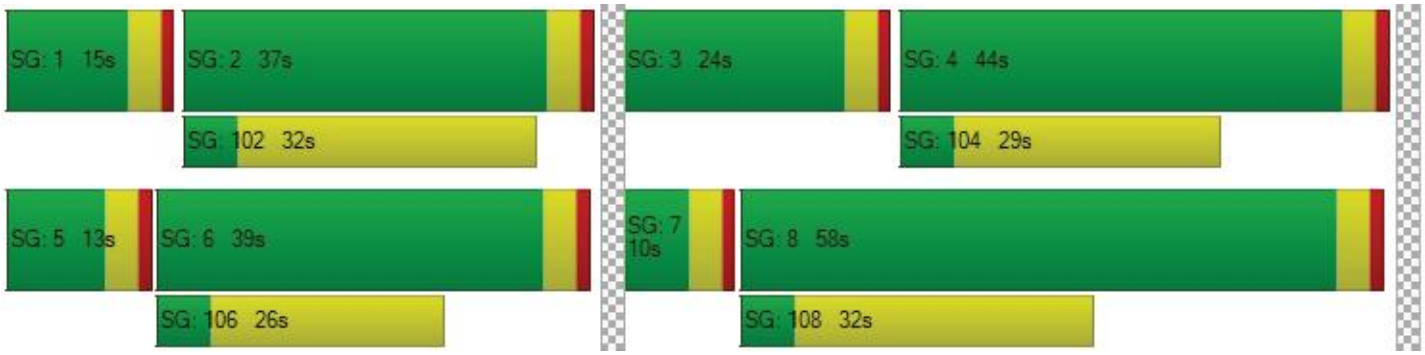
d_M, Delay for Movement [s/veh]	59.31	24.40	0.00	59.91	23.94	20.67	56.96	43.17	47.23	65.82	43.42	43.57
Movement LOS	E	C		E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	30.35			28.50			46.79			48.59		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.37											
Intersection LOS	D											
Intersection V/C	0.612											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.068	2.995	3.018	2.734
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	550	900	667
d_b, Bicycle Delay [s]	30.10	31.54	18.15	26.67
l_b,int, Bicycle LOS Score for Intersection	2.572	2.690	2.760	2.081
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	61.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.882

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	87	3	612	4	0	1	0	1147	50	247	378	4
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	612	4	0	1	0	1147	50	247	378	4
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	161	1	0	0	0	302	13	65	99	1
Total Analysis Volume [veh/h]	92	3	644	4	0	1	0	1207	53	260	398	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	46	0	9	33	0	47	45	0	20	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	51	51	46	51	0	41	41	16	57	57
g / C, Green / Cycle	0.42	0.42	0.38	0.42	0.00	0.34	0.34	0.13	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.40	0.01	0.00	0.33	0.03	0.14	0.11	0.11
s, saturation flow rate [veh/h]	1439	1509	1615	813	1810	3618	1615	1810	1900	1893
c, Capacity [veh/h]	645	757	619	439	1	1231	550	244	903	899
d1, Uniform Delay [s]	20.53	20.44	36.99	19.98	0.00	39.19	27.00	51.90	18.49	18.50
k, delay calibration	0.11	0.11	0.50	0.11	0.11	0.50	0.50	0.14	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.04	46.77	0.01	0.00	21.37	0.35	48.72	0.57	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.07	1.04	0.01	0.00	0.98	0.10	1.06	0.22	0.22
d, Delay for Lane Group [s/veh]	20.57	20.48	83.76	19.99	0.00	60.56	27.35	100.6	19.07	19.07
Lane Group LOS	C	C	F	B	A	E	C	F	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.75	0.86	25.79	0.08	0.00	20.94	1.10	10.65	3.43	3.42
50th-Percentile Queue Length [ft/ln]	18.70	21.58	644.7	2.07	0.00	523.5	27.48	266.1	85.85	85.60
95th-Percentile Queue Length [veh/ln]	1.35	1.55	35.09	0.15	0.00	28.45	1.98	16.44	6.18	6.16
95th-Percentile Queue Length [ft/ln]	33.66	38.85	877.1	3.73	0.00	711.1	49.47	411.0	154.5	154.0

Movement, Approach, & Intersection Results

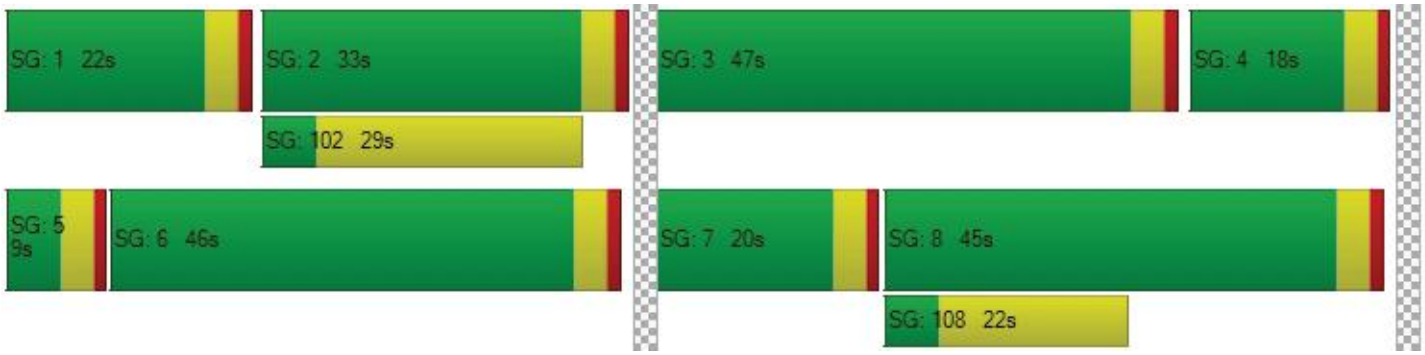
d_M, Delay for Movement [s/veh]	20.57	20.48	83.76	19.99	19.99	19.99	0.00	60.56	27.35	100.6	19.07	19.07
Movement LOS	C	C	F	B	B	B	A	E	C	F	B	B
d_A, Approach Delay [s/veh]	75.63			19.99			59.16			51.10		
Approach LOS	E			B			E			D		
d_I, Intersection Delay [s/veh]	61.65											
Intersection LOS	E											
Intersection V/C	0.882											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.520	0.000	2.988	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	850	683	233
d_b, Bicycle Delay [s]	19.84	19.84	26.00	46.82
l_b,int, Bicycle LOS Score for Intersection	2.779	1.568	2.599	2.106
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.219

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	153	0	1569	511	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	153	0	1569	511	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	413	134	0
Total Analysis Volume [veh/h]	0	161	0	1652	538	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.22	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	31.86	11.27	8.51	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.83	0.83	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.79	20.79	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.27		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.77					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	45.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.790

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	73	1312	187	100	1027	253	606	874	361	108	206	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	1312	187	100	1027	253	606	874	361	108	206	88
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	345	49	26	270	67	159	230	95	28	54	23
Total Analysis Volume [veh/h]	77	1381	197	105	1081	266	638	920	380	114	217	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	28	0	11	30	30	45	67	0	14	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	43	43	7	45	90	41	45	9	13	13
g / C, Green / Cycle	0.04	0.36	0.36	0.06	0.38	0.75	0.34	0.37	0.08	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.04	0.29	0.29	0.06	0.21	0.16	0.35	0.25	0.06	0.08	0.09
s, saturation flow rate [veh/h]	1810	3618	1781	1810	5176	1615	1810	3618	1810	1900	1712
c, Capacity [veh/h]	75	1294	637	106	1938	1210	618	1351	140	207	186
d1, Uniform Delay [s]	57.50	34.96	34.98	56.48	29.68	4.51	39.50	31.59	54.54	52.04	52.20
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.49	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	53.71	5.79	11.15	39.44	1.16	0.42	44.19	0.61	10.98	6.14	7.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.82	0.82	0.99	0.56	0.22	1.03	0.68	0.82	0.78	0.80
d, Delay for Lane Group [s/veh]	111.2	40.75	46.13	95.93	30.84	4.93	83.69	32.20	65.52	58.19	59.95
Lane Group LOS	F	D	D	F	C	A	F	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.41	14.85	15.60	4.33	8.38	1.87	25.49	11.23	3.82	5.06	4.80
50th-Percentile Queue Length [ft/ln]	85.28	371.3	389.8	108.3	209.5	46.85	637.24	280.85	95.44	126.5	119.8
95th-Percentile Queue Length [veh/ln]	6.14	21.17	22.07	7.75	13.13	3.37	34.52	16.73	6.87	8.75	8.39
95th-Percentile Queue Length [ft/ln]	153.5	529.3	551.8	193.7	328.2	84.33	862.93	418.27	171.7	218.8	209.6

Movement, Approach, & Intersection Results

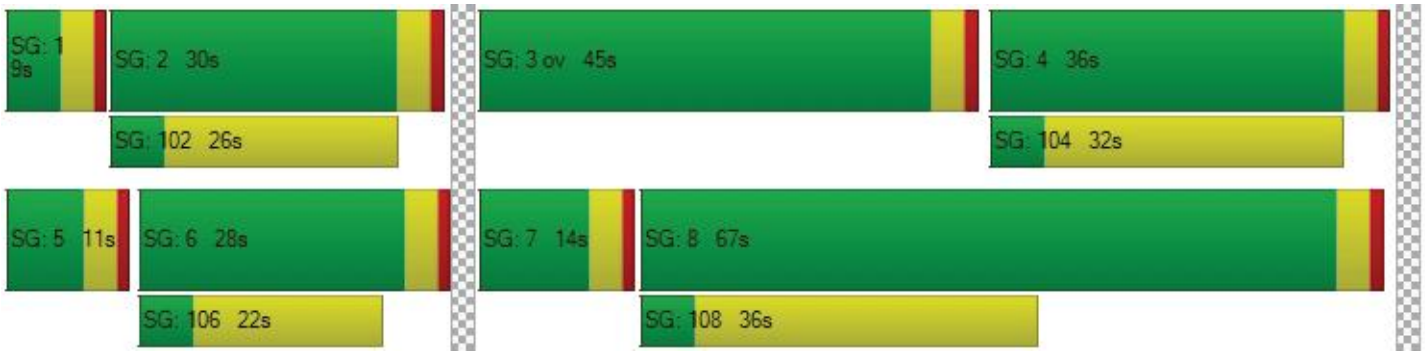
d_M, Delay for Movement [s/veh]	111.2	42.01	46.13	95.93	30.84	4.93	83.69	32.20	0.00	65.52	58.64	59.95
Movement LOS	F	D	D	F	C	A	F	C		E	E	E
d_A, Approach Delay [s/veh]	45.72			30.80			53.29			60.78		
Approach LOS	D			C			D			E		
d_I, Intersection Delay [s/veh]	45.04											
Intersection LOS	D											
Intersection V/C	0.790											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.173	3.175	2.812	2.636
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	433	1050	533
d_b, Bicycle Delay [s]	38.40	36.82	13.54	32.27
l_b,int, Bicycle LOS Score for Intersection	2.470	2.358	2.845	1.909
Bicycle LOS	B	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	97	357	57	45	276	80	87	703	47	21	298	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	357	57	45	276	80	87	703	47	21	298	39
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	94	15	12	73	21	23	185	12	6	78	10
Total Analysis Volume [veh/h]	102	376	60	47	291	84	92	740	49	22	314	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	81	88	0	9	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	53	53	8	53	3	48	48
g / C, Green / Cycle	0.44	0.44	0.07	0.44	0.02	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.36	0.27	0.05	0.42	0.01	0.17	0.03
s, saturation flow rate [veh/h]	1492	1572	1810	1879	1810	1900	1615
c, Capacity [veh/h]	689	722	121	828	39	751	639
d1, Uniform Delay [s]	30.19	24.80	55.06	32.38	58.13	26.27	22.50
k, delay calibration	0.50	0.50	0.11	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.57	3.45	9.45	9.84	11.85	0.37	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.58	0.76	0.95	0.56	0.42	0.06
d, Delay for Lane Group [s/veh]	38.76	28.25	64.51	42.22	69.98	26.65	22.55
Lane Group LOS	D	C	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	15.31	9.50	3.06	23.71	0.79	6.56	0.73
50th-Percentile Queue Length [ft/ln]	382.67	237.40	76.39	592.64	19.79	164.1	18.32
95th-Percentile Queue Length [veh/ln]	21.72	14.55	5.50	31.69	1.42	10.77	1.32
95th-Percentile Queue Length [ft/ln]	543.08	363.75	137.50	792.26	35.62	269.1	32.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.76	38.76	38.76	28.25	28.25	28.25	64.51	42.22	42.22	69.98	26.65	22.55
Movement LOS	D	D	D	C	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	38.76			28.25			44.55			28.73		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	37.35											
Intersection LOS	D											
Intersection V/C	0.793											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.169	2.184	2.628	0.000
Crosswalk LOS	B	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	200
d_b, Bicycle Delay [s]	42.50	42.50	5.40	48.60
l_b,int, Bicycle LOS Score for Intersection	2.447	2.256	3.013	2.182
Bicycle LOS	B	B	C	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	49.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.820

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	6	64	410	82	3	0	52	296	32	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	64	410	82	3	0	52	296	32	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	17	108	22	1	0	14	78	8	3
Total Analysis Volume [veh/h]	6	67	432	86	3	0	55	312	34	14
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	62	0	0	0	0	62	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	48	48
g / C, Green / Cycle	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.38	0.31
s, saturation flow rate [veh/h]	1553	1337
c, Capacity [veh/h]	659	572
d1, Uniform Delay [s]	34.72	28.65
k, delay calibration	0.32	0.20
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	12.35	3.28
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.73
d, Delay for Lane Group [s/veh]	47.07	31.93
Lane Group LOS	D	C
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	18.87	10.28
50th-Percentile Queue Length [ft/ln]	471.71	257.04
95th-Percentile Queue Length [veh/ln]	25.99	15.54
95th-Percentile Queue Length [ft/ln]	649.81	388.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.07	47.07	47.07	47.07	47.07	31.93	31.93	31.93	31.93	31.93
Movement LOS	D	D	D	D	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	47.07					31.93				
Approach LOS	D					C				
d_I, Intersection Delay [s/veh]	49.52									
Intersection LOS	D									
Intersection V/C	0.820									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.249	2.317
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967
d_b, Bicycle Delay [s]	16.02	16.02
l_b,int, Bicycle LOS Score for Intersection	2.424	2.131
Bicycle LOS	B	B

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	292	450	59	1	7	36	207	38	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	292	450	59	1	7	36	207	38	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	77	118	16	0	2	9	54	10	3
Total Analysis Volume [veh/h]	9	307	474	62	1	7	38	218	40	11
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	29	0	0	9	0	29	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	44	36	44	25	25
g / C, Green / Cycle	0.36	0.30	0.36	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.23	0.29	0.04	0.11	0.03
s, saturation flow rate [veh/h]	1387	1861	1007	1900	1615
c, Capacity [veh/h]	482	555	207	397	338
d1, Uniform Delay [s]	30.24	41.52	29.96	42.41	38.77
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	30.84	0.52	5.38	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.97	0.22	0.55	0.15
d, Delay for Lane Group [s/veh]	37.05	72.36	30.48	47.78	39.71
Lane Group LOS	D	E	C	D	D
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.91	20.21	0.87	6.37	1.32
50th-Percentile Queue Length [ft/ln]	197.86	505.37	21.85	159.31	33.12
95th-Percentile Queue Length [veh/ln]	12.53	27.59	1.57	10.51	2.38
95th-Percentile Queue Length [ft/ln]	313.20	689.71	39.33	262.81	59.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.05	37.05	72.36	72.36	72.36	30.48	30.48	47.78	39.71	39.71
Movement LOS	D	D	E	E	E	C	C	D	D	D
d_A, Approach Delay [s/veh]	59.28					43.99				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	49.52									
Intersection LOS	D									
Intersection V/C	0.820									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.498	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	417
d_b, Bicycle Delay [s]	37.60	37.60
l_b,int, Bicycle LOS Score for Intersection	2.459	1.997
Bicycle LOS	B	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	8	18	170	13	4	4	8	58	69	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	18	170	13	4	4	8	58	69	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	5	45	3	1	1	2	15	18	1
Total Analysis Volume [veh/h]	8	19	179	14	4	4	8	61	73	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	20	0	0	0	0	20	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	16
g / C, Green / Cycle	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.13	0.04	0.05
s, saturation flow rate [veh/h]	1693	1748	1615
c, Capacity [veh/h]	259	268	215
d1, Uniform Delay [s]	51.99	46.87	47.26
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	8.38	0.54	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.27	0.35
d, Delay for Lane Group [s/veh]	60.36	47.41	48.22
Lane Group LOS	E	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.32	2.01	2.10
50th-Percentile Queue Length [ft/ln]	183.05	50.36	52.57
95th-Percentile Queue Length [veh/ln]	11.76	3.63	3.79
95th-Percentile Queue Length [ft/ln]	294.00	90.66	94.63

Movement, Approach, & Intersection Results

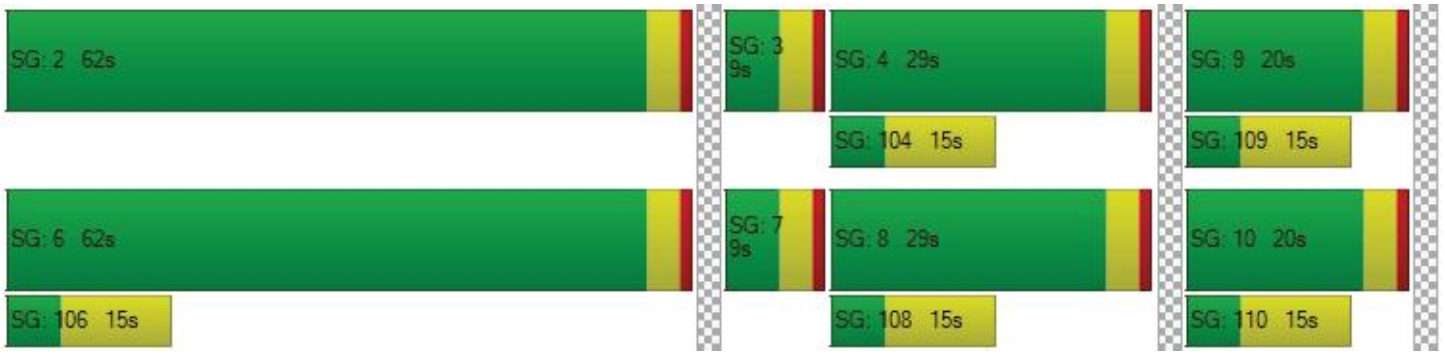
d_M, Delay for Movement [s/veh]	60.36	60.36	60.36	60.36	60.36	47.41	47.41	47.41	48.22	48.22
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	60.36					47.82				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	49.52									
Intersection LOS	D									
Intersection V/C	0.820									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.032	2.373
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	267	267
d_b, Bicycle Delay [s]	45.07	45.07
l_b,int, Bicycle LOS Score for Intersection	1.875	1.794
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.568

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	194	1108	111	68	694	28	59	392	72	86	246	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	1108	111	68	694	28	59	392	72	86	246	92
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	292	29	18	183	7	16	103	19	23	65	24
Total Analysis Volume [veh/h]	204	1166	117	72	731	29	62	413	76	91	259	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	40	56	0	10	26	0	18	42	0	12	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	72	72	6	62	62	5	19	19	8	21	21
g / C, Green / Cycle	0.13	0.60	0.60	0.05	0.52	0.52	0.04	0.16	0.16	0.06	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.11	0.34	0.34	0.04	0.20	0.20	0.03	0.13	0.13	0.05	0.10	0.10
s, saturation flow rate [veh/h]	1810	1900	1840	1810	1900	1875	1810	1900	1799	1810	1900	1728
c, Capacity [veh/h]	237	1136	1100	90	982	969	81	296	280	114	330	300
d1, Uniform Delay [s]	51.06	14.73	14.79	56.39	17.53	17.53	56.67	49.27	49.34	55.45	45.36	45.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.85	2.09	2.20	14.47	1.16	1.18	13.59	6.58	7.32	11.83	1.47	1.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.57	0.58	0.80	0.39	0.39	0.76	0.85	0.85	0.80	0.56	0.57
d, Delay for Lane Group [s/veh]	59.92	16.81	16.99	70.87	18.69	18.71	70.25	55.85	56.66	67.28	46.83	47.21
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.58	11.02	10.84	2.52	6.64	6.56	2.17	7.81	7.54	3.09	5.16	4.85
50th-Percentile Queue Length [ft/ln]	164.5	275.3	270.9	63.05	165.9	163.9	54.15	195.3	188.4	77.28	129.0	121.3
95th-Percentile Queue Length [veh/ln]	10.79	16.46	16.24	4.54	10.86	10.76	3.90	12.40	12.04	5.56	8.89	8.46
95th-Percentile Queue Length [ft/ln]	269.7	411.4	405.9	113.4	271.6	268.9	97.48	309.9	300.9	139.1	222.1	211.6

Movement, Approach, & Intersection Results

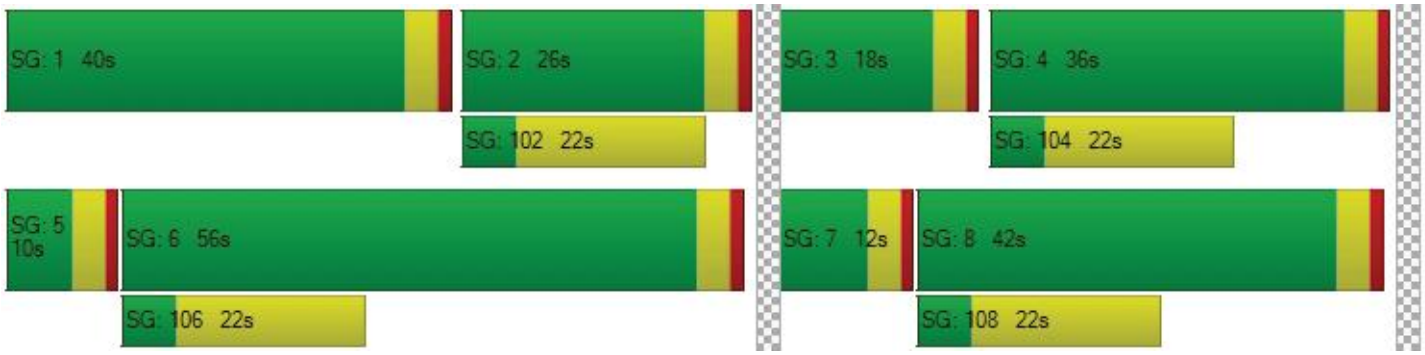
d_M, Delay for Movement [s/veh]	59.92	16.89	16.99	70.87	18.70	18.71	70.25	56.17	56.66	67.28	46.94	47.21
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	22.80			23.22			57.82			51.14		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	32.54											
Intersection LOS	C											
Intersection V/C	0.568											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.780	2.736	2.518	2.639
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	367	633	533
d_b, Bicycle Delay [s]	19.27	40.02	28.02	32.27
l_b,int, Bicycle LOS Score for Intersection	2.786	2.246	2.014	1.928
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	206	1262	412	79	1007	70	156	382	154	260	317	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	1262	412	79	1007	70	156	382	154	260	317	94
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	332	108	21	265	18	41	101	41	68	83	25
Total Analysis Volume [veh/h]	217	1328	434	83	1060	74	164	402	162	274	334	99
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	50	0	10	40	0	16	36	0	24	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	57	57	6	47	47	12	21	21	20	29	29
g / C, Green / Cycle	0.13	0.47	0.47	0.05	0.39	0.39	0.10	0.18	0.18	0.17	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.12	0.37	0.27	0.05	0.29	0.05	0.09	0.16	0.16	0.15	0.12	0.12
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1717	1810	1900	1753
c, Capacity [veh/h]	241	1705	761	90	1404	627	181	341	308	300	466	430
d1, Uniform Delay [s]	51.21	26.49	22.92	56.75	31.78	23.55	53.44	47.82	47.87	49.22	38.76	38.79
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.15	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.49	3.59	3.09	27.45	3.82	0.38	15.26	8.60	9.91	14.89	0.77	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.78	0.57	0.92	0.76	0.12	0.91	0.87	0.87	0.91	0.48	0.48
d, Delay for Lane Group [s/veh]	62.70	30.07	26.01	84.21	35.60	23.93	68.71	56.42	57.78	64.11	39.53	39.64
Lane Group LOS	E	C	C	F	D	C	E	E	E	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.18	16.29	9.39	3.19	13.86	1.42	5.66	9.38	8.64	9.29	5.78	5.37
50th-Percentile Queue Length [ft/ln]	179.5	407.1	234.6	79.84	346.4	35.59	141.4	234.4	216.1	232.2	144.4	134.3
95th-Percentile Queue Length [veh/ln]	11.58	22.91	14.41	5.75	19.96	2.56	9.56	14.40	13.47	14.29	9.72	9.18
95th-Percentile Queue Length [ft/ln]	289.4	572.6	360.2	143.7	499.0	64.06	238.9	360.0	336.6	357.1	243.0	229.4

Movement, Approach, & Intersection Results

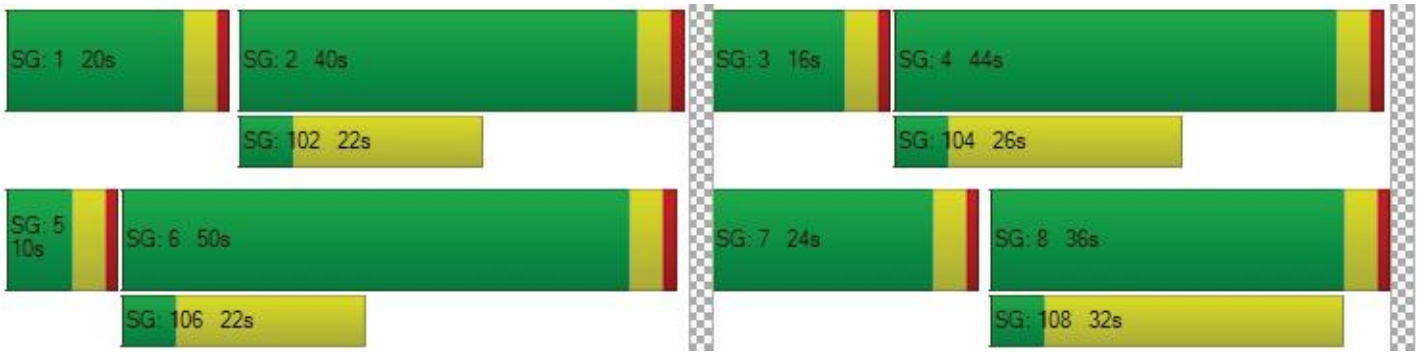
d_M, Delay for Movement [s/veh]	62.70	30.07	26.01	84.21	35.60	23.93	68.71	56.78	57.78	64.11	39.57	39.64
Movement LOS	E	C	C	F	D	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	32.76			38.20			59.69			49.09		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	40.92											
Intersection LOS	D											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.164	2.924	2.579	2.632
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	600	533	667
d_b, Bicycle Delay [s]	22.82	29.40	32.27	26.67
l_b,int, Bicycle LOS Score for Intersection	3.192	2.564	2.160	2.143
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	249.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.025

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	426	330	4	363	26	55	337	11	244	86	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	426	330	4	363	26	55	337	11	244	86	50
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	112	87	1	96	7	14	89	3	64	23	13
Total Analysis Volume [veh/h]	0	448	347	4	382	27	58	355	12	257	91	53
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	795	413	425	359	401
Degree of Utilization, x	2.03	1.08	1.13	0.97	0.13

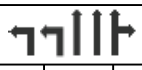
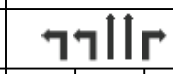
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	55.66	14.44	15.95	10.77	0.45
95th-Percentile Queue Length [ft]	1391.56	361.04	398.65	269.14	11.29
Approach Delay [s/veh]	490.98	99.56	116.02	64.59	
Approach LOS	F	F	F	F	
Intersection Delay [s/veh]	249.10				
Intersection LOS	F				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	37.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.676

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	288	1211	252	138	1319	34	84	523	381	198	281	122
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	1211	252	138	1319	34	84	523	381	198	281	122
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	76	319	66	36	347	9	22	138	100	52	74	32
Total Analysis Volume [veh/h]	303	1275	265	145	1388	36	88	551	401	208	296	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	41	0	15	40	0	19	52	0	12	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	52	52	11	51	51	8	33	33	8	34	34
g / C, Green / Cycle	0.10	0.43	0.43	0.09	0.42	0.42	0.06	0.28	0.28	0.07	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.29	0.29	0.08	0.26	0.26	0.05	0.15	0.25	0.06	0.08	0.08
s, saturation flow rate [veh/h]	3514	3618	1738	1810	3618	1875	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	351	1563	751	166	1533	795	115	1000	446	234	1012	452
d1, Uniform Delay [s]	53.19	27.15	27.21	53.82	26.90	26.90	55.33	37.07	41.80	55.55	33.91	33.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.18	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.29	2.25	4.68	13.21	1.83	3.50	10.23	0.48	10.62	10.82	0.16	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.66	0.67	0.87	0.61	0.61	0.77	0.55	0.90	0.89	0.29	0.28
d, Delay for Lane Group [s/veh]	59.47	29.39	31.89	67.02	28.73	30.40	65.56	37.55	52.43	66.38	34.07	34.15
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.80	12.16	12.29	4.93	10.72	11.48	2.95	6.97	12.65	3.47	3.43	2.98
50th-Percentile Queue Length [ft/ln]	120.0	304.0	307.2	123.1	267.9	287.0	73.73	174.3	316.3	86.81	85.64	74.44
95th-Percentile Queue Length [veh/ln]	8.40	17.88	18.04	8.57	16.09	17.04	5.31	11.30	18.49	6.25	6.17	5.36
95th-Percentile Queue Length [ft/ln]	209.9	447.0	450.9	214.1	402.1	425.9	132.7	282.5	462.1	156.2	154.1	134.0

Movement, Approach, & Intersection Results

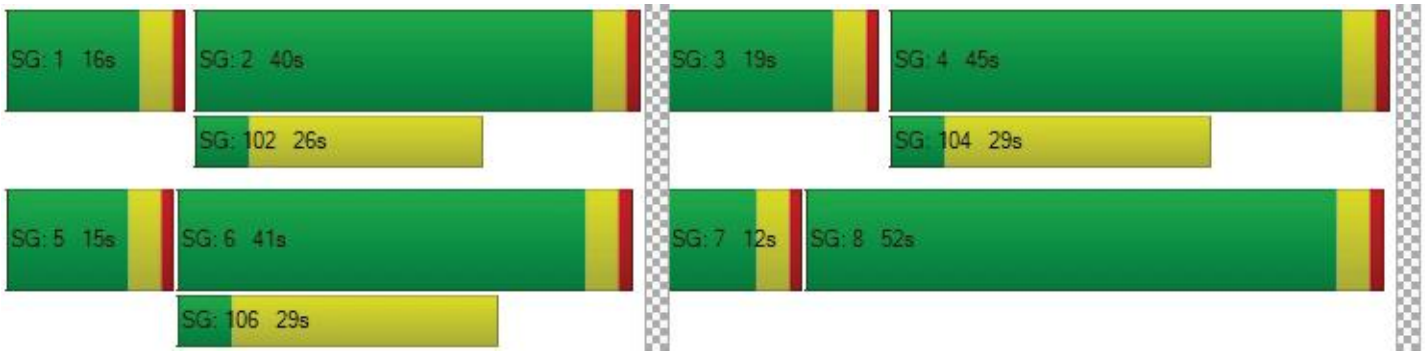
d_M, Delay for Movement [s/veh]	59.47	29.86	31.89	67.02	29.28	30.40	65.56	37.55	52.43	66.38	34.07	34.15
Movement LOS	E	C	C	E	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	35.02			32.79			45.65			44.72		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	37.71											
Intersection LOS	D											
Intersection V/C	0.676											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.035	2.740	2.831
Crosswalk LOS	F	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	600	800	683
d_b, Bicycle Delay [s]	28.70	29.40	21.60	26.00
l_b,int, Bicycle LOS Score for Intersection	2.573	2.423	2.418	2.081
Bicycle LOS	B	B	B	B

Sequence

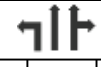
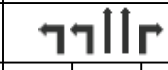
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	71.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.958

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	245	803	754	12	855	73	143	496	334	804	496	80
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	803	754	12	855	73	143	496	334	804	496	80
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	64	211	198	3	225	19	38	131	88	212	131	21
Total Analysis Volume [veh/h]	258	845	794	13	900	77	151	522	352	846	522	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	53	0	9	48	0	35	28	0	30	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	52	52	2	44	44	12	24	24	26	38	38
g / C, Green / Cycle	0.08	0.44	0.44	0.01	0.37	0.37	0.10	0.20	0.20	0.22	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.07	0.44	0.49	0.01	0.26	0.26	0.08	0.14	0.22	0.24	0.14	0.05
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1848	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	293	826	702	27	697	678	184	724	323	761	1139	509
d1, Uniform Delay [s]	54.41	33.90	33.90	58.63	32.55	32.55	52.82	44.88	48.00	47.00	32.90	29.70
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.36	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.49	37.14	75.86	12.34	6.07	6.24	8.72	1.38	68.76	54.68	0.29	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	1.02	1.13	0.48	0.71	0.71	0.82	0.72	1.09	1.11	0.46	0.17
d, Delay for Lane Group [s/veh]	62.90	71.04	109.7	70.96	38.62	38.79	61.54	46.25	116.7	101.6	33.19	29.85
Lane Group LOS	E	F	F	E	D	D	E	D	F	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.20	31.84	34.62	0.49	13.39	13.05	4.91	7.39	15.77	17.07	6.12	1.79
50th-Percentile Queue Length [ft/ln]	104.9	796.0	865.5	12.14	334.6	326.2	122.6	184.8	394.2	426.7	153.0	44.67
95th-Percentile Queue Length [veh/ln]	7.56	41.82	48.35	0.87	19.39	18.97	8.54	11.85	23.31	25.23	10.18	3.22
95th-Percentile Queue Length [ft/ln]	188.9	1045.	1208.	21.86	484.6	474.3	213.5	296.2	582.8	630.8	254.5	80.41

Movement, Approach, & Intersection Results

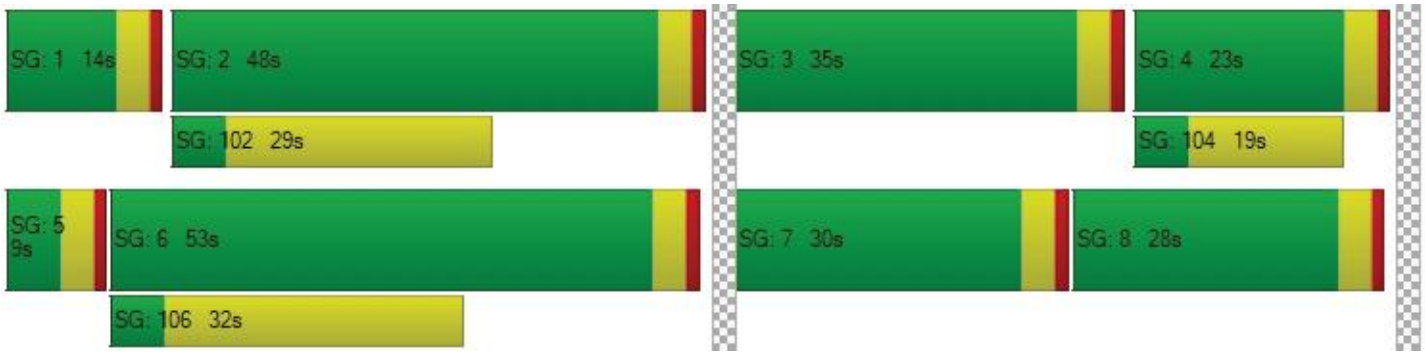
d_M, Delay for Movement [s/veh]	62.90	71.04	109.7	70.96	38.70	38.79	61.54	46.25	116.7	101.6	33.19	29.85
Movement LOS	E	F	F	E	D	D	E	D	F	F	C	C
d_A, Approach Delay [s/veh]	86.14			39.13			72.72			72.90		
Approach LOS	F			D			E			E		
d_I, Intersection Delay [s/veh]	71.32											
Intersection LOS	E											
Intersection V/C	0.958											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.651	2.871	3.080
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	733	400	317
d_b, Bicycle Delay [s]	21.00	24.07	38.40	42.50
l_b,int, Bicycle LOS Score for Intersection	4.690	2.376	2.405	2.758
Bicycle LOS	E	B	B	C

Sequence

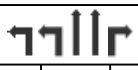
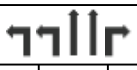
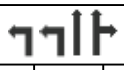
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	70.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.048

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	277	1194	889	112	1219	75	199	506	396	638	407	166
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	277	1194	889	112	1219	75	199	506	396	638	407	166
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	73	314	234	29	321	20	52	133	104	168	107	44
Total Analysis Volume [veh/h]	292	1257	936	118	1283	79	209	533	417	672	428	175
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	20	49	0	10	39	0	18	40	40	21	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	60	60	6	50	50	9	21	41	17	29	29
g / C, Green / Cycle	0.13	0.50	0.50	0.05	0.41	0.41	0.08	0.18	0.35	0.14	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.08	0.35	0.58	0.07	0.25	0.05	0.06	0.15	0.26	0.19	0.17	0.17
s, saturation flow rate [veh/h]	3514	3618	1615	1810	5176	1615	3514	3618	1615	3514	1900	1716
c, Capacity [veh/h]	469	1794	801	90	2135	666	272	648	558	498	462	417
d1, Uniform Delay [s]	49.15	23.36	30.24	57.00	27.53	21.77	54.30	47.42	34.62	51.50	41.19	41.27
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.48	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	2.31	89.14	153.3	1.26	0.36	4.55	2.70	8.42	160.3	1.78	2.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.70	1.17	1.30	0.60	0.12	0.77	0.82	0.75	1.35	0.68	0.69
d, Delay for Lane Group [s/veh]	50.51	25.67	119.3	210.3	28.79	22.13	58.85	50.12	43.04	211.8	42.98	43.30
Lane Group LOS	D	C	F	F	C	C	E	D	D	F	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.23	13.97	41.93	6.60	9.74	1.45	3.27	7.90	11.95	18.55	8.68	7.95
50th-Percentile Queue Length [ft/ln]	105.7	349.2	1048.	164.8	243.3	36.32	81.73	197.4	298.7	463.7	217.0	198.8
95th-Percentile Queue Length [veh/ln]	7.60	20.10	58.98	11.56	14.85	2.62	5.88	12.51	17.62	28.92	13.51	12.58
95th-Percentile Queue Length [ft/ln]	190.0	502.4	1474.	289.0	371.3	65.38	147.1	312.6	440.5	723.1	337.8	314.4

Movement, Approach, & Intersection Results

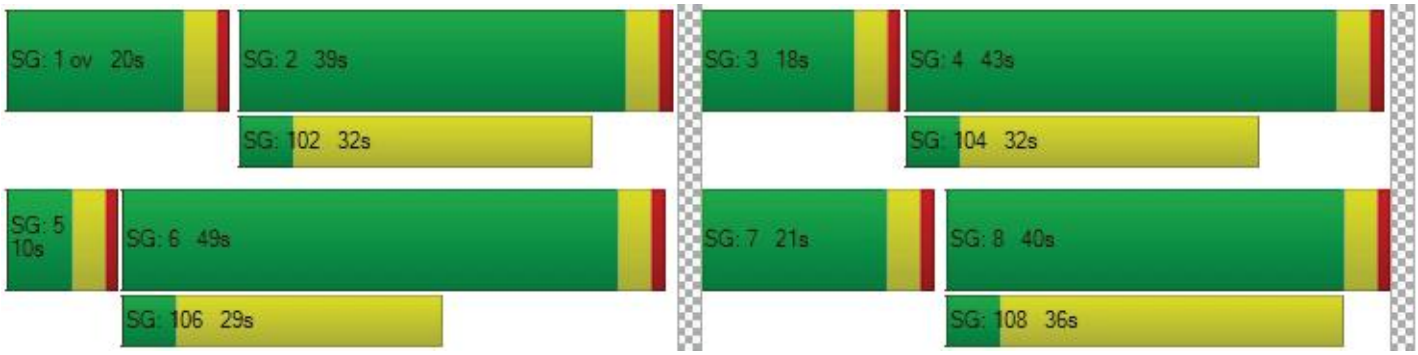
d_M, Delay for Movement [s/veh]	50.51	25.67	119.3	210.3	28.79	22.13	58.85	50.12	43.04	211.8	43.06	43.30
Movement LOS	D	C	F	F	C	C	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	63.89			42.91			49.15			132.08		
Approach LOS	E			D			D			F		
d_I, Intersection Delay [s/veh]	69.95											
Intersection LOS	E											
Intersection V/C	1.048											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.391	3.121	2.979	3.008
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	583	600	650
d_b, Bicycle Delay [s]	23.44	30.10	29.40	27.34
l_b,int, Bicycle LOS Score for Intersection	3.610	2.374	2.516	2.611
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.472

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	9	4	26	3	46	4	21	48	412	1196	16
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	9	4	26	3	46	4	21	48	412	1196	16
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	2	1	7	1	12	1	6	13	108	315	4
Total Analysis Volume [veh/h]	16	9	4	27	3	48	4	22	51	434	1259	17
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	7	7	89	84	84
g / C, Green / Cycle	0.06	0.06	0.74	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.55	0.34	0.34
s, saturation flow rate [veh/h]	1780	1508	889	1900	1891
c, Capacity [veh/h]	146	141	692	1324	1318
d1, Uniform Delay [s]	54.70	55.76	6.71	8.29	8.31
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.63	3.25	5.84	1.26	1.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.55	0.70	0.48	0.48
d, Delay for Lane Group [s/veh]	56.34	59.01	12.56	9.55	9.58
Lane Group LOS	E	E	B	A	A
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.71	2.43	4.86	7.40	7.40
50th-Percentile Queue Length [ft/ln]	42.73	60.78	121.45	184.92	184.98
95th-Percentile Queue Length [veh/ln]	3.08	4.38	8.47	11.86	11.86
95th-Percentile Queue Length [ft/ln]	76.92	109.40	211.82	296.42	296.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.34	56.34	56.34	56.34	59.01	59.01	59.01	59.01	12.56	12.56	9.56	9.58
Movement LOS	E	E	E	E	E	E	E	E	B	B	A	A
d_A, Approach Delay [s/veh]	56.34				59.01				10.39			
Approach LOS	E				E				B			
d_I, Intersection Delay [s/veh]	15.54											
Intersection LOS	B											
Intersection V/C	0.472											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.777	0.000	2.897
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	500
d_b, Bicycle Delay [s]	45.94	45.94	33.75
l_b,int, Bicycle LOS Score for Intersection	1.607	1.607	2.654
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	11	559	148	26	6	7	105	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	559	148	26	6	7	105	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	147	39	7	2	2	28	1
Total Analysis Volume [veh/h]	12	588	156	27	6	7	111	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	34	0	0	0	58	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	73	73	73	11
g / C, Green / Cycle	0.01	0.61	0.61	0.61	0.09
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.17	0.11	0.08
s, saturation flow rate [veh/h]	1810	1900	1900	1615	1637
c, Capacity [veh/h]	25	1152	1152	979	156
d1, Uniform Delay [s]	58.73	10.85	11.18	10.50	53.23
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.21	0.48	0.60	0.42	9.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.23	0.28	0.19	0.81
d, Delay for Lane Group [s/veh]	71.93	11.33	11.78	10.92	62.81
Lane Group LOS	E	B	B	B	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.45	3.38	4.11	2.23	4.14
50th-Percentile Queue Length [ft/ln]	11.37	84.61	102.74	55.83	103.54
95th-Percentile Queue Length [veh/ln]	0.82	6.09	7.40	4.02	7.45
95th-Percentile Queue Length [ft/ln]	20.47	152.29	184.93	100.50	186.37

Movement, Approach, & Intersection Results

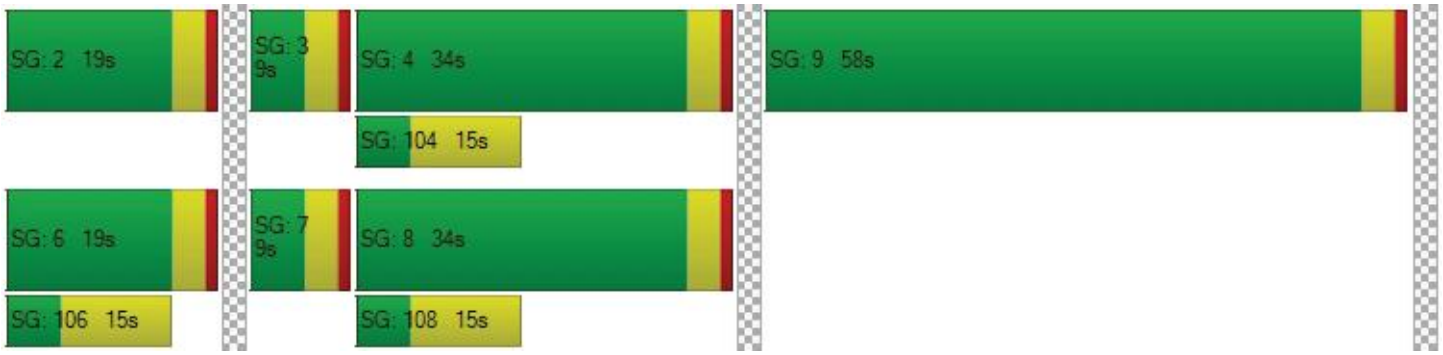
d_M, Delay for Movement [s/veh]	71.93	11.57	11.78	10.92	62.81	62.81	62.81	62.81
Movement LOS	E	B	B	B	E	E	E	E
d_A, Approach Delay [s/veh]	12.34				62.81			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	15.54							
Intersection LOS	B							
Intersection V/C	0.472							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.521
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	900
d_b, Bicycle Delay [s]	33.75	18.15
l_b,int, Bicycle LOS Score for Intersection	2.183	1.764
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	335.374

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	211	275	422	360	0	219	325	1125	551	265	571	167
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	211	275	422	360	0	219	325	1125	551	265	571	167
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	56	72	111	95	0	58	86	296	145	70	150	44
Total Analysis Volume [veh/h]	222	289	444	379	0	231	342	1184	580	279	601	176
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

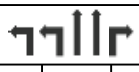
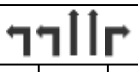
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	228.0	335.3	1.51	0.00	0.00	0.38	0.40	0.01	0.01	0.78	0.01	0.00
d_M, Delay for Movement [s/veh]	10000	10000	10000	10000	10000	14.31	12.08	0.00	0.00	42.61	0.00	0.00
Movement LOS	F	F	F	F	F	B	B	A	A	E	A	A
95th-Percentile Queue Length [veh/ln]	122.1	122.1	122.1	50.21	50.21	1.74	1.97	0.00	0.00	6.40	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3052.	3052.	3052.	1255.	1255.	43.45	49.13	0.00	0.00	159.9	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			6218.53			1.96			11.26		
Approach LOS	F			F			A			B		
d_I, Intersection Delay [s/veh]	2826.17											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	45.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.788

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	619	1120	319	108	655	46	78	1189	454	177	844	208
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	619	1120	319	108	655	46	78	1189	454	177	844	208
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	163	295	84	28	172	12	21	313	119	47	222	55
Total Analysis Volume [veh/h]	652	1179	336	114	689	48	82	1252	478	186	888	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	28	49	0	12	33	0	12	48	0	11	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	45	45	8	30	30	5	44	44	7	46	46
g / C, Green / Cycle	0.20	0.38	0.38	0.07	0.25	0.25	0.04	0.36	0.36	0.06	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.19	0.33	0.21	0.06	0.20	0.20	0.02	0.35	0.30	0.05	0.30	0.30
s, saturation flow rate [veh/h]	3514	3618	1615	1810	1900	1857	3514	3618	1615	3514	1900	1772
c, Capacity [veh/h]	701	1371	612	121	468	457	140	1312	586	205	724	676
d1, Uniform Delay [s]	47.22	34.34	29.23	55.78	42.41	42.41	56.64	37.26	34.61	56.18	32.83	32.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.32	0.11	0.30	0.31
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.22	7.24	3.52	26.66	13.18	13.47	3.85	4.96	7.98	13.93	5.30	5.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.86	0.55	0.95	0.80	0.80	0.59	0.95	0.82	0.91	0.79	0.79
d, Delay for Lane Group [s/veh]	53.44	41.58	32.75	82.45	55.59	55.88	60.49	42.21	42.58	70.11	38.13	38.86
Lane Group LOS	D	D	C	F	E	E	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.13	16.96	8.16	4.33	12.02	11.79	1.30	18.48	13.76	3.20	15.53	14.74
50th-Percentile Queue Length [ft/ln]	253.3	424.0	203.9	108.1	300.5	294.7	32.45	461.9	344.0	79.89	388.1	368.5
95th-Percentile Queue Length [veh/ln]	15.35	23.72	12.84	7.74	17.71	17.42	2.34	25.53	19.85	5.75	21.99	21.04
95th-Percentile Queue Length [ft/ln]	383.8	592.9	321.0	193.4	442.7	435.5	58.41	638.1	496.1	143.8	549.7	525.9

Movement, Approach, & Intersection Results

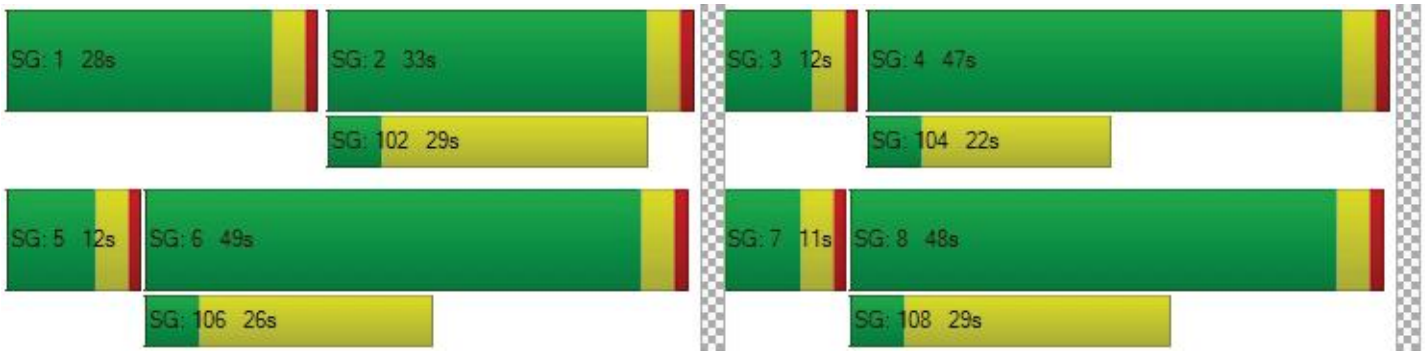
d_M, Delay for Movement [s/veh]	53.44	41.58	32.75	82.45	55.72	55.88	60.49	42.21	42.58	70.11	38.39	38.86
Movement LOS	D	D	C	F	E	E	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	43.78			59.31			43.14			43.03		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	45.59											
Intersection LOS	D											
Intersection V/C	0.788											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.099	2.770	3.083	3.106
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	483	733	717
d_b, Bicycle Delay [s]	23.44	34.50	24.07	24.70
l_b,int, Bicycle LOS Score for Intersection	3.347	2.262	3.055	2.626
Bicycle LOS	C	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	52.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	288	1361	814	177	1363	102	333	967	247	709	715	127
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	1361	814	177	1363	102	333	967	247	709	715	127
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	76	358	214	47	359	27	88	254	65	187	188	33
Total Analysis Volume [veh/h]	303	1433	857	186	1435	107	351	1018	260	746	753	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	40	40	10	36	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	43	70	6	39	39	15	32	32	23	41	51
g / C, Green / Cycle	0.08	0.35	0.58	0.05	0.32	0.32	0.12	0.27	0.27	0.19	0.34	0.42
(v / s)_i Volume / Saturation Flow Rate	0.09	0.28	0.53	0.05	0.28	0.28	0.10	0.24	0.24	0.21	0.21	0.05
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1833	3514	3618	1709	3514	3618	2859
c, Capacity [veh/h]	293	1833	935	176	1161	588	431	980	463	674	1229	1210
d1, Uniform Delay [s]	55.00	34.61	22.64	57.00	38.59	38.61	51.31	41.97	41.98	48.50	33.02	20.95
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.27	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	33.87	3.40	15.04	48.23	9.74	17.31	3.78	2.91	12.96	53.77	0.50	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.78	0.92	1.06	0.88	0.88	0.81	0.89	0.89	1.11	0.61	0.11
d, Delay for Lane Group [s/veh]	88.87	38.01	37.68	105.2	48.33	55.91	55.09	44.87	54.95	102.2	33.52	20.99
Lane Group LOS	F	D	D	F	D	E	E	D	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.80	12.89	24.25	3.84	15.66	17.13	5.37	12.62	13.24	15.05	9.17	1.15
50th-Percentile Queue Length [ft/ln]	144.9	322.2	606.2	95.97	391.4	428.2	134.2	315.5	330.9	376.3	229.2	28.86
95th-Percentile Queue Length [veh/ln]	9.86	18.78	32.33	6.91	22.15	23.92	9.17	18.45	19.21	22.56	14.14	2.08
95th-Percentile Queue Length [ft/ln]	246.5	469.4	808.1	172.7	553.6	597.8	229.2	461.1	480.1	563.9	353.3	51.95

Movement, Approach, & Intersection Results

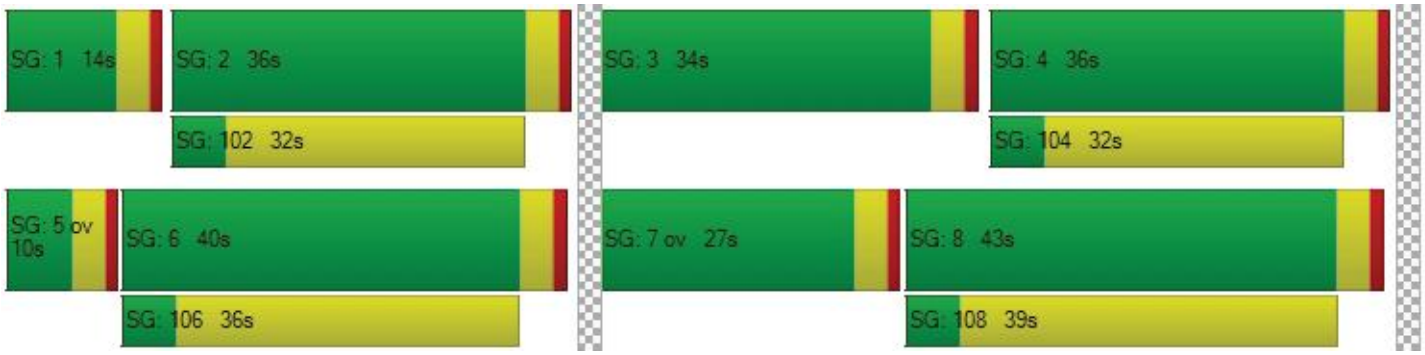
d_M, Delay for Movement [s/veh]	88.87	38.01	37.68	105.2	50.51	55.91	55.09	46.36	54.95	102.2	33.52	20.99
Movement LOS	F	D	D	F	D	E	E	D	D	F	C	C
d_A, Approach Delay [s/veh]	43.84			56.73			49.61			63.90		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	52.34											
Intersection LOS	D											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.473	3.185	3.081	3.265
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.986	2.510	2.456	2.907
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1505	622	0	1210	819	0	0	0	585	0	484
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1505	622	0	1210	819	0	0	0	585	0	484
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	396	164	0	318	216	0	0	0	154	0	127
Total Analysis Volume [veh/h]	0	1584	655	0	1274	862	0	0	0	616	0	509
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	76	0	0	76	0	0	0	0	44	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81		31	31	31
g / C, Green / Cycle	0.67	0.67		0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.44	0.25		0.21	0.22	0.23
s, saturation flow rate [veh/h]	3618	5176		1810	1735	1615
c, Capacity [veh/h]	2425	3469		476	456	425
d1, Uniform Delay [s]	11.60	8.65		41.11	41.58	42.45
k, delay calibration	0.50	0.50		0.18	0.20	0.24
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.39	0.30		4.82	6.73	12.25
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.37		0.79	0.82	0.88
d, Delay for Lane Group [s/veh]	12.99	8.95		45.93	48.30	54.69
Lane Group LOS	B	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.85	4.65		10.91	11.24	12.05
50th-Percentile Queue Length [ft/ln]	296.21	116.19		272.6	280.9	301.1
95th-Percentile Queue Length [veh/ln]	17.49	8.18		16.32	16.74	17.74
95th-Percentile Queue Length [ft/ln]	437.34	204.58		408.0	418.4	443.4

Movement, Approach, & Intersection Results

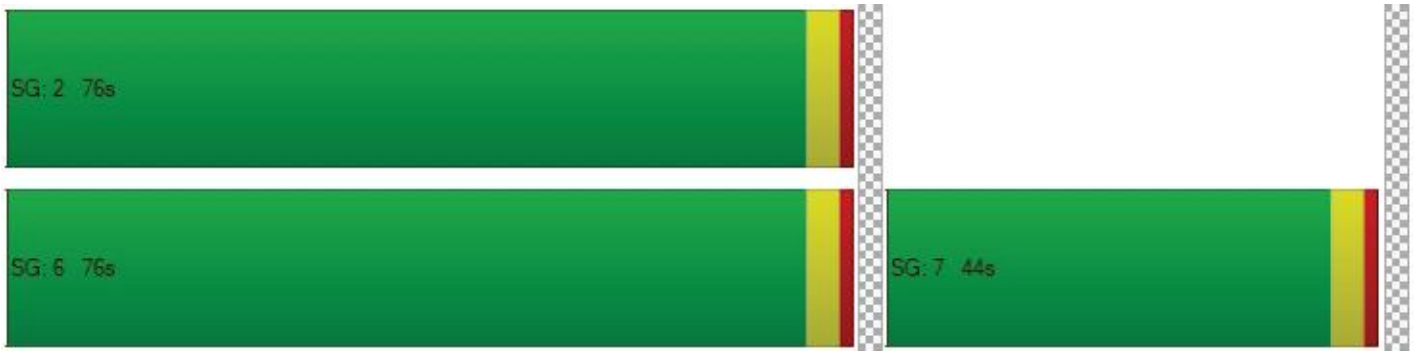
d_M, Delay for Movement [s/veh]	0.00	12.99	0.00	0.00	8.95	0.00	0.00	0.00	0.00	46.86	0.00	53.01
Movement LOS		B			A					D		D
d_A, Approach Delay [s/veh]	12.99			8.95			0.00			49.64		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	22.05											
Intersection LOS	C											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	0	667
d_b, Bicycle Delay [s]	9.60	9.60	60.00	26.67
l_b,int, Bicycle LOS Score for Intersection	2.866	2.260	4.132	3.416
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	26.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.754

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1679	436	0	2172	0	0	0	0	581	0	633
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1679	436	0	2172	0	0	0	0	581	0	633
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	442	115	0	572	0	0	0	0	153	0	167
Total Analysis Volume [veh/h]	0	1767	459	0	2286	0	0	0	0	612	0	666
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	28	0	0	28	0	0	0	0	92	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	59	59		53	53
g / C, Green / Cycle	0.49	0.49		0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.34	0.33		0.17	0.41
s, saturation flow rate [veh/h]	5176	6901		3514	1615
c, Capacity [veh/h]	2526	3368		1565	719
d1, Uniform Delay [s]	23.88	23.52		22.36	31.42
k, delay calibration	0.50	0.50		0.11	0.15
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.64	1.12		0.16	7.53
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.68		0.39	0.93
d, Delay for Lane Group [s/veh]	25.52	24.64		22.52	38.95
Lane Group LOS	C	C		C	D
Critical Lane Group	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	13.04	12.36		5.83	19.22
50th-Percentile Queue Length [ft/ln]	326.02	308.93		145.69	480.58
95th-Percentile Queue Length [veh/ln]	18.96	18.12		9.79	26.41
95th-Percentile Queue Length [ft/ln]	474.09	453.06		244.66	660.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	25.52	0.00	0.00	24.64	0.00	0.00	0.00	0.00	22.52	0.00	38.95
Movement LOS		C			C					C		D
d_A, Approach Delay [s/veh]	25.52			24.64			0.00			31.08		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	26.47											
Intersection LOS	C											
Intersection V/C	0.754											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	400	0	1467
d_b, Bicycle Delay [s]	38.40	38.40	60.00	4.27
l_b,int, Bicycle LOS Score for Intersection	2.531	2.503	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1212	256	0	1049	555	0	0	0	269	0	584
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1212	256	0	1049	555	0	0	0	269	0	584
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	319	67	0	276	146	0	0	0	71	0	154
Total Analysis Volume [veh/h]	0	1276	269	0	1104	584	0	0	0	283	0	615
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	62	0	0	62	0	0	0	0	58	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	82	82		30	30
g / C, Green / Cycle	0.69	0.69		0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.25	0.31		0.16	0.22
s, saturation flow rate [veh/h]	5176	3618		1810	2859
c, Capacity [veh/h]	3554	2484		446	705
d1, Uniform Delay [s]	7.82	8.48		40.36	43.38
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.28	0.58		1.49	3.54
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.44		0.63	0.87
d, Delay for Lane Group [s/veh]	8.10	9.06		41.85	46.92
Lane Group LOS	A	A		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	4.35	6.19		7.65	9.07
50th-Percentile Queue Length [ft/ln]	108.66	154.63		191.26	226.63
95th-Percentile Queue Length [veh/ln]	7.77	10.26		12.19	14.00
95th-Percentile Queue Length [ft/ln]	194.14	256.60		304.66	350.07

Movement, Approach, & Intersection Results

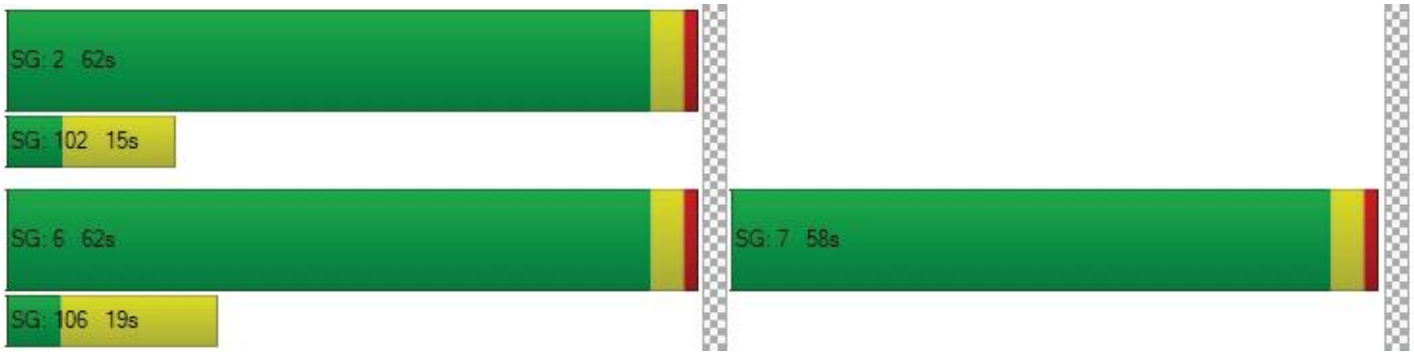
d_M, Delay for Movement [s/veh]	0.00	8.10	0.00	0.00	9.06	0.00	0.00	0.00	0.00	41.85	0.00	46.92
Movement LOS		A			A					D		D
d_A, Approach Delay [s/veh]	8.10			9.06			0.00			45.32		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	18.62											
Intersection LOS	B											
Intersection V/C	0.520											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.365
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	0	900
d_b, Bicycle Delay [s]	16.02	16.02	60.00	18.15
l_b,int, Bicycle LOS Score for Intersection	2.261	2.470	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1713	562	0	1344	394	344	0	439	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1713	562	0	1344	394	344	0	439	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	451	148	0	354	104	91	0	116	0	0	0
Total Analysis Volume [veh/h]	0	1803	592	0	1415	415	362	0	462	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	62	0	0	62	0	58	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	74	74	38	38	
g / C, Green / Cycle	0.62	0.62	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.35	0.39	0.10	0.29	
s, saturation flow rate [veh/h]	5176	3618	3514	1615	
c, Capacity [veh/h]	3208	2243	1101	506	
d1, Uniform Delay [s]	13.30	14.24	31.53	39.61	
k, delay calibration	0.50	0.50	0.11	0.20	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.72	1.36	0.17	11.34	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.56	0.63	0.33	0.91	
d, Delay for Lane Group [s/veh]	14.02	15.60	31.70	50.95	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.21	11.76	4.07	14.56	
50th-Percentile Queue Length [ft/ln]	230.34	294.10	101.70	363.88	
95th-Percentile Queue Length [veh/ln]	14.19	17.39	7.32	20.81	
95th-Percentile Queue Length [ft/ln]	354.79	434.73	183.05	520.30	

Movement, Approach, & Intersection Results

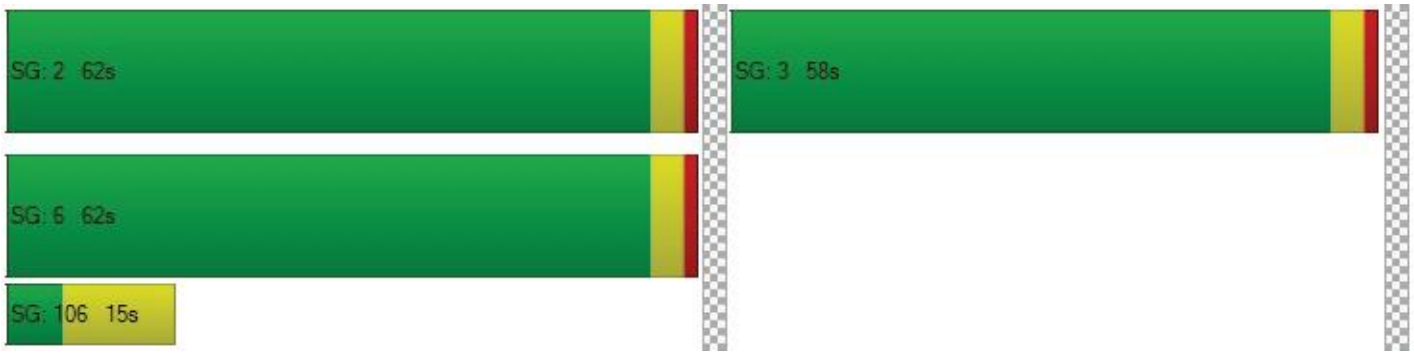
d_M, Delay for Movement [s/veh]	0.00	14.02	0.00	0.00	15.60	0.00	31.70	0.00	50.95	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	14.02			15.60			42.50			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	20.38											
Intersection LOS	C											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	900	0
d_b, Bicycle Delay [s]	16.02	16.02	18.15	60.00
l_b,int, Bicycle LOS Score for Intersection	2.551	2.727	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.889

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1423	533	759	1352	0	741	75	630	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1423	533	759	1352	0	741	75	630	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	374	140	200	356	0	195	20	166	0	0	0
Total Analysis Volume [veh/h]	0	1498	561	799	1423	0	780	79	663	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	46	0	32	78	0	0	42	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	28	74	38	38	38	
g / C, Green / Cycle	0.35	0.35	0.23	0.62	0.32	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.35	0.23	0.27	0.28	0.29	0.31	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	1810	1758	1615	
c, Capacity [veh/h]	1811	565	820	3192	573	557	511	
d1, Uniform Delay [s]	35.68	38.84	45.64	12.16	38.93	39.39	40.85	
k, delay calibration	0.50	0.50	0.11	0.50	0.38	0.39	0.45	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.49	36.06	9.78	0.45	14.27	18.09	36.05	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.83	0.99	0.97	0.45	0.89	0.91	0.99	
d, Delay for Lane Group [s/veh]	40.17	74.90	55.42	12.61	53.20	57.48	76.90	
Lane Group LOS	D	E	E	B	D	E	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.95	21.81	12.84	6.61	16.30	16.99	19.84	
50th-Percentile Queue Length [ft/ln]	348.80	545.18	320.90	165.16	407.4	424.6	495.9	
95th-Percentile Queue Length [veh/ln]	20.08	29.47	18.71	10.82	22.92	23.74	27.14	
95th-Percentile Queue Length [ft/ln]	501.95	736.64	467.79	270.54	572.9	593.6	678.5	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	40.17	74.90	55.42	12.61	0.00	54.70	57.48	72.34	0.00	0.00	0.00
Movement LOS		D	E	E	B		D	E	E			
d_A, Approach Delay [s/veh]	49.63			28.01			62.53			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	44.73											
Intersection LOS	D											
Intersection V/C	0.889											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.517	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	1233	633	0
d_b, Bicycle Delay [s]	25.35	8.82	28.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.692	2.782	4.071	4.132
Bicycle LOS	B	C	D	D

Sequence

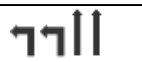
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1008	570	606	730	0	505	8	237	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1008	570	606	730	0	505	8	237	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	265	150	159	192	0	133	2	62	0	0	0
Total Analysis Volume [veh/h]	0	1061	600	638	768	0	532	8	249	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	51	0	34	85	0	0	35	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	61	61	24	90	22	22	
g / C, Green / Cycle	0.51	0.51	0.20	0.75	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.37	0.18	0.21	0.15	0.16	
s, saturation flow rate [veh/h]	3618	1615	3514	3618	3514	1623	
c, Capacity [veh/h]	1842	822	718	2701	656	303	
d1, Uniform Delay [s]	20.46	23.00	46.43	4.89	46.77	47.16	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.17	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.32	5.65	4.02	0.26	2.47	9.76	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.58	0.73	0.89	0.28	0.81	0.85	
d, Delay for Lane Group [s/veh]	21.78	28.65	50.45	5.15	49.24	56.92	
Lane Group LOS	C	C	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.43	14.13	9.62	2.80	7.82	8.22	
50th-Percentile Queue Length [ft/ln]	260.87	353.29	240.49	70.04	195.62	205.61	
95th-Percentile Queue Length [veh/ln]	15.73	20.30	14.71	5.04	12.41	12.93	
95th-Percentile Queue Length [ft/ln]	393.31	507.42	367.65	126.07	310.30	323.19	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	21.78	28.65	50.45	5.15	0.00	49.24	56.92	56.92	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	E	E			
d_A, Approach Delay [s/veh]	24.26			25.71			51.74			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	30.41											
Intersection LOS	C											
Intersection V/C	0.711											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	1350	517	0
d_b, Bicycle Delay [s]	22.20	6.34	33.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.473	2.720	2.861	4.132
Bicycle LOS	B	B	C	D

Sequence

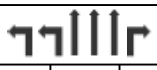
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	69.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.152

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	573	1426	523	554	969	892	1024	0	512	540	0	706
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	573	1426	523	554	969	892	1024	0	512	540	0	706
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	151	375	138	146	255	235	269	0	135	142	0	186
Total Analysis Volume [veh/h]	603	1501	551	583	1020	939	1078	0	539	568	0	743
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	88	0	0	88	0	32	0	0	32	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	28	28
g / C, Green / Cycle	0.70	0.70	0.70	0.70	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.55	0.29	0.85	0.20	0.31	0.16
s, saturation flow rate [veh/h]	1091	5176	690	5176	3514	3514
c, Capacity [veh/h]	726	3623	448	3623	820	820
d1, Uniform Delay [s]	20.34	7.61	30.76	6.73	46.00	42.07
k, delay calibration	0.50	0.50	0.50	0.50	0.17	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.66	0.35	151.09	0.19	144.62	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.41	1.30	0.28	1.31	0.69
d, Delay for Lane Group [s/veh]	31.00	7.96	181.84	6.92	190.62	43.13
Lane Group LOS	C	A	F	A	F	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.88	5.13	16.22	3.08	28.59	7.80
50th-Percentile Queue Length [ft/ln]	197.01	128.31	405.60	76.96	714.82	195.02
95th-Percentile Queue Length [veh/ln]	12.48	8.85	27.24	5.54	42.94	12.38
95th-Percentile Queue Length [ft/ln]	312.10	221.19	680.96	138.53	1073.62	309.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.00	7.96	0.00	181.8	6.92	0.00	190.6	0.00	0.00	43.13	0.00	0.00
Movement LOS	C	A		F	A		F			D		
d_A, Approach Delay [s/veh]	14.56			70.54			190.62			43.13		
Approach LOS	B			E			F			D		
d_I, Intersection Delay [s/veh]	69.81											
Intersection LOS	E											
Intersection V/C	1.152											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.501	3.369
Crosswalk LOS	F	F	D	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1400	467	467
d_b, Bicycle Delay [s]	5.40	5.40	35.27	35.27
l_b,int, Bicycle LOS Score for Intersection	2.717	2.441	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	39.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.752

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	195	1644	376	77	598	132	265	1104	208	125	611	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	1644	376	77	598	132	265	1104	208	125	611	119
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	433	99	20	157	35	70	291	55	33	161	31
Total Analysis Volume [veh/h]	205	1731	396	81	629	139	279	1162	219	132	643	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	35	46	0	9	20	0	39	51	0	14	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	47	47	5	42	42	21	42	42	10	31	31
g / C, Green / Cycle	0.08	0.39	0.39	0.04	0.35	0.35	0.17	0.35	0.35	0.08	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.06	0.33	0.25	0.02	0.12	0.09	0.15	0.32	0.14	0.07	0.18	0.08
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	278	2036	635	137	1828	570	312	1270	567	151	948	423
d1, Uniform Delay [s]	54.05	33.18	29.26	56.73	28.57	27.47	48.58	37.21	29.22	54.38	39.74	35.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.83	4.70	4.57	4.05	0.52	1.01	8.87	3.04	0.43	14.41	0.86	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.85	0.62	0.59	0.34	0.24	0.89	0.91	0.39	0.88	0.68	0.30
d, Delay for Lane Group [s/veh]	57.88	37.88	33.83	60.78	29.09	28.48	57.45	40.26	29.65	68.80	40.60	35.80
Lane Group LOS	E	D	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.18	15.92	9.90	1.29	4.54	3.00	8.92	16.58	4.82	4.54	8.60	2.99
50th-Percentile Queue Length [ft/ln]	79.43	397.9	247.5	32.14	113.5	74.97	222.9	414.5	120.4	113.5	215.0	74.67
95th-Percentile Queue Length [veh/ln]	5.72	22.46	15.06	2.31	8.04	5.40	13.82	23.26	8.42	8.04	13.41	5.38
95th-Percentile Queue Length [ft/ln]	142.9	561.5	376.5	57.85	200.8	134.9	345.4	581.4	210.4	200.9	335.2	134.4

Movement, Approach, & Intersection Results

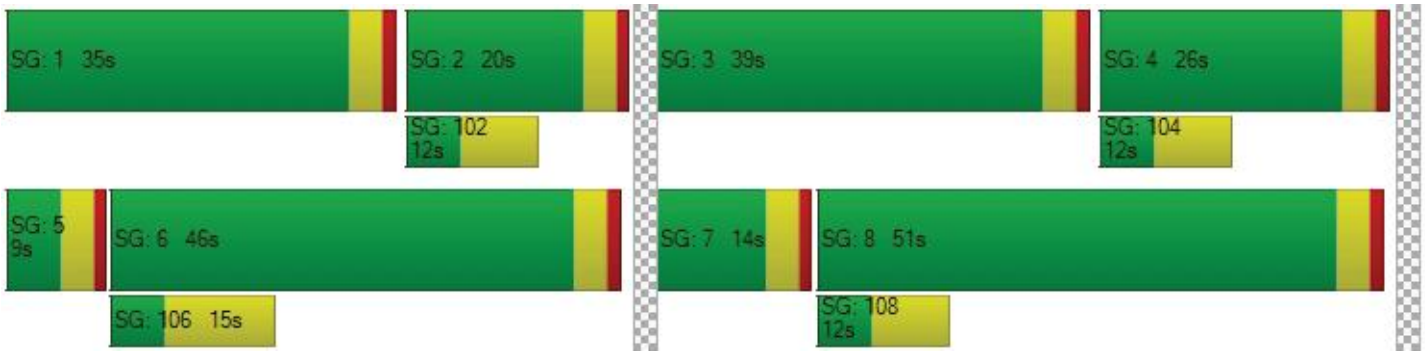
d_M, Delay for Movement [s/veh]	57.88	37.88	33.83	60.78	29.09	28.48	57.45	40.26	29.65	68.80	40.60	35.80
Movement LOS	E	D	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	38.95			32.01			41.75			44.07		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.54											
Intersection LOS	D											
Intersection V/C	0.752											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.223	3.188	2.898	2.881
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	267	783	367
d_b, Bicycle Delay [s]	25.35	45.07	22.20	40.02
l_b,int, Bicycle LOS Score for Intersection	2.842	2.027	2.929	2.302
Bicycle LOS	C	B	C	B

Sequence

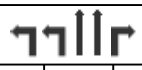
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	87.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.004

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	886	503	344	245	200	389	1463	24	117	762	509
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	886	503	344	245	200	389	1463	24	117	762	509
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	233	132	91	64	53	102	385	6	31	201	134
Total Analysis Volume [veh/h]	65	933	529	362	258	211	409	1540	25	123	802	536
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	37	38	0	25	26	26	27	48	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	34	34	21	49	76	23	44	44	5	26	51
g / C, Green / Cycle	0.05	0.28	0.28	0.18	0.41	0.64	0.19	0.37	0.37	0.04	0.22	0.43
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.33	0.20	0.07	0.13	0.23	0.41	0.41	0.04	0.22	0.33
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1889	3514	3618	1615
c, Capacity [veh/h]	88	1025	458	317	1483	1025	347	697	693	146	784	686
d1, Uniform Delay [s]	56.35	41.53	43.00	49.50	22.50	9.20	48.50	38.00	38.00	57.10	47.00	29.69
k, delay calibration	0.11	0.50	0.50	0.30	0.50	0.50	0.38	0.50	0.50	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.59	13.38	92.38	85.28	0.26	0.45	101.3	73.27	75.73	11.96	21.21	8.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.91	1.16	1.14	0.17	0.21	1.18	1.12	1.13	0.84	1.02	0.78
d, Delay for Lane Group [s/veh]	67.94	54.91	135.3	134.7	22.75	9.65	149.8	111.2	113.7	69.06	68.21	38.29
Lane Group LOS	E	D	F	F	C	A	F	F	F	E	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.23	15.11	25.15	16.95	2.38	2.38	20.09	34.23	34.51	2.10	13.93	14.70
50th-Percentile Queue Length [ft/ln]	55.70	377.7	628.8	423.7	59.52	59.43	502.1	855.7	862.7	52.38	348.2	367.5
95th-Percentile Queue Length [veh/ln]	4.01	21.48	36.38	25.31	4.29	4.28	29.81	47.45	47.97	3.77	20.31	20.99
95th-Percentile Queue Length [ft/ln]	100.2	537.0	909.6	632.6	107.1	106.9	745.2	1186.	1199.	94.29	507.7	524.7

Movement, Approach, & Intersection Results

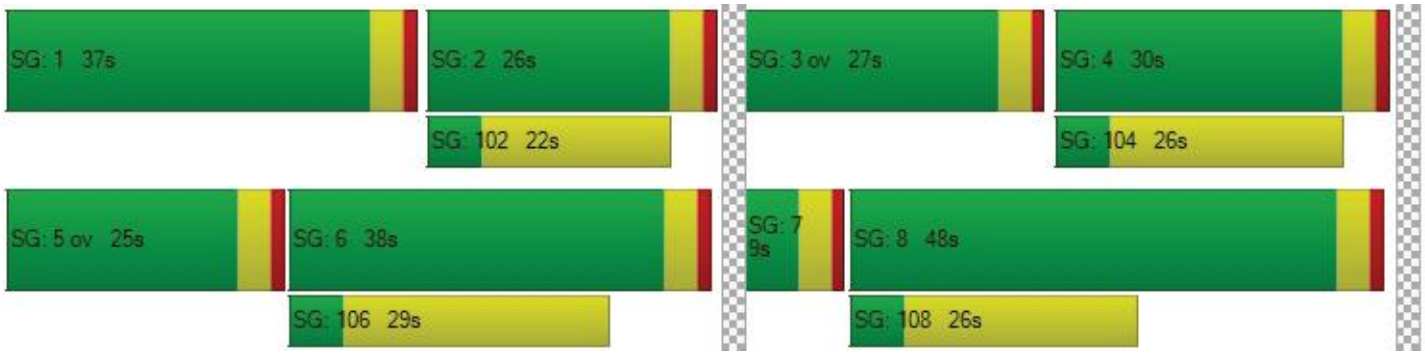
d_M, Delay for Movement [s/veh]	67.94	54.91	135.3	134.7	22.75	9.65	149.8	112.4	113.7	69.06	68.21	38.29
Movement LOS	E	D	F	F	C	A	F	F	F	E	F	D
d_A, Approach Delay [s/veh]	83.34			68.23			120.24			57.31		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	87.18											
Intersection LOS	F											
Intersection V/C	1.004											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.782	2.908	2.910	3.151
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	367	733	433
d_b, Bicycle Delay [s]	30.82	40.02	24.07	36.82
l_b,int, Bicycle LOS Score for Intersection	2.819	2.245	3.188	2.765
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.732

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	1279	86	422	1277	459	540	753	117	71	198	408
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	1279	86	422	1277	459	540	753	117	71	198	408
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	337	23	111	336	121	142	198	31	19	52	107
Total Analysis Volume [veh/h]	53	1346	91	444	1344	483	568	793	123	75	208	429
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	20	33	0	20	33	33	24	58	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	50	50	16	62	86	20	33	33	5	18	38
g / C, Green / Cycle	0.04	0.42	0.42	0.13	0.51	0.71	0.17	0.28	0.28	0.04	0.15	0.31
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.26	0.13	0.26	0.30	0.16	0.25	0.25	0.02	0.06	0.27
s, saturation flow rate [veh/h]	1810	3618	1839	3514	5176	1615	3514	1900	1813	3514	3618	1615
c, Capacity [veh/h]	70	1519	772	469	2662	1154	586	523	499	134	531	506
d1, Uniform Delay [s]	57.10	27.42	27.42	51.58	19.12	6.99	49.70	41.75	41.93	56.71	46.33	38.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.13	0.11	0.11	0.33
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.98	1.97	3.84	10.41	0.69	1.12	11.54	6.22	7.42	3.58	0.47	11.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.63	0.63	0.95	0.50	0.42	0.97	0.89	0.90	0.56	0.39	0.85
d, Delay for Lane Group [s/veh]	72.08	29.39	31.26	62.00	19.81	8.11	61.24	47.97	49.34	60.29	46.80	49.55
Lane Group LOS	E	C	C	E	B	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.88	11.06	11.64	7.29	8.21	4.92	9.37	14.03	13.77	1.18	2.85	13.24
50th-Percentile Queue Length [ft/ln]	47.12	276.3	291.0	182.1	205.3	123.1	234.2	350.8	344.2	29.62	71.36	330.9
95th-Percentile Queue Length [veh/ln]	3.39	16.51	17.24	11.71	12.91	8.56	14.39	20.18	19.85	2.13	5.14	19.21
95th-Percentile Queue Length [ft/ln]	84.81	412.7	430.9	292.8	322.8	214.1	359.7	504.4	496.3	53.31	128.4	480.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.08	29.94	31.26	62.00	19.81	8.11	61.24	48.54	49.34	60.29	46.80	49.55
Movement LOS	E	C	C	E	B	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	31.52			25.57			53.46			49.88		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.91											
Intersection LOS	D											
Intersection V/C	0.732											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.110	3.432	2.830	2.893
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	483	900	650
d_b, Bicycle Delay [s]	34.50	34.50	18.15	27.34
l_b,int, Bicycle LOS Score for Intersection	2.379	2.809	2.784	2.147
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	687.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	35.648

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	681	87	107	1002	151	280	122	45	36	50	127
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	681	87	107	1002	151	280	122	45	36	50	127
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	179	23	28	264	40	74	32	12	9	13	33
Total Analysis Volume [veh/h]	13	717	92	113	1055	159	295	128	47	38	53	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	12	12	5	15	15	91	91	91	91
g / C, Green / Cycle	0.01	0.10	0.10	0.04	0.13	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.15	0.06	0.23	0.23	35.42	0.03	1.50	0.08
s, saturation flow rate [veh/h]	1810	3618	1792	1810	3618	1775	12	1615	61	1615
c, Capacity [veh/h]	27	367	182	75	465	228	60	1222	89	1222
d1, Uniform Delay [s]	58.68	53.91	53.91	57.50	52.29	52.29	49.75	3.66	43.27	3.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.33	224.7	244.5	238.9	346.6	355.7	2759.10	0.01	103.22	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	1.47	1.48	1.50	1.75	1.75	7.05	0.04	1.03	0.11
d, Delay for Lane Group [s/veh]	72.01	278.6	298.4	296.4	398.8	408.0	2808.85	3.67	146.48	3.91
Lane Group LOS	E	F	F	F	F	F	F	A	F	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.49	17.00	17.85	7.29	29.38	29.41	47.78	0.26	3.81	0.77
50th-Percentile Queue Length [ft/ln]	12.26	425.0	446.2	182.2	734.4	735.3	1194.52	6.40	95.14	19.32
95th-Percentile Queue Length [veh/ln]	0.88	27.04	28.28	12.81	46.09	46.14	86.01	0.46	6.85	1.39
95th-Percentile Queue Length [ft/ln]	22.07	675.9	707.0	320.2	1152.	1153.	2150.14	11.52	171.25	34.77

Movement, Approach, & Intersection Results

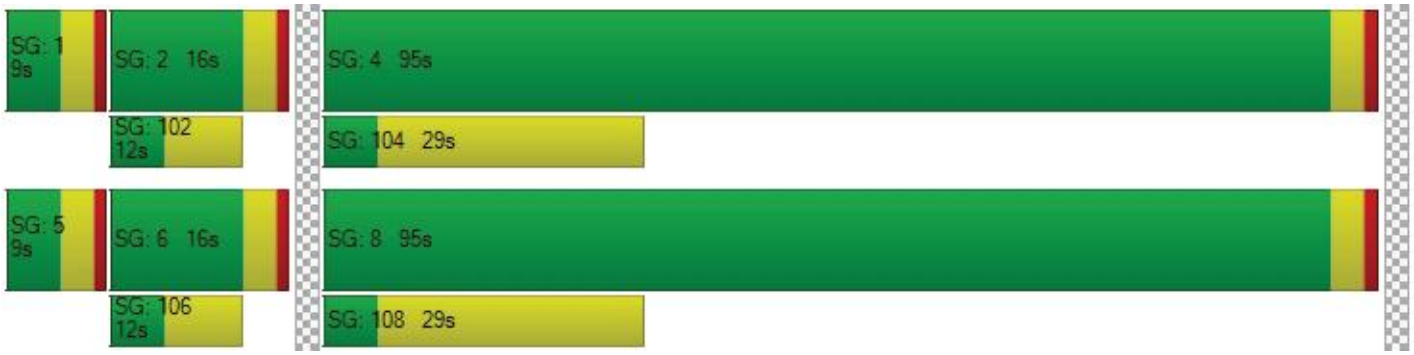
d_M, Delay for Movement [s/veh]	72.01	283.5	298.4	296.4	400.9	408.0	2808.	2808.	3.67	146.4	146.4	3.91
Movement LOS	E	F	F	F	F	F	F	F	A	F	F	A
d_A, Approach Delay [s/veh]	281.86			392.92			2528.34			61.57		
Approach LOS	F			F			F			E		
d_I, Intersection Delay [s/veh]	687.50											
Intersection LOS	F											
Intersection V/C	35.648											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.936	3.373	2.181	2.137
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.012	2.289	2.335	1.931
Bicycle LOS	B	B	B	A

Sequence

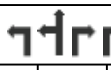
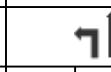
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	40	0	24	24	24	0	33	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	104	104	0	104	112	0	0	0	0	0
g / C, Green / Cycle	0.00	0.87	0.87	0.00	0.87	0.93	0.00	0.00	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	1781	3560	1870	1781	3560	1589	1781	1870	2813	1781	1870
c, Capacity [veh/h]	1	3082	1619	1	3081	1483	1	1	1	1	1
d1, Uniform Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	A											
Intersection V/C	0.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.609	0.000	2.468	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	333	483	317
d_b, Bicycle Delay [s]	29.40	41.67	34.50	42.50
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-7

INTERSECTION ANALYSIS
WORKSHEETS –
HORIZON YEAR 2040 PLUS PROJECT

Speedway Commerce Center

Vistro File: K:\...\Speedway CC AM.vistro
Report File: K:\...\8 HY 2040 WP AM.pdf

Scenario 8 HY 2040 WP AM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.666	32.5	C
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.659	28.4	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.457	19.5	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.684	26.5	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.728	28.9	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.500	18.5	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	SB Left	0.465	33.6	C
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.638	37.6	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	WB Left	0.665	35.2	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.816	60.1	E
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Thru	0.699	26.6	C
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	NB Right	0.584	27.6	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.751	39.6	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	NB Left	0.509	39.2	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.939	56.4	E
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	EB Left	0.593	33.5	C
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.606	44.5	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.933	33.4	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.635	24.1	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.831	51.3	D
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.796	51.0	D
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	8.854	4,102.0	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.777	48.9	D
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	NB Left	0.750	44.4	D
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.917	72.5	E
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	EB Left	0.863	57.5	E
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	EB Left	0.600	25.9	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	SB Right	0.856	59.6	E
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	NB Left	0.620	35.8	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.823	27.1	C
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.867	48.8	D
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	0.674	95.7	F
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.722	32.1	C
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.751	32.2	C
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	WB Thru	1.342	103.6	F
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.597	30.8	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	SB Left	0.620	40.1	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	NB Left	0.691	32.9	C
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.811	48.2	D
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	WB Thru	1.512	160.6	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	SB Thru	1.542	180.9	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.612	35.5	D
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.651	32.2	C
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Left	0.770	45.6	D
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	SB Right	0.627	48.1	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.673	37.4	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Left	0.660	36.0	D
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.675	26.8	D
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.698	39.8	D
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	EB Left	0.564	32.7	C
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	SWB Thru	0.679	40.8	D
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.660	39.7	D
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	NB Left	0.716	31.7	C
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	WB Left	1.588	147.2	F
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.556	31.0	C
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	SB Left	0.481	31.4	C
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	WB Left	0.806	44.7	D
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.674	37.2	D
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	SB Thru	18.713	10,000.0	F

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Right	0.916	68.4	E
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	NB Left	0.736	34.9	C
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.617	24.1	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.975	51.5	D
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.576	21.5	C
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.846	30.7	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	EB Right	0.856	39.6	D
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.756	34.1	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	0.804	28.8	C
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	0.657	37.2	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	SB Left	0.893	88.7	F
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.679	32.2	C
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	40.179	675.7	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition	NB Left	0.342	34.7	C
998543	New Intersection	Unknown	?		?	?	?
998552	New Intersection	Unknown	?		?	?	?
998555	New Intersection	Unknown	?		?	?	?

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	200	489	0	0	917	224	0	0	0	420	4	331
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	34	0	0	0	9	0	0	0	0	85	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	489	0	0	926	224	0	0	0	505	4	331
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	62	129	0	0	244	59	0	0	0	133	1	87
Total Analysis Volume [veh/h]	246	515	0	0	975	236	0	0	0	532	4	348
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	22	58	0	0	36	0	0	0	0	0	62	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	18	73	51	51		39	39
g / C, Green / Cycle	0.15	0.61	0.43	0.43		0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.22	0.23		0.30	0.22
s, saturation flow rate [veh/h]	1810	3618	3618	1722		1810	1615
c, Capacity [veh/h]	271	2207	1544	735		585	522
d1, Uniform Delay [s]	50.17	10.64	25.38	25.75		39.04	35.03
k, delay calibration	0.12	0.50	0.50	0.50		0.18	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	11.64	0.25	1.27	2.94		9.64	1.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.23	0.52	0.55		0.92	0.67
d, Delay for Lane Group [s/veh]	61.81	10.88	26.65	28.69		48.69	36.50
Lane Group LOS	E	B	C	C		D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	8.12	3.10	8.69	9.14		16.57	8.95
50th-Percentile Queue Length [ft/ln]	203.07	77.60	217.21	228.49		414.26	223.84
95th-Percentile Queue Length [veh/ln]	12.80	5.59	13.52	14.10		23.25	13.86
95th-Percentile Queue Length [ft/ln]	319.92	139.68	338.06	352.44		581.16	346.52

Movement, Approach, & Intersection Results

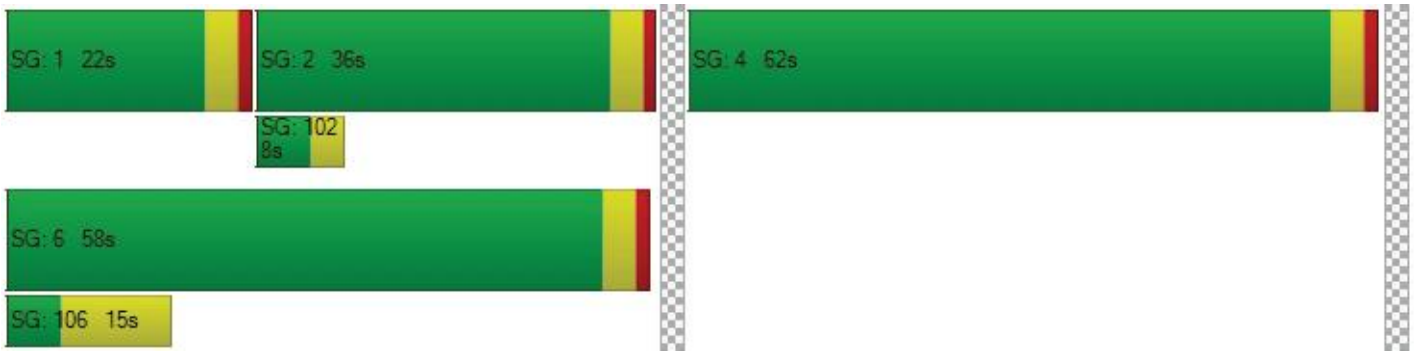
d_M, Delay for Movement [s/veh]	61.81	10.88	0.00	0.00	27.00	28.69	0.00	0.00	0.00	48.69	48.69	36.50
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	27.34			27.33			0.00			43.89		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	32.46											
Intersection LOS	C											
Intersection V/C	0.666											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.912	2.243
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	533	0	967
d_b, Bicycle Delay [s]	18.15	32.27	60.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.187	2.226	4.132	3.018
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.659

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	338	1029	0	0	925	398	0	0	0	477	1	439
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	9	0	0	0	0	9	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	338	1029	0	0	934	398	0	0	0	486	1	439
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	89	271	0	0	246	105	0	0	0	128	0	116
Total Analysis Volume [veh/h]	356	1083	0	0	983	419	0	0	0	512	1	462
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	49	0	0	28	0	0	0	0	0	71	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	74	56	56		38	38	38
g / C, Green / Cycle	0.12	0.62	0.47	0.47		0.31	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.10	0.30	0.27	0.26		0.14	0.14	0.29
s, saturation flow rate [veh/h]	3514	3618	3618	1615		1810	1810	1615
c, Capacity [veh/h]	419	2238	1686	753		570	570	508
d1, Uniform Delay [s]	51.79	12.46	23.50	23.11		32.83	32.82	39.46
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.88	0.75	1.48	2.96		0.56	0.56	6.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.48	0.58	0.56		0.45	0.45	0.91
d, Delay for Lane Group [s/veh]	56.67	13.21	24.98	26.07		33.38	33.38	46.03
Lane Group LOS	E	B	C	C		C	C	D
Critical Lane Group	Yes	No	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.53	7.82	10.40	9.05		6.06	6.06	13.85
50th-Percentile Queue Length [ft/ln]	138.23	195.51	259.99	226.16		151.4	151.4	346.2
95th-Percentile Queue Length [veh/ln]	9.39	12.41	15.69	13.98		10.09	10.09	19.96
95th-Percentile Queue Length [ft/ln]	234.64	310.17	392.20	349.48		252.3	252.3	498.8

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.67	13.21	0.00	0.00	24.98	26.07	0.00	0.00	0.00	33.38	33.38	46.03
Movement LOS	E	B			C	C				C	C	D
d_A, Approach Delay [s/veh]	23.96			25.30			0.00			39.38		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	28.39											
Intersection LOS	C											
Intersection V/C	0.659											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.108	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	400	0	1117
d_b, Bicycle Delay [s]	23.44	38.40	60.00	11.70
l_b,int, Bicycle LOS Score for Intersection	2.747	2.716	4.132	3.168
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1006	0	0	1212	0	0	0	0	580	0	373
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	9	0	0	0	0	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1006	0	0	1221	0	0	0	0	585	0	373
Peak Hour Factor	1.000	0.950	1.000	1.000	0.950	1.000	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	265	0	0	321	0	0	0	0	154	0	98
Total Analysis Volume [veh/h]	0	1059	0	0	1285	0	0	0	0	616	0	393
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	65	0	0	65	0	0	0	0	0	55	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83		29	29	29
g / C, Green / Cycle	0.69	0.69		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.20	0.25		0.19	0.19	0.21
s, saturation flow rate [veh/h]	5176	5176		1810	1774	1615
c, Capacity [veh/h]	3585	3585		436	427	389
d1, Uniform Delay [s]	7.13	7.54		42.49	42.69	43.69
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.28		2.94	3.27	5.86
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.36		0.77	0.79	0.87
d, Delay for Lane Group [s/veh]	7.34	7.82		45.44	45.96	49.56
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.32	4.27		9.63	9.71	10.17
50th-Percentile Queue Length [ft/ln]	83.11	106.79		240.8	242.6	254.2
95th-Percentile Queue Length [veh/ln]	5.98	7.66		14.72	14.82	15.40
95th-Percentile Queue Length [ft/ln]	149.60	191.53		368.0	370.4	385.0

Movement, Approach, & Intersection Results

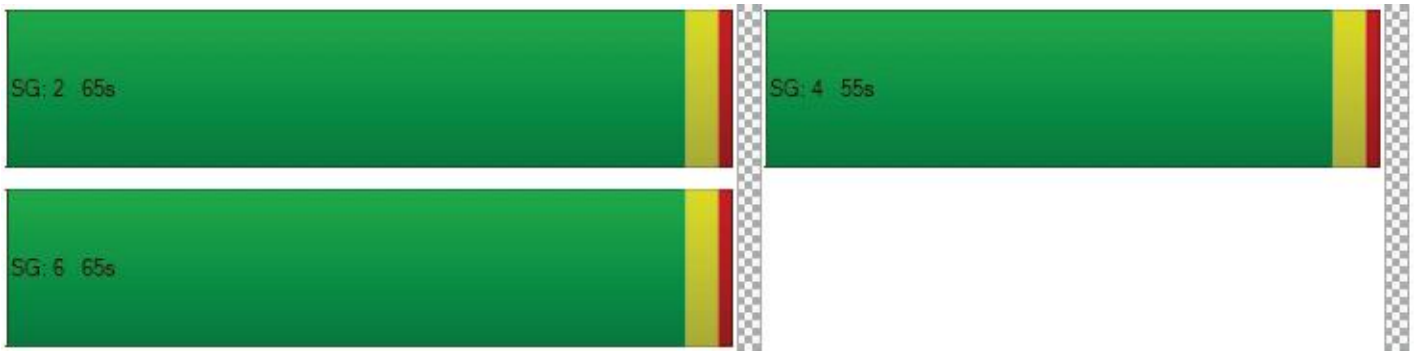
d_M, Delay for Movement [s/veh]	0.00	7.34	0.00	0.00	7.82	0.00	0.00	0.00	0.00	45.68	45.96	49.04
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	7.34			7.82			0.00			46.99		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	19.45											
Intersection LOS	B											
Intersection V/C	0.457											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1017	0	850
d_b, Bicycle Delay [s]	14.50	14.50	60.00	19.84
l_b,int, Bicycle LOS Score for Intersection	2.142	2.266	4.132	3.224
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.684

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	533	379	228	981	0	253	7	344	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	34	74	0	94	0	0	0	48	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	567	453	228	1075	0	253	7	392	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	149	119	60	283	0	67	2	103	0	0	0
Total Analysis Volume [veh/h]	0	597	477	240	1132	0	266	7	413	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	12	0	44	56	0	0	64	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	56	56	18	78	34	34	
g / C, Green / Cycle	0.47	0.47	0.15	0.65	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.30	0.13	0.31	0.15	0.26	
s, saturation flow rate [veh/h]	3618	1615	1810	3618	1812	1615	
c, Capacity [veh/h]	1693	756	275	2363	508	452	
d1, Uniform Delay [s]	20.34	24.10	49.76	10.50	36.61	41.78	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.58	3.98	8.49	0.70	0.89	7.55	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.35	0.63	0.87	0.48	0.54	0.91	
d, Delay for Lane Group [s/veh]	20.92	28.08	58.24	11.20	37.50	49.33	
Lane Group LOS	C	C	E	B	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.44	10.87	7.68	7.37	6.91	12.67	
50th-Percentile Queue Length [ft/ln]	135.88	271.74	191.95	184.27	172.83	316.69	
95th-Percentile Queue Length [veh/ln]	9.26	16.28	12.22	11.82	11.23	18.50	
95th-Percentile Queue Length [ft/ln]	231.46	406.91	305.55	295.58	280.63	462.62	

Movement, Approach, & Intersection Results

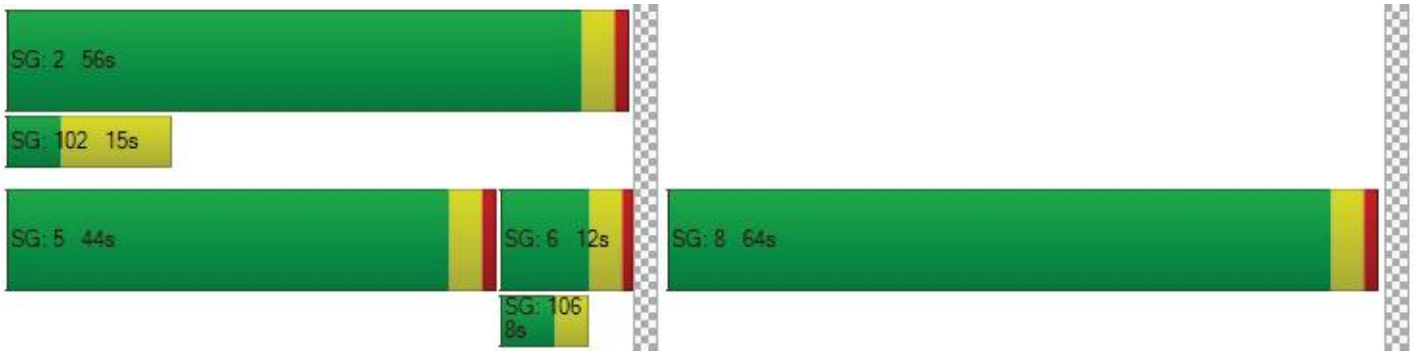
d_M, Delay for Movement [s/veh]	0.00	20.92	28.08	58.24	11.20	0.00	37.50	37.50	49.33	0.00	0.00	0.00
Movement LOS		C	C	E	B		D	D	D			
d_A, Approach Delay [s/veh]	24.10			19.43			44.62			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	26.55											
Intersection LOS	C											
Intersection V/C	0.684											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.178	2.145
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	867	1000	0
d_b, Bicycle Delay [s]	52.27	19.27	15.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.150	2.692	2.692	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	921	464	338	1052	0	460	0	450	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	921	467	338	1070	0	460	0	450	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	242	123	89	282	0	121	0	118	0	0	0
Total Analysis Volume [veh/h]	0	969	492	356	1126	0	484	0	474	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	19	71	0	0	49	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	67	67	14	85	27	27	27	
g / C, Green / Cycle	0.55	0.55	0.12	0.71	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.38	0.43	0.10	0.31	0.18	0.19	0.20	
s, saturation flow rate [veh/h]	1900	1698	3514	3618	1810	1709	1615	
c, Capacity [veh/h]	1053	941	413	2550	414	391	369	
d1, Uniform Delay [s]	19.38	20.94	52.00	7.59	43.40	43.92	44.47	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.77	6.25	5.44	0.56	3.14	4.25	6.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.69	0.78	0.86	0.44	0.78	0.82	0.86	
d, Delay for Lane Group [s/veh]	23.16	27.19	57.45	8.15	46.54	48.16	50.59	
Lane Group LOS	C	C	E	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	15.29	16.96	5.57	5.86	9.26	9.44	9.68	
50th-Percentile Queue Length [ft/ln]	382.25	423.97	139.21	146.58	231.6	235.9	242.0	
95th-Percentile Queue Length [veh/ln]	21.70	23.71	9.44	9.83	14.26	14.48	14.78	
95th-Percentile Queue Length [ft/ln]	542.57	592.82	235.95	245.86	356.4	361.8	369.6	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	24.15	27.19	57.45	8.15	0.00	47.09	48.16	49.79	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	D			
d_A, Approach Delay [s/veh]	25.18			19.99			48.43			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	28.92											
Intersection LOS	C											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.380	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	1117	750	0
d_b, Bicycle Delay [s]	21.60	11.70	23.44	60.00
l_b,int, Bicycle LOS Score for Intersection	2.765	2.782	3.140	4.132
Bicycle LOS	C	C	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.500

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1066	899	0	1454	26	299	0	619	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	0	14	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1066	900	0	1468	26	299	0	619	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	281	237	0	386	7	79	0	163	0	0	0
Total Analysis Volume [veh/h]	0	1122	947	0	1545	26	315	0	652	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	67	0	0	67	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	84	84	28	28	28	
g / C, Green / Cycle	0.70	0.70	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.30	0.17	0.20	0.20	
s, saturation flow rate [veh/h]	5176	5176	1810	1615	1615	
c, Capacity [veh/h]	3617	3617	424	379	379	
d1, Uniform Delay [s]	6.94	7.75	42.58	44.06	44.06	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.22	0.37	2.59	5.83	5.83	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.31	0.43	0.74	0.86	0.86	
d, Delay for Lane Group [s/veh]	7.17	8.12	45.17	49.89	49.89	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.48	5.35	8.95	9.87	9.87	
50th-Percentile Queue Length [ft/ln]	86.93	133.87	223.7	246.7	246.7	
95th-Percentile Queue Length [veh/ln]	6.26	9.15	13.85	15.02	15.02	
95th-Percentile Queue Length [ft/ln]	156.47	228.74	346.3	375.5	375.5	

Movement, Approach, & Intersection Results

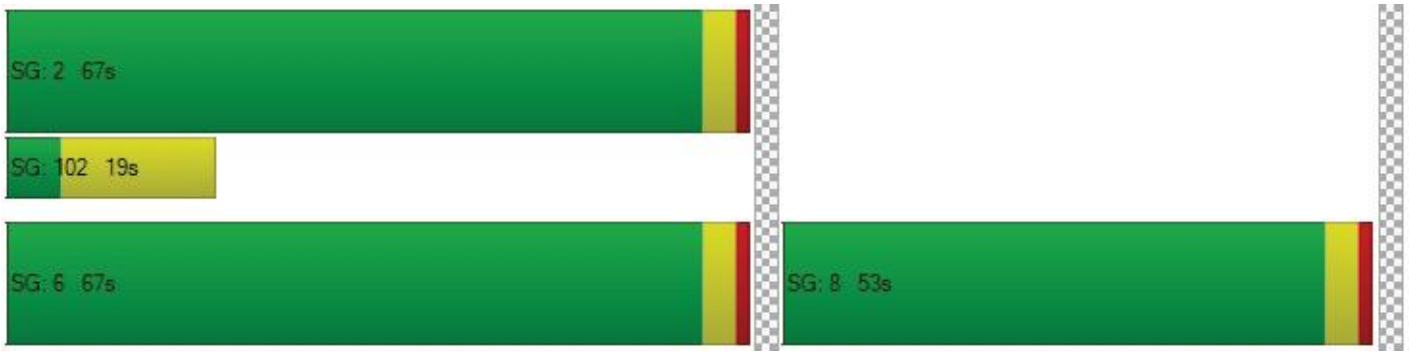
d_M, Delay for Movement [s/veh]	0.00	7.17	0.00	0.00	8.12	0.00	45.17	49.89	49.89	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	7.17			8.12			48.35			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	18.53											
Intersection LOS	B											
Intersection V/C	0.500											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.382	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1050	817	0
d_b, Bicycle Delay [s]	13.54	13.54	21.00	60.00
l_b,int, Bicycle LOS Score for Intersection	2.177	2.409	3.155	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	727	109	62	632	110	131	237	118	149	323	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	727	109	62	632	110	131	237	118	149	323	68
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	191	29	16	166	29	34	62	31	39	85	18
Total Analysis Volume [veh/h]	78	765	115	65	665	116	138	249	124	157	340	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	49	0	11	44	0	19	26	0	34	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	71	71	6	70	70	11	15	15	12	17	17
g / C, Green / Cycle	0.06	0.59	0.59	0.05	0.58	0.58	0.09	0.13	0.13	0.10	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.24	0.04	0.21	0.21	0.08	0.10	0.11	0.09	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1814	1810	1900	1803	1810	1900	1692	1810	1900	1787
c, Capacity [veh/h]	100	1120	1069	84	1103	1046	166	241	214	189	265	249
d1, Uniform Delay [s]	55.94	13.26	13.26	56.60	13.39	13.40	53.59	51.00	51.14	52.71	50.01	50.08
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.09	1.08	1.13	14.04	0.93	0.98	10.23	6.42	8.05	9.12	5.49	6.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.40	0.40	0.78	0.36	0.36	0.83	0.81	0.83	0.83	0.80	0.81
d, Delay for Lane Group [s/veh]	68.03	14.33	14.38	70.64	14.32	14.38	63.82	57.41	59.20	61.83	55.50	56.17
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.67	6.70	6.41	2.28	5.91	5.63	4.56	6.13	5.70	5.12	6.54	6.26
50th-Percentile Queue Length [ft/ln]	66.72	167.4	160.2	56.90	147.8	140.7	114.1	153.2	142.4	127.9	163.4	156.4
95th-Percentile Queue Length [veh/ln]	4.80	10.94	10.56	4.10	9.90	9.52	8.07	10.19	9.61	8.83	10.73	10.36
95th-Percentile Queue Length [ft/ln]	120.0	273.5	264.1	102.4	247.5	238.0	201.7	254.6	240.3	220.6	268.3	259.0

Movement, Approach, & Intersection Results

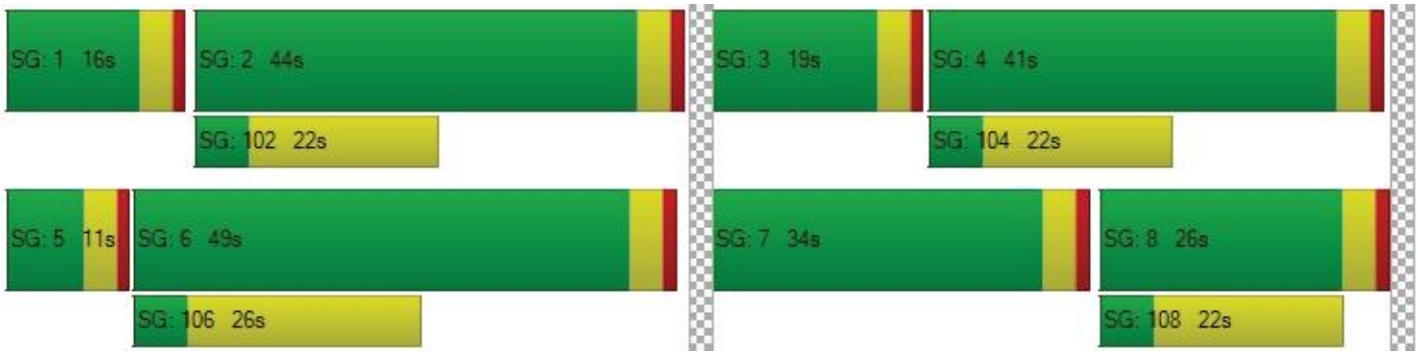
d_M, Delay for Movement [s/veh]	68.03	14.35	14.38	70.64	14.34	14.38	63.82	57.80	59.20	61.83	55.75	56.17
Movement LOS	E	B	B	E	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	18.73			18.67			59.76			57.48		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	33.63											
Intersection LOS	C											
Intersection V/C	0.465											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.686	2.670	2.519	2.630
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	667	367	617
d_b, Bicycle Delay [s]	23.44	26.67	40.02	28.70
l_b,int, Bicycle LOS Score for Intersection	2.350	2.258	1.981	2.029
Bicycle LOS	B	B	A	B

Sequence

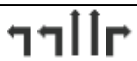
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	37.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	102	825	99	428	1064	189	241	269	59	114	315	294
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	828	99	428	1082	189	241	269	59	114	315	294
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	27	218	26	113	285	50	63	71	16	30	83	77
Total Analysis Volume [veh/h]	107	872	104	451	1139	199	254	283	62	120	332	309
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	26	0	31	43	0	14	45	0	18	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	50	50	18	59	59	10	26	26	10	26	26
g / C, Green / Cycle	0.07	0.42	0.42	0.15	0.49	0.49	0.08	0.22	0.22	0.08	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.24	0.06	0.13	0.31	0.12	0.07	0.08	0.04	0.07	0.17	0.19
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	3514	3618	1615	1810	1900	1615
c, Capacity [veh/h]	132	1507	673	529	1788	798	293	789	352	147	411	349
d1, Uniform Delay [s]	54.79	26.91	21.83	49.65	22.40	17.51	54.34	39.81	38.16	54.22	44.68	45.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.06	1.63	0.49	3.98	1.75	0.75	7.69	0.28	0.24	10.31	3.83	7.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.58	0.15	0.85	0.64	0.25	0.87	0.36	0.18	0.81	0.81	0.89
d, Delay for Lane Group [s/veh]	65.85	28.53	22.32	53.64	24.15	18.25	62.04	40.08	38.40	64.53	48.52	53.12
Lane Group LOS	E	C	C	D	C	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.59	9.84	1.93	6.87	12.04	3.33	4.10	3.59	1.52	3.99	9.79	9.62
50th-Percentile Queue Length [ft/ln]	89.80	246.1	48.26	171.8	301.0	83.37	102.5	89.74	37.95	99.68	244.8	240.4
95th-Percentile Queue Length [veh/ln]	6.47	14.99	3.47	11.17	17.73	6.00	7.38	6.46	2.73	7.18	14.93	14.70
95th-Percentile Queue Length [ft/ln]	161.6	374.7	86.86	279.3	443.2	150.0	184.5	161.5	68.31	179.4	373.1	367.5

Movement, Approach, & Intersection Results

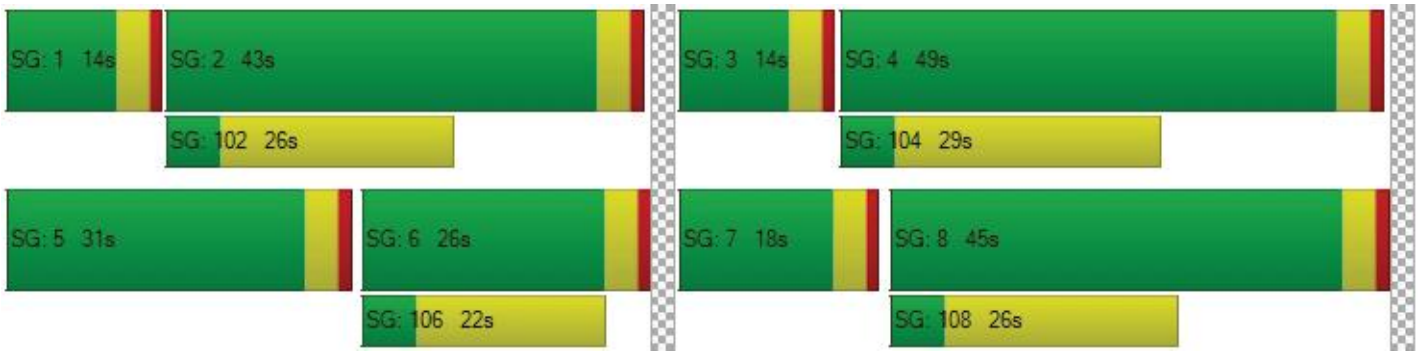
d_M, Delay for Movement [s/veh]	65.85	28.53	22.32	53.64	24.15	18.25	62.04	40.08	38.40	64.53	48.52	53.12
Movement LOS	E	C	C	D	C	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	31.62			30.93			49.22			52.91		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.65											
Intersection LOS	D											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.859	3.058	2.781	2.728
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	650	683	750
d_b, Bicycle Delay [s]	40.02	27.34	26.00	23.44
l_b,int, Bicycle LOS Score for Intersection	2.453	3.036	2.054	2.815
Bicycle LOS	B	C	B	C

Sequence

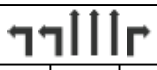
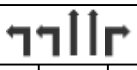
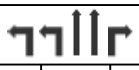
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	339	1082	67	245	1340	492	326	362	270	23	395	223
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	14	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	339	1083	67	245	1354	492	326	362	270	23	395	223
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	89	285	18	64	356	129	86	95	71	6	104	59
Total Analysis Volume [veh/h]	357	1140	71	258	1425	518	343	381	284	24	416	235
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	35	0	20	33	0	21	56	0	9	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	59	59	11	55	55	14	32	32	3	21	21
g / C, Green / Cycle	0.12	0.49	0.49	0.09	0.46	0.46	0.12	0.26	0.26	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.22	0.04	0.07	0.28	0.32	0.10	0.11	0.18	0.01	0.11	0.15
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	422	2524	788	323	2378	742	406	955	426	82	621	277
d1, Uniform Delay [s]	51.72	20.20	16.47	53.40	24.18	25.80	52.01	36.34	39.45	57.64	46.53	48.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.76	0.59	0.23	4.56	1.12	5.39	4.86	0.27	1.80	1.97	1.26	7.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.45	0.09	0.80	0.60	0.70	0.84	0.40	0.67	0.29	0.67	0.85
d, Delay for Lane Group [s/veh]	56.48	20.78	16.70	57.96	25.31	31.19	56.87	36.61	41.25	59.61	47.79	55.30
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.53	7.04	1.10	4.02	10.15	12.63	5.33	4.65	7.68	0.38	5.93	7.35
50th-Percentile Queue Length [ft/ln]	138.3	176.0	27.54	100.4	253.7	315.7	133.2	116.2	192.0	9.52	148.1	183.8
95th-Percentile Queue Length [veh/ln]	9.39	11.39	1.98	7.23	15.37	18.46	9.12	8.19	12.22	0.69	9.92	11.80
95th-Percentile Queue Length [ft/ln]	234.8	284.8	49.57	180.8	384.3	461.5	227.8	204.6	305.6	17.14	247.9	295.0

Movement, Approach, & Intersection Results

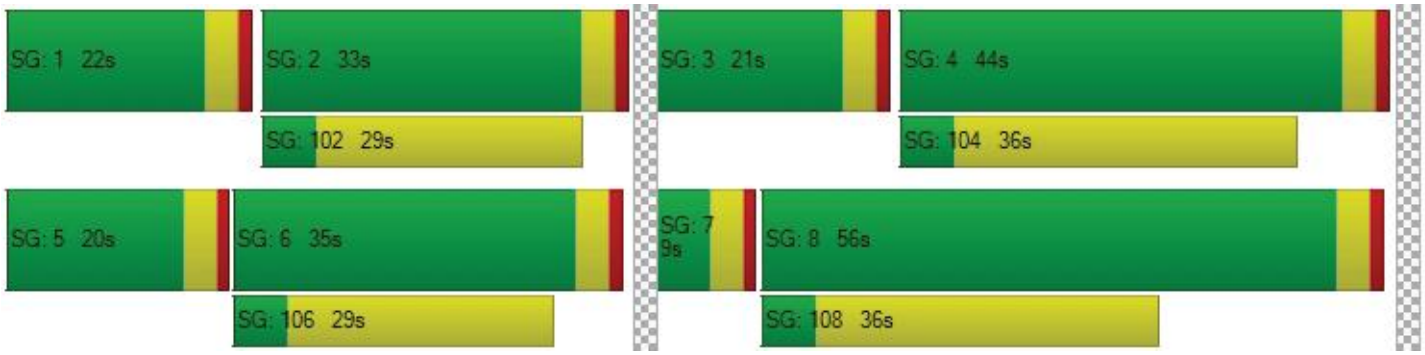
d_M, Delay for Movement [s/veh]	56.48	20.78	16.70	57.96	25.31	31.19	56.87	36.61	41.25	59.61	47.79	55.30
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	28.73			30.52			44.81			50.83		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.16											
Intersection LOS	D											
Intersection V/C	0.665											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.222	3.289	2.929	2.802
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	483	867	667
d_b, Bicycle Delay [s]	33.00	34.50	19.27	26.67
l_b,int, Bicycle LOS Score for Intersection	2.422	2.770	2.391	2.116
Bicycle LOS	B	C	B	B

Sequence

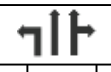
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	60.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	306	134	165	344	288	120	649	113	291	1377	266
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	9	0	0	0	9	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	306	134	165	353	288	120	649	122	291	1377	266
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	81	35	43	93	76	32	171	32	77	362	70
Total Analysis Volume [veh/h]	140	322	141	174	372	303	126	683	128	306	1449	280
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	36	36	15	41	0	12	51	0	18	57	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	32	49	11	37	37	8	48	48	13	53	53
g / C, Green / Cycle	0.05	0.27	0.40	0.09	0.31	0.31	0.07	0.40	0.40	0.10	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.09	0.10	0.19	0.19	0.07	0.15	0.15	0.09	0.46	0.48
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1621	1810	3618	1751	3514	1900	1797
c, Capacity [veh/h]	176	507	655	166	586	500	121	1457	705	371	839	794
d1, Uniform Delay [s]	56.40	38.85	23.23	54.50	35.50	35.52	56.00	25.20	25.24	52.58	33.50	33.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.49	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.98	5.98	0.75	46.07	4.89	5.74	50.20	0.16	0.33	4.66	38.87	58.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.64	0.22	1.05	0.62	0.62	1.04	0.37	0.38	0.82	1.03	1.09
d, Delay for Lane Group [s/veh]	64.38	44.83	23.98	100.5	40.40	41.26	106.2	25.35	25.57	57.24	72.37	92.44
Lane Group LOS	E	D	C	F	D	D	F	C	C	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.29	9.20	2.76	7.13	9.87	8.57	5.33	5.48	5.41	4.76	32.70	35.35
50th-Percentile Queue Length [ft/ln]	57.33	230.0	68.89	178.1	246.8	214.1	133.2	137.0	135.1	118.9	817.4	883.8
95th-Percentile Queue Length [veh/ln]	4.13	14.17	4.96	11.71	15.03	13.37	9.24	9.32	9.22	8.33	43.07	48.08
95th-Percentile Queue Length [ft/ln]	103.1	354.3	124.0	292.6	375.6	334.1	231.0	233.0	230.5	208.3	1076.	1202.

Movement, Approach, & Intersection Results

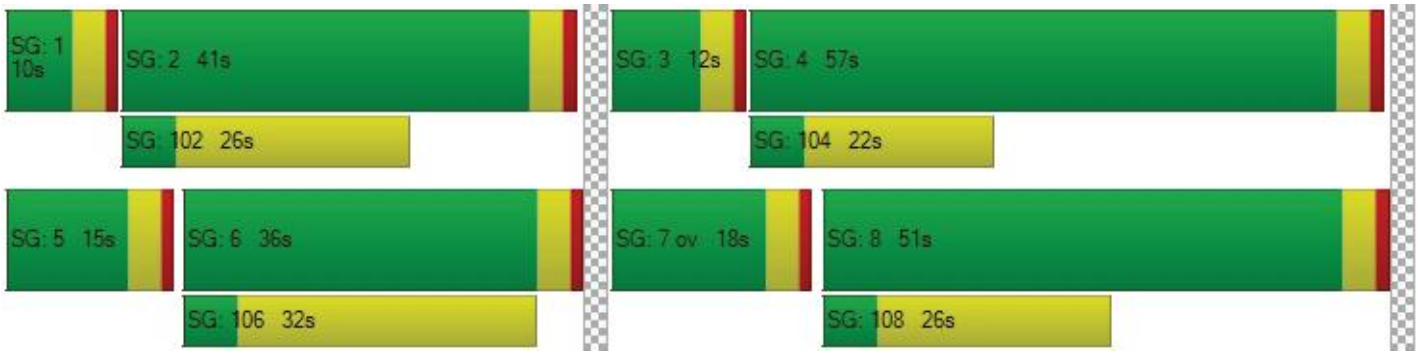
d_M, Delay for Movement [s/veh]	64.38	44.83	23.98	100.5	40.41	41.26	106.2	25.40	25.57	57.24	80.47	92.44
Movement LOS	E	D	C	F	D	D	F	C	C	E	F	F
d_A, Approach Delay [s/veh]	44.49			53.05			36.29			78.62		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	60.10											
Intersection LOS	E											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.697	2.623	2.928	3.110
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	617	783	883
d_b, Bicycle Delay [s]	32.27	28.70	22.20	18.70
l_b,int, Bicycle LOS Score for Intersection	2.555	2.260	2.075	3.238
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	411	0	1297	0	1088	264	0	1060	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	22	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	433	0	1297	0	1088	264	0	1060	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	114	0	341	0	286	69	0	279	0
Total Analysis Volume [veh/h]	0	0	0	456	0	1365	0	1145	278	0	1116	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	94	0	0	0	26	0	0	26	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		64	64	48	48
g / C, Green / Cycle		0.54	0.54	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate		0.13	0.48	0.22	0.22
s, saturation flow rate [veh/h]		3514	2859	5176	5176
c, Capacity [veh/h]		1888	1536	2049	2049
d1, Uniform Delay [s]		14.76	24.58	28.11	27.91
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.07	1.94	1.11	1.05
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.24	0.89	0.56	0.54
d, Delay for Lane Group [s/veh]		14.82	26.52	29.22	28.96
Lane Group LOS		B	C	C	C
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.30	16.79	8.66	8.38
50th-Percentile Queue Length [ft/ln]		82.56	419.83	216.58	209.47
95th-Percentile Queue Length [veh/ln]		5.94	23.51	13.49	13.13
95th-Percentile Queue Length [ft/ln]		148.60	587.85	337.26	328.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	14.82	0.00	26.52	0.00	29.22	0.00	0.00	28.96	0.00
Movement LOS				B		C		C			C	
d_A, Approach Delay [s/veh]	0.00			23.59			29.22			28.96		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	26.64											
Intersection LOS	C											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.670	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1500	367	367
d_b, Bicycle Delay [s]	60.00	3.75	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.189	2.173
Bicycle LOS	D	A	B	B

Sequence

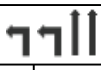
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	363	3	427	0	0	0	396	652	0	0	1954	219
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	22	0	0	0	34
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	363	3	427	0	0	0	396	674	0	0	1954	253
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	96	1	112	0	0	0	104	177	0	0	514	67
Total Analysis Volume [veh/h]	382	3	449	0	0	0	417	709	0	0	2057	266
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	23	0	0	0	0	60	97	0	0	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27		17	85	64
g / C, Green / Cycle	0.22	0.22	0.22		0.14	0.71	0.53
(v / s)_i Volume / Saturation Flow Rate	0.16	0.16	0.17		0.12	0.14	0.30
s, saturation flow rate [veh/h]	1810	1680	1615		3514	5176	6901
c, Capacity [veh/h]	406	377	363		501	3668	3677
d1, Uniform Delay [s]	42.88	43.18	43.34		50.04	5.90	18.66
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	11.90	13.10		3.66	0.03	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.73	0.75		0.83	0.19	0.56
d, Delay for Lane Group [s/veh]	52.80	55.08	56.45		53.71	5.92	18.79
Lane Group LOS	D	E	E		D	A	B
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	8.96	8.85	8.79		6.33	1.87	9.31
50th-Percentile Queue Length [ft/ln]	224.0	221.2	219.8		158.36	46.76	232.75
95th-Percentile Queue Length [veh/ln]	13.87	13.73	13.66		10.46	3.37	14.31
95th-Percentile Queue Length [ft/ln]	346.7	343.2	341.4		261.56	84.17	357.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.40	55.08	55.92	0.00	0.00	0.00	53.71	5.92	0.00	0.00	18.79	0.00
Movement LOS	D	E	E				D	A			B	
d_A, Approach Delay [s/veh]	54.74			0.00			23.62			18.79		
Approach LOS	D			A			C			B		
d_I, Intersection Delay [s/veh]	27.61											
Intersection LOS	C											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.350	1.935	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	0	1550	550
d_b, Bicycle Delay [s]	42.50	60.00	3.04	31.54
l_b,int, Bicycle LOS Score for Intersection	2.936	4.132	2.179	2.408
Bicycle LOS	C	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	107	661	219	77	959	492	260	562	183	497	1527	74
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	34	108	8	0	142	0	0	0	22	80	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	769	227	77	1101	492	260	562	205	577	1527	74
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	202	60	20	290	129	68	148	54	152	402	19
Total Analysis Volume [veh/h]	148	809	239	81	1159	518	274	592	216	607	1607	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	44	0	9	43	0	15	40	0	27	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	45	45	5	44	44	11	32	32	23	43	43
g / C, Green / Cycle	0.05	0.38	0.38	0.04	0.37	0.37	0.09	0.26	0.26	0.19	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.15	0.02	0.22	0.32	0.08	0.11	0.13	0.17	0.31	0.05
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	176	1945	607	137	1888	589	322	1367	426	660	1864	582
d1, Uniform Delay [s]	56.53	27.71	27.44	56.71	31.20	35.64	53.69	36.69	37.51	47.84	35.62	25.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.32	0.66	1.91	4.00	1.50	16.96	6.29	0.22	0.93	5.82	1.28	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.42	0.39	0.59	0.61	0.88	0.85	0.43	0.51	0.92	0.86	0.13
d, Delay for Lane Group [s/veh]	66.85	28.37	29.36	60.71	32.70	52.60	59.98	36.91	38.44	53.66	36.89	25.91
Lane Group LOS	E	C	C	E	C	D	E	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.48	5.84	5.35	1.28	9.36	16.71	4.35	4.85	5.51	9.41	14.56	1.53
50th-Percentile Queue Length [ft/ln]	61.89	146.0	133.6	32.12	234.0	417.8	108.7	121.3	137.7	235.2	363.9	38.23
95th-Percentile Queue Length [veh/ln]	4.46	9.81	9.14	2.31	14.38	23.42	7.77	8.47	9.36	14.44	20.82	2.75
95th-Percentile Queue Length [ft/ln]	111.4	245.1	228.4	57.81	359.4	585.4	194.3	211.6	234.0	360.9	520.4	68.82

Movement, Approach, & Intersection Results

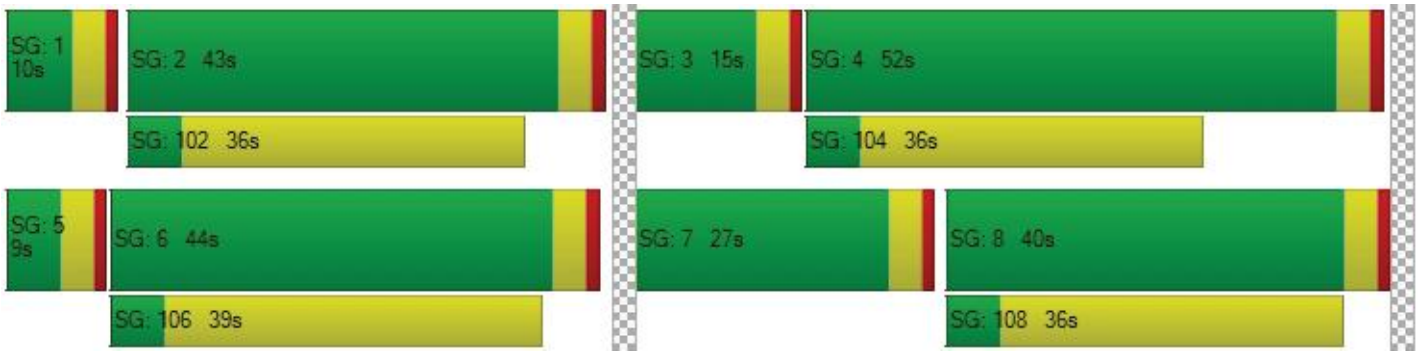
d_M, Delay for Movement [s/veh]	66.85	28.37	29.36	60.71	32.70	52.60	59.98	36.91	38.44	53.66	36.89	25.91
Movement LOS	E	C	C	E	C	D	E	D	D	D	D	C
d_A, Approach Delay [s/veh]	33.33			39.85			43.06			40.96		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	39.57											
Intersection LOS	D											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.209	3.181	3.391	3.294
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	650	600	800
d_b, Bicycle Delay [s]	26.67	27.34	29.40	21.60
l_b,int, Bicycle LOS Score for Intersection	2.217	2.527	2.155	2.820
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	95	432	25	114	434	221	148	507	61	105	695	120
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	63	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	432	25	114	434	221	148	510	61	105	758	120
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	114	7	30	114	58	39	134	16	28	199	32
Total Analysis Volume [veh/h]	100	455	26	120	457	233	156	537	64	111	798	126
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	0	17	40	0	18	36	0	31	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	58	58	10	59	59	12	27	27	9	24	24
g / C, Green / Cycle	0.07	0.48	0.48	0.08	0.49	0.49	0.10	0.23	0.23	0.08	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.02	0.07	0.20	0.20	0.09	0.10	0.04	0.06	0.17	0.17
s, saturation flow rate [veh/h]	1810	3618	1615	1810	1870	1660	1810	5176	1589	1781	3618	1771
c, Capacity [veh/h]	124	1742	778	147	924	820	184	1163	357	141	732	358
d1, Uniform Delay [s]	55.08	18.44	16.39	54.25	19.08	19.09	53.01	40.24	37.58	54.26	46.06	46.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.36	0.36	0.08	10.45	1.27	1.43	10.36	0.29	0.24	9.33	2.80	5.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.26	0.03	0.82	0.40	0.40	0.85	0.46	0.18	0.79	0.85	0.85
d, Delay for Lane Group [s/veh]	66.44	18.81	16.47	64.70	20.35	20.53	63.37	40.53	37.82	63.60	48.86	51.82
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.37	3.83	0.40	3.99	6.66	5.97	5.15	4.61	1.55	3.66	9.14	9.30
50th-Percentile Queue Length [ft/ln]	84.33	95.72	9.93	99.82	166.4	149.2	128.7	115.3	38.85	91.52	228.6	232.5
95th-Percentile Queue Length [veh/ln]	6.07	6.89	0.71	7.19	10.89	9.98	8.87	8.14	2.80	6.59	14.10	14.30
95th-Percentile Queue Length [ft/ln]	151.7	172.2	17.87	179.6	272.1	249.3	221.7	203.4	69.92	164.7	352.5	357.5

Movement, Approach, & Intersection Results

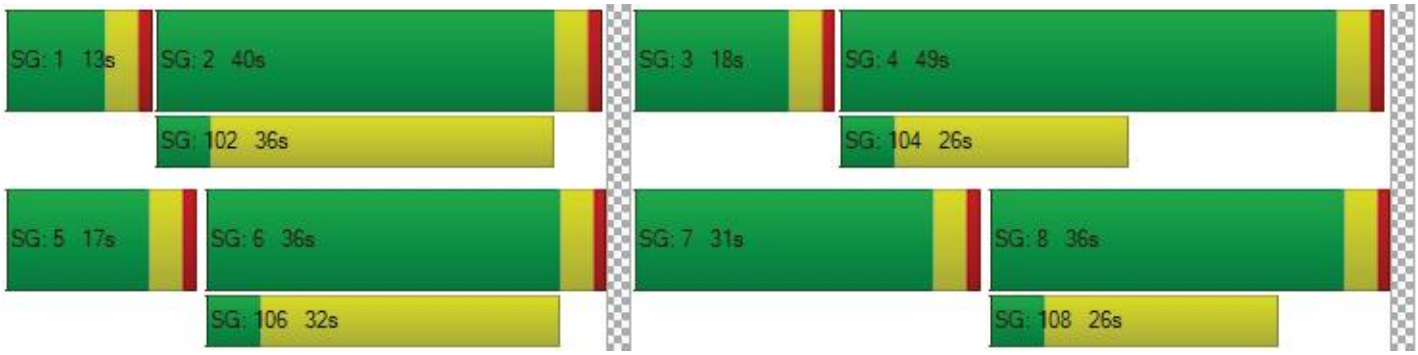
d_M, Delay for Movement [s/veh]	66.44	18.81	16.47	64.70	20.38	20.53	63.37	40.53	37.82	63.60	49.53	51.82
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.90			26.99			45.01			51.31		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.17											
Intersection LOS	D											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.665	2.719	3.069	2.950
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	600	533	750
d_b, Bicycle Delay [s]	32.27	29.40	32.27	23.44
l_b,int, Bicycle LOS Score for Intersection	2.039	2.228	1.976	2.129
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	56.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.939

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	144	642	823	139	864	281	318	1048	122	177	1060	114
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	0	0	18	2	1	0	8	36	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	144	642	828	139	864	299	320	1049	122	185	1096	114
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	38	169	218	37	227	79	84	276	32	49	288	30
Total Analysis Volume [veh/h]	152	676	872	146	909	315	337	1104	128	195	1154	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	21	62	0	13	54	0	15	33	0	12	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	58	58	9	55	55	11	29	29	8	26	39
g / C, Green / Cycle	0.10	0.48	0.48	0.08	0.46	0.46	0.09	0.24	0.24	0.07	0.22	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.36	0.54	0.08	0.25	0.20	0.10	0.21	0.08	0.06	0.22	0.07
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	182	918	781	136	1656	739	322	1251	390	234	1121	525
d1, Uniform Delay [s]	53.00	24.86	31.00	55.50	23.56	21.91	54.50	43.86	37.47	55.34	47.00	29.53
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.63	5.24	69.40	58.02	1.31	1.79	36.40	2.24	0.49	7.50	20.81	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.74	1.12	1.08	0.55	0.43	1.05	0.88	0.33	0.83	1.03	0.23
d, Delay for Lane Group [s/veh]	62.63	30.10	100.4	113.5	24.87	23.70	90.90	46.10	37.96	62.83	67.81	29.75
Lane Group LOS	E	C	F	F	C	C	F	D	D	E	F	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.99	16.38	36.71	6.29	9.51	6.31	6.49	10.74	3.17	3.16	13.24	2.57
50th-Percentile Queue Length [ft/ln]	124.6	409.5	917.7	157.1	237.8	157.6	162.1	268.3	79.14	78.94	331.1	64.37
95th-Percentile Queue Length [veh/ln]	8.65	23.02	50.72	10.65	14.57	10.42	10.84	16.11	5.70	5.68	19.52	4.63
95th-Percentile Queue Length [ft/ln]	216.1	575.4	1268.	266.3	364.2	260.6	270.9	402.7	142.4	142.1	487.9	115.8

Movement, Approach, & Intersection Results

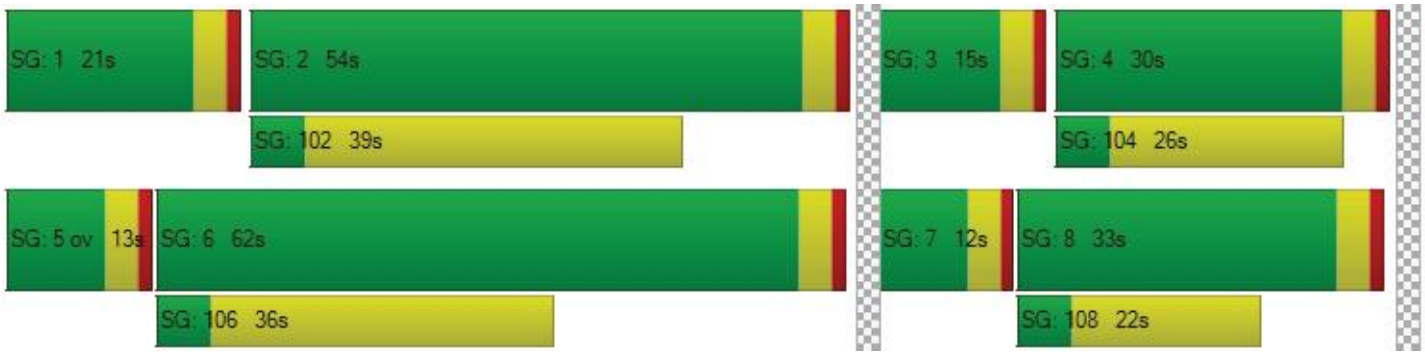
d_M, Delay for Movement [s/veh]	62.63	30.10	100.4	113.5	24.87	23.70	90.90	46.10	37.96	62.83	67.81	29.75
Movement LOS	E	C	F	F	C	C	F	D	D	E	F	C
d_A, Approach Delay [s/veh]	69.07			34.05			55.06			64.04		
Approach LOS	E			C			E			E		
d_I, Intersection Delay [s/veh]	56.41											
Intersection LOS	E											
Intersection V/C	0.939											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.887	2.875	3.210	3.332
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	833	483	433
d_b, Bicycle Delay [s]	16.02	20.42	34.50	36.82
l_b,int, Bicycle LOS Score for Intersection	2.962	2.690	2.423	2.368
Bicycle LOS	C	B	B	B

Sequence

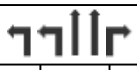
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	33.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	192	923	81	250	1228	122	115	460	122	141	640	218
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	5	18	1	0	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	923	81	250	1233	140	116	460	122	141	649	218
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	243	21	66	324	37	31	121	32	37	171	57
Total Analysis Volume [veh/h]	202	972	85	263	1298	147	122	484	128	148	683	229
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	43	0	21	51	0	9	45	0	11	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	67	67	11	69	69	5	19	19	7	21	21
g / C, Green / Cycle	0.07	0.56	0.56	0.09	0.58	0.58	0.04	0.16	0.16	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.05	0.07	0.36	0.09	0.03	0.09	0.08	0.04	0.13	0.14
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	257	2872	896	329	2082	929	146	830	259	203	913	285
d1, Uniform Delay [s]	54.68	14.63	12.54	53.27	16.87	11.90	57.09	46.67	45.95	55.62	46.90	47.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.23	0.32	0.21	4.47	1.42	0.36	11.51	0.65	1.46	4.98	1.25	5.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.34	0.09	0.80	0.62	0.16	0.83	0.58	0.49	0.73	0.75	0.80
d, Delay for Lane Group [s/veh]	59.91	14.95	12.75	57.74	18.29	12.26	68.59	47.33	47.41	60.60	48.15	52.72
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.19	4.84	1.12	4.09	11.80	1.91	2.07	4.52	3.60	2.34	6.56	6.98
50th-Percentile Queue Length [ft/ln]	79.71	121.0	28.05	102.2	294.8	47.82	51.76	113.0	89.95	58.60	163.8	174.5
95th-Percentile Queue Length [veh/ln]	5.74	8.45	2.02	7.36	17.43	3.44	3.73	8.01	6.48	4.22	10.75	11.31
95th-Percentile Queue Length [ft/ln]	143.4	211.2	50.49	184.0	435.7	86.08	93.17	200.2	161.9	105.4	268.8	282.8

Movement, Approach, & Intersection Results

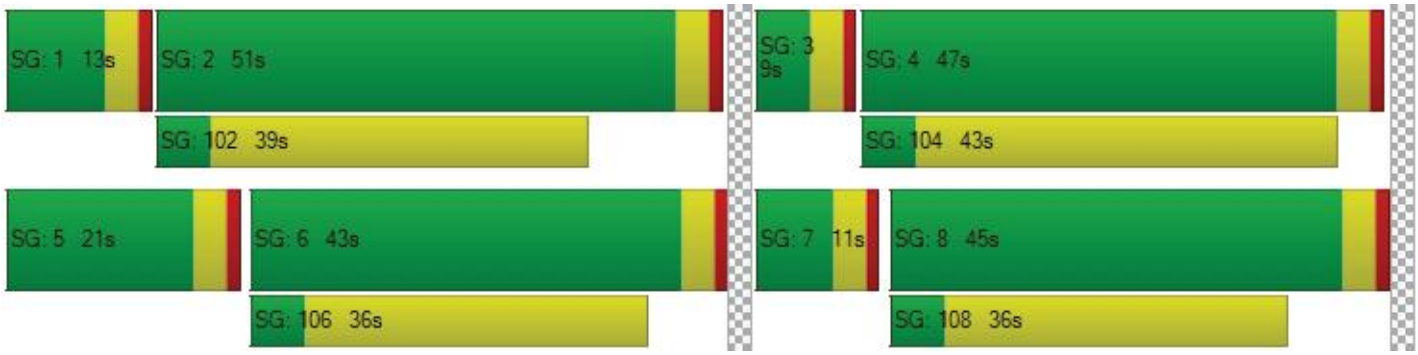
d_M, Delay for Movement [s/veh]	59.91	14.95	12.75	57.74	18.29	12.26	68.59	47.33	47.41	60.60	48.15	52.72
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.02			23.84			50.87			50.88		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.55											
Intersection LOS	C											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.171	3.362	3.154	3.069
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	783	683	717
d_b, Bicycle Delay [s]	27.34	22.20	26.00	24.70
l_b,int, Bicycle LOS Score for Intersection	2.252	2.969	1.963	2.143
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	44.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	158	280	163	85	444	142	97	279	149	130	520	77
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	280	163	85	462	142	97	279	149	131	520	77
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	74	43	22	122	37	26	73	39	34	137	20
Total Analysis Volume [veh/h]	166	295	172	89	486	149	102	294	157	138	547	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	27	0	14	23	23	0	26	0	0	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	45	45	7	40	40	22	22	29	29
g / C, Green / Cycle	0.11	0.38	0.38	0.06	0.33	0.33	0.19	0.19	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.09	0.13	0.13	0.05	0.13	0.09	0.16	0.16	0.22	0.22
s, saturation flow rate [veh/h]	1810	1900	1670	1810	3618	1615	1868	1559	1868	1663
c, Capacity [veh/h]	194	713	627	113	1198	535	347	289	454	404
d1, Uniform Delay [s]	52.68	26.90	26.96	55.45	31.02	29.58	47.39	47.54	43.89	43.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.12	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.40	1.33	1.55	11.30	1.02	1.30	6.43	8.33	6.68	7.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.35	0.35	0.79	0.41	0.28	0.86	0.88	0.89	0.89
d, Delay for Lane Group [s/veh]	63.08	28.22	28.50	66.76	32.04	30.87	53.83	55.87	50.57	51.38
Lane Group LOS	E	C	C	E	C	C	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.47	5.34	4.81	3.01	5.61	3.38	9.27	8.02	12.41	11.15
50th-Percentile Queue Length [ft/ln]	136.8	133.5	120.2	75.28	140.3	84.39	231.68	200.47	310.27	278.78
95th-Percentile Queue Length [veh/ln]	9.31	9.13	8.41	5.42	9.50	6.08	14.26	12.66	18.19	16.63
95th-Percentile Queue Length [ft/ln]	232.7	228.3	210.1	135.5	237.4	151.9	356.50	316.58	454.71	415.70

Movement, Approach, & Intersection Results

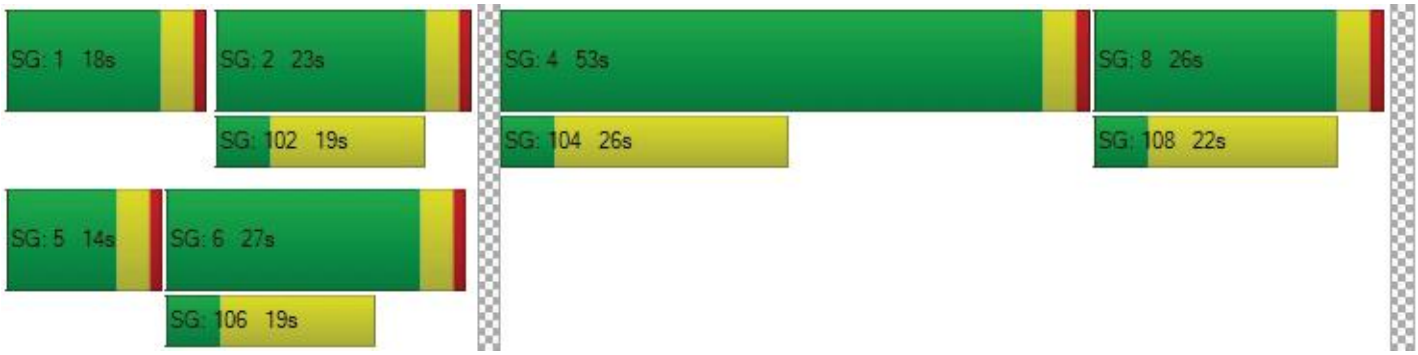
d_M, Delay for Movement [s/veh]	63.08	28.27	28.50	66.76	32.04	30.87	53.83	54.50	55.87	50.57	50.98	51.38
Movement LOS	E	C	C	E	C	C	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	37.46			36.07			54.76			50.95		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.52											
Intersection LOS	D											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.591	2.663	2.491	2.468
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	317	367	817
d_b, Bicycle Delay [s]	39.20	42.50	40.02	21.00
l_b,int, Bicycle LOS Score for Intersection	2.082	2.157	2.016	2.192
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	194	0	951	0	693	894	0	1774	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	94	0	0	0	27	0	0	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	288	0	951	0	720	894	0	1784	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	76	0	250	0	189	235	0	469	0
Total Analysis Volume [veh/h]	0	0	0	303	0	1001	0	758	941	0	1878	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	46	0	0	0	74	0	0	74	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		42	42	42	70	70	70
g / C, Green / Cycle		0.35	0.35	0.35	0.58	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate		0.17	0.35	0.27	0.15	0.58	0.36
s, saturation flow rate [veh/h]		1810	1615	1615	5176	1615	5176
c, Capacity [veh/h]		633	565	565	3019	942	3019
d1, Uniform Delay [s]		30.45	39.00	34.69	12.20	24.96	16.35
k, delay calibration		0.11	0.47	0.29	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.56	37.01	5.85	0.20	29.05	0.98
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.48	1.00	0.77	0.25	1.00	0.62
d, Delay for Lane Group [s/veh]		31.01	76.01	40.54	12.40	54.01	17.32
Lane Group LOS		C	F	D	B	D	B
Critical Lane Group		No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]		6.93	22.14	12.09	3.31	32.41	11.08
50th-Percentile Queue Length [ft/ln]		173.3	553.6	302.2	82.84	810.36	277.12
95th-Percentile Queue Length [veh/ln]		11.25	29.90	17.79	5.96	41.75	16.55
95th-Percentile Queue Length [ft/ln]		281.3	747.5	444.7	149.11	1043.79	413.63

Movement, Approach, & Intersection Results

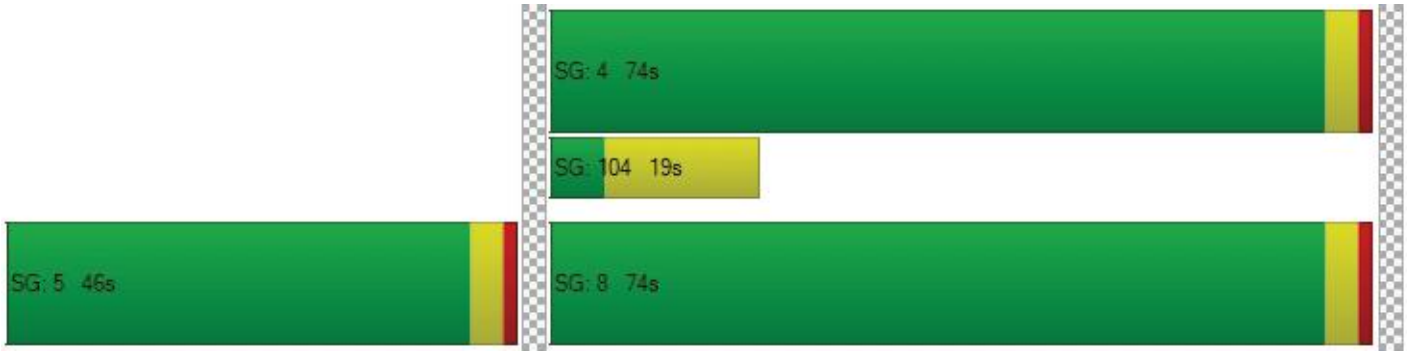
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	31.01	0.00	60.60	0.00	12.40	54.01	0.00	17.32	0.00
Movement LOS				C		E		B	D		B	
d_A, Approach Delay [s/veh]	0.00			53.73			35.45			17.32		
Approach LOS	A			D			D			B		
d_I, Intersection Delay [s/veh]	33.36											
Intersection LOS	C											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.464	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	700	1167	1167
d_b, Bicycle Delay [s]	60.00	25.35	10.42	10.42
l_b,int, Bicycle LOS Score for Intersection	4.132	3.711	2.494	2.593
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	978	0	553	0	0	0	0	640	0	0	1480	257
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	121	0	0	10	61
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	978	0	553	0	0	0	0	761	0	0	1490	318
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	257	0	146	0	0	0	0	200	0	0	392	84
Total Analysis Volume [veh/h]	1029	0	582	0	0	0	0	801	0	0	1568	335
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	81	0	0	0	0	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45		67	67	67
g / C, Green / Cycle	0.37	0.37	0.37		0.56	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.30	0.30	0.33		0.15	0.30	0.21
s, saturation flow rate [veh/h]	1810	1791	1615		5176	5176	1615
c, Capacity [veh/h]	676	670	604		2896	2896	904
d1, Uniform Delay [s]	33.46	33.60	35.25		13.77	16.70	14.68
k, delay calibration	0.11	0.11	0.11		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.17	2.29	4.90		0.24	0.73	1.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.80	0.89		0.28	0.54	0.37
d, Delay for Lane Group [s/veh]	35.63	35.90	40.15		14.01	17.43	15.85
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.17	14.24	15.32		3.78	9.02	5.27
50th-Percentile Queue Length [ft/ln]	354.1	356.1	382.9		94.54	225.53	131.70
95th-Percentile Queue Length [veh/ln]	20.34	20.43	21.74		6.81	13.95	9.03
95th-Percentile Queue Length [ft/ln]	508.4	510.8	543.3		170.17	348.68	225.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.76	0.00	39.83	0.00	0.00	0.00	0.00	14.01	0.00	0.00	17.43	15.85
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	37.23			0.00			14.01			17.15		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	24.06											
Intersection LOS	C											
Intersection V/C	0.635											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.539	0.000	0.000	3.067
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1283	0	583	583
d_b, Bicycle Delay [s]	7.70	60.00	30.10	30.10
l_b,int, Bicycle LOS Score for Intersection	4.218	4.132	2.000	2.606
Bicycle LOS	D	D	B	B

Sequence

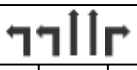
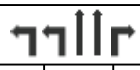
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	51.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.831

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	223	236	76	57	419	296	118	558	282	383	1399	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	71	0	0	0	19	0	0	0	121	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	236	76	57	438	296	118	558	403	384	1399	129
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	77	62	20	15	115	78	31	147	106	101	368	34
Total Analysis Volume [veh/h]	309	248	80	60	461	312	124	587	424	404	1473	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	24	49	0	11	36	0	9	36	36	24	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	47	47	5	32	32	5	36	60	16	47	47
g / C, Green / Cycle	0.17	0.39	0.39	0.04	0.27	0.27	0.04	0.30	0.50	0.13	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.17	0.13	0.05	0.03	0.22	0.22	0.04	0.16	0.26	0.11	0.41	0.08
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1648	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	302	740	629	79	507	439	146	1079	805	474	1417	633
d1, Uniform Delay [s]	50.00	25.71	23.52	56.75	41.24	41.27	57.12	35.26	20.47	50.73	36.50	24.25
k, delay calibration	0.22	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.49	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	40.61	1.22	0.42	13.73	13.54	15.51	12.44	0.43	2.40	4.42	23.32	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.34	0.13	0.76	0.82	0.82	0.85	0.54	0.53	0.85	1.04	0.22
d, Delay for Lane Group [s/veh]	90.61	26.93	23.93	70.48	54.78	56.78	69.56	35.69	22.87	55.16	59.82	24.41
Lane Group LOS	F	C	C	E	D	E	E	D	C	E	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	12.41	5.23	1.54	2.10	13.30	11.81	2.12	7.24	8.48	6.22	24.85	2.61
50th-Percentile Queue Length [ft/ln]	310.2	130.6	38.53	52.54	332.4	295.2	53.02	180.9	211.9	155.4	621.1	65.32
95th-Percentile Queue Length [veh/ln]	18.41	8.98	2.77	3.78	19.28	17.44	3.82	11.65	13.25	10.31	33.96	4.70
95th-Percentile Queue Length [ft/ln]	460.2	224.4	69.36	94.57	482.0	436.0	95.43	291.3	331.3	257.7	848.9	117.5

Movement, Approach, & Intersection Results

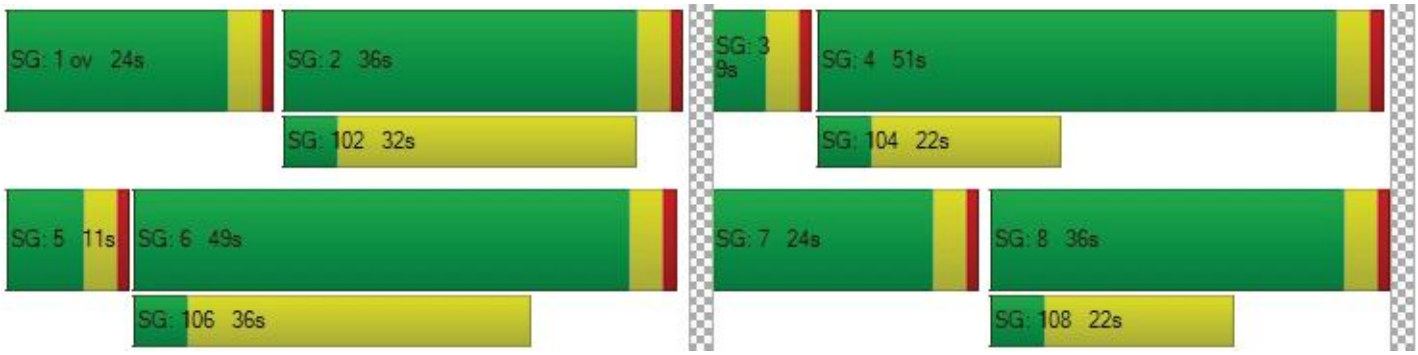
d_M, Delay for Movement [s/veh]	90.61	26.93	23.93	70.48	54.99	56.78	69.56	35.69	22.87	55.16	59.82	24.41
Movement LOS	F	C	C	E	D	E	E	D	C	E	F	C
d_A, Approach Delay [s/veh]	57.44			56.78			34.60			56.50		
Approach LOS	E			E			C			E		
d_I, Intersection Delay [s/veh]	51.30											
Intersection LOS	D											
Intersection V/C	0.831											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.691	2.577	3.134	3.161
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	533	533	783
d_b, Bicycle Delay [s]	23.44	32.27	32.27	22.20
l_b,int, Bicycle LOS Score for Intersection	2.611	2.247	2.496	3.220
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	51.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.796

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	380	575	172	184	960	227	206	468	204	337	1306	110
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	156	5	0	259	1	0	0	0	43	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	380	731	177	184	1219	228	206	468	204	380	1306	110
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	100	192	47	48	321	60	54	123	54	100	344	29
Total Analysis Volume [veh/h]	400	769	186	194	1283	240	217	493	215	400	1375	116
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	28	46	0	22	40	40	12	36	0	16	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	24	46	46	15	37	49	8	31	31	12	35	54
g / C, Green / Cycle	0.20	0.39	0.39	0.12	0.31	0.41	0.07	0.26	0.26	0.10	0.29	0.45
(v / s)_i Volume / Saturation Flow Rate	0.22	0.15	0.12	0.11	0.25	0.15	0.06	0.10	0.13	0.11	0.27	0.07
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	362	1993	622	226	1604	662	234	1329	415	351	1501	724
d1, Uniform Delay [s]	48.00	26.65	25.65	51.46	37.99	24.54	55.71	36.64	38.24	54.00	41.18	19.67
k, delay calibration	0.37	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	72.38	0.57	1.23	9.11	4.28	1.54	14.51	0.17	1.01	70.29	2.64	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.11	0.39	0.30	0.86	0.80	0.36	0.93	0.37	0.52	1.14	0.92	0.16
d, Delay for Lane Group [s/veh]	120.3	27.22	26.88	60.57	42.27	26.08	70.22	36.81	39.24	124.2	43.82	19.78
Lane Group LOS	F	C	C	E	D	C	E	D	D	F	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	18.04	5.40	3.91	6.29	12.07	5.01	3.74	4.00	5.55	8.72	13.34	1.96
50th-Percentile Queue Length [ft/ln]	450.8	135.0	97.76	157.1	301.8	125.3	93.41	99.96	138.6	218.1	333.5	49.03
95th-Percentile Queue Length [veh/ln]	26.36	9.21	7.04	10.40	17.77	8.68	6.73	7.20	9.41	14.23	19.33	3.53
95th-Percentile Queue Length [ft/ln]	658.9	230.3	175.9	260.0	444.2	217.1	168.1	179.9	235.2	355.8	483.2	88.26

Movement, Approach, & Intersection Results

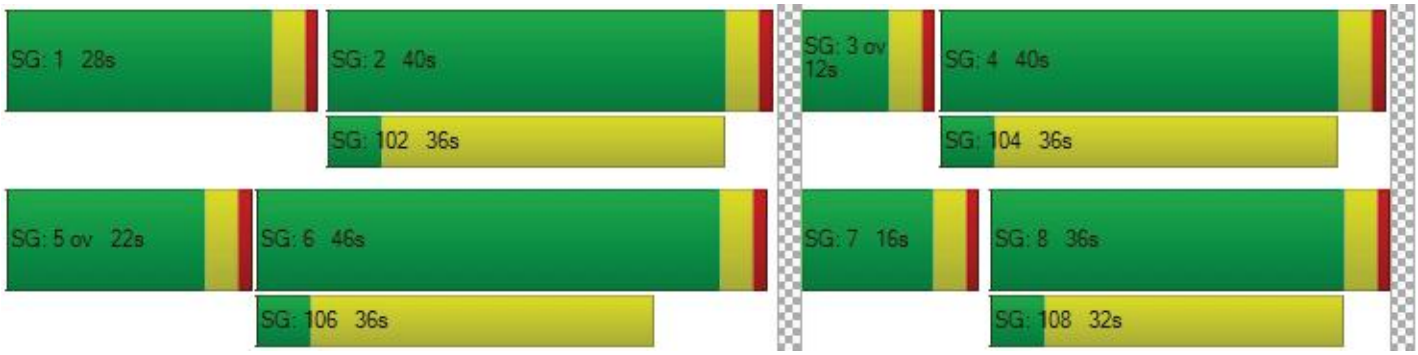
d_M, Delay for Movement [s/veh]	120.3	27.22	26.88	60.57	42.27	26.08	70.22	36.81	39.24	124.2	43.82	19.78
Movement LOS	F	C	C	E	D	C	E	D	D	F	D	B
d_A, Approach Delay [s/veh]	54.67			42.07			45.21			59.36		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	51.02											
Intersection LOS	D											
Intersection V/C	0.796											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.137	3.170	3.183	3.164
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	600	533	600
d_b, Bicycle Delay [s]	25.35	29.40	32.27	29.40
l_b,int, Bicycle LOS Score for Intersection	2.305	2.504	2.068	2.600
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	4,102.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	8.854

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	108	0	202	0	0	0	0	725	123	282	1728	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	0	0	0	0	5	0	8	43	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	0	207	0	0	0	0	730	123	290	1771	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	0	54	0	0	0	0	192	32	76	466	0
Total Analysis Volume [veh/h]	114	0	218	0	0	0	0	768	129	305	1864	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	8.85	0.00	0.39	0.00	0.00	0.00	0.00	0.01	0.00	0.40	0.02	0.00
d_M, Delay for Movement [s/veh]	4102.	4516.	3828.	1085.	770.7	18.24	15.97	0.00	0.00	12.79	0.00	0.00
Movement LOS	F	F	F	F	F	C	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	40.11	40.11	40.11	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1002.	1002.	1002.	0.00	0.00	0.00	0.00	0.00	0.00	48.09	0.00	0.00
d_A, Approach Delay [s/veh]	3922.66			624.88			0.00			1.80		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	384.41											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	48.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	586	120	151	813	181	167	502	128	365	998	107
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	5	0	0	34	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	591	120	151	821	181	167	507	128	365	1032	107
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	156	32	40	216	48	44	133	34	96	272	28
Total Analysis Volume [veh/h]	168	622	126	159	864	191	176	534	135	384	1086	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	42	0	16	42	0	17	28	0	34	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	40	40	12	40	40	13	24	24	27	39	39
g / C, Green / Cycle	0.10	0.34	0.34	0.10	0.34	0.34	0.11	0.20	0.20	0.23	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.09	0.20	0.20	0.09	0.29	0.29	0.10	0.15	0.08	0.21	0.30	0.07
s, saturation flow rate [veh/h]	1810	1900	1790	1810	1900	1783	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	181	637	600	181	637	598	196	733	327	414	1168	522
d1, Uniform Delay [s]	53.57	33.24	33.24	53.28	37.11	37.17	52.84	44.76	41.63	45.31	39.30	29.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.34	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.91	4.21	4.47	12.64	13.56	14.59	13.48	1.41	0.83	22.49	3.91	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.60	0.60	0.88	0.85	0.86	0.90	0.73	0.41	0.93	0.93	0.22
d, Delay for Lane Group [s/veh]	71.49	37.45	37.71	65.92	50.68	51.76	66.32	46.17	42.47	67.80	43.22	29.78
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.92	10.04	9.51	5.36	17.05	16.24	5.97	7.56	3.57	13.72	15.92	2.42
50th-Percentile Queue Length [ft/ln]	148.0	251.0	237.7	134.0	426.2	405.9	149.1	189.1	89.14	343.0	398.0	60.60
95th-Percentile Queue Length [veh/ln]	9.91	15.24	14.56	9.16	23.82	22.85	9.97	12.07	6.42	19.80	22.47	4.36
95th-Percentile Queue Length [ft/ln]	247.8	381.0	364.1	228.9	595.5	571.2	249.3	301.8	160.4	494.9	561.6	109.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.49	37.55	37.71	65.92	51.08	51.76	66.32	46.17	42.47	67.80	43.22	29.78
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	43.80			53.13			49.78			48.22		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	48.93											
Intersection LOS	D											
Intersection V/C	0.777											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.763	2.729	2.840	2.858
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	400	683
d_b, Bicycle Delay [s]	28.02	28.02	38.40	26.00
l_b,int, Bicycle LOS Score for Intersection	2.315	2.561	2.257	2.866
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	129	722	138	216	996	143	239	434	125	233	811	169
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	5	0	16	6	0	5	0	8	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	727	143	216	1012	149	239	439	125	241	830	169
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	191	38	57	266	39	63	116	33	63	218	44
Total Analysis Volume [veh/h]	136	765	151	227	1065	157	252	462	132	254	874	178
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	34	0	23	43	0	23	35	0	28	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	37	37	17	44	44	18	32	32	19	32	32
g / C, Green / Cycle	0.08	0.31	0.31	0.14	0.36	0.36	0.15	0.26	0.26	0.16	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.09	0.13	0.29	0.10	0.14	0.13	0.08	0.14	0.24	0.11
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	151	1101	492	256	1311	585	279	951	424	286	965	431
d1, Uniform Delay [s]	54.51	36.82	32.03	50.57	34.56	27.01	49.89	37.38	35.51	49.47	42.52	36.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.13	0.11	0.11	0.13	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.09	3.62	1.62	9.98	5.57	1.12	11.98	0.39	0.41	10.60	3.56	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.69	0.31	0.89	0.81	0.27	0.90	0.49	0.31	0.89	0.91	0.41
d, Delay for Lane Group [s/veh]	71.61	40.44	33.64	60.55	40.13	28.14	61.87	37.77	35.93	60.08	46.08	36.88
Lane Group LOS	E	D	C	E	D	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.79	10.39	3.60	7.39	14.86	3.37	8.34	5.79	3.16	8.29	12.90	4.39
50th-Percentile Queue Length [ft/ln]	119.6	259.7	89.96	184.8	371.6	84.36	208.5	144.7	79.12	207.2	322.5	109.7
95th-Percentile Queue Length [veh/ln]	8.37	15.68	6.48	11.85	21.19	6.07	13.08	9.74	5.70	13.01	18.79	7.83
95th-Percentile Queue Length [ft/ln]	209.3	391.9	161.9	296.2	529.6	151.8	326.9	243.4	142.4	325.3	469.8	195.6

Movement, Approach, & Intersection Results

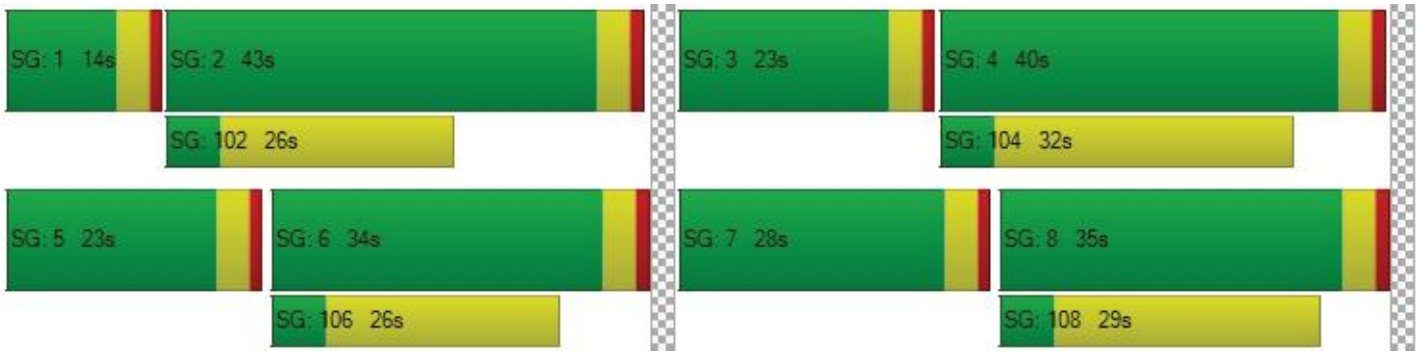
d_M, Delay for Movement [s/veh]	71.61	40.44	33.64	60.55	40.13	28.14	61.87	37.77	35.93	60.08	46.08	36.88
Movement LOS	E	D	C	E	D	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	43.50			42.03			44.66			47.55		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.39											
Intersection LOS	D											
Intersection V/C	0.750											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.958	3.063	2.795	2.817
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	650	517	600
d_b, Bicycle Delay [s]	33.75	27.34	33.00	29.40
l_b,int, Bicycle LOS Score for Intersection	2.428	2.755	2.258	2.637
Bicycle LOS	B	C	B	B

Sequence

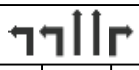
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	72.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	398	246	65	163	519	439	104	848	209	277	1753	167
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	71	0	0	141	0	0	0	27	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	398	317	65	163	660	439	104	848	236	277	1753	167
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	105	83	17	43	174	116	27	223	62	73	461	44
Total Analysis Volume [veh/h]	419	334	68	172	695	462	109	893	248	292	1845	176
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	17	30	30	17	30	30	9	59	59	14	64	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	26	40	13	26	35	5	55	72	10	60	60
g / C, Green / Cycle	0.11	0.22	0.33	0.11	0.22	0.29	0.04	0.46	0.60	0.08	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.09	0.04	0.10	0.19	0.29	0.03	0.47	0.15	0.08	0.53	0.55
s, saturation flow rate [veh/h]	3514	3618	1615	1810	3618	1615	3514	1900	1615	3514	1900	1843
c, Capacity [veh/h]	381	784	538	196	784	471	146	871	969	293	950	922
d1, Uniform Delay [s]	53.50	40.56	27.84	52.71	45.57	42.17	56.87	32.50	11.34	54.99	30.00	30.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.49	0.17	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	54.55	1.69	0.48	11.71	14.08	36.98	7.28	36.89	0.21	23.77	47.68	59.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.43	0.13	0.88	0.89	0.98	0.74	1.03	0.26	1.00	1.06	1.10
d, Delay for Lane Group [s/veh]	108.0	42.26	28.32	64.43	59.65	79.14	64.14	69.39	11.56	78.76	77.68	89.55
Lane Group LOS	F	D	C	E	E	E	E	F	B	E	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.61	4.46	1.44	5.74	11.52	18.25	1.78	33.31	3.12	5.37	38.77	40.65
50th-Percentile Queue Length [ft/ln]	215.3	111.4	36.12	143.4	288.0	456.2	44.56	832.8	77.98	134.3	969.2	1016.
95th-Percentile Queue Length [veh/ln]	13.94	7.92	2.60	9.67	17.09	25.26	3.21	43.64	5.61	9.17	51.47	54.94
95th-Percentile Queue Length [ft/ln]	348.4	198.0	65.02	241.6	427.2	631.4	80.21	1091.	140.3	229.3	1286.	1373.

Movement, Approach, & Intersection Results

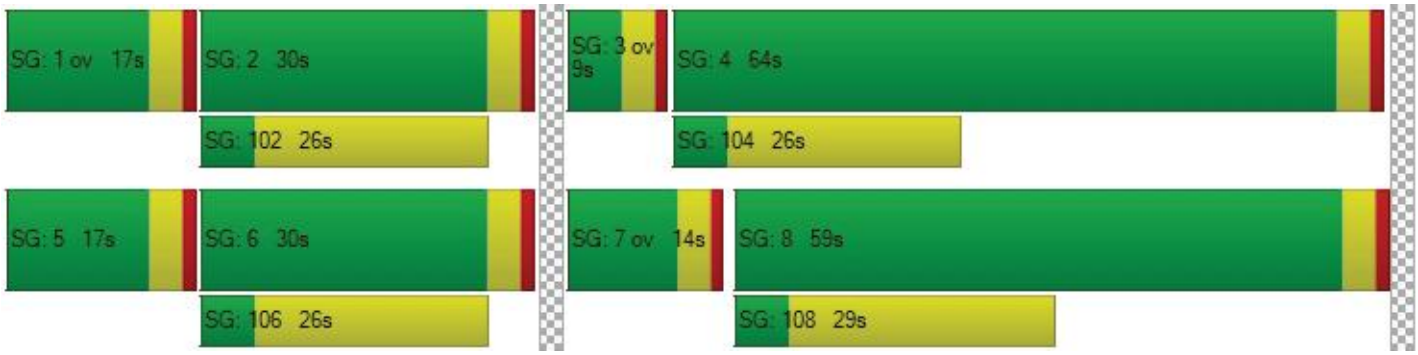
d_M, Delay for Movement [s/veh]	108.0	42.26	28.32	64.43	59.65	79.14	64.14	69.39	11.56	78.76	83.05	89.55
Movement LOS	F	D	C	E	E	E	E	F	B	E	F	F
d_A, Approach Delay [s/veh]	74.68			67.05			57.46			83.00		
Approach LOS	E			E			E			F		
d_I, Intersection Delay [s/veh]	72.51											
Intersection LOS	E											
Intersection V/C	0.917											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.896	2.785	3.163	3.028
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	917	1000
d_b, Bicycle Delay [s]	36.82	36.82	17.60	15.00
l_b,int, Bicycle LOS Score for Intersection	2.237	2.656	3.622	3.468
Bicycle LOS	B	B	D	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	57.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.863

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	136	1033	168	59	1220	106	81	437	104	221	763	87
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	161	0	0	302	0	0	0	0	35	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	1194	168	59	1522	106	81	437	104	256	763	87
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	314	44	16	401	28	21	115	27	67	201	23
Total Analysis Volume [veh/h]	143	1257	177	62	1602	112	85	460	109	269	803	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	47	0	9	42	0	10	36	0	28	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	43	43	5	38	38	6	36	36	20	50	50
g / C, Green / Cycle	0.08	0.36	0.36	0.04	0.32	0.32	0.05	0.30	0.30	0.17	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.27	0.03	0.31	0.31	0.05	0.24	0.07	0.15	0.42	0.06
s, saturation flow rate [veh/h]	1810	3618	1782	1810	3618	1837	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	151	1296	639	75	1146	582	90	572	486	300	792	673
d1, Uniform Delay [s]	54.74	33.63	33.64	57.06	40.84	40.87	56.82	38.70	31.45	49.04	35.00	21.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.32	0.11	0.15	0.48	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.53	3.85	7.58	19.24	24.69	35.71	31.13	7.56	0.23	12.54	34.97	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.74	0.74	0.82	0.99	0.99	0.94	0.80	0.22	0.90	1.01	0.14
d, Delay for Lane Group [s/veh]	78.27	37.48	41.22	76.30	65.53	76.58	87.95	46.26	31.68	61.59	69.97	21.74
Lane Group LOS	E	D	D	E	E	E	F	D	C	E	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.28	12.79	13.28	2.27	20.40	22.54	3.35	13.58	2.42	8.93	30.16	1.63
50th-Percentile Queue Length [ft/ln]	132.0	319.8	331.8	56.72	510.0	563.5	83.74	339.5	60.39	223.1	754.1	40.82
95th-Percentile Queue Length [veh/ln]	9.05	18.66	19.25	4.08	27.81	30.33	6.03	19.63	4.35	13.83	39.60	2.94
95th-Percentile Queue Length [ft/ln]	226.2	466.4	481.2	102.0	695.2	758.2	150.7	490.6	108.7	345.6	990.0	73.47

Movement, Approach, & Intersection Results

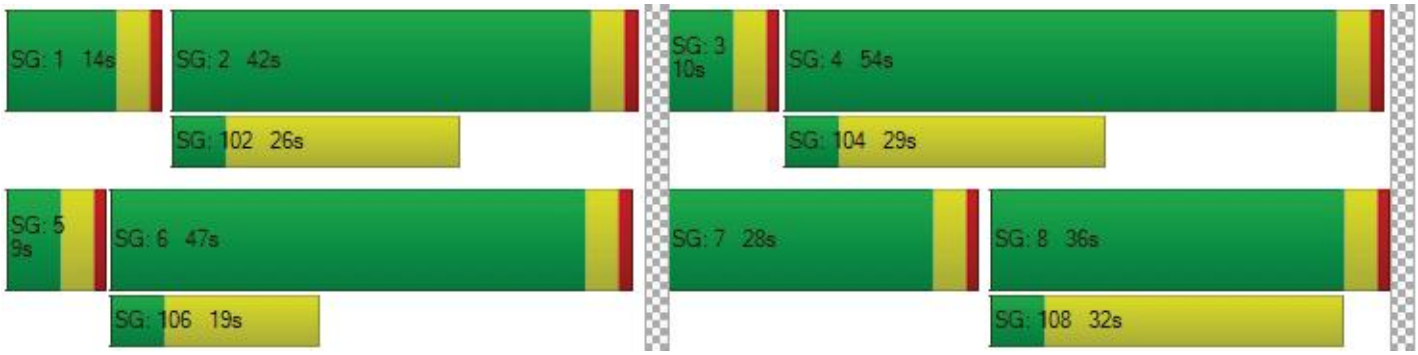
d_M, Delay for Movement [s/veh]	78.27	38.36	41.22	76.30	68.75	76.58	87.95	46.26	31.68	61.59	69.97	21.74
Movement LOS	E	D	D	E	E	E	F	D	C	E	F	C
d_A, Approach Delay [s/veh]	42.30			69.51			49.25			64.22		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	57.46											
Intersection LOS	E											
Intersection V/C	0.863											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.174	3.056	2.746	2.600
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	633	533	833
d_b, Bicycle Delay [s]	24.70	28.02	32.27	20.42
l_b,int, Bicycle LOS Score for Intersection	2.427	2.536	2.639	3.480
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	107	260	156	24	260	137	68	397	65	189	780	45
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	0	0	3	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	265	156	24	268	137	68	397	65	192	815	45
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	70	41	6	71	36	18	104	17	51	214	12
Total Analysis Volume [veh/h]	113	279	164	25	282	144	72	418	68	202	858	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	32	0	0	32	0	0	88	0	0	88	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	47	47	47	47	47	47	65	65	65	65	65	65
g / C, Green / Cycle	0.39	0.39	0.39	0.39	0.39	0.39	0.54	0.54	0.54	0.54	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.12	0.15	0.10	0.03	0.15	0.09	0.12	0.22	0.04	0.22	0.45	0.03
s, saturation flow rate [veh/h]	977	1900	1615	962	1900	1615	626	1900	1615	924	1900	1615
c, Capacity [veh/h]	325	740	629	322	740	629	149	1033	878	424	1033	878
d1, Uniform Delay [s]	36.07	26.21	24.89	32.63	26.26	24.55	49.82	16.00	13.03	28.26	22.76	12.86
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.21	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.93	1.46	1.01	0.47	1.49	0.85	2.40	0.26	0.04	0.83	3.43	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.38	0.26	0.08	0.38	0.23	0.48	0.40	0.08	0.48	0.83	0.05
d, Delay for Lane Group [s/veh]	39.00	27.68	25.90	33.10	27.75	25.40	52.22	16.26	13.07	29.09	26.19	12.88
Lane Group LOS	D	C	C	C	C	C	D	B	B	C	C	B
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.00	6.01	3.36	0.59	6.09	2.91	2.19	6.68	0.88	4.58	20.28	0.60
50th-Percentile Queue Length [ft/ln]	74.99	150.2	84.03	14.76	152.1	72.68	54.77	167.1	22.12	114.6	507.0	15.08
95th-Percentile Queue Length [veh/ln]	5.40	10.03	6.05	1.06	10.13	5.23	3.94	10.92	1.59	8.10	27.67	1.09
95th-Percentile Queue Length [ft/ln]	134.9	250.7	151.2	26.57	253.2	130.8	98.59	273.1	39.81	202.3	691.7	27.15

Movement, Approach, & Intersection Results

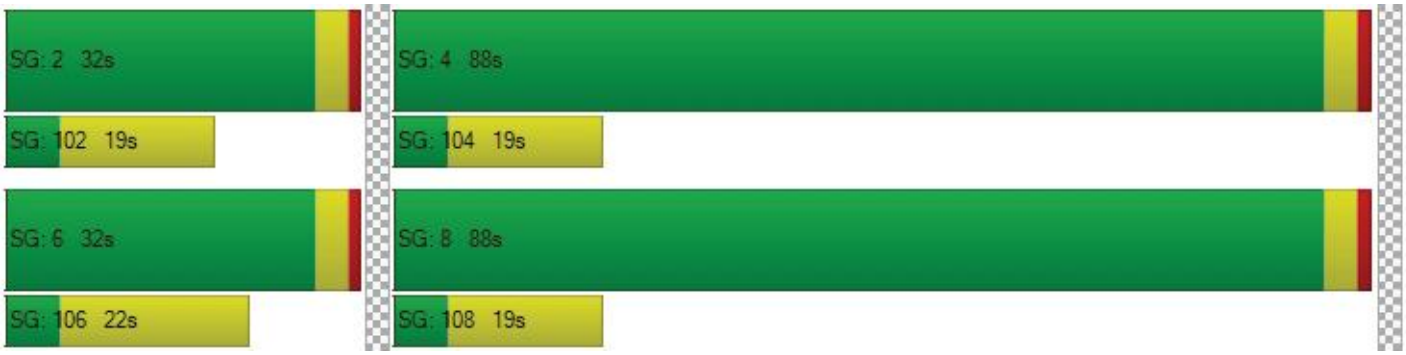
d_M, Delay for Movement [s/veh]	39.00	27.68	25.90	33.10	27.75	25.40	52.22	16.26	13.07	29.09	26.19	12.88
Movement LOS	D	C	C	C	C	C	D	B	B	C	C	B
d_A, Approach Delay [s/veh]	29.45			27.30			20.51			26.15		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.86											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.704	2.456	2.715	2.685
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	467	1400	1400
d_b, Bicycle Delay [s]	35.27	35.27	5.40	5.40
l_b,int, Bicycle LOS Score for Intersection	2.477	2.304	2.480	3.386
Bicycle LOS	B	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	59.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.856

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	268	714	233	108	888	178	90	297	123	262	596	160
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	0	0	3	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	719	233	108	896	178	90	297	123	265	616	160
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	71	189	61	28	236	47	24	78	32	70	162	42
Total Analysis Volume [veh/h]	282	757	245	114	943	187	95	313	129	279	648	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	51	0	13	41	0	11	26	0	30	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	47	47	9	37	37	7	27	27	21	41	41
g / C, Green / Cycle	0.16	0.39	0.39	0.08	0.31	0.31	0.06	0.23	0.23	0.17	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.16	0.27	0.28	0.06	0.31	0.31	0.05	0.09	0.08	0.15	0.34	0.10
s, saturation flow rate [veh/h]	1810	1900	1743	1810	1900	1792	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	287	744	683	136	586	553	106	825	368	311	649	552
d1, Uniform Delay [s]	50.35	30.58	30.68	54.79	41.32	41.40	56.15	39.15	38.86	48.63	39.46	29.02
k, delay calibration	0.17	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.17	0.46	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.80	5.41	6.03	12.78	34.91	37.03	22.20	0.29	0.57	13.20	33.53	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.70	0.71	0.84	0.99	0.99	0.90	0.38	0.35	0.90	1.00	0.30
d, Delay for Lane Group [s/veh]	78.15	35.99	36.71	67.57	76.24	78.43	78.36	39.44	39.43	61.83	72.99	29.33
Lane Group LOS	E	D	D	E	E	E	E	D	D	E	E	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.62	13.58	12.72	3.88	22.53	21.68	3.51	3.94	3.26	9.30	24.79	3.62
50th-Percentile Queue Length [ft/ln]	265.5	339.6	317.9	97.05	563.2	542.0	87.73	98.58	81.45	232.5	619.7	90.53
95th-Percentile Queue Length [veh/ln]	15.97	19.63	18.57	6.99	30.31	29.32	6.32	7.10	5.86	14.30	32.96	6.52
95th-Percentile Queue Length [ft/ln]	399.1	490.7	464.1	174.6	757.8	732.9	157.9	177.4	146.6	357.6	823.8	162.9

Movement, Approach, & Intersection Results

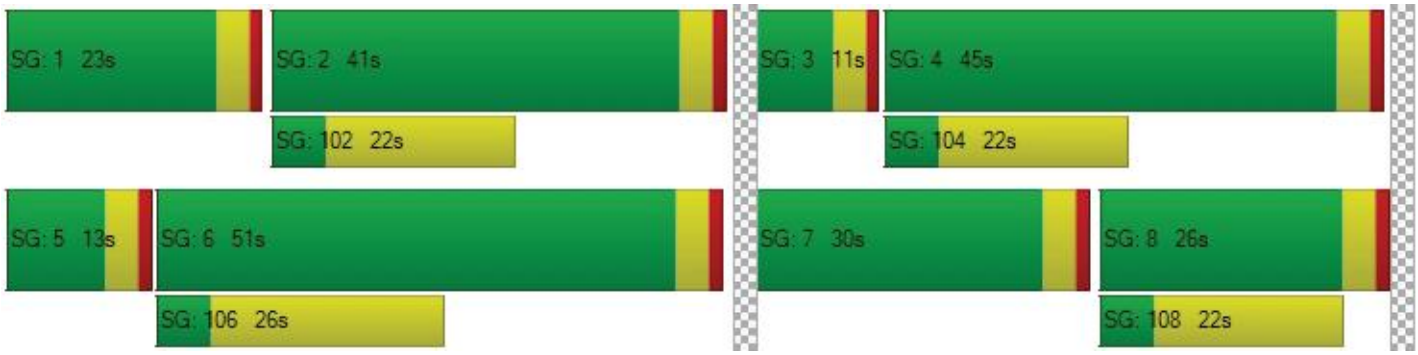
d_M, Delay for Movement [s/veh]	78.15	36.21	36.71	67.57	77.08	78.43	78.36	39.44	39.43	61.83	72.99	29.33
Movement LOS	E	D	D	E	E	E	E	D	D	E	E	C
d_A, Approach Delay [s/veh]	45.52			76.41			46.32			63.45		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	59.58											
Intersection LOS	E											
Intersection V/C	0.856											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.829	2.757	2.638	2.755
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	617	367	683
d_b, Bicycle Delay [s]	22.20	28.70	40.02	26.00
l_b,int, Bicycle LOS Score for Intersection	2.619	2.586	2.003	3.366
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	35.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.620

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	112	837	43	76	988	94	94	453	92	79	592	72
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	0	24	0	0	0	0	3	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	847	43	76	1012	94	94	453	92	82	598	72
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	223	11	20	266	25	25	119	24	22	157	19
Total Analysis Volume [veh/h]	118	892	45	80	1065	99	99	477	97	86	629	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	49	0	11	47	0	12	47	0	13	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	64	64	7	61	61	8	26	26	7	26	26
g / C, Green / Cycle	0.08	0.53	0.53	0.06	0.51	0.51	0.07	0.22	0.22	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.07	0.25	0.25	0.04	0.31	0.31	0.05	0.16	0.16	0.05	0.19	0.19
s, saturation flow rate [veh/h]	1810	1900	1868	1810	1900	1844	1810	1900	1790	1810	1900	1829
c, Capacity [veh/h]	136	1005	988	102	969	940	121	420	396	109	408	393
d1, Uniform Delay [s]	54.92	17.73	17.73	55.92	20.89	20.91	55.29	43.08	43.12	55.61	45.59	45.61
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.17	1.58	1.61	12.49	2.85	2.95	12.74	2.14	2.31	11.66	6.21	6.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.47	0.47	0.79	0.61	0.61	0.82	0.70	0.71	0.79	0.88	0.88
d, Delay for Lane Group [s/veh]	70.09	19.31	19.33	68.41	23.74	23.86	68.03	45.22	45.43	67.27	51.80	52.09
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.10	8.49	8.35	2.74	12.25	11.95	3.38	8.31	7.90	2.92	11.02	10.66
50th-Percentile Queue Length [ft/ln]	102.5	212.1	208.7	68.62	306.3	298.8	84.58	207.6	197.4	73.06	275.5	266.4
95th-Percentile Queue Length [veh/ln]	7.38	13.26	13.09	4.94	17.99	17.62	6.09	13.03	12.50	5.26	16.47	16.01
95th-Percentile Queue Length [ft/ln]	184.5	331.5	327.2	123.5	449.8	440.6	152.2	325.8	312.6	131.5	411.6	400.2

Movement, Approach, & Intersection Results

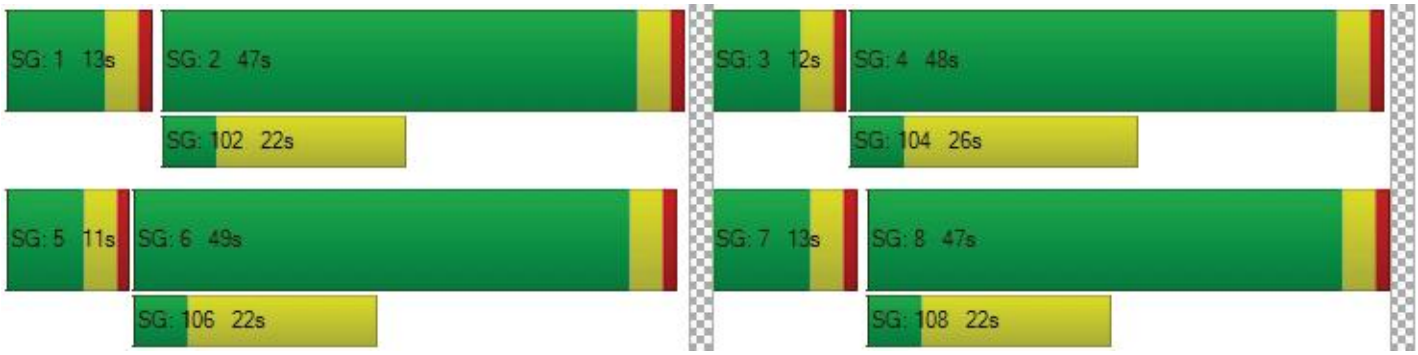
d_M, Delay for Movement [s/veh]	70.09	19.32	19.33	68.41	23.79	23.86	68.03	45.30	45.43	67.27	51.92	52.09
Movement LOS	E	B	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	25.00			26.67			48.66			53.61		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.80											
Intersection LOS	D											
Intersection V/C	0.620											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.764	2.844	2.611	2.587
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	717	717	733
d_b, Bicycle Delay [s]	23.44	24.70	24.70	24.07
l_b,int, Bicycle LOS Score for Intersection	2.430	2.586	2.115	2.212
Bicycle LOS	B	B	B	B

Sequence

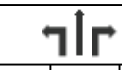
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.823

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	572	171	89	941	0	0	0	0	262	0	153
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	71	0	0	168	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	643	171	89	1109	0	0	0	0	262	0	153
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	169	45	23	292	0	0	0	0	69	0	40
Total Analysis Volume [veh/h]	0	677	180	94	1167	0	0	0	0	276	0	161
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	50	0	42	83	0	0	28	0	0	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	76	76	8	84	84	24	24	24	24
g / C, Green / Cycle	0.00	0.63	0.63	0.07	0.70	0.70	0.20	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.00	0.36	0.11	0.05	0.61	0.00	0.00	0.00	0.21	0.10
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1743	1615	1320	1615
c, Capacity [veh/h]	1	1201	1021	122	1329	1130	379	323	324	323
d1, Uniform Delay [s]	0.00	12.60	9.13	55.01	14.03	0.00	0.00	0.00	49.48	42.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.33	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.92	0.38	9.60	8.44	0.00	0.00	0.00	16.87	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.56	0.18	0.77	0.88	0.00	0.00	0.00	0.85	0.50
d, Delay for Lane Group [s/veh]	0.00	14.52	9.51	64.61	22.46	0.00	0.00	0.00	66.35	43.84
Lane Group LOS	A	B	A	E	C	A	A	A	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	10.47	2.00	3.12	24.66	0.00	0.00	0.00	9.83	4.36
50th-Percentile Queue Length [ft/ln]	0.00	261.7	50.02	78.11	616.4	0.00	0.00	0.00	245.72	108.99
95th-Percentile Queue Length [veh/ln]	0.00	15.78	3.60	5.62	32.80	0.00	0.00	0.00	14.97	7.78
95th-Percentile Queue Length [ft/ln]	0.00	394.4	90.03	140.5	820.0	0.00	0.00	0.00	374.26	194.60

Movement, Approach, & Intersection Results

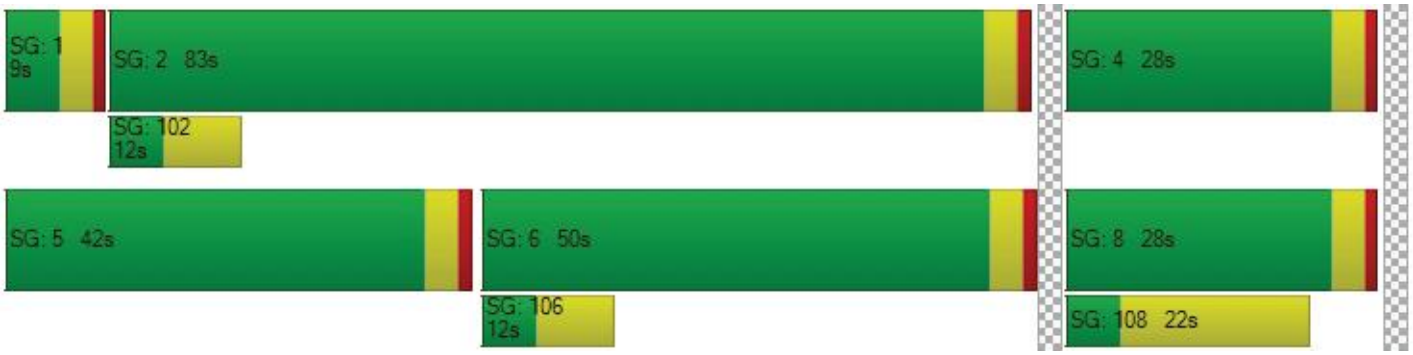
d_M, Delay for Movement [s/veh]	0.00	14.52	9.51	64.61	22.46	0.00	0.00	0.00	0.00	66.35	66.35	43.84
Movement LOS	A	B	A	E	C	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	13.46			25.61			0.00			58.06		
Approach LOS	B			C			A			E		
d_I, Intersection Delay [s/veh]	27.08											
Intersection LOS	C											
Intersection V/C	0.823											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.156	0.000	1.955	2.187
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	1317	400	400
d_b, Bicycle Delay [s]	22.82	7.00	38.40	38.40
l_b,int, Bicycle LOS Score for Intersection	2.974	3.640	1.560	2.281
Bicycle LOS	C	D	A	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	48.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.867

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	251	1239	148	39	1300	103	34	34	224	169	152	76
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	161	0	0	337	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	251	1400	148	39	1637	103	34	34	224	169	152	76
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	66	368	39	10	431	27	9	9	59	44	40	20
Total Analysis Volume [veh/h]	264	1474	156	41	1723	108	36	36	236	178	160	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	68	0	10	57	0	9	26	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	69	69	4	56	56	4	19	19	12	28
g / C, Green / Cycle	0.14	0.57	0.57	0.03	0.46	0.46	0.03	0.16	0.16	0.10	0.23
(v / s)_i Volume / Saturation Flow Rate	0.15	0.43	0.44	0.02	0.48	0.07	0.02	0.02	0.15	0.10	0.13
s, saturation flow rate [veh/h]	1810	1900	1838	1810	3618	1615	1810	1900	1615	1810	1794
c, Capacity [veh/h]	256	1089	1053	57	1675	748	53	308	262	181	417
d1, Uniform Delay [s]	51.50	19.19	19.63	57.57	32.23	18.55	57.66	42.94	49.34	53.90	40.79
k, delay calibration	0.14	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.16	4.76	5.51	15.31	29.73	0.41	13.78	0.17	13.95	27.39	1.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.75	0.77	0.72	1.03	0.14	0.67	0.12	0.90	0.98	0.58
d, Delay for Lane Group [s/veh]	89.66	23.95	25.15	72.88	61.96	18.95	71.43	43.11	63.28	81.29	42.04
Lane Group LOS	F	C	C	E	F	B	E	D	E	F	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	10.40	17.67	18.16	1.48	30.32	1.82	1.29	0.93	7.94	6.73	6.43
50th-Percentile Queue Length [ft/ln]	260.0	441.6	454.0	36.92	758.0	45.55	32.17	23.34	198.4	168.25	160.83
95th-Percentile Queue Length [veh/ln]	15.90	24.56	25.15	2.66	40.24	3.28	2.32	1.68	12.56	10.98	10.59
95th-Percentile Queue Length [ft/ln]	397.5	614.0	628.7	66.46	1006.	81.99	57.91	42.01	313.9	274.61	264.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.66	24.48	25.15	72.88	61.96	18.95	71.43	43.11	63.28	81.29	42.04	42.04
Movement LOS	F	C	C	E	F	B	E	D	E	F	D	D
d_A, Approach Delay [s/veh]	33.62			59.72			61.88			58.76		
Approach LOS	C			E			E			E		
d_I, Intersection Delay [s/veh]	48.77											
Intersection LOS	D											
Intersection V/C	0.867											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.123	3.091	2.351	2.167
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	883	367	483
d_b, Bicycle Delay [s]	13.07	18.70	40.02	34.50
l_b,int, Bicycle LOS Score for Intersection	3.122	3.104	2.068	2.249
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	95.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	150	487	0	0	421	125	64	0	74	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	11	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	492	0	0	432	125	64	0	74	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	129	0	0	114	33	17	0	19	0	0	0
Total Analysis Volume [veh/h]	158	518	0	0	455	132	67	0	78	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.01	0.00	0.00	0.00	0.00	0.67	0.00	0.14	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.28	0.00	0.00	0.00	0.00	0.00	95.73	0.00	12.48	0.00	0.00	0.00
Movement LOS	A	A			A	A	F		B			
95th-Percentile Queue Length [veh/ln]	0.56	0.56	0.00	0.00	0.00	0.00	3.38	0.00	0.48	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	14.03	14.03	0.00	0.00	0.00	0.00	84.49	0.00	12.06	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.17			0.00			50.94			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	6.29											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	849	298	113	1074	1	0	0	2	204	0	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	110	168	0	0	0	0	0	111	0	71
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	849	408	281	1074	1	0	0	2	315	0	200
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	223	107	74	283	0	0	0	1	83	0	53
Total Analysis Volume [veh/h]	1	894	429	296	1131	1	0	0	2	332	0	211
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	25	48	0	32	55	0	0	9	0	0	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	58	58	22	79	79	0	0	24	24
g / C, Green / Cycle	0.00	0.48	0.48	0.18	0.66	0.66	0.00	0.00	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.00	0.37	0.37	0.16	0.30	0.30	0.00	0.00	0.19	0.13
s, saturation flow rate [veh/h]	1810	1900	1696	1810	1900	1899	1900	1470	1781	1615
c, Capacity [veh/h]	4	912	814	326	1251	1250	5	4	363	329
d1, Uniform Delay [s]	59.79	25.58	25.79	48.19	9.98	9.98	0.00	59.74	46.78	43.78
k, delay calibration	0.11	0.50	0.50	0.20	0.50	0.50	0.11	0.11	0.26	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.18	5.98	7.03	15.44	1.18	1.19	0.00	66.76	18.99	2.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.76	0.77	0.91	0.45	0.45	0.00	0.48	0.92	0.64
d, Delay for Lane Group [s/veh]	94.97	31.56	32.82	63.63	11.17	11.17	0.00	126.50	65.77	45.87
Lane Group LOS	F	C	C	E	B	B	A	F	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	17.33	16.02	10.05	7.26	7.26	0.00	0.14	11.57	5.93
50th-Percentile Queue Length [ft/ln]	1.66	433.2	400.5	251.2	181.5	181.4	0.00	3.45	289.22	148.36
95th-Percentile Queue Length [veh/ln]	0.12	24.16	22.59	15.25	11.68	11.68	0.00	0.25	17.15	9.93
95th-Percentile Queue Length [ft/ln]	3.00	603.8	564.6	381.1	291.9	291.9	0.00	6.22	428.67	248.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	94.97	31.84	32.82	63.63	11.17	11.17	0.00	63.25	126.5	65.77	65.77	45.87
Movement LOS	F	C	C	E	B	B	A	E	F	E	E	D
d_A, Approach Delay [s/veh]	32.21			22.04			126.50			58.03		
Approach LOS	C			C			F			E		
d_I, Intersection Delay [s/veh]	32.12											
Intersection LOS	C											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	850	83	450
d_b, Bicycle Delay [s]	24.07	19.84	55.10	36.04
l_b,int, Bicycle LOS Score for Intersection	2.652	2.738	1.561	2.456
Bicycle LOS	B	B	A	B

Sequence

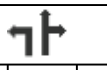
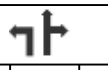
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	3	813	117	146	1237	0	0	0	0	145	0	419
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	161	0	0	337	0	0	0	0	20	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	974	117	146	1574	0	0	0	0	165	0	419
Peak Hour Factor	0.913	0.913	0.913	0.950	0.913	0.950	0.950	0.950	0.913	0.913	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	267	32	38	431	0	0	0	0	45	0	110
Total Analysis Volume [veh/h]	3	1067	128	154	1724	0	0	0	0	181	0	441
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	15	49	0	12	40	0	22	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	58	58	11	68	68	0	21	14	35
g / C, Green / Cycle	0.00	0.48	0.48	0.09	0.57	0.57	0.00	0.18	0.12	0.29
(v / s)_i Volume / Saturation Flow Rate	0.00	0.29	0.08	0.09	0.48	0.00	0.00	0.00	0.10	0.27
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1810	1615
c, Capacity [veh/h]	8	1743	778	166	2059	919	1	337	210	473
d1, Uniform Delay [s]	59.59	22.86	17.50	54.11	21.28	0.00	0.00	0.00	52.10	41.29
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.18
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.08	1.62	0.46	19.09	4.25	0.00	0.00	0.00	10.00	13.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.61	0.16	0.93	0.84	0.00	0.00	0.00	0.86	0.93
d, Delay for Lane Group [s/veh]	88.66	24.47	17.96	73.20	25.53	0.00	0.00	0.00	62.10	54.29
Lane Group LOS	F	C	B	E	C	A	A	A	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.15	11.27	2.10	5.49	20.09	0.00	0.00	0.00	5.93	14.26
50th-Percentile Queue Length [ft/ln]	3.83	281.8	52.44	137.2	502.3	0.00	0.00	0.00	148.25	356.49
95th-Percentile Queue Length [veh/ln]	0.28	16.78	3.78	9.33	27.45	0.00	0.00	0.00	9.92	20.45
95th-Percentile Queue Length [ft/ln]	6.90	419.5	94.40	233.3	686.1	0.00	0.00	0.00	248.09	511.32

Movement, Approach, & Intersection Results

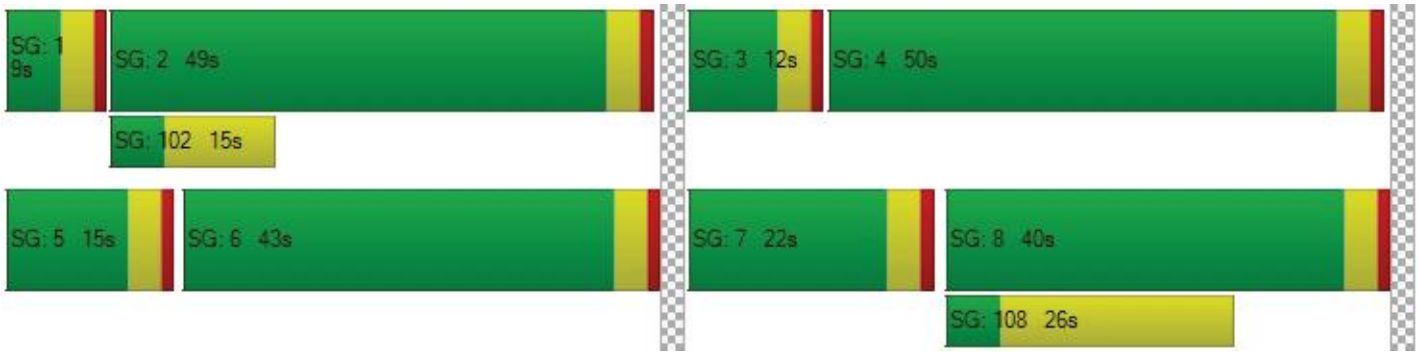
d_M, Delay for Movement [s/veh]	88.66	24.47	17.96	73.20	25.53	0.00	0.00	0.00	0.00	62.10	54.29	54.29
Movement LOS	F	C	B	E	C	A	A	A	A	E	D	D
d_A, Approach Delay [s/veh]	23.94			29.44			0.00			56.56		
Approach LOS	C			C			A			E		
d_I, Intersection Delay [s/veh]	32.22											
Intersection LOS	C											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.041	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	750	600	767
d_b, Bicycle Delay [s]	27.34	23.44	29.40	22.82
l_b,int, Bicycle LOS Score for Intersection	2.548	3.109	1.560	2.586
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	103.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.342

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	251	65	65	241	132	159	143	79	84	397	210
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	11	0	0	0	0	0	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	256	65	65	252	132	159	143	79	84	417	210
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	20	67	17	17	66	35	42	38	21	22	110	55
Total Analysis Volume [veh/h]	79	269	68	68	265	139	167	151	83	88	439	221
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	383	418	472	374	415	527	429
Degree of Utilization, x	0.91	0.16	1.20	0.85	0.20	1.34	0.52

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.46	0.58	19.07	7.97	0.74	24.78	2.88
95th-Percentile Queue Length [ft]	236.50	14.38	476.64	199.32	18.45	619.41	71.93
Approach Delay [s/veh]	49.83		140.11	40.95		143.92	
Approach LOS	E		F	E		F	
Intersection Delay [s/veh]	103.55						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	74	835	32	68	1077	117	165	186	54	52	265	115
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	11	0	0	0	0	1	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	840	32	68	1088	117	165	186	54	53	285	115
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	221	8	18	286	31	43	49	14	14	75	30
Total Analysis Volume [veh/h]	78	884	34	72	1145	123	174	196	57	56	300	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	61	0	11	61	0	22	33	0	15	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	68	68	6	67	67	13	25	25	5	17	17
g / C, Green / Cycle	0.05	0.56	0.56	0.05	0.56	0.56	0.11	0.21	0.21	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.24	0.04	0.34	0.34	0.10	0.05	0.04	0.03	0.11	0.12
s, saturation flow rate [veh/h]	1810	1900	1875	1810	1900	1836	1810	3618	1615	1810	1900	1719
c, Capacity [veh/h]	99	1071	1057	93	1064	1028	204	760	339	75	264	239
d1, Uniform Delay [s]	56.00	15.08	15.08	56.26	17.55	17.60	52.26	39.59	38.81	56.87	50.27	50.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.62	1.27	1.28	13.05	2.55	2.67	9.66	0.18	0.23	13.43	6.52	8.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.43	0.43	0.78	0.60	0.61	0.85	0.26	0.17	0.74	0.83	0.85
d, Delay for Lane Group [s/veh]	68.62	16.34	16.36	69.31	20.10	20.27	61.92	39.77	39.04	70.30	56.78	58.58
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.68	7.47	7.38	2.49	12.19	11.89	5.69	2.45	1.41	1.96	6.85	6.47
50th-Percentile Queue Length [ft/ln]	67.03	186.8	184.5	62.27	304.6	297.2	142.2	61.21	35.18	49.04	171.3	161.8
95th-Percentile Queue Length [veh/ln]	4.83	11.96	11.84	4.48	17.91	17.55	9.60	4.41	2.53	3.53	11.14	10.64
95th-Percentile Queue Length [ft/ln]	120.6	298.9	295.9	112.0	447.7	438.6	239.9	110.1	63.33	88.28	278.6	266.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.62	16.35	16.36	69.31	20.17	20.27	61.92	39.77	39.04	70.30	57.27	58.58
Movement LOS	E	B	B	E	C	C	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	20.45			22.82			48.70			59.13		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.85											
Intersection LOS	C											
Intersection V/C	0.597											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.755	2.877	2.619	2.595
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	950	483	367
d_b, Bicycle Delay [s]	16.54	16.54	34.50	40.02
l_b,int, Bicycle LOS Score for Intersection	2.381	2.665	1.912	1.953
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.620

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	794	102	51	1141	64	71	387	106	150	418	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	5	31	10	0	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	794	102	51	1146	95	81	387	106	150	427	58
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	209	27	13	302	25	21	102	28	39	112	15
Total Analysis Volume [veh/h]	74	836	107	54	1206	100	85	407	112	158	449	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	65	0	9	64	0	13	30	0	16	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	47	47	5	45	45	7	41	41	12	45	45
g / C, Green / Cycle	0.05	0.39	0.39	0.04	0.38	0.38	0.06	0.34	0.34	0.10	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.25	0.03	0.35	0.35	0.05	0.14	0.14	0.09	0.14	0.14
s, saturation flow rate [veh/h]	1810	1900	1825	1810	1900	1849	1810	1900	1761	1810	1900	1822
c, Capacity [veh/h]	90	742	713	70	720	701	109	641	594	181	717	687
d1, Uniform Delay [s]	56.46	29.85	29.85	57.14	35.44	35.52	55.60	30.66	30.72	53.25	26.96	26.98
k, delay calibration	0.11	0.11	0.11	0.11	0.24	0.25	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.13	0.96	1.00	16.05	10.46	11.14	11.32	2.00	2.20	12.19	1.42	1.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.65	0.65	0.77	0.92	0.92	0.78	0.42	0.42	0.87	0.36	0.36
d, Delay for Lane Group [s/veh]	72.59	30.81	30.85	73.19	45.90	46.66	66.92	32.66	32.91	65.44	28.38	28.47
Lane Group LOS	E	C	C	E	D	D	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.63	11.43	10.99	1.94	20.13	19.84	2.88	6.34	5.98	5.31	5.66	5.46
50th-Percentile Queue Length [ft/ln]	65.65	285.7	274.7	48.39	503.2	496.0	72.02	158.5	149.5	132.6	141.4	136.5
95th-Percentile Queue Length [veh/ln]	4.73	16.97	16.43	3.48	27.49	27.15	5.19	10.47	9.99	9.08	9.56	9.29
95th-Percentile Queue Length [ft/ln]	118.1	424.3	410.6	87.11	687.2	678.6	129.6	261.8	249.7	227.1	238.9	232.3

Movement, Approach, & Intersection Results

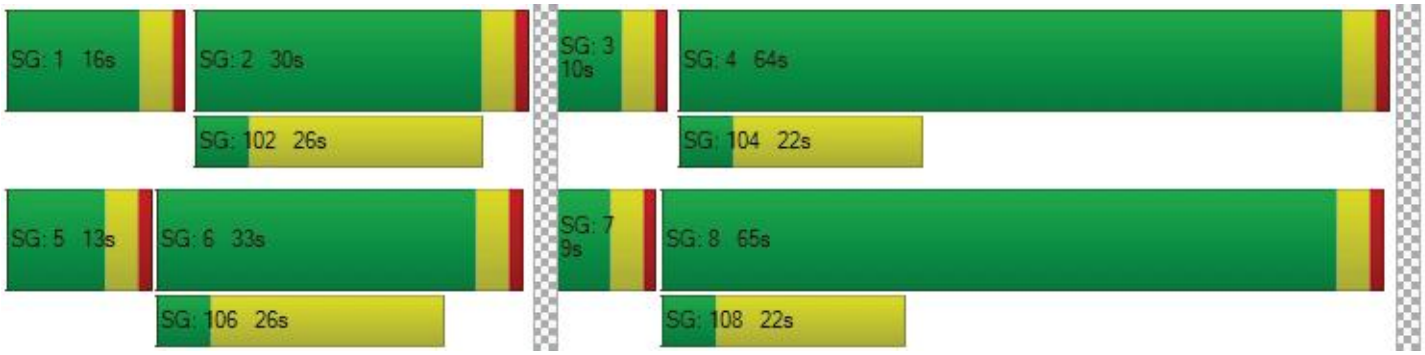
d_M, Delay for Movement [s/veh]	72.59	30.83	30.85	73.19	46.24	46.66	66.92	32.75	32.91	65.44	28.42	28.47
Movement LOS	E	C	C	E	D	D	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	33.87			47.35			37.59			37.18		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	40.11											
Intersection LOS	D											
Intersection V/C	0.620											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.873	2.849	2.554	2.556
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	1000	433	483
d_b, Bicycle Delay [s]	14.50	15.00	36.82	34.50
l_b,int, Bicycle LOS Score for Intersection	2.399	2.682	2.058	2.111
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	724	84	26	979	361	230	168	17	88	220	40
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	4	8	5	10	0	9	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	724	84	26	983	369	235	178	17	97	236	40
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	191	22	7	259	97	62	47	4	26	62	11
Total Analysis Volume [veh/h]	49	762	88	27	1035	388	247	187	18	102	248	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	58	0	9	58	0	27	33	0	20	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	65	65	3	64	64	18	28	28	9	18	18
g / C, Green / Cycle	0.04	0.54	0.54	0.02	0.53	0.53	0.15	0.23	0.23	0.07	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.01	0.39	0.40	0.14	0.10	0.01	0.06	0.13	0.03
s, saturation flow rate [veh/h]	1810	1900	1832	1810	1900	1727	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	64	1025	988	46	1006	915	277	437	371	130	283	240
d1, Uniform Delay [s]	57.40	16.48	16.48	57.87	21.71	22.02	49.82	39.46	35.98	54.76	50.01	44.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.41	1.28	1.32	11.56	4.73	5.61	10.28	0.66	0.05	9.78	8.54	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.42	0.42	0.59	0.73	0.75	0.89	0.43	0.05	0.78	0.88	0.17
d, Delay for Lane Group [s/veh]	74.81	17.76	17.81	69.43	26.44	27.63	60.10	40.13	36.03	64.54	58.55	44.98
Lane Group LOS	E	B	B	E	C	C	E	D	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.78	7.33	7.09	0.96	16.72	15.95	8.04	4.80	0.42	3.39	7.94	1.12
50th-Percentile Queue Length [ft/ln]	44.57	183.3	177.1	23.96	418.0	398.6	201.0	120.1	10.50	84.72	198.5	28.06
95th-Percentile Queue Length [veh/ln]	3.21	11.78	11.45	1.73	23.43	22.50	12.69	8.40	0.76	6.10	12.57	2.02
95th-Percentile Queue Length [ft/ln]	80.22	294.4	286.2	43.13	585.7	562.3	317.3	209.9	18.90	152.4	314.1	50.51

Movement, Approach, & Intersection Results

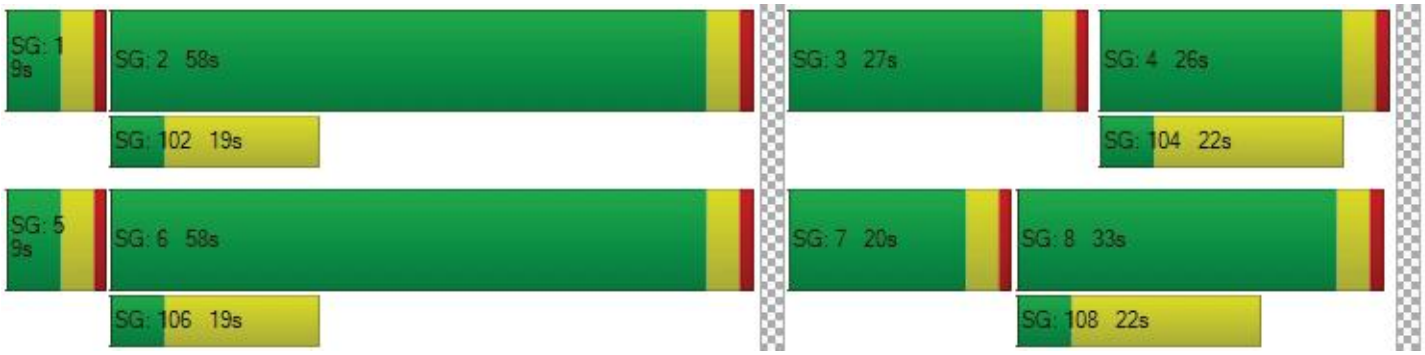
d_M, Delay for Movement [s/veh]	74.81	17.78	17.81	69.43	26.78	27.63	60.10	40.13	36.03	64.54	58.55	44.98
Movement LOS	E	B	B	E	C	C	E	D	D	E	E	D
d_A, Approach Delay [s/veh]	20.89			27.80			50.88			58.65		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	32.91											
Intersection LOS	C											
Intersection V/C	0.691											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.716	2.803	2.423	2.315
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	483	367
d_b, Bicycle Delay [s]	18.15	18.15	34.50	40.02
l_b,int, Bicycle LOS Score for Intersection	2.301	2.756	2.305	2.206
Bicycle LOS	B	C	B	B

Sequence

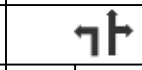
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	48.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	128	838	116	156	1207	9	0	124	96	248	97	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	154	157	0	0	117	41	13	36	110	0	143	54
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	282	995	116	156	1324	50	13	160	206	248	240	163
Peak Hour Factor	0.950	0.915	0.950	0.915	0.915	0.915	0.915	0.950	0.950	0.950	0.950	0.915
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	74	272	31	43	362	14	4	42	54	65	63	45
Total Analysis Volume [veh/h]	297	1087	122	170	1447	55	14	168	217	261	253	178
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	46	0	19	41	0	9	33	0	22	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	44	44	13	38	38	2	28	18	44
g / C, Green / Cycle	0.17	0.37	0.37	0.11	0.31	0.31	0.02	0.24	0.15	0.37
(v / s)_i Volume / Saturation Flow Rate	0.16	0.22	0.22	0.09	0.28	0.03	0.01	0.22	0.14	0.24
s, saturation flow rate [veh/h]	1810	3618	1803	1810	5176	1615	1810	1728	1810	1771
c, Capacity [veh/h]	302	1340	668	199	1623	506	31	409	271	654
d1, Uniform Delay [s]	49.85	30.62	30.62	52.47	39.25	29.27	58.41	45.00	50.66	31.54
k, delay calibration	0.20	0.50	0.50	0.11	0.50	0.50	0.11	0.37	0.14	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.17	2.01	3.99	10.01	7.87	0.43	9.87	26.41	21.00	2.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.60	0.60	0.86	0.89	0.11	0.45	0.94	0.96	0.66
d, Delay for Lane Group [s/veh]	79.02	32.63	34.61	62.49	47.11	29.70	68.28	71.42	71.65	33.70
Lane Group LOS	E	C	C	E	D	C	E	E	E	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	11.29	9.77	10.11	5.58	14.57	1.20	0.51	14.18	9.34	10.71
50th-Percentile Queue Length [ft/ln]	282.2	244.1	252.6	139.5	364.2	29.99	12.68	354.45	233.62	267.77
95th-Percentile Queue Length [veh/ln]	16.80	14.89	15.32	9.46	20.83	2.16	0.91	20.35	14.36	16.08
95th-Percentile Queue Length [ft/ln]	419.9	372.2	382.9	236.3	520.7	53.97	22.82	508.83	358.96	401.95

Movement, Approach, & Intersection Results

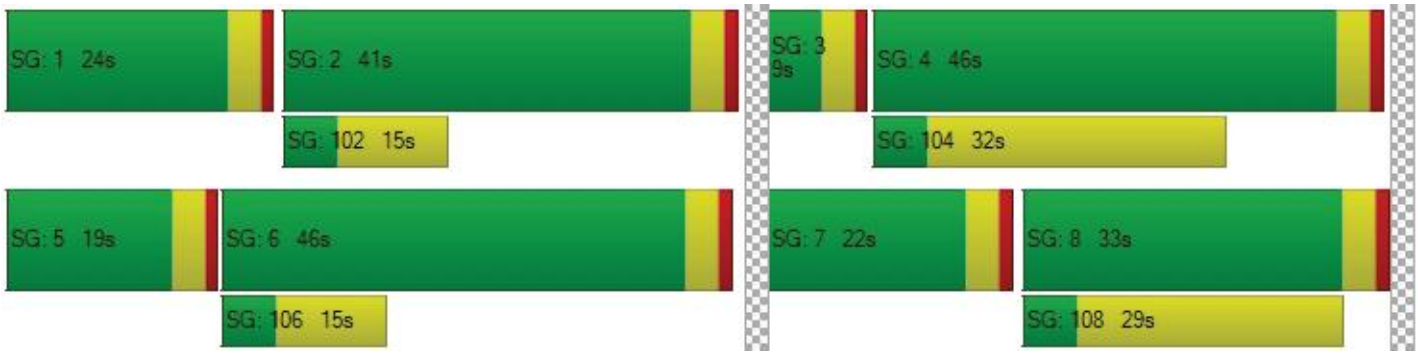
d_M, Delay for Movement [s/veh]	79.02	33.14	34.61	62.49	47.11	29.70	68.28	71.42	71.42	71.65	33.70	33.70
Movement LOS	E	C	C	E	D	C	E	E	E	E	C	C
d_A, Approach Delay [s/veh]	42.30			48.10			71.31			48.02		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	48.21											
Intersection LOS	D											
Intersection V/C	0.811											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.087	3.269	2.282	2.330
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	617	483	700
d_b, Bicycle Delay [s]	25.35	28.70	34.50	25.35
l_b,int, Bicycle LOS Score for Intersection	2.388	2.479	2.218	2.701
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	160.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.512

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	290	58	7	302	110	66	258	28	44	296	44
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	11	5	31	0	0	159	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	290	58	7	302	121	71	289	28	44	455	44
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	76	15	2	79	32	19	76	7	12	120	12
Total Analysis Volume [veh/h]	39	305	61	7	318	127	75	304	29	46	479	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	405	452	408	571
Degree of Utilization, x	1.07	1.18	1.08	1.51

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	14.04	18.03	14.48	31.06
95th-Percentile Queue Length [ft]	351.03	450.69	362.12	776.52
Approach Delay [s/veh]	97.06	134.39	102.09	268.26
Approach LOS	F	F	F	F
Intersection Delay [s/veh]	160.61			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	180.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.542

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	4	67	242	86	68	1	75	436	32	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	67	242	86	68	1	75	436	32	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	18	64	23	18	0	20	115	8	3
Total Analysis Volume [veh/h]	4	71	255	91	72	1	79	459	34	11
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	493	584
Degree of Utilization, x	1.28	1.54

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	21.97	32.42
95th-Percentile Queue Length [ft]	549.27	810.46
Approach Delay [s/veh]	172.91	281.03
Approach LOS	F	F
Intersection Delay [s/veh]	180.93	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	52	24	211	104	0	30	92	253	27	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	10	0	0	0	0	118	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	40	221	104	0	30	92	371	27	4
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	11	58	27	0	8	24	98	7	1
Total Analysis Volume [veh/h]	55	42	233	109	0	32	97	391	28	4
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	439	552
Degree of Utilization, x	1.15	1.46

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	16.87	28.96
95th-Percentile Queue Length [ft]	421.86	723.98
Approach Delay [s/veh]	123.40	247.26
Approach LOS	F	F
Intersection Delay [s/veh]	180.93	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	2	15	74	26	1	15	50	138	36	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	15	74	26	1	15	50	138	60	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	19	7	0	4	13	36	16	2
Total Analysis Volume [veh/h]	2	16	78	27	1	16	53	145	63	7
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	397	381	419
Degree of Utilization, x	0.31	0.56	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.31	3.32	0.59
95th-Percentile Queue Length [ft]	32.80	82.90	14.83
Approach Delay [s/veh]	16.13	20.98	
Approach LOS	C	C	
Intersection Delay [s/veh]	180.93		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.612

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	166	662	220	117	951	64	92	183	193	140	163	95
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	29	0	0	0	0	13	0	5	5	0	76	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	662	220	117	951	77	92	188	198	140	239	95
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	174	58	31	250	20	24	49	52	37	63	25
Total Analysis Volume [veh/h]	205	697	232	123	1001	81	97	198	208	147	252	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	59	0	17	52	0	18	26	0	18	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	65	65	10	59	59	8	18	18	12	21	21
g / C, Green / Cycle	0.13	0.54	0.54	0.08	0.49	0.49	0.07	0.15	0.15	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.25	0.26	0.07	0.29	0.29	0.05	0.05	0.13	0.08	0.13	0.06
s, saturation flow rate [veh/h]	1810	1900	1740	1810	1900	1850	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	235	1023	937	151	934	910	124	536	239	175	335	285
d1, Uniform Delay [s]	51.22	17.16	17.18	54.11	21.79	21.80	55.01	46.05	49.96	53.27	46.90	43.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.64	1.57	1.72	10.23	2.69	2.77	10.22	0.42	9.28	10.17	3.40	0.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.47	0.47	0.82	0.59	0.59	0.78	0.37	0.87	0.84	0.75	0.35
d, Delay for Lane Group [s/veh]	60.87	18.73	18.90	64.34	24.48	24.57	65.24	46.47	59.24	63.44	50.30	44.10
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.67	8.56	7.90	4.08	11.50	11.24	3.24	2.70	6.71	4.85	7.45	2.68
50th-Percentile Queue Length [ft/ln]	166.7	214.0	197.5	102.0	287.4	281.0	81.02	67.59	167.7	121.2	186.2	66.90
95th-Percentile Queue Length [veh/ln]	10.91	13.36	12.51	7.35	17.06	16.74	5.83	4.87	10.96	8.46	11.93	4.82
95th-Percentile Queue Length [ft/ln]	272.6	333.9	312.7	183.6	426.5	418.5	145.8	121.6	273.9	211.5	298.2	120.4

Movement, Approach, & Intersection Results

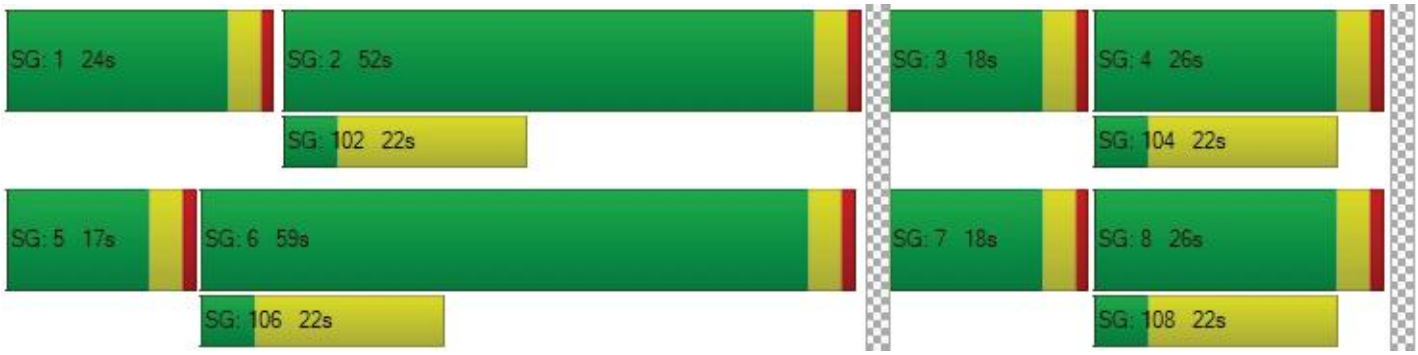
d_M, Delay for Movement [s/veh]	60.87	18.79	18.90	64.34	24.52	24.57	65.24	46.47	59.24	63.44	50.30	44.10
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	26.42			28.59			55.37			52.93		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.52											
Intersection LOS	D											
Intersection V/C	0.612											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.801	2.724	2.518	2.639
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	800	367	367
d_b, Bicycle Delay [s]	17.60	21.60	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	2.495	2.554	1.975	2.383
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	876	64	30	1276	48	73	247	136	195	253	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	32	0	0	0	0	9	0	0	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	876	64	30	1276	57	73	247	136	195	262	75
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	231	17	8	336	15	19	65	36	51	69	20
Total Analysis Volume [veh/h]	92	922	67	32	1343	60	77	260	143	205	276	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	49	0	9	46	0	26	33	0	29	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	69	69	3	64	64	7	16	16	16	25	25
g / C, Green / Cycle	0.06	0.57	0.57	0.03	0.54	0.54	0.06	0.14	0.14	0.13	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.26	0.02	0.37	0.37	0.04	0.11	0.11	0.11	0.10	0.10
s, saturation flow rate [veh/h]	1810	1900	1855	1810	1900	1872	1810	1900	1679	1810	1900	1757
c, Capacity [veh/h]	115	1086	1060	50	1017	1002	102	260	230	237	401	371
d1, Uniform Delay [s]	55.41	14.94	14.95	57.76	20.60	20.64	55.78	50.30	50.49	51.13	41.34	41.40
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.77	1.41	1.44	12.94	3.89	3.99	10.58	6.04	7.85	9.23	0.81	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.46	0.46	0.64	0.69	0.70	0.75	0.81	0.84	0.87	0.46	0.46
d, Delay for Lane Group [s/veh]	67.18	16.35	16.39	70.70	24.49	24.63	66.36	56.34	58.35	60.36	42.16	42.31
Lane Group LOS	E	B	B	E	C	C	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.12	8.14	7.97	1.14	15.22	15.09	2.60	6.58	6.12	6.64	4.84	4.55
50th-Percentile Queue Length [ft/ln]	78.06	203.6	199.1	28.53	380.4	377.2	65.00	164.5	153.0	166.0	120.9	113.7
95th-Percentile Queue Length [veh/ln]	5.62	12.83	12.59	2.05	21.61	21.46	4.68	10.79	10.18	10.87	8.45	8.05
95th-Percentile Queue Length [ft/ln]	140.5	320.6	314.8	51.36	540.3	536.5	117.0	269.6	254.4	271.6	211.1	201.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.18	16.37	16.39	70.70	24.56	24.63	66.36	56.72	58.35	60.36	42.21	42.31
Movement LOS	E	B	B	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	20.69			25.59			58.75			48.87		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	32.24											
Intersection LOS	C											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.995	2.876	2.492	2.494
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	700	483	533
d_b, Bicycle Delay [s]	23.44	25.35	34.50	32.27
l_b,int, Bicycle LOS Score for Intersection	2.451	2.743	1.956	2.022
Bicycle LOS	B	B	A	B

Sequence

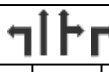
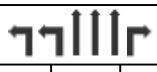
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	45.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	96	58	86	166	276	991	336	452	66	150	1395	330
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	9	0	0	0	116
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	58	86	166	276	991	336	461	66	150	1395	446
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	25	15	23	44	73	261	88	121	17	39	367	117
Total Analysis Volume [veh/h]	101	61	91	175	291	1043	354	485	69	158	1468	469
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	18	46	0	18	49	0	13	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	38	38	13	43	43	43	14	45	45	7	39	39
g / C, Green / Cycle	0.07	0.32	0.32	0.11	0.36	0.36	0.36	0.12	0.38	0.38	0.06	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.02	0.06	0.10	0.15	0.32	0.32	0.10	0.09	0.04	0.04	0.28	0.29
s, saturation flow rate [veh/h]	1810	3618	1615	181	190	161	161	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	121	1143	510	203	687	584	584	407	1946	607	220	1670	521
d1, Uniform Delay [s]	55.36	28.55	29.75	52.3	28.8	36.1	36.1	52.15	25.78	24.41	55.21	38.43	38.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.37
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.93	0.09	0.76	10.3	1.91	18.6	18.6	5.77	0.07	0.08	4.36	1.64	16.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.05	0.18	0.86	0.42	0.89	0.89	0.87	0.25	0.11	0.72	0.88	0.90
d, Delay for Lane Group [s/veh]	69.29	28.64	30.51	62.6	30.8	54.7	54.7	57.92	25.85	24.49	59.56	40.07	55.40
Lane Group LOS	E	C	C	E	C	D	D	E	C	C	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.49	0.63	2.03	5.76	6.68	17.1	17.1	5.56	3.21	1.30	2.48	13.72	15.43
50th-Percentile Queue Length [ft/ln]	87.16	15.78	50.66	143.	167.	429.	429.	138.9	80.15	32.61	62.04	342.9	385.7
95th-Percentile Queue Length [veh/ln]	6.28	1.14	3.65	9.69	10.9	23.9	23.9	9.43	5.77	2.35	4.47	19.79	21.87
95th-Percentile Queue Length [ft/ln]	156.8	28.40	91.19	242.	273.	599.	599.	235.6	144.2	58.70	111.6	494.7	546.7

Movement, Approach, & Intersection Results

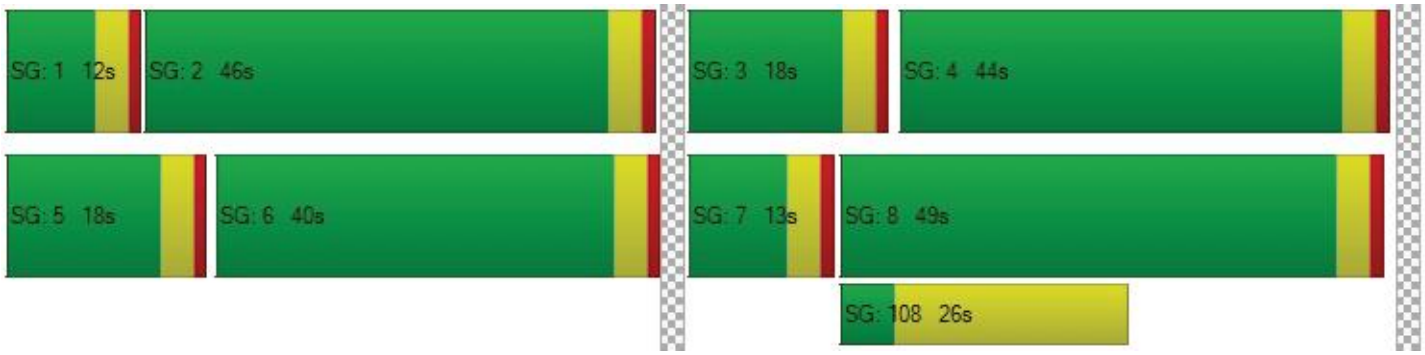
d_M, Delay for Movement [s/veh]	69.29	28.64	30.51	62.69	30.80	54.75	57.92	25.85	24.49	59.56	40.07	55.40
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	E
d_A, Approach Delay [s/veh]	45.54			51.05			38.25			44.97		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.65											
Intersection LOS	D											
Intersection V/C	0.770											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.593	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	700	750	667
d_b, Bicycle Delay [s]	29.40	25.35	23.44	26.67
l_b,int, Bicycle LOS Score for Intersection	1.768	2.805	2.059	2.712
Bicycle LOS	A	C	B	B

Sequence

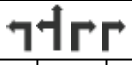
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	48.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.627

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	28	38	424	55	1070	286	468	28	34	372	106
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	149	0	0	0	9	0	0	116	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	28	38	573	55	1070	286	477	28	34	488	106
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	7	10	151	14	282	75	126	7	9	128	28
Total Analysis Volume [veh/h]	52	29	40	603	58	1126	301	502	29	36	514	112
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	48	0	9	23	0	16	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	44	44	44	13	51	51	4	42	42
g / C, Green / Cycle	0.05	0.05	0.05	0.37	0.37	0.37	0.11	0.42	0.42	0.03	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.02	0.18	0.18	0.39	0.09	0.10	0.02	0.02	0.12	0.12
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1825	2859	3514	5176	1615	1810	3618	1734
c, Capacity [veh/h]	84	88	75	663	669	1048	372	2197	685	53	1258	603
d1, Uniform Delay [s]	56.18	55.41	55.95	29.44	29.39	38.00	52.47	22.01	20.24	57.69	28.87	28.97
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.26	2.15	5.80	0.58	0.57	38.55	4.24	0.24	0.12	14.21	0.71	1.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.33	0.53	0.50	0.49	1.07	0.81	0.23	0.04	0.68	0.33	0.34
d, Delay for Lane Group [s/veh]	63.44	57.57	61.76	30.02	29.96	76.55	56.71	22.26	20.36	71.90	29.58	30.51
Lane Group LOS	E	E	E	C	C	F	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.72	0.90	1.31	7.48	7.46	20.69	4.65	3.07	0.50	1.29	4.60	4.68
50th-Percentile Queue Length [ft/ln]	42.92	22.60	32.66	186.9	186.5	517.3	116.1	76.72	12.58	32.29	115.0	117.0
95th-Percentile Queue Length [veh/ln]	3.09	1.63	2.35	11.96	11.94	29.54	8.18	5.52	0.91	2.32	8.12	8.23
95th-Percentile Queue Length [ft/ln]	77.26	40.68	58.79	299.0	298.5	738.5	204.5	138.1	22.65	58.12	202.9	205.7

Movement, Approach, & Intersection Results

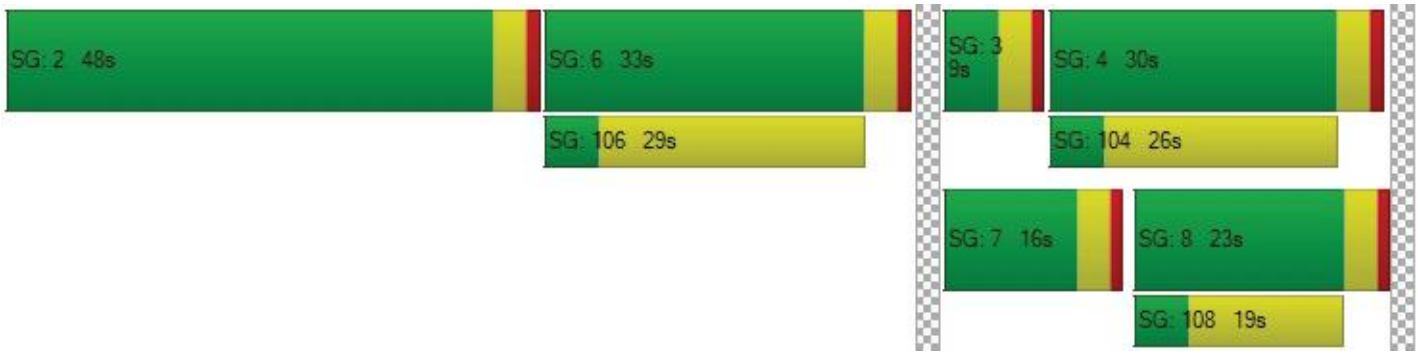
d_M, Delay for Movement [s/veh]	63.44	57.57	61.76	29.99	29.96	76.55	56.71	22.26	20.36	71.90	29.75	30.51
Movement LOS	E	E	E	C	C	F	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	61.48			59.33			34.65			32.17		
Approach LOS	E			E			C			C		
d_I, Intersection Delay [s/veh]	48.09											
Intersection LOS	D											
Intersection V/C	0.627											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.206	2.830	0.000	2.861
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	733	317	433
d_b, Bicycle Delay [s]	34.50	24.07	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.659	4.508	2.017	1.924
Bicycle LOS	A	E	B	A

Sequence

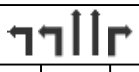
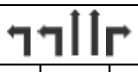
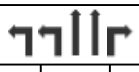
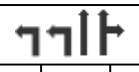
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	298	894	97	69	1010	196	194	196	103	217	502	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	96	12	0	111	0	5	153	0	2	116	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	298	990	109	69	1121	196	199	349	103	219	618	82
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	78	261	29	18	295	52	52	92	27	58	163	22
Total Analysis Volume [veh/h]	314	1042	115	73	1180	206	209	367	108	231	651	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	56	0	9	48	0	13	36	0	19	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	64	5	56	56	9	26	26	10	27	27
g / C, Green / Cycle	0.10	0.53	0.04	0.46	0.46	0.08	0.21	0.21	0.08	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.09	0.29	0.02	0.33	0.13	0.06	0.10	0.07	0.07	0.20	0.20
s, saturation flow rate [veh/h]	3514	3618	3514	3618	1615	3514	3618	1615	3514	1900	1823
c, Capacity [veh/h]	369	1921	134	1679	750	264	771	344	297	423	406
d1, Uniform Delay [s]	52.78	18.54	56.69	25.57	19.75	54.58	41.34	39.81	53.83	45.21	45.21
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.18	0.18
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.57	1.11	3.42	2.49	0.91	5.35	0.46	0.52	4.41	10.30	10.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.54	0.54	0.70	0.27	0.79	0.48	0.31	0.78	0.89	0.89
d, Delay for Lane Group [s/veh]	58.35	19.64	60.11	28.06	20.66	59.93	41.80	40.33	58.25	55.51	55.88
Lane Group LOS	E	B	E	C	C	E	D	D	E	E	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.93	9.61	1.15	13.68	3.72	3.30	4.82	2.75	3.60	12.02	11.57
50th-Percentile Queue Length [ft/ln]	123.29	240.30	28.78	342.0	93.04	82.53	120.4	68.78	90.01	300.4	289.3
95th-Percentile Queue Length [veh/ln]	8.57	14.70	2.07	19.75	6.70	5.94	8.42	4.95	6.48	17.70	17.15
95th-Percentile Queue Length [ft/ln]	214.34	367.41	51.81	493.6	167.4	148.5	210.3	123.8	162.0	442.5	428.7

Movement, Approach, & Intersection Results

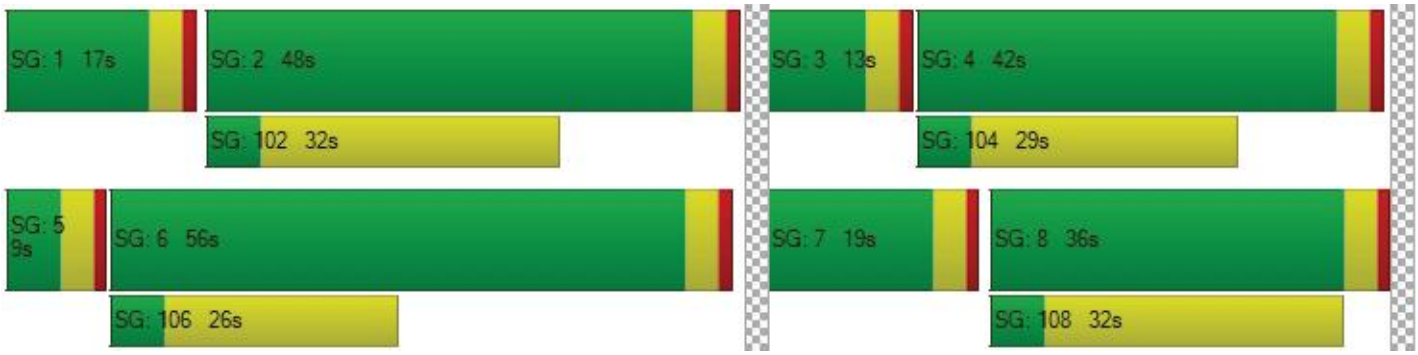
d_M, Delay for Movement [s/veh]	58.35	19.64	0.00	60.11	28.06	20.66	59.93	41.80	40.33	58.25	55.67	55.88
Movement LOS	E	B		E	C	C	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	28.61			28.62			47.11			56.30		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	37.44											
Intersection LOS	D											
Intersection V/C	0.673											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.091	2.999	2.967	2.697
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	733	533	633
d_b, Bicycle Delay [s]	19.27	24.07	32.27	28.02
l_b,int, Bicycle LOS Score for Intersection	2.678	2.763	2.124	2.358
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	36.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	87	3	285	12	9	0	1	260	37	381	808	5
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	133	0	0	0	0	165	0	40	118	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	418	12	9	0	1	425	37	421	926	5
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	110	3	2	0	0	112	10	111	244	1
Total Analysis Volume [veh/h]	92	3	440	13	9	0	1	447	39	443	975	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	52	0	10	33	0	17	26	0	32	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	43	43	35	43	0	34	34	32	65	65
g / C, Green / Cycle	0.35	0.35	0.29	0.35	0.00	0.28	0.28	0.26	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.27	0.02	0.00	0.12	0.02	0.24	0.26	0.26
s, saturation flow rate [veh/h]	1428	1489	1615	1123	1810	3618	1615	1810	1900	1897
c, Capacity [veh/h]	510	645	474	474	3	1019	455	477	1033	1031
d1, Uniform Delay [s]	25.85	25.76	41.14	25.31	59.84	35.31	31.72	43.12	16.85	16.85
k, delay calibration	0.11	0.11	0.20	0.11	0.11	0.50	0.50	0.22	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.05	13.86	0.04	61.02	1.37	0.37	15.10	1.57	1.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.08	0.93	0.05	0.35	0.44	0.09	0.93	0.47	0.47
d, Delay for Lane Group [s/veh]	25.92	25.82	55.01	25.35	120.8	36.69	32.09	58.22	18.42	18.42
Lane Group LOS	C	C	E	C	F	D	C	E	B	B
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.83	1.02	14.32	0.42	0.08	5.56	0.89	14.71	8.60	8.59
50th-Percentile Queue Length [ft/ln]	20.73	25.45	358.0	10.49	1.97	139.0	22.21	367.7	214.8	214.6
95th-Percentile Queue Length [veh/ln]	1.49	1.83	20.53	0.76	0.14	9.43	1.60	21.00	13.40	13.39
95th-Percentile Queue Length [ft/ln]	37.32	45.80	513.1	18.89	3.54	235.8	39.97	525.0	335.1	334.7

Movement, Approach, & Intersection Results

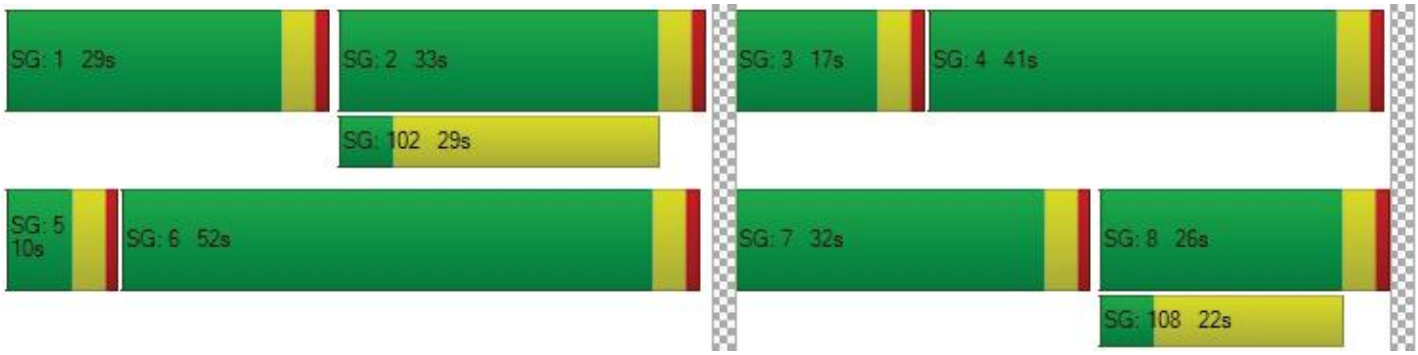
d_M, Delay for Movement [s/veh]	25.92	25.82	55.01	25.35	25.35	25.35	120.8	36.69	32.09	58.22	18.42	18.42
Movement LOS	C	C	E	C	C	C	F	D	C	E	B	B
d_A, Approach Delay [s/veh]	49.83			25.35			36.49			30.81		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	36.01											
Intersection LOS	D											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.515	0.000	2.961	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	367	617
d_b, Bicycle Delay [s]	16.02	16.02	40.02	28.70
l_b,int, Bicycle LOS Score for Intersection	2.442	1.596	1.961	2.734
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	149	0	505	1059	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	158	283	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	307	283	521	1059	1
Peak Hour Factor	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	81	71	137	279	0
Total Analysis Volume [veh/h]	0	323	283	548	1115	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

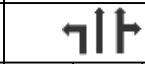
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.68	0.46	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	134.82	26.79	15.54	0.00	0.00	0.00
Movement LOS	F	D	C	A	A	A
95th-Percentile Queue Length [veh/ln]	4.97	4.97	2.37	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	124.23	124.23	59.36	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	26.79		5.29		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.75					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	141	1096	122	111	1143	432	263	90	158	237	457	110
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	257	0	17	209	0	16	0	0	0	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	1353	122	128	1352	432	279	90	158	237	457	149
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	37	356	32	34	356	114	73	24	42	62	120	39
Total Analysis Volume [veh/h]	148	1424	128	135	1423	455	294	95	166	249	481	157
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	43	0	14	41	41	26	40	0	23	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	49	49	10	47	73	21	27	18	24	24
g / C, Green / Cycle	0.10	0.41	0.41	0.08	0.39	0.61	0.18	0.22	0.15	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.29	0.07	0.27	0.28	0.16	0.03	0.14	0.18	0.18
s, saturation flow rate [veh/h]	1810	3618	1821	1810	5176	1615	1810	3618	1810	1900	1742
c, Capacity [veh/h]	175	1469	739	151	2032	977	323	814	276	377	346
d1, Uniform Delay [s]	53.33	29.62	29.64	54.48	30.52	13.05	48.32	37.01	49.98	46.72	46.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.19	0.11	0.12	0.18	0.18
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.65	2.84	5.55	16.36	2.04	1.60	15.58	0.06	11.58	10.70	11.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.70	0.70	0.90	0.70	0.47	0.91	0.12	0.90	0.88	0.88
d, Delay for Lane Group [s/veh]	63.98	32.46	35.18	70.85	32.56	14.64	63.89	37.08	61.56	57.42	58.31
Lane Group LOS	E	C	D	E	C	B	E	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.91	12.77	13.44	4.72	11.72	6.94	10.00	1.13	8.21	10.74	9.94
50th-Percentile Queue Length [ft/ln]	122.6	319.3	335.8	118.0	293.0	173.5	250.00	28.19	205.3	268.4	248.4
95th-Percentile Queue Length [veh/ln]	8.54	18.64	19.45	8.29	17.34	11.26	15.19	2.03	12.91	16.11	15.11
95th-Percentile Queue Length [ft/ln]	213.4	465.8	486.1	207.1	433.4	281.5	379.65	50.75	322.8	402.8	377.7

Movement, Approach, & Intersection Results

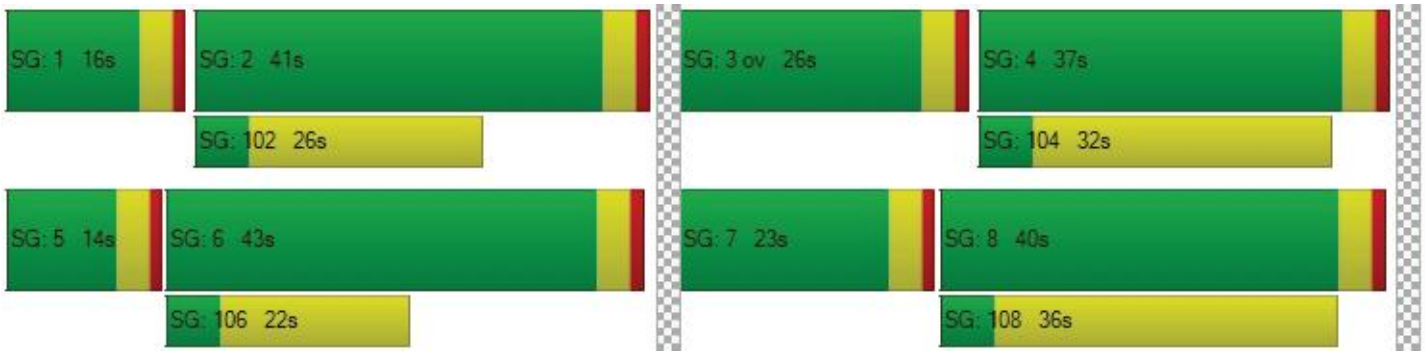
d_M, Delay for Movement [s/veh]	63.98	33.21	35.18	70.85	32.56	14.64	63.89	37.08	0.00	61.56	57.69	58.31
Movement LOS	E	C	D	E	C	B	E	D		E	E	E
d_A, Approach Delay [s/veh]	36.04			31.08			57.34			58.89		
Approach LOS	D			C			E			E		
d_I, Intersection Delay [s/veh]	39.76											
Intersection LOS	D											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.230	3.215	2.707	2.558
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	617	600	550
d_b, Bicycle Delay [s]	27.34	28.70	29.40	31.54
l_b,int, Bicycle LOS Score for Intersection	2.495	2.667	1.881	2.291
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	67	217	7	50	285	88	67	248	90	18	456	74
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	17	0	0	30	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	217	7	50	285	88	67	265	90	18	486	74
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	57	2	13	75	23	18	70	24	5	128	19
Total Analysis Volume [veh/h]	71	228	7	53	300	93	71	279	95	19	512	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	11	81	0	9	79	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	67	67	6	39	2	35	35
g / C, Green / Cycle	0.56	0.56	0.05	0.32	0.02	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.20	0.26	0.04	0.21	0.01	0.27	0.05
s, saturation flow rate [veh/h]	1506	1744	1810	1818	1810	1900	1615
c, Capacity [veh/h]	877	1007	91	585	37	554	471
d1, Uniform Delay [s]	14.22	15.50	56.30	34.74	58.21	41.22	31.64
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.10	1.41	13.13	1.17	10.90	7.08	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.44	0.78	0.64	0.52	0.92	0.17
d, Delay for Lane Group [s/veh]	15.32	16.91	69.44	35.91	69.11	48.30	31.80
Lane Group LOS	B	B	E	D	E	D	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.70	7.37	2.46	9.48	0.68	15.63	1.72
50th-Percentile Queue Length [ft/ln]	117.38	184.14	61.48	237.07	17.07	390.8	43.06
95th-Percentile Queue Length [veh/ln]	8.25	11.82	4.43	14.53	1.23	22.12	3.10
95th-Percentile Queue Length [ft/ln]	206.22	295.41	110.67	363.32	30.73	552.9	77.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.32	15.32	15.32	16.91	16.91	16.91	69.44	35.91	35.91	69.11	48.30	31.80
Movement LOS	B	B	B	B	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	15.32			16.91			41.26			46.83		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	32.73											
Intersection LOS	C											
Intersection V/C	0.564											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.081	2.131	2.521	0.000
Crosswalk LOS	B	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1283	1250
d_b, Bicycle Delay [s]	36.82	36.82	7.70	8.44
l_b,int, Bicycle LOS Score for Intersection	2.065	2.296	2.294	2.564
Bicycle LOS	B	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	40.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	1	87	157	31	9	0	127	439	77	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	104	157	31	9	0	127	439	77	17
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	27	41	8	2	0	33	116	20	4
Total Analysis Volume [veh/h]	1	109	165	33	9	0	134	462	81	18
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	73	0	0	0	0	73	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	57	57
g / C, Green / Cycle	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.36	0.45
s, saturation flow rate [veh/h]	888	1539
c, Capacity [veh/h]	459	761
d1, Uniform Delay [s]	24.05	31.17
k, delay calibration	0.19	0.31
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	3.24	12.01
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.91
d, Delay for Lane Group [s/veh]	27.29	43.19
Lane Group LOS	C	D
Critical Lane Group	No	Yes
50th-Percentile Queue Length [veh/ln]	7.42	21.56
50th-Percentile Queue Length [ft/ln]	185.56	538.96
95th-Percentile Queue Length [veh/ln]	11.89	29.17
95th-Percentile Queue Length [ft/ln]	297.26	729.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.29	27.29	27.29	27.29	27.29	43.19	43.19	43.19	43.19	43.19
Movement LOS	C	C	C	C	C	D	D	D	D	D
d_A, Approach Delay [s/veh]	27.29					43.19				
Approach LOS	C					D				
d_I, Intersection Delay [s/veh]	40.84									
Intersection LOS	D									
Intersection V/C	0.679									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.179	2.231
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1150	1150
d_b, Bicycle Delay [s]	10.84	10.84
l_b,int, Bicycle LOS Score for Intersection	1.888	2.456
Bicycle LOS	A	B

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	10	83	179	28	6	1	32	189	30	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	5	0	0	0	13	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	83	191	33	6	1	32	202	30	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	22	50	9	2	0	8	53	8	2
Total Analysis Volume [veh/h]	11	87	201	35	6	1	34	213	32	7
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	9	0	19	0	0	9	0	19	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	40	32	40	29	29
g / C, Green / Cycle	0.33	0.27	0.33	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.08	0.13	0.03	0.11	0.02
s, saturation flow rate [veh/h]	1286	1845	1245	1900	1615
c, Capacity [veh/h]	412	498	380	466	396
d1, Uniform Delay [s]	28.84	36.78	28.00	38.48	35.01
k, delay calibration	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	3.36	0.10	3.20	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.49	0.09	0.46	0.10
d, Delay for Lane Group [s/veh]	30.20	40.14	28.10	41.68	35.50
Lane Group LOS	C	D	C	D	D
Critical Lane Group	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.16	6.44	0.70	5.76	0.95
50th-Percentile Queue Length [ft/ln]	54.12	161.06	17.58	144.05	23.63
95th-Percentile Queue Length [veh/ln]	3.90	10.61	1.27	9.70	1.70
95th-Percentile Queue Length [ft/ln]	97.41	265.13	31.64	242.47	42.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.20	30.20	40.14	40.14	40.14	28.10	28.10	41.68	35.50	35.50
Movement LOS	C	C	D	D	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	37.28					39.18				
Approach LOS	D					D				
d_I, Intersection Delay [s/veh]	40.84									
Intersection LOS	D									
Intersection V/C	0.679									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.380	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.967	1.966
Bicycle LOS	A	A

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	11	40	13	1	3	16	105	87	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	40	13	1	3	16	105	87	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	11	3	0	1	4	28	23	1
Total Analysis Volume [veh/h]	0	12	42	14	1	3	17	111	92	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	12
g / C, Green / Cycle	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.06
s, saturation flow rate [veh/h]	929	1747	1615
c, Capacity [veh/h]	125	204	156
d1, Uniform Delay [s]	51.01	52.72	51.98
k, delay calibration	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	3.76	3.38	3.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.64	0.60
d, Delay for Lane Group [s/veh]	54.77	56.10	55.66
Lane Group LOS	D	E	E
Critical Lane Group	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.08	4.04	2.88
50th-Percentile Queue Length [ft/ln]	52.03	100.92	71.88
95th-Percentile Queue Length [veh/ln]	3.75	7.27	5.18
95th-Percentile Queue Length [ft/ln]	93.65	181.65	129.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.77	54.77	54.77	54.77	54.77	56.10	56.10	56.10	55.66	55.66
Movement LOS	D	D	D	D	D	E	E	E	E	E
d_A, Approach Delay [s/veh]	54.77					55.91				
Approach LOS	D					E				
d_I, Intersection Delay [s/veh]	40.84									
Intersection LOS	D									
Intersection V/C	0.679									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.048	2.311
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.631	1.923
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	130	691	192	122	911	71	151	134	75	157	172	318
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	5	0	0	0	12	0	0	13	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	700	192	127	911	71	151	146	75	157	185	338
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	34	184	51	33	240	19	40	38	20	41	49	89
Total Analysis Volume [veh/h]	137	737	202	134	959	75	159	154	79	165	195	356
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	41	0	15	41	0	16	38	0	26	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	52	52	11	52	52	12	28	28	13	29	29
g / C, Green / Cycle	0.09	0.44	0.44	0.09	0.43	0.43	0.10	0.23	0.23	0.11	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.26	0.07	0.28	0.28	0.09	0.06	0.07	0.09	0.10	0.22
s, saturation flow rate [veh/h]	1810	1900	1761	1810	1900	1852	1810	1900	1690	1810	1900	1615
c, Capacity [veh/h]	163	827	766	160	824	803	181	444	395	197	462	392
d1, Uniform Delay [s]	53.72	25.75	25.75	53.82	26.58	26.59	53.28	37.61	37.72	52.41	38.32	44.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.77	3.07	3.32	10.74	3.73	3.83	12.64	0.33	0.39	8.98	0.62	11.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.59	0.59	0.84	0.64	0.64	0.88	0.27	0.28	0.84	0.42	0.91
d, Delay for Lane Group [s/veh]	64.50	28.82	29.07	64.56	30.30	30.42	65.92	37.94	38.11	61.39	38.94	55.83
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.56	11.14	10.39	4.46	12.40	12.12	5.36	2.97	2.76	5.37	4.94	11.49
50th-Percentile Queue Length [ft/ln]	113.9	278.4	259.7	111.4	309.9	303.0	134.0	74.16	68.98	134.1	123.4	287.2
95th-Percentile Queue Length [veh/ln]	8.06	16.61	15.67	7.92	18.17	17.83	9.16	5.34	4.97	9.16	8.58	17.05
95th-Percentile Queue Length [ft/ln]	201.4	415.3	391.8	198.0	454.2	445.8	228.9	133.4	124.1	229.0	214.6	426.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.50	28.91	29.07	64.56	30.36	30.42	65.92	37.97	38.11	61.39	38.94	55.83
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	33.47			34.28			49.34			52.51		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.68											
Intersection LOS	D											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.759	2.787	2.471	2.664
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	617	567	733
d_b, Bicycle Delay [s]	28.70	28.70	30.82	24.07
l_b,int, Bicycle LOS Score for Intersection	2.447	2.523	1.883	2.150
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.716

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	866	181	15	1414	116	42	212	95	289	344	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	16	0	0	0	0	0	0	12	0	2	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	882	181	15	1414	116	42	212	107	289	346	53
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	232	48	4	372	31	11	56	28	76	91	14
Total Analysis Volume [veh/h]	75	928	191	16	1488	122	44	223	113	304	364	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	27	0	9	26	0	33	36	0	48	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	65	65	2	62	62	4	14	14	22	32	32
g / C, Green / Cycle	0.05	0.55	0.55	0.02	0.51	0.51	0.03	0.12	0.12	0.19	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.12	0.01	0.41	0.08	0.02	0.09	0.10	0.17	0.11	0.11
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1691	1810	1900	1813
c, Capacity [veh/h]	90	1972	880	32	1854	828	61	223	198	338	514	490
d1, Uniform Delay [s]	56.49	16.69	14.08	58.45	24.21	15.42	57.42	51.49	51.71	47.67	36.01	36.02
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.05	0.81	0.57	12.07	3.78	0.38	14.80	5.94	7.95	8.58	0.54	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.47	0.22	0.51	0.80	0.15	0.72	0.78	0.82	0.90	0.42	0.42
d, Delay for Lane Group [s/veh]	73.54	17.50	14.64	70.52	28.00	15.79	72.22	57.43	59.66	56.26	36.55	36.59
Lane Group LOS	E	B	B	E	C	B	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.68	7.87	2.79	0.59	17.84	1.85	1.57	5.46	5.19	9.66	5.26	5.04
50th-Percentile Queue Length [ft/ln]	67.02	196.7	69.84	14.70	446.0	46.19	39.36	136.5	129.6	241.4	131.5	126.0
95th-Percentile Queue Length [veh/ln]	4.83	12.47	5.03	1.06	24.77	3.33	2.83	9.30	8.92	14.75	9.02	8.72
95th-Percentile Queue Length [ft/ln]	120.6	311.8	125.7	26.45	619.2	83.15	70.84	232.3	223.0	368.8	225.5	218.0

Movement, Approach, & Intersection Results

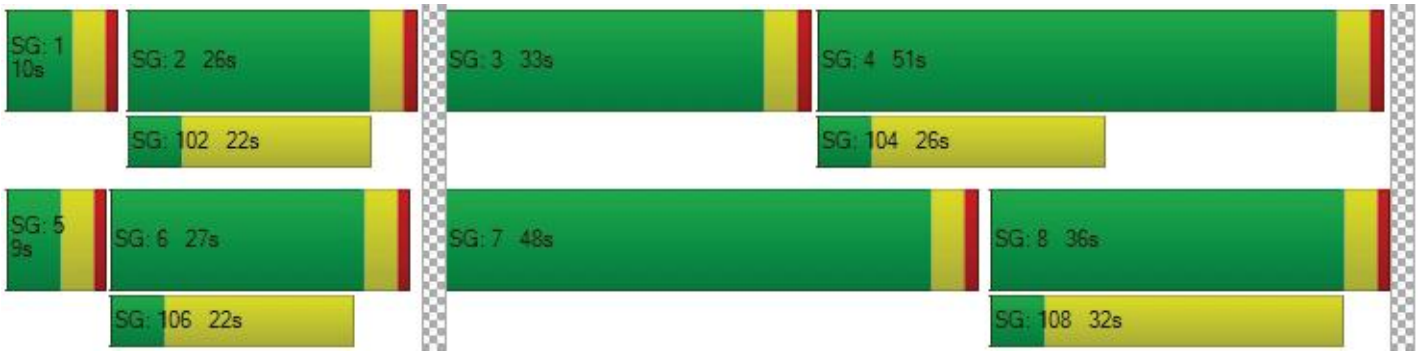
d_M, Delay for Movement [s/veh]	73.54	17.50	14.64	70.52	28.00	15.79	72.22	57.92	59.66	56.26	36.57	36.59
Movement LOS	E	B	B	E	C	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	20.57			27.50			60.09			44.84		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	31.74											
Intersection LOS	C											
Intersection V/C	0.716											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.118	2.899	2.499	2.540
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	367	533	783
d_b, Bicycle Delay [s]	39.20	40.02	32.27	22.20
l_b,int, Bicycle LOS Score for Intersection	2.545	2.901	1.873	2.157
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	147.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.588

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	7	221	86	24	381	50	24	138	7	386	263	25
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	221	86	24	381	50	24	138	7	386	263	25
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	58	23	6	100	13	6	36	2	102	69	7
Total Analysis Volume [veh/h]	7	233	91	25	401	53	25	145	7	406	277	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	454	479	403	683	489
Degree of Utilization, x	0.73	1.01	0.44	1.59	0.05

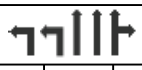
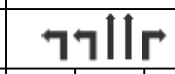
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.86	13.58	2.19	38.30	0.17
95th-Percentile Queue Length [ft]	146.51	339.46	54.66	957.49	4.21
Approach Delay [s/veh]	29.53	70.39	18.79	286.12	
Approach LOS	D	F	C	F	
Intersection Delay [s/veh]	147.22				
Intersection LOS	F				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	327	1213	103	56	1182	48	28	360	143	320	251	128
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	108	0	0	113	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	327	1321	103	56	1295	48	28	360	143	320	251	128
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	86	348	27	15	341	13	7	95	38	84	66	34
Total Analysis Volume [veh/h]	344	1391	108	59	1363	51	29	379	151	337	264	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	61	0	9	41	0	15	23	0	27	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	70	70	5	60	60	3	15	15	14	26	26
g / C, Green / Cycle	0.12	0.58	0.58	0.04	0.50	0.50	0.03	0.13	0.13	0.12	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.10	0.27	0.28	0.03	0.26	0.26	0.02	0.10	0.09	0.10	0.07	0.08
s, saturation flow rate [veh/h]	3514	3618	1831	1810	3618	1865	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	420	2099	1062	75	1818	937	49	463	207	411	788	352
d1, Uniform Delay [s]	51.57	14.58	14.59	56.96	20.01	20.01	57.75	50.98	50.34	51.76	39.59	40.05
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.00	0.77	1.52	15.96	1.04	2.01	11.17	3.65	4.92	4.12	0.25	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.47	0.47	0.78	0.51	0.51	0.60	0.82	0.73	0.82	0.33	0.38
d, Delay for Lane Group [s/veh]	55.57	15.35	16.11	72.92	21.05	22.02	68.92	54.63	55.27	55.88	39.84	40.74
Lane Group LOS	E	B	B	E	C	C	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.28	7.83	8.18	2.11	8.86	9.39	1.02	5.78	4.64	5.19	3.33	3.48
50th-Percentile Queue Length [ft/ln]	132.0	195.7	204.3	52.66	221.4	234.6	25.56	144.4	116.1	129.6	83.21	87.06
95th-Percentile Queue Length [veh/ln]	9.05	12.42	12.86	3.79	13.74	14.41	1.84	9.72	8.18	8.92	5.99	6.27
95th-Percentile Queue Length [ft/ln]	226.2	310.5	321.6	94.80	343.4	360.2	46.00	243.0	204.4	223.0	149.7	156.7

Movement, Approach, & Intersection Results

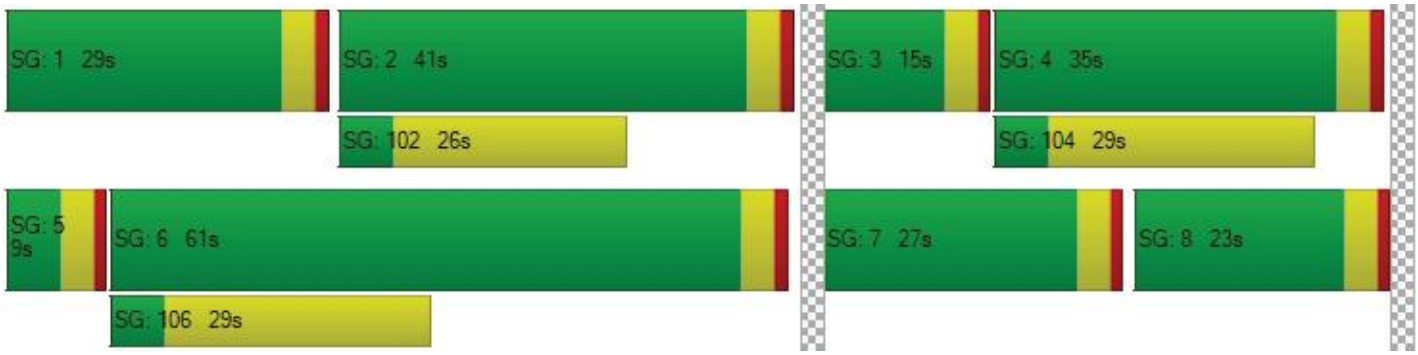
d_M, Delay for Movement [s/veh]	55.57	15.57	16.11	72.92	21.36	22.02	68.92	54.63	55.27	55.88	39.84	40.74
Movement LOS	E	B	B	E	C	C	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	23.06			23.45			55.54			47.35		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	31.00											
Intersection LOS	C											
Intersection V/C	0.556											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.031	2.666	2.788
Crosswalk LOS	F	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	617	317	517
d_b, Bicycle Delay [s]	16.54	28.70	42.50	33.00
l_b,int, Bicycle LOS Score for Intersection	2.573	2.370	2.021	2.167
Bicycle LOS	B	B	B	B

Sequence

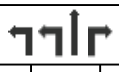
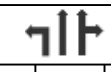
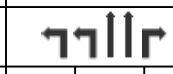
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	133	315	446	9	430	47	20	120	46	503	478	34
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	133	0	0	40	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	448	446	9	470	47	20	120	46	503	478	34
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	118	117	2	124	12	5	32	12	132	126	9
Total Analysis Volume [veh/h]	140	472	469	9	495	49	21	126	48	529	503	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	53	0	9	43	0	9	9	0	49	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	75	75	1	70	70	3	6	6	21	25	25
g / C, Green / Cycle	0.06	0.63	0.63	0.01	0.58	0.58	0.02	0.05	0.05	0.18	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.29	0.00	0.15	0.15	0.01	0.03	0.03	0.15	0.14	0.02
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1841	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	203	1188	1010	20	1100	1066	39	192	86	621	755	337
d1, Uniform Delay [s]	55.48	11.20	11.86	58.95	12.44	12.45	58.15	55.74	55.45	47.86	43.65	38.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.14	0.99	1.53	14.22	0.55	0.57	11.44	3.78	5.62	3.41	1.02	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.40	0.46	0.44	0.25	0.25	0.54	0.66	0.56	0.85	0.67	0.11
d, Delay for Lane Group [s/veh]	59.62	12.19	13.39	73.16	12.98	13.02	69.59	59.52	61.07	51.28	44.67	38.58
Lane Group LOS	E	B	B	E	B	B	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.20	6.34	6.76	0.35	3.75	3.66	0.75	1.97	1.55	7.95	6.97	0.88
50th-Percentile Queue Length [ft/ln]	54.93	158.5	169.0	8.82	93.75	91.58	18.86	49.31	38.81	198.6	174.3	21.96
95th-Percentile Queue Length [veh/ln]	3.96	10.47	11.02	0.63	6.75	6.59	1.36	3.55	2.79	12.57	11.30	1.58
95th-Percentile Queue Length [ft/ln]	98.88	261.8	275.6	15.87	168.7	164.8	33.95	88.76	69.85	314.2	282.6	39.53

Movement, Approach, & Intersection Results

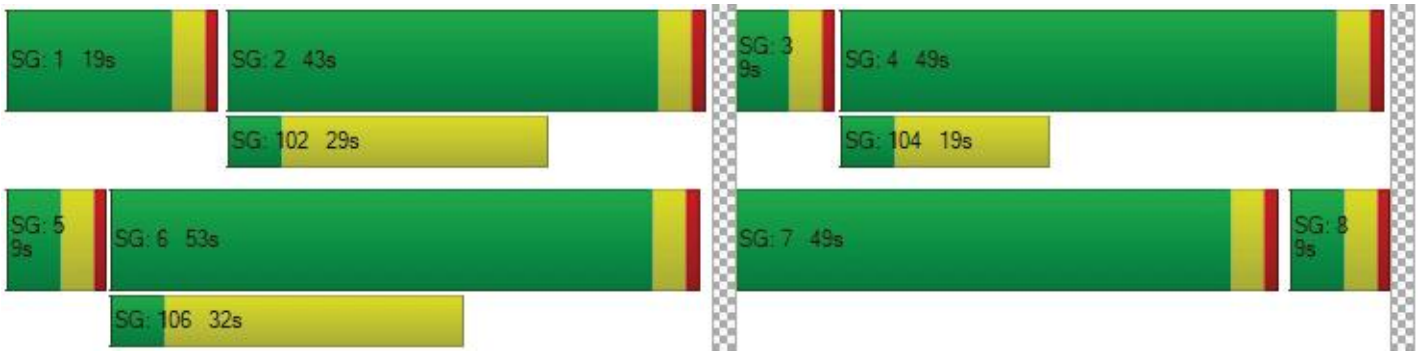
d_M, Delay for Movement [s/veh]	59.62	12.19	13.39	73.16	13.00	13.02	69.59	59.52	61.07	51.28	44.67	38.58
Movement LOS	E	B	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	18.85			13.98			60.99			47.74		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	31.41											
Intersection LOS	C											
Intersection V/C	0.481											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.410	2.733	2.944
Crosswalk LOS	F	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	650	83	750
d_b, Bicycle Delay [s]	21.00	27.34	55.10	23.44
l_b,int, Bicycle LOS Score for Intersection	3.343	2.016	1.720	2.441
Bicycle LOS	C	B	A	B

Sequence

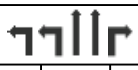
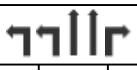
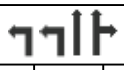
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	44.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.806

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	522	1233	425	118	1405	87	96	130	299	567	375	96
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	216	0	35	174	0	0	0	0	0	0	40
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	522	1449	425	153	1579	87	96	130	299	567	375	136
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	137	381	112	40	416	23	25	34	79	149	99	36
Total Analysis Volume [veh/h]	549	1525	447	161	1662	92	101	137	315	597	395	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	22	42	0	16	36	0	13	40	40	22	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	63	63	12	57	57	5	11	33	18	24	24
g / C, Green / Cycle	0.15	0.52	0.52	0.10	0.47	0.47	0.04	0.09	0.28	0.15	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.16	0.42	0.28	0.09	0.32	0.06	0.03	0.04	0.20	0.17	0.15	0.15
s, saturation flow rate [veh/h]	3514	3618	1615	1810	5176	1615	3514	3618	1615	3514	1900	1730
c, Capacity [veh/h]	527	1896	847	181	2454	766	157	334	445	527	376	342
d1, Uniform Delay [s]	51.00	23.48	18.78	53.35	24.43	17.59	56.37	51.37	39.10	51.00	45.33	45.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.29	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.15	3.74	2.35	13.61	1.52	0.32	4.32	0.80	5.43	65.41	3.01	3.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.80	0.53	0.89	0.68	0.12	0.64	0.41	0.71	1.13	0.75	0.75
d, Delay for Lane Group [s/veh]	81.15	27.22	21.13	66.96	25.95	17.91	60.69	52.17	44.52	116.4	48.34	48.68
Lane Group LOS	F	C	C	E	C	B	E	D	D	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.10	18.09	8.57	5.48	12.30	1.50	1.60	1.99	8.99	12.68	8.19	7.50
50th-Percentile Queue Length [ft/ln]	252.4	452.2	214.3	136.9	307.3	37.42	40.02	49.64	224.7	316.9	204.6	187.6
95th-Percentile Queue Length [veh/ln]	15.60	25.07	13.38	9.31	18.05	2.69	2.88	3.57	13.91	19.59	12.88	12.00
95th-Percentile Queue Length [ft/ln]	390.0	626.6	334.3	232.8	451.1	67.35	72.03	89.36	347.6	489.6	321.9	299.9

Movement, Approach, & Intersection Results

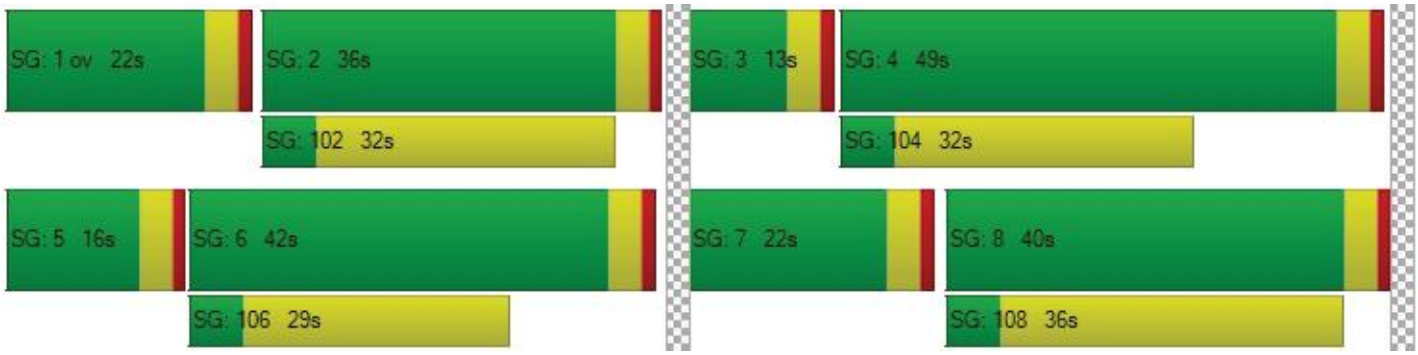
d_M, Delay for Movement [s/veh]	81.15	27.22	21.13	66.96	25.95	17.91	60.69	52.17	44.52	116.4	48.44	48.68
Movement LOS	F	C	C	E	C	B	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	37.88			29.01			49.37			84.22		
Approach LOS	D			C			D			F		
d_I, Intersection Delay [s/veh]	44.74											
Intersection LOS	D											
Intersection V/C	0.806											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.416	3.190	2.934	2.871
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	533	600	750
d_b, Bicycle Delay [s]	28.02	32.27	29.40	23.44
l_b,int, Bicycle LOS Score for Intersection	3.639	2.613	2.016	2.496
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	9	10	4	26	1	149	10	202	29	134	390	13
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	10	4	26	1	149	10	202	29	134	425	13
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	3	1	7	0	39	3	53	8	35	112	3
Total Analysis Volume [veh/h]	9	11	4	27	1	157	11	213	31	141	447	14
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	35	0	0	0	0	35	0	9	0	26	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	31	31	56	50	50
g / C, Green / Cycle	0.26	0.26	0.47	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.20	0.12	0.12
s, saturation flow rate [veh/h]	1591	1562	854	1900	1880
c, Capacity [veh/h]	444	444	366	792	783
d1, Uniform Delay [s]	34.15	43.49	21.06	23.25	23.25
k, delay calibration	0.11	0.41	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	16.48	4.28	0.94	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.86	0.47	0.29	0.29
d, Delay for Lane Group [s/veh]	34.26	59.97	25.34	24.18	24.20
Lane Group LOS	C	E	C	C	C
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.16	13.08	3.24	4.57	4.53
50th-Percentile Queue Length [ft/ln]	29.11	326.92	81.09	114.25	113.25
95th-Percentile Queue Length [veh/ln]	2.10	19.01	5.84	8.08	8.02
95th-Percentile Queue Length [ft/ln]	52.40	475.18	145.97	201.89	200.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.26	34.26	34.26	34.26	59.97	59.97	59.97	59.97	25.34	25.34	24.19	24.20
Movement LOS	C	C	C	C	E	E	E	E	C	C	C	C
d_A, Approach Delay [s/veh]	34.26				59.97				24.50			
Approach LOS	C				E				C			
d_I, Intersection Delay [s/veh]	37.24											
Intersection LOS	D											
Intersection V/C	0.674											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.782	0.000	2.768
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	517	367
d_b, Bicycle Delay [s]	33.00	33.00	40.02
l_b,int, Bicycle LOS Score for Intersection	1.599	1.931	1.966
Bicycle LOS	A	A	A

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	18	610	55	20	11	10	217	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	40	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	650	55	20	11	10	217	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	171	14	5	3	3	57	0
Total Analysis Volume [veh/h]	19	684	58	21	12	11	228	1
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	12	29	0	0	0	47	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	47	47	47	21
g / C, Green / Cycle	0.02	0.39	0.39	0.39	0.17
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.22	0.05	0.15
s, saturation flow rate [veh/h]	1810	1900	1900	1615	1634
c, Capacity [veh/h]	36	748	748	635	283
d1, Uniform Delay [s]	58.25	25.69	28.28	23.21	48.50
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.42	1.33	2.99	0.40	9.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.36	0.56	0.12	0.89
d, Delay for Lane Group [s/veh]	69.66	27.02	31.27	23.61	57.89
Lane Group LOS	E	C	C	C	E
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.69	5.67	9.87	1.51	8.09
50th-Percentile Queue Length [ft/ln]	17.16	141.64	246.76	37.75	202.32
95th-Percentile Queue Length [veh/ln]	1.24	9.57	15.02	2.72	12.76
95th-Percentile Queue Length [ft/ln]	30.89	239.24	375.57	67.96	318.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.66	29.61	31.27	23.61	57.89	57.89	57.89	57.89
Movement LOS	E	C	C	C	E	E	E	E
d_A, Approach Delay [s/veh]	29.98				57.89			
Approach LOS	C				E			
d_I, Intersection Delay [s/veh]	37.24							
Intersection LOS	D							
Intersection V/C	0.674							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.260
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	417	717
d_b, Bicycle Delay [s]	37.60	24.70
l_b,int, Bicycle LOS Score for Intersection	2.187	1.974
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	18.713

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	187	96	229	162	442	146	59	448	321	238	678	130
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	35	0	0	40	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	187	96	229	162	442	146	59	483	321	238	718	130
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	49	25	60	43	116	38	16	127	84	63	189	34
Total Analysis Volume [veh/h]	197	101	241	171	465	154	62	508	338	251	756	137
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

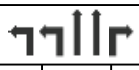
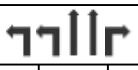
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	3.51	0.41	0.00	18.71	0.27	0.08	0.01	0.00	0.31	0.01	0.00
d_M, Delay for Movement [s/veh]	10000	10000	10000	10000	10000	13.74	10.10	0.00	0.00	11.55	0.00	0.00
Movement LOS	F	F	F	F	F	B	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	70.25	70.25	70.25	82.39	82.39	1.10	0.26	0.00	0.00	1.35	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1756.	1756.	1756.	2059.	2059.	27.52	6.57	0.00	0.00	33.65	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			8053.31			0.69			2.53		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	3476.97											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	68.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	492	681	161	94	882	35	39	316	520	465	421	99
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	40	9	0	0	0	0	0	0	35	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	532	690	161	94	882	35	39	316	555	465	421	99
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	140	182	42	25	232	9	10	83	146	122	111	26
Total Analysis Volume [veh/h]	560	726	169	99	928	37	41	333	584	489	443	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	43	0	12	33	0	11	45	0	20	54	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	39	39	8	29	29	4	41	41	16	53	53
g / C, Green / Cycle	0.15	0.33	0.33	0.07	0.24	0.24	0.03	0.34	0.34	0.13	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.16	0.20	0.10	0.05	0.26	0.26	0.01	0.09	0.36	0.14	0.15	0.15
s, saturation flow rate [veh/h]	3514	3618	1615	1810	1900	1874	3514	3618	1615	3514	1900	1777
c, Capacity [veh/h]	527	1176	525	121	459	453	112	1236	552	469	842	787
d1, Uniform Delay [s]	51.00	34.20	30.53	55.29	45.50	45.50	56.90	28.64	39.50	52.00	21.86	21.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	37.48	2.44	1.62	12.74	58.14	58.46	1.99	0.12	54.68	31.87	0.23	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.06	0.62	0.32	0.82	1.06	1.06	0.37	0.27	1.06	1.04	0.34	0.34
d, Delay for Lane Group [s/veh]	88.48	36.64	32.15	68.03	103.6	103.9	58.88	28.76	94.18	83.87	22.09	22.11
Lane Group LOS	F	D	C	E	F	F	E	C	F	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.64	9.31	3.94	3.38	20.97	20.73	0.64	3.52	24.36	9.10	5.26	4.92
50th-Percentile Queue Length [ft/ln]	265.8	232.6	98.47	84.58	524.3	518.3	16.02	87.88	608.9	227.5	131.3	122.9
95th-Percentile Queue Length [veh/ln]	16.43	14.31	7.09	6.09	29.45	29.16	1.15	6.33	33.72	14.32	9.02	8.56
95th-Percentile Queue Length [ft/ln]	410.8	357.7	177.2	152.2	736.3	729.0	28.83	158.1	843.0	357.9	225.3	213.9

Movement, Approach, & Intersection Results

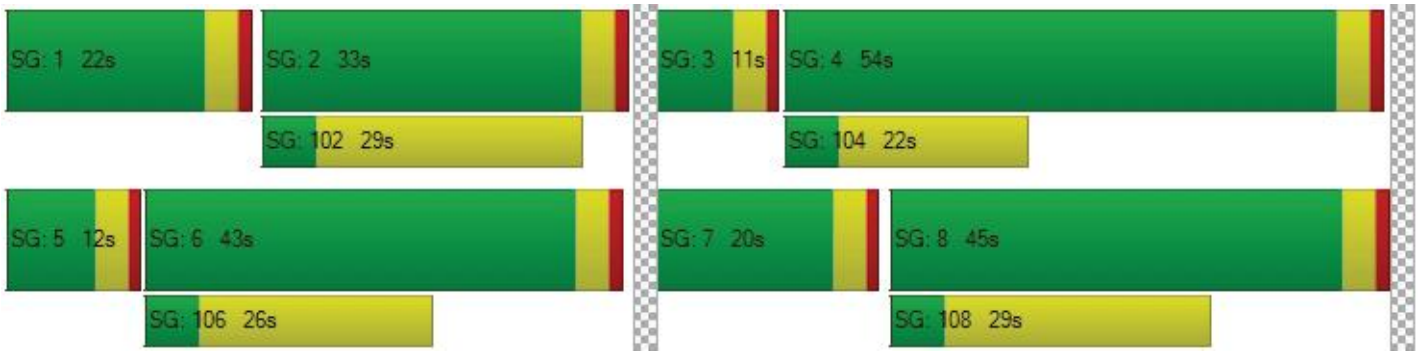
d_M, Delay for Movement [s/veh]	88.48	36.64	32.15	68.03	103.7	103.9	58.88	28.76	94.18	83.87	22.10	22.11
Movement LOS	F	D	C	E	F	F	E	C	F	F	C	C
d_A, Approach Delay [s/veh]	56.07			100.47			69.93			51.26		
Approach LOS	E			F			E			D		
d_I, Intersection Delay [s/veh]	68.38											
Intersection LOS	E											
Intersection V/C	0.916											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.091	2.692	2.887	2.940
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	483	683	833
d_b, Bicycle Delay [s]	27.34	34.50	26.00	20.42
l_b,int, Bicycle LOS Score for Intersection	2.760	2.437	2.350	2.414
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.736

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	222	1373	756	128	1600	132	203	290	191	612	469	109
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	21	0	0	12	0	0	0	0	0	0	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	222	1394	756	128	1612	132	203	290	191	612	469	118
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	58	367	199	34	424	35	53	76	50	161	123	31
Total Analysis Volume [veh/h]	234	1467	796	135	1697	139	214	305	201	644	494	124
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	40	10	37	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	57	84	6	54	54	10	18	18	23	31	41
g / C, Green / Cycle	0.08	0.48	0.70	0.05	0.45	0.45	0.08	0.15	0.15	0.19	0.26	0.34
(v / s)_i Volume / Saturation Flow Rate	0.07	0.28	0.49	0.04	0.34	0.34	0.06	0.08	0.12	0.18	0.14	0.04
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1827	3514	3618	1615	3514	3618	2859
c, Capacity [veh/h]	264	2469	1134	176	1636	826	287	535	239	674	933	976
d1, Uniform Delay [s]	55.00	22.90	10.50	56.31	27.15	27.22	53.89	47.58	49.76	48.00	38.26	27.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.78	1.06	3.64	6.89	3.12	6.14	3.86	0.96	7.79	8.73	0.47	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.59	0.70	0.77	0.74	0.75	0.75	0.57	0.84	0.96	0.53	0.13
d, Delay for Lane Group [s/veh]	64.78	23.96	14.14	63.20	30.28	33.36	57.75	48.53	57.55	56.73	38.73	27.27
Lane Group LOS	E	C	B	E	C	C	E	D	E	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.86	10.16	12.19	2.19	14.82	15.77	3.31	4.32	6.38	10.30	6.31	1.24
50th-Percentile Queue Length [ft/ln]	96.54	254.0	304.8	54.71	370.4	394.1	82.87	108.0	159.4	257.5	157.7	31.09
95th-Percentile Queue Length [veh/ln]	6.95	15.39	17.92	3.94	21.13	22.28	5.97	7.73	10.52	15.57	10.43	2.24
95th-Percentile Queue Length [ft/ln]	173.7	384.7	447.9	98.48	528.3	556.9	149.1	193.3	262.9	389.1	260.7	55.96

Movement, Approach, & Intersection Results

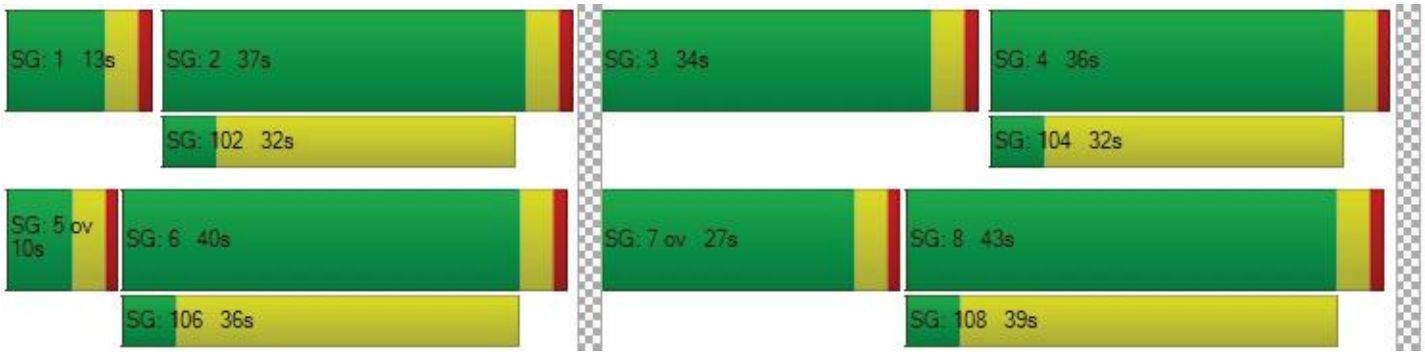
d_M, Delay for Movement [s/veh]	64.78	23.96	14.14	63.20	31.15	33.36	57.75	48.53	57.55	56.73	38.73	27.27
Movement LOS	E	C	B	E	C	C	E	D	E	E	D	C
d_A, Approach Delay [s/veh]	24.65			33.50			53.79			46.79		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.94											
Intersection LOS	C											
Intersection V/C	0.736											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.473	3.201	2.934	3.135
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	550	650	533
d_b, Bicycle Delay [s]	29.40	31.54	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	2.933	2.644	1.956	2.601
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1092	445	0	1012	655	0	0	0	637	0	595
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	108	0	0	0	113	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1200	445	0	1012	768	0	0	0	637	0	595
Peak Hour Factor	1.000	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	316	111	0	266	202	0	0	0	168	0	157
Total Analysis Volume [veh/h]	0	1263	445	0	1065	808	0	0	0	671	0	626
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	67	0	0	67	0	0	0	0	53	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	76	76		36	36	36
g / C, Green / Cycle	0.63	0.63		0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.35	0.21		0.24	0.25	0.27
s, saturation flow rate [veh/h]	3618	5176		1810	1717	1615
c, Capacity [veh/h]	2282	3264		548	520	489
d1, Uniform Delay [s]	12.57	10.30		38.34	39.00	39.84
k, delay calibration	0.50	0.50		0.16	0.18	0.21
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.97	0.27		3.72	5.76	9.94
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.33		0.79	0.83	0.88
d, Delay for Lane Group [s/veh]	13.55	10.57		42.05	44.75	49.78
Lane Group LOS	B	B		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	9.43	4.28		12.15	12.61	13.39
50th-Percentile Queue Length [ft/ln]	235.70	107.05		303.6	315.3	334.6
95th-Percentile Queue Length [veh/ln]	14.46	7.68		17.86	18.44	19.39
95th-Percentile Queue Length [ft/ln]	361.59	191.89		446.5	460.9	484.6

Movement, Approach, & Intersection Results

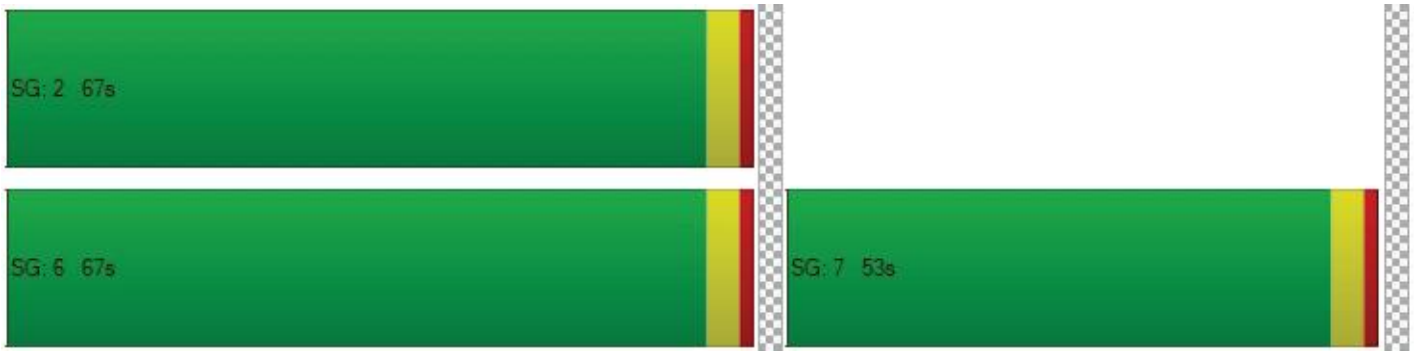
d_M, Delay for Movement [s/veh]	0.00	13.55	0.00	0.00	10.57	0.00	0.00	0.00	0.00	43.01	0.00	48.22
Movement LOS		B			B					D		D
d_A, Approach Delay [s/veh]	13.55			10.57			0.00			45.53		
Approach LOS	B			B			A			D		
d_I, Intersection Delay [s/veh]	24.12											
Intersection LOS	C											
Intersection V/C	0.617											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	1050	0	817
d_b, Bicycle Delay [s]	13.54	13.54	60.00	21.00
l_b,int, Bicycle LOS Score for Intersection	2.602	2.145	4.132	3.700
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	51.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.975

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1164	608	0	2082	0	0	0	0	949	0	808
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	55	0	0	172	2	0	0	0	0	0	161
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1219	608	0	2254	2	0	0	0	949	0	969
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	321	160	0	593	1	0	0	0	250	0	255
Total Analysis Volume [veh/h]	0	1283	640	0	2373	2	0	0	0	999	0	1020
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	44	0	0	44	0	0	0	0	76	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	40		72	72
g / C, Green / Cycle	0.33	0.33		0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.25	0.34		0.28	0.63
s, saturation flow rate [veh/h]	5176	6901		3514	1615
c, Capacity [veh/h]	1725	2300		2108	969
d1, Uniform Delay [s]	35.46	40.00		13.41	24.00
k, delay calibration	0.50	0.50		0.11	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.95	27.46		0.17	43.78
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.74	1.03		0.47	1.05
d, Delay for Lane Group [s/veh]	38.41	67.46		13.58	67.78
Lane Group LOS	D	F		B	F
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	11.47	21.07		7.34	37.10
50th-Percentile Queue Length [ft/ln]	286.69	526.68		183.53	927.44
95th-Percentile Queue Length [veh/ln]	17.02	29.20		11.78	49.20
95th-Percentile Queue Length [ft/ln]	425.53	730.04		294.61	1230.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	38.41	0.00	0.00	67.46	0.00	0.00	0.00	0.00	13.58	0.00	67.78
Movement LOS		D			F					B		F
d_A, Approach Delay [s/veh]	38.41			67.46			0.00			40.96		
Approach LOS	D			E			A			D		
d_I, Intersection Delay [s/veh]	51.46											
Intersection LOS	D											
Intersection V/C	0.975											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	0	1200
d_b, Bicycle Delay [s]	26.67	26.67	60.00	9.60
l_b,int, Bicycle LOS Score for Intersection	2.265	2.538	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	736	272	0	1133	466	0	0	0	407	0	529
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	35	0	0	0	0	0	0	40
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	745	272	0	1168	466	0	0	0	407	0	569
Peak Hour Factor	1.000	0.950	0.868	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	196	78	0	307	117	0	0	0	107	0	150
Total Analysis Volume [veh/h]	0	784	313	0	1229	466	0	0	0	428	0	599
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	53	0	0	53	0	0	0	0	67	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	80	80		32	32
g / C, Green / Cycle	0.66	0.66		0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.15	0.34		0.24	0.21
s, saturation flow rate [veh/h]	5176	3618		1810	2859
c, Capacity [veh/h]	3434	2400		488	772
d1, Uniform Delay [s]	8.01	10.30		41.89	40.46
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.16	0.78		5.16	1.72
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.51		0.88	0.78
d, Delay for Lane Group [s/veh]	8.17	11.08		47.05	42.18
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	2.61	7.99		12.74	8.32
50th-Percentile Queue Length [ft/ln]	65.20	199.84		318.53	208.07
95th-Percentile Queue Length [veh/ln]	4.69	12.63		18.60	13.05
95th-Percentile Queue Length [ft/ln]	117.36	315.75		464.88	326.35

Movement, Approach, & Intersection Results

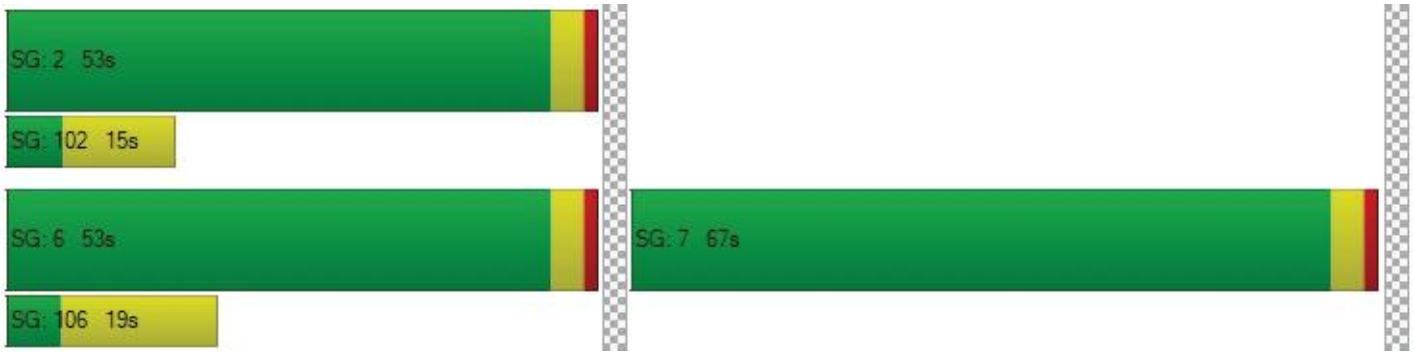
d_M, Delay for Movement [s/veh]	0.00	8.17	0.00	0.00	11.08	0.00	0.00	0.00	0.00	47.05	0.00	42.18
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	8.17			11.08			0.00			44.21		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	21.52											
Intersection LOS	C											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.397
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	817	0	1050
d_b, Bicycle Delay [s]	21.00	21.00	60.00	13.54
l_b,int, Bicycle LOS Score for Intersection	1.991	2.574	4.132	1.560
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	30.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1329	381	0	1366	238	308	0	671	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	99	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1338	381	0	1366	238	407	0	671	0	0	0
Peak Hour Factor	1.000	0.950	1.000	1.000	0.950	1.000	0.927	1.000	0.927	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	352	95	0	359	60	110	0	181	0	0	0
Total Analysis Volume [veh/h]	0	1408	381	0	1438	238	439	0	724	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	19	0	0	19	0	101	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	55	55	57	57	
g / C, Green / Cycle	0.46	0.46	0.48	0.48	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.40	0.12	0.45	
s, saturation flow rate [veh/h]	5176	3618	3514	1615	
c, Capacity [veh/h]	2363	1652	1675	770	
d1, Uniform Delay [s]	24.34	29.40	18.78	29.78	
k, delay calibration	0.50	0.50	0.11	0.14	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.12	6.58	0.08	8.06	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.60	0.87	0.26	0.94	
d, Delay for Lane Group [s/veh]	25.45	35.99	18.86	37.84	
Lane Group LOS	C	D	B	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.06	19.67	3.67	20.84	
50th-Percentile Queue Length [ft/ln]	251.42	491.83	91.83	521.00	
95th-Percentile Queue Length [veh/ln]	15.26	26.95	6.61	28.33	
95th-Percentile Queue Length [ft/ln]	381.45	673.68	165.29	708.17	

Movement, Approach, & Intersection Results

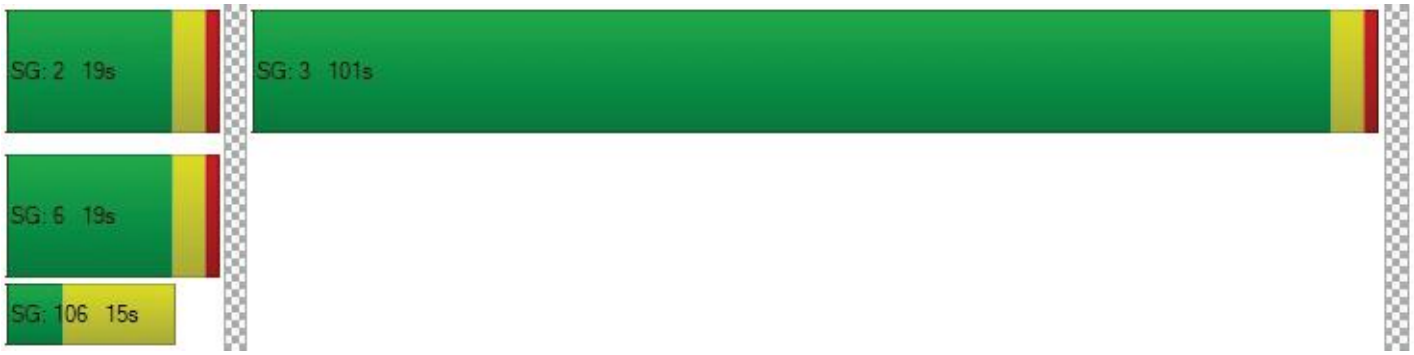
d_M, Delay for Movement [s/veh]	0.00	25.45	0.00	0.00	35.99	0.00	18.86	0.00	37.84	0.00	0.00	0.00
Movement LOS		C			D		B		D			
d_A, Approach Delay [s/veh]	25.45			35.99			30.67			0.00		
Approach LOS	C			D			C			A		
d_I, Intersection Delay [s/veh]	30.75											
Intersection LOS	C											
Intersection V/C	0.846											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	1617	0
d_b, Bicycle Delay [s]	45.94	45.94	2.20	60.00
l_b,int, Bicycle LOS Score for Intersection	2.334	2.746	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.856

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1403	541	609	1701	0	543	8	691	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	46	0	167	5	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1449	541	776	1706	0	551	8	691	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	381	142	204	449	0	145	2	182	0	0	0
Total Analysis Volume [veh/h]	0	1525	569	817	1796	0	580	8	727	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	48	0	34	82	0	0	38	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	44	44	30	78	34	34	34	
g / C, Green / Cycle	0.37	0.37	0.25	0.65	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.35	0.23	0.35	0.24	0.26	0.27	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	1810	1678	1615	
c, Capacity [veh/h]	1912	597	869	3364	513	475	458	
d1, Uniform Delay [s]	33.83	36.84	44.30	11.26	40.67	41.71	42.30	
k, delay calibration	0.50	0.50	0.11	0.50	0.35	0.40	0.43	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.57	27.05	5.80	0.61	12.18	21.96	29.67	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.80	0.95	0.94	0.53	0.85	0.92	0.96	
d, Delay for Lane Group [s/veh]	37.40	63.89	50.09	11.87	52.84	63.67	71.97	
Lane Group LOS	D	E	D	B	D	E	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	13.69	20.41	12.52	8.24	13.88	15.36	16.41	
50th-Percentile Queue Length [ft/ln]	342.37	510.17	313.11	206.06	347.1	384.0	410.2	
95th-Percentile Queue Length [veh/ln]	19.76	27.82	18.33	12.95	20.00	21.79	23.05	
95th-Percentile Queue Length [ft/ln]	494.09	695.38	458.21	323.76	499.8	544.7	576.3	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	37.40	63.89	50.09	11.87	0.00	55.49	63.67	68.68	0.00	0.00	0.00
Movement LOS		D	E	D	B		E	E	E			
d_A, Approach Delay [s/veh]	44.60			23.82			62.83			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	39.56											
Intersection LOS	D											
Intersection V/C	0.856											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.467	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	1300	567	0
d_b, Bicycle Delay [s]	24.07	7.35	30.82	60.00
l_b,int, Bicycle LOS Score for Intersection	2.711	2.997	3.729	4.132
Bicycle LOS	B	C	D	D

Sequence

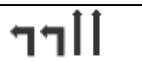
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.756

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	733	372	624	959	0	340	9	478	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	35	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	742	372	659	959	0	340	9	478	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	195	98	173	252	0	89	2	126	0	0	0
Total Analysis Volume [veh/h]	0	781	392	694	1009	0	358	9	503	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	33	42	0	0	78	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	41	41	26	71	41	41	
g / C, Green / Cycle	0.34	0.34	0.22	0.59	0.34	0.34	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.24	0.20	0.28	0.10	0.32	
s, saturation flow rate [veh/h]	3618	1615	3514	3618	3514	1619	
c, Capacity [veh/h]	1226	547	764	2134	1207	556	
d1, Uniform Delay [s]	33.43	34.62	45.79	14.00	28.79	37.81	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.53	7.81	4.54	0.75	0.14	6.79	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.64	0.72	0.91	0.47	0.30	0.92	
d, Delay for Lane Group [s/veh]	35.97	42.43	50.32	14.76	28.92	44.60	
Lane Group LOS	D	D	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.96	11.09	10.52	7.77	3.81	15.28	
50th-Percentile Queue Length [ft/ln]	249.03	277.32	262.89	194.15	95.27	382.02	
95th-Percentile Queue Length [veh/ln]	15.14	16.56	15.83	12.34	6.86	21.69	
95th-Percentile Queue Length [ft/ln]	378.43	413.88	395.85	308.41	171.49	542.29	

Movement, Approach, & Intersection Results

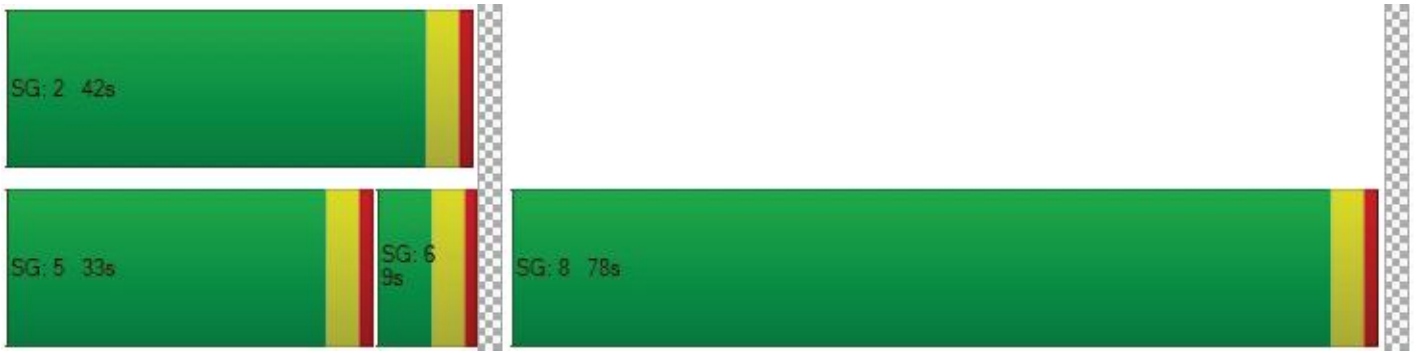
d_M, Delay for Movement [s/veh]	0.00	35.97	42.43	50.32	14.76	0.00	28.92	44.60	44.60	0.00	0.00	0.00
Movement LOS		D	D	D	B		C	D	D			
d_A, Approach Delay [s/veh]	38.13			29.25			38.15			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	34.10											
Intersection LOS	C											
Intersection V/C	0.756											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	633	1233	0
d_b, Bicycle Delay [s]	55.10	28.02	8.82	60.00
l_b,int, Bicycle LOS Score for Intersection	2.205	2.965	2.995	4.132
Bicycle LOS	B	C	C	D

Sequence

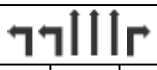
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	470	808	400	610	984	920	958	0	561	493	0	665
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	12	0	0	0	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	470	817	400	622	984	920	958	0	561	493	0	677
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	124	215	105	164	259	242	252	0	148	130	0	178
Total Analysis Volume [veh/h]	495	860	421	655	1036	968	1008	0	591	519	0	713
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	72	0	0	72	0	48	0	0	48	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	74	74	74	74	38	38
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.46	0.17	0.52	0.20	0.29	0.15
s, saturation flow rate [veh/h]	1074	5176	1268	5176	3514	3514
c, Capacity [veh/h]	597	3206	719	3206	1103	1103
d1, Uniform Delay [s]	27.83	10.43	28.63	10.87	39.60	33.13
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.57	0.21	17.78	0.27	3.43	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.27	0.91	0.32	0.91	0.47
d, Delay for Lane Group [s/veh]	40.40	10.63	46.41	11.14	43.02	33.44
Lane Group LOS	D	B	D	B	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.36	3.43	10.66	4.31	14.66	6.14
50th-Percentile Queue Length [ft/ln]	184.10	85.67	266.47	107.66	366.43	153.41
95th-Percentile Queue Length [veh/ln]	11.81	6.17	16.01	7.71	20.94	10.20
95th-Percentile Queue Length [ft/ln]	295.36	154.21	400.33	192.75	523.39	254.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.40	10.63	0.00	46.41	11.14	0.00	43.02	0.00	0.00	33.44	0.00	0.00
Movement LOS	D	B		D	B		D			C		
d_A, Approach Delay [s/veh]	21.51			24.80			43.02			33.44		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.82											
Intersection LOS	C											
Intersection V/C	0.804											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.312	3.476
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	733	733
d_b, Bicycle Delay [s]	11.27	11.27	24.07	24.07
l_b,int, Bicycle LOS Score for Intersection	2.305	2.490	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	197	373	94	132	920	254	86	462	132	181	1240	121
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	9	9	0	0	0	9	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	373	103	141	920	254	86	471	132	181	1240	121
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	98	27	37	242	67	23	124	35	48	326	32
Total Analysis Volume [veh/h]	207	393	108	148	968	267	91	496	139	191	1305	127
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	27	0	13	27	0	11	57	0	23	69	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	42	42	7	40	40	7	41	41	15	48	48
g / C, Green / Cycle	0.07	0.35	0.35	0.06	0.33	0.33	0.06	0.34	0.34	0.12	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.07	0.04	0.19	0.17	0.05	0.14	0.09	0.11	0.36	0.08
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	262	1788	558	208	1708	533	106	1227	548	222	1460	652
d1, Uniform Delay [s]	54.60	27.81	27.54	55.45	33.12	32.26	56.02	30.37	28.68	51.60	33.37	23.16
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.29	0.28	0.77	4.49	1.37	3.34	17.88	0.22	0.24	9.27	2.14	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.22	0.19	0.71	0.57	0.50	0.86	0.40	0.25	0.86	0.89	0.19
d, Delay for Lane Group [s/veh]	59.89	28.09	28.31	59.94	34.49	35.60	73.90	30.59	28.92	60.87	35.51	23.30
Lane Group LOS	E	C	C	E	C	D	E	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.27	2.73	2.31	2.33	7.93	6.71	3.26	5.53	2.95	6.21	17.79	2.37
50th-Percentile Queue Length [ft/ln]	81.70	68.18	57.70	58.27	198.2	167.7	81.39	138.3	73.66	155.1	444.7	59.25
95th-Percentile Queue Length [veh/ln]	5.88	4.91	4.15	4.20	12.55	10.96	5.86	9.39	5.30	10.29	24.71	4.27
95th-Percentile Queue Length [ft/ln]	147.0	122.7	103.8	104.8	313.7	274.0	146.5	234.8	132.5	257.2	617.6	106.6

Movement, Approach, & Intersection Results

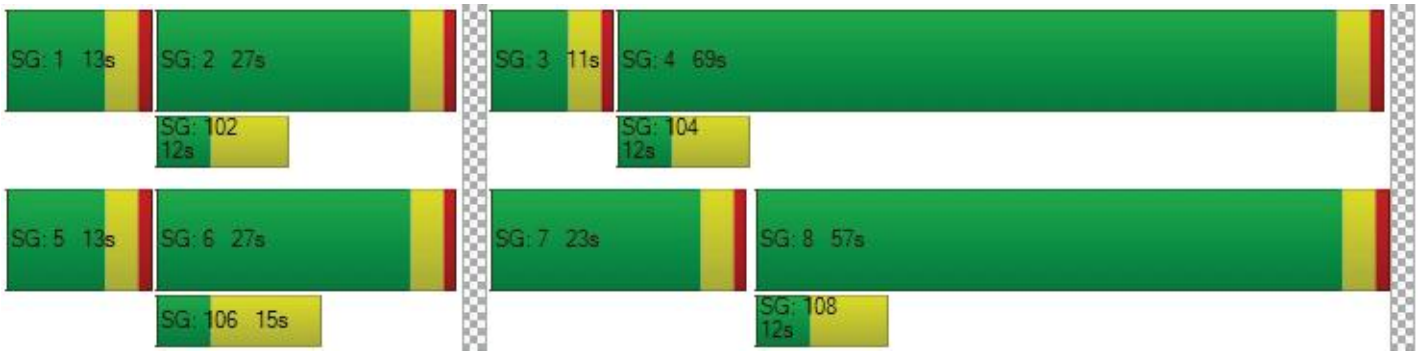
d_M, Delay for Movement [s/veh]	59.89	28.09	28.31	59.94	34.49	35.60	73.90	30.59	28.92	60.87	35.51	23.30
Movement LOS	E	C	C	E	C	D	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	37.42			37.43			35.70			37.54		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.19											
Intersection LOS	D											
Intersection V/C	0.657											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.082	3.080	2.875	2.854
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	383	883	1083
d_b, Bicycle Delay [s]	39.20	39.20	18.70	12.60
l_b,int, Bicycle LOS Score for Intersection	1.949	2.320	2.159	2.899
Bicycle LOS	A	B	B	C

Sequence

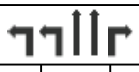
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	88.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	190	187	444	437	302	132	757	77	310	1498	326
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	27	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	190	187	444	437	302	132	784	77	310	1498	326
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	50	49	117	115	79	35	206	20	82	394	86
Total Analysis Volume [veh/h]	58	200	197	467	460	318	139	825	81	326	1577	343
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	12	33	0	29	50	50	12	41	0	17	46	46
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	29	29	25	49	61	8	37	37	13	42	71
g / C, Green / Cycle	0.04	0.24	0.24	0.21	0.41	0.51	0.07	0.31	0.31	0.11	0.35	0.59
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.12	0.26	0.13	0.20	0.08	0.24	0.24	0.09	0.44	0.21
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1841	3514	3618	1615
c, Capacity [veh/h]	78	874	390	377	1473	819	121	587	568	379	1266	956
d1, Uniform Delay [s]	56.78	36.52	39.30	47.50	24.16	18.15	56.00	37.83	37.84	52.63	39.00	12.70
k, delay calibration	0.11	0.50	0.50	0.47	0.50	0.50	0.11	0.30	0.30	0.11	0.18	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.25	0.61	4.61	127.3	0.55	1.39	87.59	6.28	6.48	5.74	113.0	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.23	0.50	1.24	0.31	0.39	1.15	0.78	0.78	0.86	1.25	0.36
d, Delay for Lane Group [s/veh]	70.04	37.13	43.90	174.8	24.72	19.54	143.5	44.12	44.32	58.37	152.0	13.06
Lane Group LOS	E	D	D	F	C	B	F	D	D	E	F	B
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.03	2.44	5.52	24.52	4.55	5.67	6.58	13.26	12.88	5.13	38.17	4.77
50th-Percentile Queue Length [ft/ln]	50.65	61.11	138.0	613.0	113.8	141.7	164.5	331.5	322.1	128.1	954.3	119.1
95th-Percentile Queue Length [veh/ln]	3.65	4.40	9.38	36.39	8.05	9.58	11.27	19.23	18.77	8.84	55.38	8.35
95th-Percentile Queue Length [ft/ln]	91.18	110.0	234.4	909.8	201.3	239.3	281.7	480.8	469.2	221.0	1384.	208.6

Movement, Approach, & Intersection Results

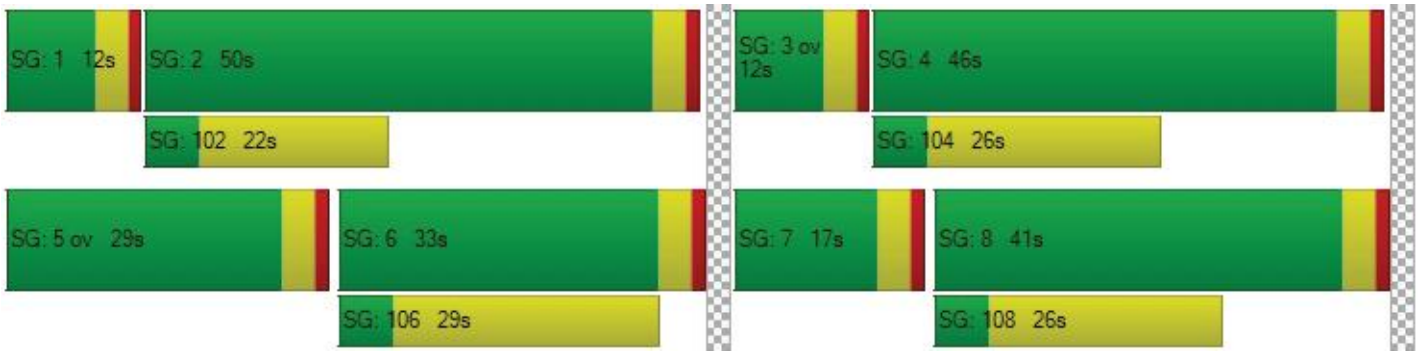
d_M, Delay for Movement [s/veh]	70.04	37.13	43.90	174.8	24.72	19.54	143.5	44.21	44.32	58.37	152.0	13.06
Movement LOS	E	D	D	F	C	B	F	D	D	E	F	B
d_A, Approach Delay [s/veh]	44.26			79.69			57.43			117.22		
Approach LOS	D			E			E			F		
d_I, Intersection Delay [s/veh]	88.69											
Intersection LOS	F											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.683	2.781	2.900	3.129
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	767	617	700
d_b, Bicycle Delay [s]	34.50	22.82	28.70	25.35
l_b,int, Bicycle LOS Score for Intersection	1.935	2.587	2.422	3.413
Bicycle LOS	A	B	B	C

Sequence

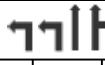
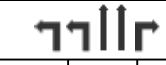
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	37	1144	67	458	1531	613	460	246	52	68	289	393
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	0	0	5	0	9	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	1181	67	458	1536	613	469	246	52	68	289	393
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	10	311	18	121	404	161	123	65	14	18	76	103
Total Analysis Volume [veh/h]	39	1243	71	482	1617	645	494	259	55	72	304	414
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	33	0	21	41	41	23	57	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	53	53	17	66	89	19	30	30	5	15	36
g / C, Green / Cycle	0.03	0.44	0.44	0.14	0.55	0.74	0.16	0.25	0.25	0.04	0.13	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.24	0.24	0.14	0.31	0.40	0.14	0.09	0.09	0.02	0.08	0.26
s, saturation flow rate [veh/h]	1810	3618	1848	3514	5176	1615	3514	1900	1786	3514	3618	1615
c, Capacity [veh/h]	56	1588	811	498	2844	1197	556	472	443	133	462	489
d1, Uniform Delay [s]	57.58	24.87	24.88	51.23	17.71	6.69	49.46	37.06	37.07	56.69	49.83	39.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.30	1.36	2.66	12.63	0.83	1.74	5.03	0.43	0.46	3.37	1.60	10.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.55	0.55	0.97	0.57	0.54	0.89	0.34	0.34	0.54	0.66	0.85
d, Delay for Lane Group [s/veh]	71.88	26.24	27.53	63.86	18.54	8.44	54.49	37.49	37.53	60.06	51.42	49.91
Lane Group LOS	E	C	C	E	B	A	D	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.40	9.36	9.85	8.06	9.72	6.74	7.62	3.98	3.75	1.14	4.45	12.78
50th-Percentile Queue Length [ft/ln]	34.90	233.9	246.3	201.4	243.0	168.4	190.5	99.39	93.70	28.38	111.2	319.6
95th-Percentile Queue Length [veh/ln]	2.51	14.38	15.00	12.72	14.83	10.99	12.15	7.16	6.75	2.04	7.91	18.65
95th-Percentile Queue Length [ft/ln]	62.82	359.4	375.0	317.8	370.8	274.8	303.7	178.9	168.6	51.08	197.6	466.1

Movement, Approach, & Intersection Results

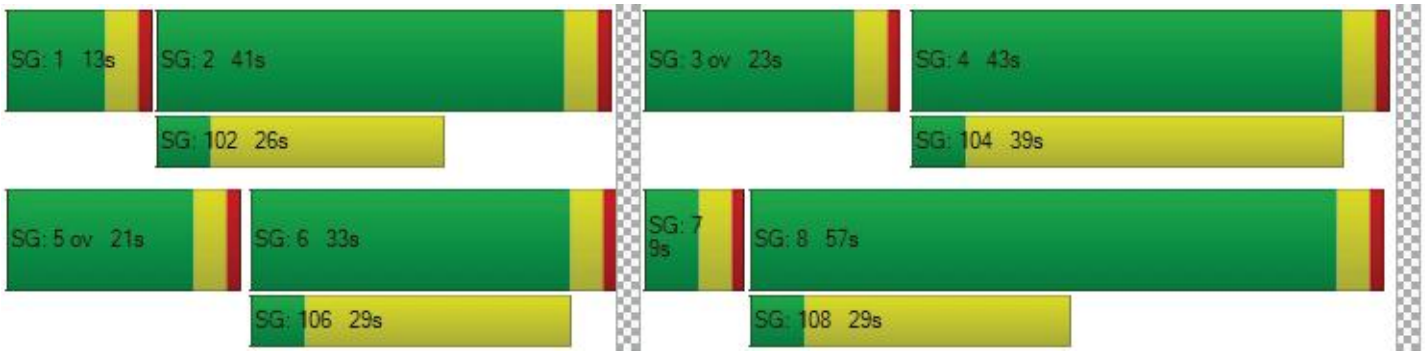
d_M, Delay for Movement [s/veh]	71.88	26.63	27.53	63.86	18.54	8.44	54.49	37.51	37.53	60.06	51.42	49.91
Movement LOS	E	C	C	E	B	A	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	27.98			24.13			47.89			51.42		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.20											
Intersection LOS	C											
Intersection V/C	0.679											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.118	3.459	2.760	2.832
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	617	883	650
d_b, Bicycle Delay [s]	34.50	28.70	18.70	27.34
l_b,int, Bicycle LOS Score for Intersection	2.304	3.069	2.226	2.211
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	675.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	40.179

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	54	857	20	142	812	377	278	62	106	31	70	144
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	5	0	0	9	0	0	0	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	866	20	147	812	377	287	62	106	31	70	163
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	14	228	5	39	214	99	76	16	28	8	18	43
Total Analysis Volume [veh/h]	57	912	21	155	855	397	302	65	112	33	74	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	12	12	5	12	12	91	91	91	91
g / C, Green / Cycle	0.04	0.10	0.10	0.04	0.10	0.10	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.03	0.17	0.17	0.09	0.24	0.25	39.90	0.07	1.11	0.11
s, saturation flow rate [veh/h]	1810	3618	1878	1810	3618	1615	9	1615	97	1615
c, Capacity [veh/h]	74	367	191	75	371	166	62	1222	112	1222
d1, Uniform Delay [s]	57.01	53.90	53.90	57.50	53.85	53.85	52.99	3.81	45.48	3.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.65	313.4	324.5	484.9	595.6	646.8	2263.53	0.03	72.61	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	1.67	1.67	2.06	2.30	2.40	5.95	0.09	0.95	0.14
d, Delay for Lane Group [s/veh]	72.66	367.3	378.4	542.4	649.4	700.7	2316.52	3.85	118.09	4.03
Lane Group LOS	E	F	F	F	F	F	F	A	F	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.03	21.54	22.95	12.44	36.28	34.75	40.64	0.64	4.19	1.02
50th-Percentile Queue Length [ft/ln]	50.81	538.5	573.7	311.0	907.0	868.7	1015.95	15.91	104.65	25.46
95th-Percentile Queue Length [veh/ln]	3.66	34.19	36.19	20.82	56.84	54.79	73.15	1.15	7.53	1.83
95th-Percentile Queue Length [ft/ln]	91.46	854.7	904.6	520.4	1421.	1369.	1828.71	28.64	188.36	45.82

Movement, Approach, & Intersection Results

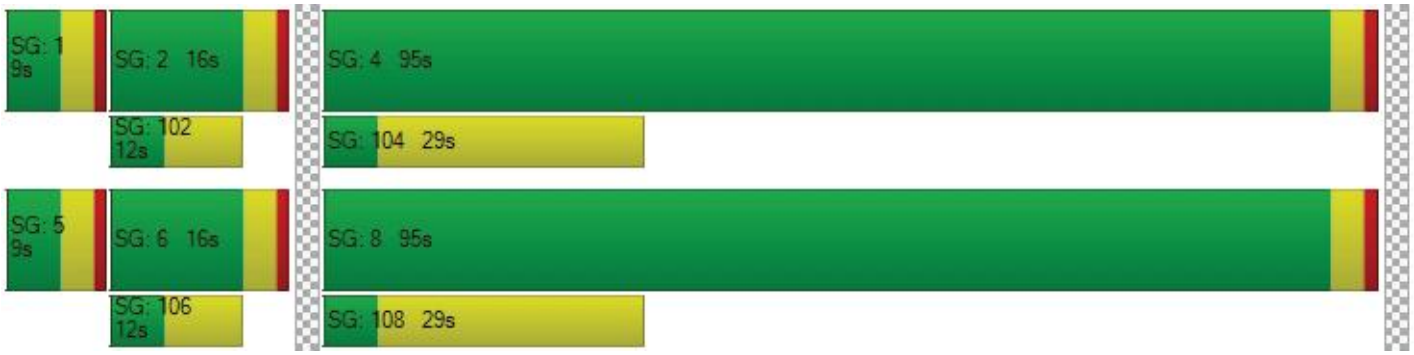
d_M, Delay for Movement [s/veh]	72.66	370.9	378.4	542.4	649.4	700.7	2316.	2316.	3.85	118.0	118.0	4.03
Movement LOS	E	F	F	F	F	F	F	F	A	F	F	A
d_A, Approach Delay [s/veh]	353.97			652.15			1775.77			47.77		
Approach LOS	F			F			F			D		
d_I, Intersection Delay [s/veh]	675.73											
Intersection LOS	F											
Intersection V/C	40.179											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.933	3.428	2.283	2.124
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.104	2.333	2.350	2.020
Bicycle LOS	B	B	B	B

Sequence

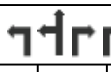
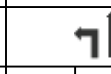
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.342

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	211	13	0	0	41	317	148	0	117	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	211	13	0	0	41	317	148	0	117	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	53	3	0	0	10	79	37	0	29	0	0	0
Total Analysis Volume [veh/h]	211	13	0	0	41	317	148	0	117	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	55	69	0	9	23	23	0	33	0	0	9	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	96	96	0	79	96	8	8	8	0	0
g / C, Green / Cycle	0.14	0.80	0.80	0.00	0.66	0.80	0.07	0.07	0.07	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.12	0.00	0.00	0.00	0.01	0.20	0.04	0.04	0.04	0.00	0.00
s, saturation flow rate [veh/h]	1781	3560	1870	1781	3560	1589	1781	1781	2813	1781	1870
c, Capacity [veh/h]	244	2834	1489	0	2347	1266	125	125	198	0	0
d1, Uniform Delay [s]	50.69	2.50	2.50	0.00	7.05	3.11	54.11	54.11	54.11	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.91	0.00	0.00	0.00	0.01	0.47	4.39	4.39	2.81	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.00	0.00	0.00	0.02	0.25	0.59	0.59	0.59	0.00	0.00
d, Delay for Lane Group [s/veh]	59.60	2.50	2.50	0.00	7.06	3.58	58.50	58.50	56.92	0.00	0.00
Lane Group LOS	E	A	A	A	A	A	E	E	E	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.80	0.02	0.02	0.00	0.18	1.71	2.32	2.32	1.79	0.00	0.00
50th-Percentile Queue Length [ft/ln]	170.0	0.44	0.48	0.00	4.50	42.75	58.08	58.08	44.83	0.00	0.00
95th-Percentile Queue Length [veh/ln]	11.08	0.03	0.03	0.00	0.32	3.08	4.18	4.18	3.23	0.00	0.00
95th-Percentile Queue Length [ft/ln]	276.9	0.78	0.86	0.00	8.09	76.95	104.5	104.5	80.69	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.60	2.50	2.50	0.00	7.06	3.58	58.50	58.50	56.92	0.00	0.00	0.00
Movement LOS	E	A	A	A	A	A	E	E	E	A	A	A
d_A, Approach Delay [s/veh]	56.29			3.98			57.80			0.00		
Approach LOS	E			A			E			A		
d_I, Intersection Delay [s/veh]	34.65											
Intersection LOS	C											
Intersection V/C	0.342											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.662	0.000	2.597	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317	483	83
d_b, Bicycle Delay [s]	12.60	42.50	34.50	55.10
l_b,int, Bicycle LOS Score for Intersection	1.683	1.855	1.997	1.560
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 998543: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	99	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	99	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	25	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	99	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Level Of Service Report
Intersection 998552: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 998555: New Intersection

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Left	Thru	Left	Thru	Right	Left	Thru	Right	Thru	Thru	Right
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Speedway Commerce Center

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Report File: K:\...\8 HY 2040 WP PM.pdf

Scenario 8 HY 2040 WP PM
1/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cherry Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.715	35.7	D
2	Citrus Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	NB Left	0.651	26.3	C
3	Sierra Ave at SR-210 WB Ramps	Signalized	HCM 6th Edition	WB Right	0.456	16.4	B
4	Cherry Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.697	28.2	C
5	Citrus Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	SB Left	0.743	31.4	C
6	Sierra Ave at SR-210 EB Ramps	Signalized	HCM 6th Edition	EB Right	0.494	15.7	B
7	Beech Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.526	36.1	D
8	Citrus Ave at Highland Ave	Signalized	HCM 6th Edition	NB Left	0.714	41.0	D
9	Sierra Ave at Highland Ave	Signalized	HCM 6th Edition	NB Thru	0.848	51.4	D
10	Etiwanda Ave at Baseline Rd	Signalized	HCM 6th Edition	SB Left	0.508	39.9	D
11	I-15 SB Ramps at Baseline Rd	Signalized	HCM 6th Edition	SB Right	0.567	19.4	B
12	I-15 NB Ramps at Baseline Rd	Signalized	HCM 6th Edition	EB Left	0.632	33.8	C
13	Cherry Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.788	42.4	D
14	Beech Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.597	42.8	D
15	Citrus Ave at Baseline Ave	Signalized	HCM 6th Edition	SB Left	0.757	42.1	D
16	Sierra Ave at Baseline Ave	Signalized	HCM 6th Edition	WB Left	0.585	36.8	D
17	Etiwanda Ave at Church St/Miller Ave	Signalized	HCM 6th Edition	SB Left	0.554	43.0	D
	Foothill Blvd at I-15 SB		HCM 6th				

18	Foothill Blvd at I-15 SB Ramps	Signalized	HCM 6th Edition	SB Right	0.892	23.1	C
19	Foothill Blvd at I-15 NB Ramps	Signalized	HCM 6th Edition	NB Right	0.615	22.1	C
20	Foothill Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	NB Left	0.830	80.9	F
21	Foothill Blvd at Cherry Ave	Signalized	HCM 6th Edition	NB Left	0.829	62.1	E
22	Beech Ave at Foothill Blvd	Two-way stop	HCM 6th Edition	NB Left	49.654	10,000.0	F
23	Foothill Blvd at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.967	84.1	F
24	Sierra Ave at Foothill Blvd	Signalized	HCM 6th Edition	WB Left	0.916	63.7	E
25	Arrow Rte at Etiwanda Ave	Signalized	HCM 6th Edition	EB Thru	1.399	170.1	F
26	Arrow Rte at Cherry Ave	Signalized	HCM 6th Edition	SB Left	1.031	102.1	F
27	Beech Ave at Arrow Blvd	Signalized	HCM 6th Edition	NB Left	0.700	29.9	C
28	Citrus Ave at Arrow Blvd	Signalized	HCM 6th Edition	SB Left	0.762	46.8	D
29	Sierra Ave at Arrow Blvd	Signalized	HCM 6th Edition	WB Left	0.662	38.5	D
30	Whittram Ave at Etiwanda Ave	Signalized	HCM 6th Edition	NB Thru	1.016	65.6	E
31	Whittram Ave at Cherry Ave	Signalized	HCM 6th Edition	EB Left	1.015	96.8	F
32	Beech Ave at Whittram Ave	Two-way stop	HCM 6th Edition	EB Left	1.532	415.8	F
33	Napa St at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.966	85.9	F
34	Merrill Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.943	62.7	E
35	Beech Ave at Merrill Ave	All-way stop	HCM 6th Edition	SB Thru	1.966	248.1	F
36	Merill Ave at Citrus Ave	Signalized	HCM 6th Edition	WB Left	0.579	31.3	C
37	Sierra Ave at Merrill Ave	Signalized	HCM 6th Edition	SB Left	0.702	44.9	D
38	Fontana Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.675	36.8	D
			HCM 6th				

39	Randall Ave at Cherry Ave	Signalized	HCM 6th Edition	WB Left	1.006	96.2	F
40	Beech Ave at Randall Ave	All-way stop	HCM 6th Edition	EB Thru	2.041	309.2	F
41	Randall Ave at Fontana Ave/Catawaba Ave	All-way stop	HCM 6th Edition	NB Thru	1.739	244.5	F
42	Randall Ave at Citrus Ave	Signalized	HCM 6th Edition	EB Left	0.574	32.1	C
43	Sierra Ave at Randall Ave	Signalized	HCM 6th Edition	SB Left	0.730	37.8	D
44	Fourth St at I-15 SB Ramps/Ontario Mills Dr	Signalized	HCM 6th Edition	NB Right	1.031	77.4	E
45	Fourth St at I-15 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.577	39.7	D
46	Fourth St/San Bernardino Ave at Etiwanda Ave	Signalized	HCM 6th Edition	WB Left	0.722	40.1	D
47	San Bernardino Ave at Commerce Dr	Signalized	HCM 6th Edition	EB Thru	1.202	187.5	F
48	San Bernardino Ave at Access Rd/Vip Rd	Two-way stop	HCM 6th Edition	SB Right	0.847	30.8	D
49	San Bernardino Ave at Cherry Ave	Signalized	HCM 6th Edition	SB Left	0.929	69.8	E
50	Beech Ave at San Bernardino Ave	Signalized	HCM 6th Edition	WB Left	0.833	39.7	D
51	San Bernardino Ave at Fontana Ave/Elm Ave	Signalized	HCM 6th Edition	EB Thru	0.900	61.0	E
52	San Bernardino Ave at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.593	34.0	C
53	Sierra Ave at San Bernardino Ave	Signalized	HCM 6th Edition	SB Left	0.745	42.4	D
54	Beech Ave at Fontana Ave	All-way stop	HCM 6th Edition	NB Thru	2.025	249.1	F
55	Valley Blvd at Etiwanda Ave	Signalized	HCM 6th Edition	SB Left	0.710	38.6	D
56	Valley Blvd at Commerce Dr/I-10 Ramps	Signalized	HCM 6th Edition	EB Right	1.019	84.7	F
57	Valley Blvd at Cherry Ave	Signalized	HCM 6th Edition	WB Left	1.086	75.0	E
58	Valley Blvd at Fontana Ave	Signalized	HCM 6th Edition	WB Left	0.490	15.9	B
59	Beech Ave at Valley Blvd	Two-way stop	HCM 6th Edition	NB Thru	551.544	10,000.0	F
			HCM 6th				

60	Valley Blvd at Citrus Ave	Signalized	HCM 6th Edition	SB Left	0.803	48.6	D
61	Sierra Ave at Valley Blvd	Signalized	HCM 6th Edition	SB Left	0.897	53.5	D
62	I-10 WB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	WB Right	0.719	22.3	C
63	I-10 WB Ramps at Cherry Ave	Signalized	HCM 6th Edition	WB Right	0.943	49.5	D
64	I-10 WB Ramps at Citrus Ave	Signalized	HCM 6th Edition	WB Right	0.565	19.5	B
65	I-10 EB Ramps at Etiwanda Ave	Signalized	HCM 6th Edition	EB Right	0.681	21.1	C
66	I-10 EB Ramps at Cherry Ave	Signalized	HCM 6th Edition	NB Right	0.958	57.1	E
67	I-10 EB Ramps at Citrus Ave	Signalized	HCM 6th Edition	EB Right	0.731	31.5	C
68	Sierra Ave at I-10 EB/WB Ramps	Signalized	HCM 6th Edition	SB Left	1.189	72.8	E
69	Milliken Ave at Arrow Rte	Signalized	HCM 6th Edition	WB Left	0.766	40.6	D
70	Rochester Ave at Arrow Rte	Signalized	HCM 6th Edition	EB Left	1.004	92.6	F
71	Cherry Ave at Slover Ave	Signalized	HCM 6th Edition	NB Left	0.745	37.3	D
72	Cherry Ave at Santa Ana Ave	Signalized	HCM 6th Edition	EB Left	63.406	746.0	F
73	Cherry Ave at Sunset Dr	Signalized	HCM 6th Edition	NB Left	0.518	35.6	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cherry Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	353	822	0	0	680	253	0	0	0	347	0	204
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	56	12	0	0	12	0	0	0	0	130	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	409	834	0	0	692	253	0	0	0	477	0	204
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	108	219	0	0	182	67	0	0	0	126	0	54
Total Analysis Volume [veh/h]	431	878	0	0	728	266	0	0	0	502	0	215
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	40	74	0	0	34	0	0	0	0	0	46	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	31	76	42	42		36	36
g / C, Green / Cycle	0.25	0.64	0.35	0.35		0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.24	0.24	0.18	0.20		0.28	0.13
s, saturation flow rate [veh/h]	1810	3618	3618	1664		1810	1615
c, Capacity [veh/h]	462	2299	1256	578		539	481
d1, Uniform Delay [s]	43.70	10.52	31.31	31.94		40.95	34.13
k, delay calibration	0.31	0.50	0.50	0.50		0.31	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	20.05	0.48	1.59	4.10		17.82	0.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.38	0.53	0.57		0.93	0.45
d, Delay for Lane Group [s/veh]	63.75	11.01	32.90	36.04		58.77	34.78
Lane Group LOS	E	B	C	D		E	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	14.99	5.52	7.93	8.47		16.93	5.18
50th-Percentile Queue Length [ft/ln]	374.73	138.05	198.29	211.63		423.22	129.46
95th-Percentile Queue Length [veh/ln]	21.34	9.38	12.55	13.24		23.68	8.91
95th-Percentile Queue Length [ft/ln]	533.47	234.40	313.76	330.92		591.91	222.76

Movement, Approach, & Intersection Results

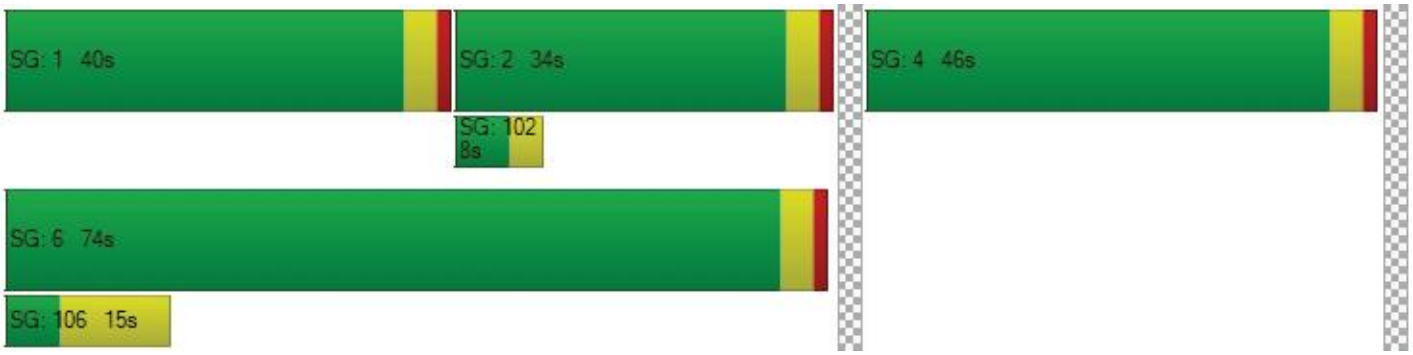
d_M, Delay for Movement [s/veh]	63.75	11.01	0.00	0.00	33.19	36.04	0.00	0.00	0.00	58.77	58.77	34.78
Movement LOS	E	B			C	D				E	E	C
d_A, Approach Delay [s/veh]	28.37			33.95			0.00			51.58		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	35.72											
Intersection LOS	D											
Intersection V/C	0.715											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.118	2.188
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1167	500	0	700
d_b, Bicycle Delay [s]	10.42	33.75	60.00	25.35
l_b,int, Bicycle LOS Score for Intersection	2.640	2.106	4.132	2.743
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Citrus Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	362	1187	0	0	857	460	0	0	0	389	0	372
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	362	1199	0	0	869	460	0	0	0	401	0	372
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	95	316	0	0	229	121	0	0	0	106	0	98
Total Analysis Volume [veh/h]	381	1262	0	0	915	484	0	0	0	422	0	392
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	59	0	0	38	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		L	C	R
C, Cycle Length [s]	120	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	80	61	61		32	32	32
g / C, Green / Cycle	0.13	0.66	0.51	0.51		0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.11	0.35	0.25	0.30		0.12	0.12	0.24
s, saturation flow rate [veh/h]	3514	3618	3618	1615		1810	1810	1615
c, Capacity [veh/h]	442	2400	1824	814		489	489	436
d1, Uniform Delay [s]	51.44	10.45	19.74	21.05		36.19	36.19	42.22
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.11	0.83	0.99	3.18		0.60	0.60	6.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.53	0.50	0.59		0.43	0.43	0.90
d, Delay for Lane Group [s/veh]	56.55	11.27	20.72	24.24		36.80	36.80	49.11
Lane Group LOS	E	B	C	C		D	D	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.93	8.34	8.59	10.13		5.21	5.21	11.95
50th-Percentile Queue Length [ft/ln]	148.13	208.42	214.68	253.21		130.2	130.2	298.6
95th-Percentile Queue Length [veh/ln]	9.92	13.07	13.39	15.35		8.95	8.95	17.62
95th-Percentile Queue Length [ft/ln]	247.93	326.81	334.83	383.70		223.8	223.8	440.4

Movement, Approach, & Intersection Results

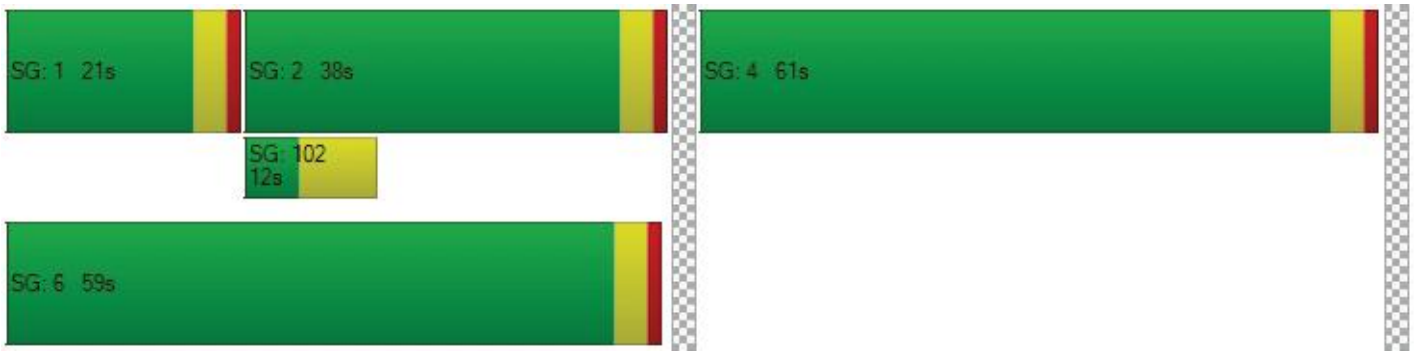
d_M, Delay for Movement [s/veh]	56.55	11.27	0.00	0.00	20.72	24.24	0.00	0.00	0.00	36.80	36.80	49.11
Movement LOS	E	B			C	C				D	D	D
d_A, Approach Delay [s/veh]	21.77			21.94			0.00			42.72		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	26.26											
Intersection LOS	C											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.152	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	917	567	0	950
d_b, Bicycle Delay [s]	17.60	30.82	60.00	16.54
l_b,int, Bicycle LOS Score for Intersection	2.915	2.714	4.132	2.903
Bicycle LOS	C	B	D	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sierra Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1273	0	0	1404	0	0	0	0	337	0	448
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1285	0	0	1416	0	0	0	0	344	0	448
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	338	0	0	373	0	0	0	0	91	0	118
Total Analysis Volume [veh/h]	0	1353	0	0	1491	0	0	0	0	362	0	472
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	52	0	0	52	0	0	0	0	0	68	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	88	88		24	24	24
g / C, Green / Cycle	0.74	0.74		0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.26	0.29		0.16	0.17	0.17
s, saturation flow rate [veh/h]	5176	5176		1810	1663	1615
c, Capacity [veh/h]	3801	3801		360	331	321
d1, Uniform Delay [s]	5.73	5.94		45.78	46.15	46.28
k, delay calibration	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.31		4.11	5.44	6.04
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.39		0.80	0.83	0.84
d, Delay for Lane Group [s/veh]	5.99	6.25		49.89	51.59	52.31
Lane Group LOS	A	A		D	D	D
Critical Lane Group	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.72	4.25		8.56	8.37	8.31
50th-Percentile Queue Length [ft/ln]	92.98	106.36		214.0	209.2	207.7
95th-Percentile Queue Length [veh/ln]	6.69	7.64		13.36	13.11	13.04
95th-Percentile Queue Length [ft/ln]	167.37	190.93		334.0	327.8	325.8

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	5.99	0.00	0.00	6.25	0.00	0.00	0.00	0.00	50.27	51.59	52.01
Movement LOS		A			A					D	D	D
d_A, Approach Delay [s/veh]	5.99			6.25			0.00			51.24		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	16.36											
Intersection LOS	B											
Intersection V/C	0.456											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	0	1067
d_b, Bicycle Delay [s]	21.60	21.60	60.00	13.07
l_b,int, Bicycle LOS Score for Intersection	2.304	2.380	4.132	2.936
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Cherry Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.697

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	854	366	121	819	0	288	3	418	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	68	107	0	142	0	0	0	70	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	922	473	121	961	0	288	3	488	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	243	124	32	253	0	76	1	128	0	0	0
Total Analysis Volume [veh/h]	0	971	498	127	1012	0	303	3	514	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	44	0	14	58	0	0	62	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	57	57	10	71	41	41	
g / C, Green / Cycle	0.47	0.47	0.08	0.59	0.34	0.34	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.31	0.07	0.28	0.17	0.32	
s, saturation flow rate [veh/h]	3618	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1713	765	151	2135	621	554	
d1, Uniform Delay [s]	22.74	24.06	54.22	14.00	31.14	37.96	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.22	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.37	4.28	11.80	0.76	0.61	12.78	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.57	0.65	0.84	0.47	0.49	0.93	
d, Delay for Lane Group [s/veh]	24.11	28.34	66.03	14.76	31.75	50.74	
Lane Group LOS	C	C	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.05	11.46	4.27	7.79	7.11	16.31	
50th-Percentile Queue Length [ft/ln]	251.20	286.47	106.85	194.64	177.76	407.82	
95th-Percentile Queue Length [veh/ln]	15.25	17.01	7.66	12.36	11.48	22.94	
95th-Percentile Queue Length [ft/ln]	381.16	425.26	191.61	309.04	287.08	573.41	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	24.11	28.34	66.03	14.76	0.00	31.75	31.75	50.74	0.00	0.00	0.00
Movement LOS		C	C	E	B		C	C	D			
d_A, Approach Delay [s/veh]	25.54			20.47			43.65			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.19											
Intersection LOS	C											
Intersection V/C	0.697											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.222	2.051
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	900	967	0
d_b, Bicycle Delay [s]	26.67	18.15	16.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.368	2.499	2.913	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Citrus Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1173	308	287	779	0	578	0	385	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	12	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1185	320	287	803	0	578	0	385	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	312	84	76	211	0	152	0	101	0	0	0
Total Analysis Volume [veh/h]	0	1247	337	302	845	0	608	0	405	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	64	0	16	80	0	0	40	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	68	68	12	84	28	28	28	
g / C, Green / Cycle	0.56	0.56	0.10	0.70	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.42	0.45	0.09	0.23	0.19	0.19	0.21	
s, saturation flow rate [veh/h]	1900	1767	3514	3618	1810	1767	1615	
c, Capacity [veh/h]	1068	993	351	2516	431	420	384	
d1, Uniform Delay [s]	19.73	20.85	53.17	7.26	42.84	43.07	44.05	
k, delay calibration	0.50	0.50	0.11	0.50	0.18	0.19	0.23	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.65	6.65	6.16	0.36	5.14	6.17	12.83	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.74	0.80	0.86	0.34	0.78	0.80	0.88	
d, Delay for Lane Group [s/veh]	24.39	27.50	59.33	7.63	47.97	49.25	56.89	
Lane Group LOS	C	C	E	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	17.25	18.61	4.78	4.12	9.97	10.13	10.99	
50th-Percentile Queue Length [ft/ln]	431.32	465.16	119.51	102.97	249.3	253.2	274.8	
95th-Percentile Queue Length [veh/ln]	24.06	25.68	8.37	7.41	15.15	15.35	16.43	
95th-Percentile Queue Length [ft/ln]	601.62	642.01	209.15	185.35	378.8	383.8	410.8	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	25.52	27.50	59.33	7.63	0.00	48.54	49.25	55.62	0.00	0.00	0.00
Movement LOS		C	C	E	A		D	D	E			
d_A, Approach Delay [s/veh]	25.94			21.24			51.37			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.38											
Intersection LOS	C											
Intersection V/C	0.743											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.393	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1267	600	0
d_b, Bicycle Delay [s]	15.00	8.07	29.40	60.00
l_b,int, Bicycle LOS Score for Intersection	2.866	2.506	3.231	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Sierra Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1592	1202	0	1465	41	333	0	458	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	6	0	19	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1604	1208	0	1484	41	333	0	458	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	422	318	0	391	11	88	0	121	0	0	0
Total Analysis Volume [veh/h]	0	1688	1272	0	1562	43	351	0	482	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	77	0	0	77	0	0	43	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	88	88	24	24	24	
g / C, Green / Cycle	0.74	0.74	0.20	0.20	0.20	
(v / s)_i Volume / Saturation Flow Rate	0.33	0.30	0.16	0.17	0.17	
s, saturation flow rate [veh/h]	5176	5176	1810	1656	1615	
c, Capacity [veh/h]	3807	3807	358	328	319	
d1, Uniform Delay [s]	6.23	6.01	45.90	46.29	46.40	
k, delay calibration	0.50	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.38	0.33	4.23	5.71	6.24	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.44	0.41	0.80	0.84	0.85	
d, Delay for Lane Group [s/veh]	6.60	6.34	50.14	51.99	52.63	
Lane Group LOS	A	A	D	D	D	
Critical Lane Group	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.06	4.52	8.58	8.38	8.33	
50th-Percentile Queue Length [ft/ln]	126.56	112.97	214.5	209.5	208.2	
95th-Percentile Queue Length [veh/ln]	8.75	8.00	13.39	13.13	13.06	
95th-Percentile Queue Length [ft/ln]	218.81	200.12	334.6	328.2	326.5	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.60	0.00	0.00	6.34	0.00	50.51	51.99	52.36	0.00	0.00	0.00
Movement LOS		A			A		D	D	D			
d_A, Approach Delay [s/veh]	6.60			6.34			51.56			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	15.67											
Intersection LOS	B											
Intersection V/C	0.494											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.349	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1217	1217	650	0
d_b, Bicycle Delay [s]	9.20	9.20	27.34	60.00
l_b,int, Bicycle LOS Score for Intersection	2.488	2.419	2.934	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Beech Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.526

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	588	161	112	524	60	73	432	146	133	275	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	588	161	112	524	60	73	432	146	133	275	92
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	17	155	42	29	138	16	19	114	38	35	72	24
Total Analysis Volume [veh/h]	69	619	169	118	552	63	77	455	154	140	289	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	30	0	14	33	0	26	59	0	17	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	60	10	64	64	7	23	23	11	28	28
g / C, Green / Cycle	0.05	0.50	0.50	0.08	0.53	0.53	0.06	0.19	0.19	0.09	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.07	0.16	0.16	0.04	0.17	0.17	0.08	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1761	1810	1900	1833	1810	1900	1738	1810	1900	1740
c, Capacity [veh/h]	89	953	884	144	1011	975	102	367	336	167	435	399
d1, Uniform Delay [s]	56.41	18.99	18.99	54.40	15.73	15.74	55.78	46.87	46.94	53.56	39.84	39.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.47	1.41	1.52	10.95	0.80	0.83	10.58	6.09	6.92	10.44	0.76	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.43	0.43	0.82	0.31	0.31	0.75	0.86	0.87	0.84	0.46	0.47
d, Delay for Lane Group [s/veh]	69.87	20.40	20.52	65.35	16.53	16.57	66.36	52.96	53.86	64.00	40.60	40.78
Lane Group LOS	E	C	C	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.40	7.51	7.00	3.95	4.97	4.82	2.60	9.76	9.08	4.64	5.18	4.85
50th-Percentile Queue Length [ft/ln]	59.98	187.7	174.9	98.67	124.3	120.4	65.00	244.0	227.0	115.9	129.5	121.2
95th-Percentile Queue Length [veh/ln]	4.32	12.00	11.34	7.10	8.63	8.42	4.68	14.88	14.02	8.17	8.92	8.46
95th-Percentile Queue Length [ft/ln]	107.9	300.0	283.4	177.6	215.8	210.4	117.0	372.1	350.6	204.2	222.9	211.6

Movement, Approach, & Intersection Results

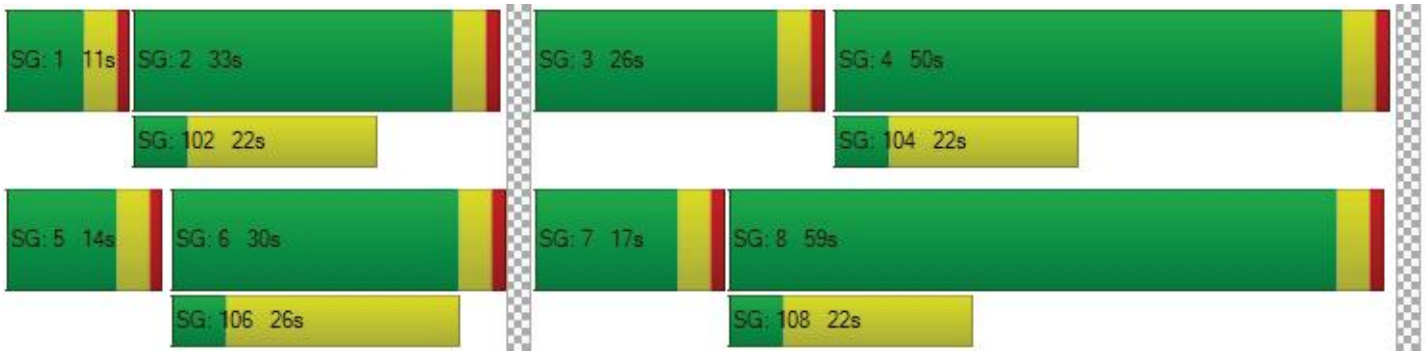
d_M, Delay for Movement [s/veh]	69.87	20.44	20.52	65.35	16.55	16.57	66.36	53.24	53.86	64.00	40.65	40.78
Movement LOS	E	C	C	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	24.43			24.40			54.85			46.89		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.09											
Intersection LOS	D											
Intersection V/C	0.526											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.647	2.613	2.531	2.674
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	483	917	767
d_b, Bicycle Delay [s]	36.82	34.50	17.60	22.82
l_b,int, Bicycle LOS Score for Intersection	2.267	2.164	2.126	1.994
Bicycle LOS	B	B	B	A

Sequence

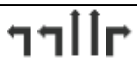
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Citrus Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	41.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.714

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	73	852	92	329	715	119	245	480	81	177	435	441
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	0	24	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	876	92	329	739	119	245	480	81	177	435	441
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	231	24	87	194	31	64	126	21	47	114	116
Total Analysis Volume [veh/h]	77	922	97	346	778	125	258	505	85	186	458	464
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	26	0	18	31	0	15	48	0	28	61	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	21	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	42	42	14	49	49	11	34	34	14	38	38
g / C, Green / Cycle	0.05	0.35	0.35	0.11	0.41	0.41	0.09	0.28	0.28	0.12	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.06	0.10	0.22	0.08	0.07	0.14	0.05	0.10	0.24	0.29
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	3514	3618	1615	1810	1900	1615
c, Capacity [veh/h]	99	1263	564	400	1477	659	313	1022	456	219	598	508
d1, Uniform Delay [s]	55.98	34.11	27.04	52.26	26.77	22.78	53.73	35.89	32.59	51.67	37.15	39.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.09	3.74	0.66	5.67	1.35	0.64	5.43	0.37	0.19	8.88	2.09	10.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.73	0.17	0.86	0.53	0.19	0.82	0.49	0.19	0.85	0.77	0.91
d, Delay for Lane Group [s/veh]	68.07	37.85	27.70	57.92	28.12	23.41	59.16	36.26	32.79	60.56	39.25	49.76
Lane Group LOS	E	D	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.64	12.29	2.04	5.43	8.61	2.40	4.06	6.22	1.91	6.02	12.40	14.44
50th-Percentile Queue Length [ft/ln]	65.90	307.1	51.09	135.7	215.3	59.90	101.5	155.4	47.75	150.5	310.0	361.1
95th-Percentile Queue Length [veh/ln]	4.74	18.03	3.68	9.25	13.43	4.31	7.31	10.31	3.44	10.05	18.18	20.68
95th-Percentile Queue Length [ft/ln]	118.6	450.8	91.97	231.2	335.6	107.8	182.8	257.7	85.95	251.1	454.4	516.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.07	37.85	27.70	57.92	28.12	23.41	59.16	36.26	32.79	60.56	39.25	49.76
Movement LOS	E	D	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	39.07			35.90			42.88			47.23		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	41.00											
Intersection LOS	D											
Intersection V/C	0.714											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.817	3.012	2.819	2.802
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	450	733	950
d_b, Bicycle Delay [s]	40.02	36.04	24.07	16.54
l_b,int, Bicycle LOS Score for Intersection	2.464	2.590	2.259	3.388
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Sierra Ave at Highland Ave

Control Type:	Signalized	Delay (sec / veh):	51.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.848

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	172	1482	118	400	1207	318	551	526	162	132	347	396
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	0	0	19	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	172	1500	118	400	1226	318	551	526	162	132	347	396
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	395	31	105	323	84	145	138	43	35	91	104
Total Analysis Volume [veh/h]	181	1579	124	421	1291	335	580	554	171	139	365	417
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	37	0	19	45	0	24	51	0	13	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	36	36	15	44	44	20	46	46	7	33	33
g / C, Green / Cycle	0.06	0.30	0.30	0.13	0.37	0.37	0.17	0.39	0.39	0.06	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.05	0.31	0.08	0.12	0.25	0.21	0.17	0.15	0.11	0.04	0.10	0.26
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	205	1544	482	439	1889	589	586	1399	625	199	1001	447
d1, Uniform Delay [s]	56.09	42.10	32.00	52.19	32.23	30.53	49.90	26.65	25.24	55.60	34.92	42.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.36
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.71	28.81	1.29	12.31	2.03	3.94	15.16	0.18	0.23	4.39	0.22	22.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	1.02	0.26	0.96	0.68	0.57	0.99	0.40	0.27	0.70	0.36	0.93
d, Delay for Lane Group [s/veh]	67.80	70.91	33.29	64.50	34.26	34.47	65.06	26.83	25.47	59.98	35.14	65.09
Lane Group LOS	E	F	C	E	C	C	E	C	C	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.05	19.15	2.93	7.04	10.83	8.37	9.88	5.78	3.40	2.19	4.34	14.76
50th-Percentile Queue Length [ft/ln]	76.33	478.8	73.14	175.9	270.8	209.2	246.9	144.3	84.92	54.73	108.5	369.0
95th-Percentile Queue Length [veh/ln]	5.50	26.72	5.27	11.39	16.23	13.11	15.03	9.72	6.11	3.94	7.76	21.06
95th-Percentile Queue Length [ft/ln]	137.3	667.8	131.6	284.6	405.7	327.8	375.8	242.9	152.8	98.52	193.9	526.6

Movement, Approach, & Intersection Results

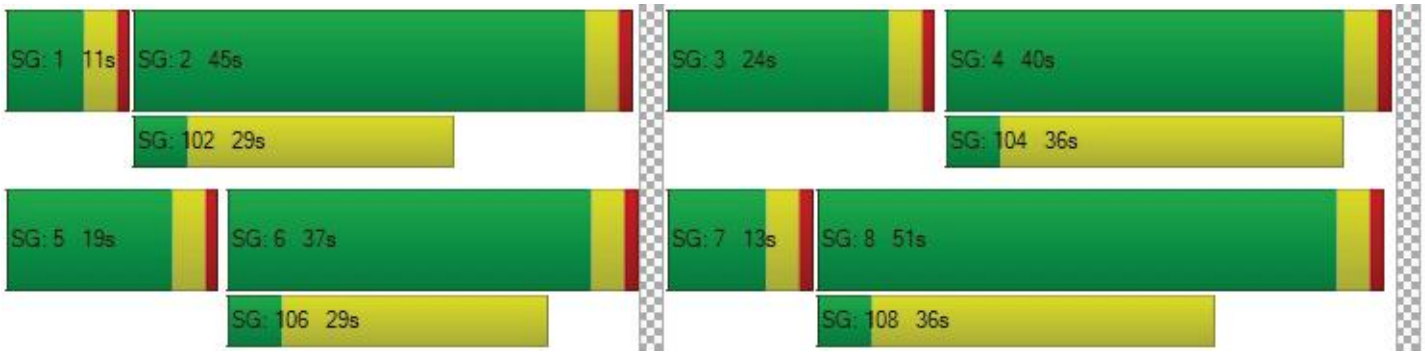
d_M, Delay for Movement [s/veh]	67.80	70.91	33.29	64.50	34.26	34.47	65.06	26.83	25.47	59.98	35.14	65.09
Movement LOS	E	F	C	E	C	C	E	C	C	E	D	E
d_A, Approach Delay [s/veh]	68.14			40.51			43.64			52.45		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	51.41											
Intersection LOS	D											
Intersection V/C	0.848											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.242	3.365	2.914	2.891
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	683	783	600
d_b, Bicycle Delay [s]	31.54	26.00	22.20	29.40
l_b,int, Bicycle LOS Score for Intersection	2.596	2.685	2.636	2.319
Bicycle LOS	B	B	B	B

Sequence

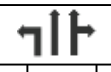
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Etiwanda Ave at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	122	193	231	55	113	71	104	1286	170	169	787	58
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	12	0	0	12	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	134	205	231	55	125	71	104	1286	182	169	787	58
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	54	61	14	33	19	27	338	48	44	207	15
Total Analysis Volume [veh/h]	141	216	243	58	132	75	109	1354	192	178	828	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	6	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups			6,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	36	36	9	30	0	13	64	0	11	62	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	21	0	0	21	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	53	64	5	51	51	9	39	39	7	38	38
g / C, Green / Cycle	0.06	0.44	0.53	0.04	0.42	0.42	0.07	0.33	0.33	0.06	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.15	0.03	0.06	0.06	0.06	0.29	0.29	0.05	0.24	0.24
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1679	1810	3618	1782	3514	1900	1855
c, Capacity [veh/h]	202	832	855	75	801	708	134	1191	587	205	596	581
d1, Uniform Delay [s]	55.53	21.40	15.64	56.96	21.26	21.34	54.74	37.83	37.84	56.04	37.05	37.05
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.31	0.76	0.83	15.43	0.34	0.42	11.18	2.10	5.67	10.61	1.98	2.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.26	0.28	0.77	0.13	0.14	0.81	0.87	0.87	0.87	0.76	0.76
d, Delay for Lane Group [s/veh]	59.84	22.16	16.47	72.39	21.61	21.76	65.93	39.93	43.52	66.65	39.03	39.08
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.22	4.04	3.86	2.06	1.93	1.83	3.66	14.48	14.87	2.97	12.12	11.84
50th-Percentile Queue Length [ft/ln]	55.45	100.9	96.42	51.58	48.14	45.75	91.54	362.0	371.7	74.36	303.0	296.0
95th-Percentile Queue Length [veh/ln]	3.99	7.27	6.94	3.71	3.47	3.29	6.59	20.72	21.19	5.35	17.83	17.49
95th-Percentile Queue Length [ft/ln]	99.80	181.6	173.5	92.84	86.64	82.35	164.7	518.0	529.8	133.8	445.7	437.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.84	22.16	16.47	72.39	21.64	21.76	65.93	40.77	43.52	66.65	39.05	39.08
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	28.71			32.78			42.75			43.66		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.93											
Intersection LOS	D											
Intersection V/C	0.508											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.647	2.442	2.907	3.072
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	433	1000	967
d_b, Bicycle Delay [s]	32.27	36.82	15.00	16.02
l_b,int, Bicycle LOS Score for Intersection	2.550	1.778	2.470	2.440
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: I-15 SB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	2	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	289	0	633	0	1642	189	0	625	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	37	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	326	0	633	0	1642	189	0	625	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	86	0	167	0	432	50	0	164	0
Total Analysis Volume [veh/h]	0	0	0	343	0	666	0	1728	199	0	658	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Split	Permi	Split	Permi	Permi	Unsig	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	65	0	0	0	55	0	0	55	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	R	C	C
C, Cycle Length [s]		120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	80	80
g / C, Green / Cycle		0.27	0.27	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate		0.10	0.23	0.33	0.13
s, saturation flow rate [veh/h]		3514	2859	5176	5176
c, Capacity [veh/h]		942	766	3444	3444
d1, Uniform Delay [s]		35.63	41.92	10.09	7.70
k, delay calibration		0.11	0.11	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.24	3.20	0.53	0.12
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.36	0.87	0.50	0.19
d, Delay for Lane Group [s/veh]		35.86	45.12	10.61	7.82
Lane Group LOS		D	D	B	A
Critical Lane Group		No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		4.13	9.69	7.30	2.11
50th-Percentile Queue Length [ft/ln]		103.13	242.35	182.40	52.77
95th-Percentile Queue Length [veh/ln]		7.43	14.80	11.73	3.80
95th-Percentile Queue Length [ft/ln]		185.64	370.01	293.14	94.99

Movement, Approach, & Intersection Results

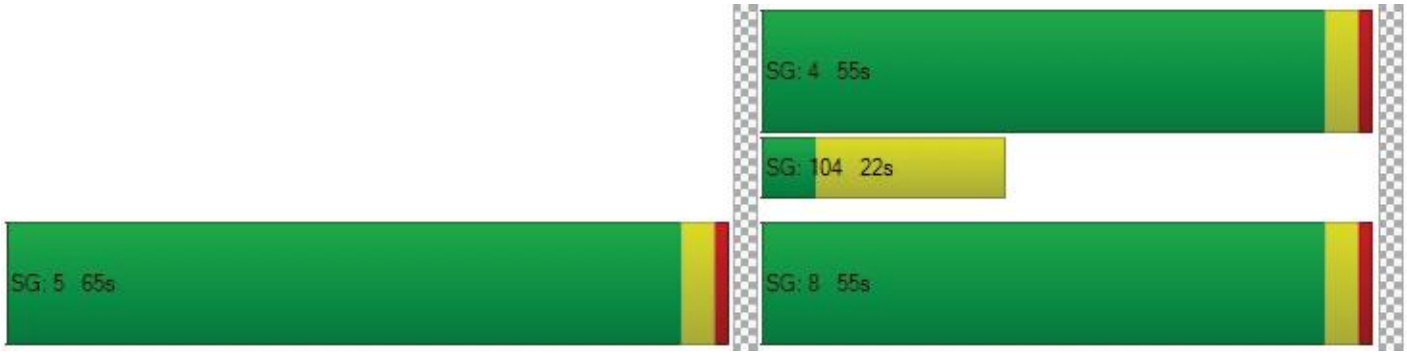
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.86	0.00	45.12	0.00	10.61	0.00	0.00	7.82	0.00
Movement LOS				D		D		B			A	
d_A, Approach Delay [s/veh]	0.00			41.98			10.61			7.82		
Approach LOS	A			D			B			A		
d_I, Intersection Delay [s/veh]	19.39											
Intersection LOS	B											
Intersection V/C	0.567											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.512	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1017	850	850
d_b, Bicycle Delay [s]	60.00	14.50	19.84	19.84
l_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.510	1.922
Bicycle LOS	D	A	B	A

Sequence

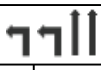
Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: I-15 NB Ramps at Baseline Rd

Control Type:	Signalized	Delay (sec / veh):	33.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	445	0	853	0	0	0	627	1074	0	0	1061	269
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	37	0	0	0	34
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	445	0	853	0	0	0	627	1111	0	0	1061	303
Peak Hour Factor	0.950	0.950	0.950	1.000	1.000	1.000	0.950	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	117	0	224	0	0	0	165	292	0	0	279	80
Total Analysis Volume [veh/h]	468	0	898	0	0	0	660	1169	0	0	1117	319
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Unsig
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	45	0	0	0	0	48	75	0	0	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58	58		26	54	24
g / C, Green / Cycle	0.48	0.48	0.48		0.22	0.45	0.20
(v / s)_i Volume / Saturation Flow Rate	0.25	0.28	0.28		0.19	0.23	0.16
s, saturation flow rate [veh/h]	1810	1620	1615		3514	5176	6901
c, Capacity [veh/h]	870	779	777		759	2341	1401
d1, Uniform Delay [s]	21.59	22.48	22.50		45.41	23.25	45.48
k, delay calibration	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.24	3.19	3.22		3.24	0.17	1.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.58	0.59		0.87	0.50	0.80
d, Delay for Lane Group [s/veh]	23.84	25.67	25.73		48.65	23.42	46.56
Lane Group LOS	C	C	C		D	C	D
Critical Lane Group	No	No	Yes		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	9.31	9.81	9.83		9.80	7.78	7.99
50th-Percentile Queue Length [ft/ln]	232.6	245.3	245.7		244.97	194.49	199.77
95th-Percentile Queue Length [veh/ln]	14.31	14.95	14.97		14.93	12.35	12.63
95th-Percentile Queue Length [ft/ln]	357.7	373.7	374.2		373.31	308.85	315.67

Movement, Approach, & Intersection Results

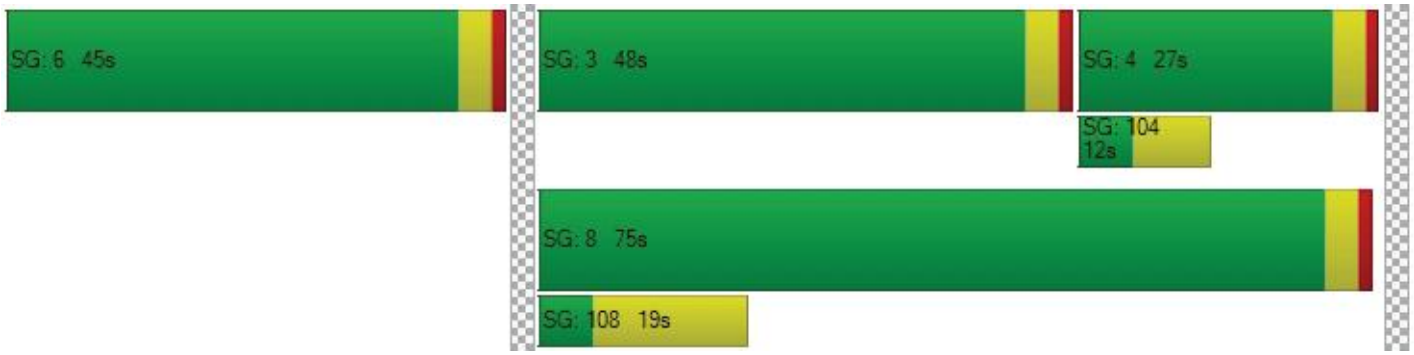
d_M, Delay for Movement [s/veh]	23.89	25.67	25.70	0.00	0.00	0.00	48.65	23.42	0.00	0.00	46.56	0.00
Movement LOS	C	C	C				D	C			D	
d_A, Approach Delay [s/veh]	25.08			0.00			32.52			46.56		
Approach LOS	C			A			C			D		
d_I, Intersection Delay [s/veh]	33.80											
Intersection LOS	C											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.479	2.052	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	0	1183	383
d_b, Bicycle Delay [s]	26.00	60.00	10.00	39.20
l_b,int, Bicycle LOS Score for Intersection	3.814	4.132	2.566	2.020
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Cherry Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.788

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	1079	418	120	537	113	394	1263	141	390	687	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	34	175	111	0	212	0	0	0	37	113	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	266	1254	529	120	749	113	394	1263	178	503	687	68
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	70	330	139	32	197	30	104	332	47	132	181	18
Total Analysis Volume [veh/h]	280	1320	557	126	788	119	415	1329	187	529	723	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	48	0	9	40	0	23	40	0	23	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	31	0	0	31	0	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	46	46	5	39	39	16	34	34	19	37	37
g / C, Green / Cycle	0.10	0.38	0.38	0.04	0.33	0.33	0.14	0.28	0.28	0.16	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.34	0.04	0.15	0.07	0.12	0.26	0.12	0.15	0.14	0.04
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	340	1975	616	146	1691	528	481	1475	460	556	1587	495
d1, Uniform Delay [s]	53.20	30.80	35.02	57.15	32.09	29.37	50.70	41.27	34.69	50.04	33.53	30.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.06	1.81	19.04	13.49	0.93	0.99	4.76	2.28	0.58	9.46	0.20	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.67	0.90	0.86	0.47	0.23	0.86	0.90	0.41	0.95	0.46	0.15
d, Delay for Lane Group [s/veh]	58.26	32.61	54.06	70.64	33.01	30.36	55.46	43.55	35.27	59.49	33.74	30.33
Lane Group LOS	E	C	D	E	C	C	E	D	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.38	10.80	18.33	2.17	6.20	2.66	6.41	12.80	4.51	8.57	5.69	1.54
50th-Percentile Queue Length [ft/ln]	109.5	269.9	458.1	54.33	154.9	66.39	160.3	320.0	112.6	214.2	142.3	38.56
95th-Percentile Queue Length [veh/ln]	7.82	16.19	25.35	3.91	10.28	4.78	10.57	18.67	7.99	13.37	9.61	2.78
95th-Percentile Queue Length [ft/ln]	195.3	404.6	633.6	97.79	257.0	119.5	264.1	466.7	199.6	334.2	240.2	69.40

Movement, Approach, & Intersection Results

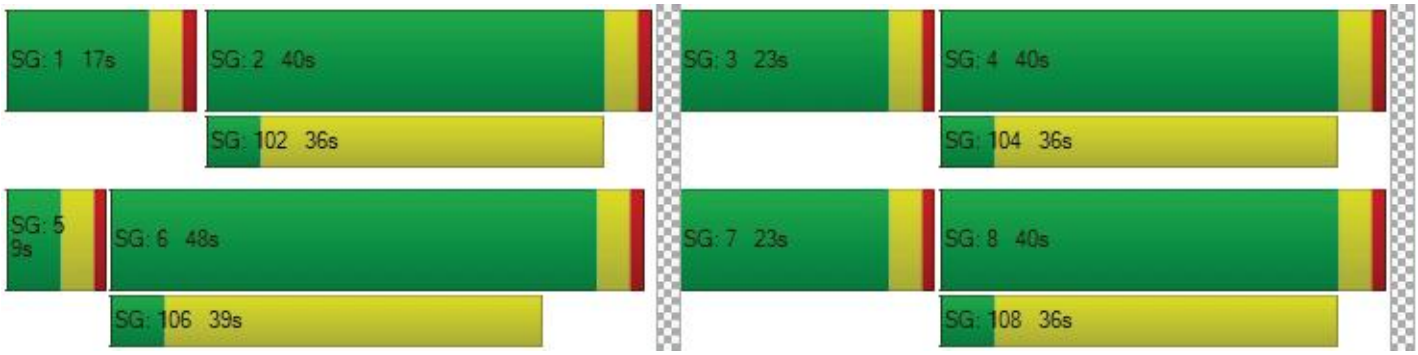
d_M, Delay for Movement [s/veh]	58.26	32.61	54.06	70.64	33.01	30.36	55.46	43.55	35.27	59.49	33.74	30.33
Movement LOS	E	C	D	E	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	41.48			37.30			45.31			43.84		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.44											
Intersection LOS	D											
Intersection V/C	0.788											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.261	3.172	3.364	3.307
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	600	600	600
d_b, Bicycle Delay [s]	24.07	29.40	29.40	29.40
l_b,int, Bicycle LOS Score for Intersection	2.746	2.128	2.622	2.288
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Beech Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	170	542	61	179	413	101	236	1129	129	150	672	150
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	82	0	0	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	170	542	61	179	413	101	236	1211	129	150	757	150
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	45	143	16	47	109	27	62	319	34	39	199	39
Total Analysis Volume [veh/h]	179	571	64	188	435	106	248	1275	136	158	797	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	38	0	20	40	0	32	43	0	19	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	31	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	43	43	14	43	43	19	34	34	13	28	28
g / C, Green / Cycle	0.11	0.36	0.36	0.12	0.36	0.36	0.15	0.29	0.29	0.10	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.10	0.16	0.04	0.10	0.15	0.15	0.14	0.25	0.09	0.09	0.18	0.18
s, saturation flow rate [veh/h]	1810	3618	1615	1810	1870	1745	1810	5176	1589	1781	3618	1744
c, Capacity [veh/h]	206	1288	575	216	676	631	281	1484	456	186	853	411
d1, Uniform Delay [s]	52.29	29.54	25.90	51.92	28.74	28.76	49.60	40.50	33.38	52.81	42.62	42.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.62	1.11	0.39	10.26	1.86	2.00	9.65	1.56	0.36	10.27	1.38	4.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.44	0.11	0.87	0.41	0.41	0.88	0.86	0.30	0.85	0.75	0.76
d, Delay for Lane Group [s/veh]	62.91	30.65	26.30	62.18	30.60	30.77	59.26	42.06	33.74	63.08	44.00	47.08
Lane Group LOS	E	C	C	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.90	6.49	1.30	6.17	6.38	6.01	8.02	11.99	3.15	5.21	9.00	9.07
50th-Percentile Queue Length [ft/ln]	147.5	162.3	32.50	154.2	159.6	150.3	200.5	299.8	78.82	130.2	224.9	226.7
95th-Percentile Queue Length [veh/ln]	9.89	10.67	2.34	10.24	10.53	10.03	12.67	17.67	5.68	8.95	13.92	14.01
95th-Percentile Queue Length [ft/ln]	247.1	266.7	58.50	256.0	263.2	250.8	316.6	441.8	141.8	223.7	347.9	350.2

Movement, Approach, & Intersection Results

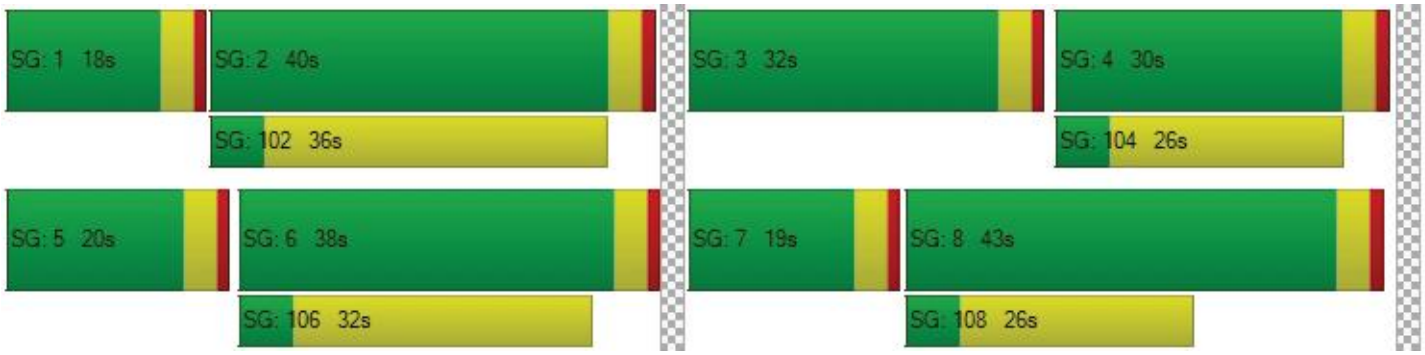
d_M, Delay for Movement [s/veh]	62.91	30.65	26.30	62.18	30.66	30.77	59.26	42.06	33.74	63.08	44.59	47.08
Movement LOS	E	C	C	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	37.40			38.80			43.95			47.57		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.78											
Intersection LOS	D											
Intersection V/C	0.597											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.719	2.745	3.161	3.062
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	600	650	433
d_b, Bicycle Delay [s]	30.82	29.40	27.34	36.82
l_b,int, Bicycle LOS Score for Intersection	2.231	2.161	2.472	2.172
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Citrus Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.757

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	682	97	188	496	134	345	1701	129	202	625	77
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	18	0	0	24	23	48	0	16	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	684	115	188	496	158	368	1749	129	218	674	77
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	180	30	49	131	42	97	460	34	57	177	20
Total Analysis Volume [veh/h]	112	720	121	198	522	166	387	1841	136	229	709	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups												4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	13	40	0	18	45	0	20	49	0	13	42	42
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	34	0	0	17	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	No		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	9	36	36	14	41	41	15	45	45	9	39	57
g / C, Green / Cycle	0.08	0.30	0.30	0.12	0.34	0.34	0.13	0.37	0.37	0.08	0.32	0.47
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.23	0.11	0.14	0.10	0.11	0.36	0.08	0.07	0.14	0.05
s, saturation flow rate [veh/h]	1810	1900	1806	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	136	572	544	211	1240	553	448	1936	604	264	1664	761
d1, Uniform Delay [s]	54.72	37.92	37.92	52.57	30.30	28.89	51.33	36.49	25.68	54.92	32.01	17.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.77	8.92	9.35	17.22	1.05	1.39	5.09	3.39	0.19	8.54	0.17	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.75	0.75	0.94	0.42	0.30	0.86	0.95	0.23	0.87	0.43	0.11
d, Delay for Lane Group [s/veh]	66.50	46.84	47.28	69.78	31.35	30.28	56.42	39.88	25.86	63.46	32.18	17.70
Lane Group LOS	E	D	D	E	C	C	E	D	C	E	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.78	12.80	12.23	6.91	5.98	3.73	6.02	17.74	2.70	3.74	5.42	1.27
50th-Percentile Queue Length [ft/ln]	94.52	320.0	305.8	172.8	149.5	93.32	150.4	443.5	67.57	93.40	135.6	31.68
95th-Percentile Queue Length [veh/ln]	6.81	18.67	17.97	11.23	9.99	6.72	10.04	24.65	4.86	6.72	9.24	2.28
95th-Percentile Queue Length [ft/ln]	170.1	466.7	449.2	280.6	249.8	167.9	251.0	616.1	121.6	168.1	231.1	57.03

Movement, Approach, & Intersection Results

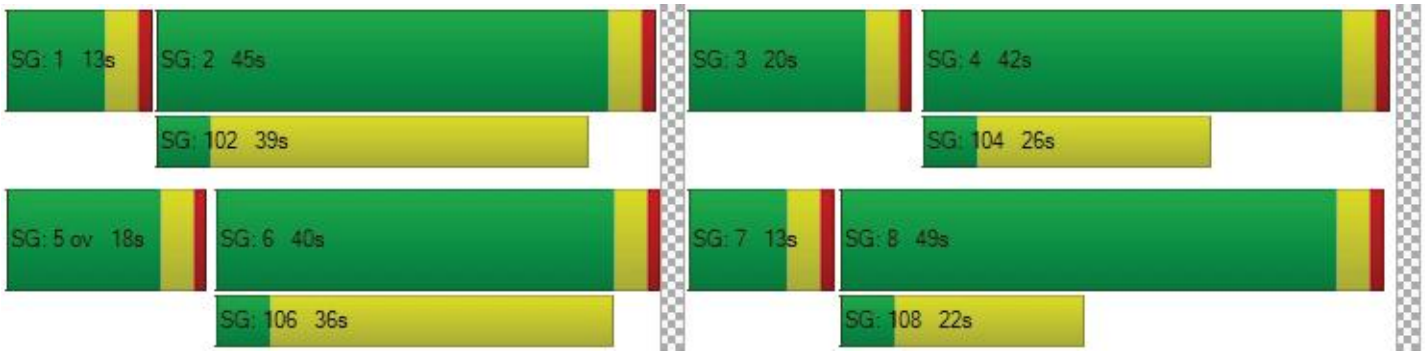
d_M, Delay for Movement [s/veh]	66.50	47.02	47.28	69.78	31.35	30.28	56.42	39.88	25.86	63.46	32.18	17.70
Movement LOS	E	D	D	E	C	C	E	D	C	E	C	B
d_A, Approach Delay [s/veh]	49.34			39.74			41.78			38.06		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.09											
Intersection LOS	D											
Intersection V/C	0.757											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.674	2.805	3.227	3.292
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	683	750	633
d_b, Bicycle Delay [s]	29.40	26.00	23.44	28.02
l_b,int, Bicycle LOS Score for Intersection	2.346	2.291	2.860	2.120
Bicycle LOS	B	B	C	B

Sequence

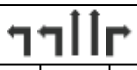
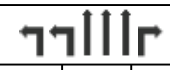
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Sierra Ave at Baseline Ave

Control Type:	Signalized	Delay (sec / veh):	36.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	151	1259	100	335	814	76	161	804	131	139	791	263
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	6	25	25	12	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	151	1264	100	335	820	101	186	816	131	139	803	263
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	40	333	26	88	216	27	49	215	34	37	211	69
Total Analysis Volume [veh/h]	159	1331	105	353	863	106	196	859	138	146	845	277
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	40	0	21	48	0	12	49	0	10	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	34	0	0	31	0	0	38	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	57	57	14	63	63	8	27	27	6	25	25
g / C, Green / Cycle	0.06	0.47	0.47	0.12	0.53	0.53	0.07	0.23	0.23	0.05	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.07	0.10	0.24	0.07	0.06	0.17	0.09	0.04	0.16	0.17
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	216	2442	762	416	1912	853	234	1173	366	176	1087	339
d1, Uniform Delay [s]	55.35	22.54	17.91	51.86	17.52	14.28	55.35	43.02	39.24	56.50	44.75	45.20
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.81	0.88	0.38	4.93	0.77	0.30	7.70	0.90	0.64	9.65	1.23	4.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.55	0.14	0.85	0.45	0.12	0.84	0.73	0.38	0.83	0.78	0.82
d, Delay for Lane Group [s/veh]	60.15	23.42	18.28	56.79	18.29	14.58	63.05	43.92	39.88	66.15	45.99	50.03
Lane Group LOS	E	C	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.51	8.98	1.73	5.49	7.47	1.53	3.18	7.96	3.52	2.43	8.02	8.30
50th-Percentile Queue Length [ft/ln]	62.73	224.5	43.29	137.1	186.7	38.13	79.50	199.0	88.04	60.69	200.5	207.4
95th-Percentile Queue Length [veh/ln]	4.52	13.90	3.12	9.33	11.95	2.75	5.72	12.59	6.34	4.37	12.67	13.02
95th-Percentile Queue Length [ft/ln]	112.9	347.4	77.92	233.1	298.7	68.63	143.1	314.7	158.4	109.2	316.6	325.5

Movement, Approach, & Intersection Results

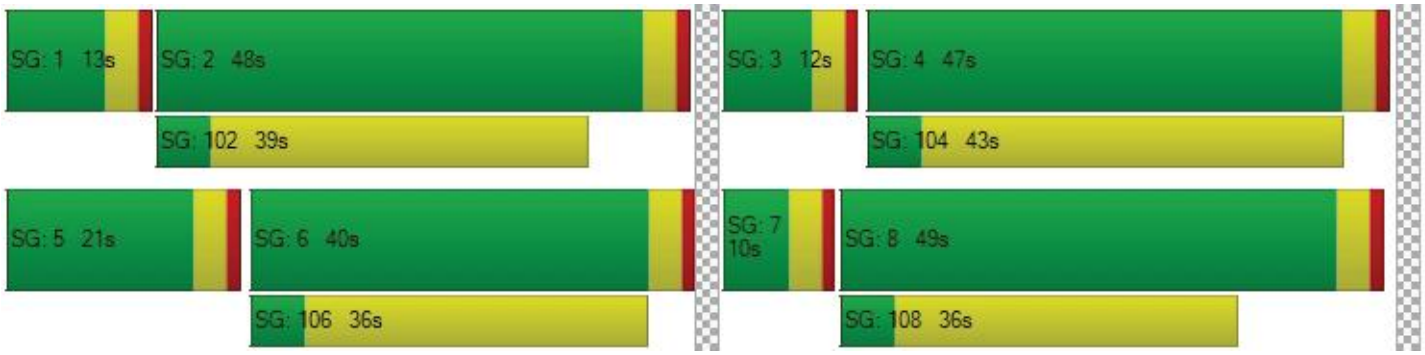
d_M, Delay for Movement [s/veh]	60.15	23.42	18.28	56.79	18.29	14.58	63.05	43.92	39.88	66.15	45.99	50.03
Movement LOS	E	C	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	26.74			28.27			46.60			49.19		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.82											
Intersection LOS	D											
Intersection V/C	0.585											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.162	3.370	3.206	3.144
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	733	750	717
d_b, Bicycle Delay [s]	29.40	24.07	23.44	24.70
l_b,int, Bicycle LOS Score for Intersection	2.437	2.650	2.216	2.257
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Etiwanda Ave at Church St/Miller Ave

Control Type:	Signalized	Delay (sec / veh):	43.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.554

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	149	321	146	39	315	108	153	500	187	53	287	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	2	0	24	0	0	0	0	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	345	148	39	339	108	153	500	187	55	287	38
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	91	39	10	89	28	40	132	49	14	76	10
Total Analysis Volume [veh/h]	157	363	156	41	357	114	161	526	197	58	302	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	25	0	14	23	23	0	51	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	14	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	50	50	4	42	42	34	34	16	16
g / C, Green / Cycle	0.10	0.42	0.42	0.03	0.35	0.35	0.28	0.28	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.14	0.02	0.10	0.07	0.26	0.26	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1709	1810	3618	1615	1868	1593	1874	1667
c, Capacity [veh/h]	181	795	716	58	1268	566	527	449	251	223
d1, Uniform Delay [s]	53.22	23.67	23.71	57.54	28.09	27.24	41.52	41.53	50.70	50.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.76	1.17	1.32	14.90	0.56	0.80	6.96	8.04	7.35	8.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.34	0.35	0.71	0.28	0.20	0.90	0.91	0.84	0.85
d, Delay for Lane Group [s/veh]	64.98	24.84	25.03	72.44	28.64	28.04	48.48	49.57	58.04	59.27
Lane Group LOS	E	C	C	E	C	C	D	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.25	5.49	5.02	1.47	3.81	2.43	14.50	12.51	6.69	6.07
50th-Percentile Queue Length [ft/ln]	131.3	137.1	125.4	36.80	95.29	60.65	362.57	312.67	167.26	151.79
95th-Percentile Queue Length [veh/ln]	9.01	9.33	8.69	2.65	6.86	4.37	20.75	18.31	10.93	10.11
95th-Percentile Queue Length [ft/ln]	225.2	233.1	217.2	66.24	171.5	109.1	518.71	457.67	273.32	252.82

Movement, Approach, & Intersection Results

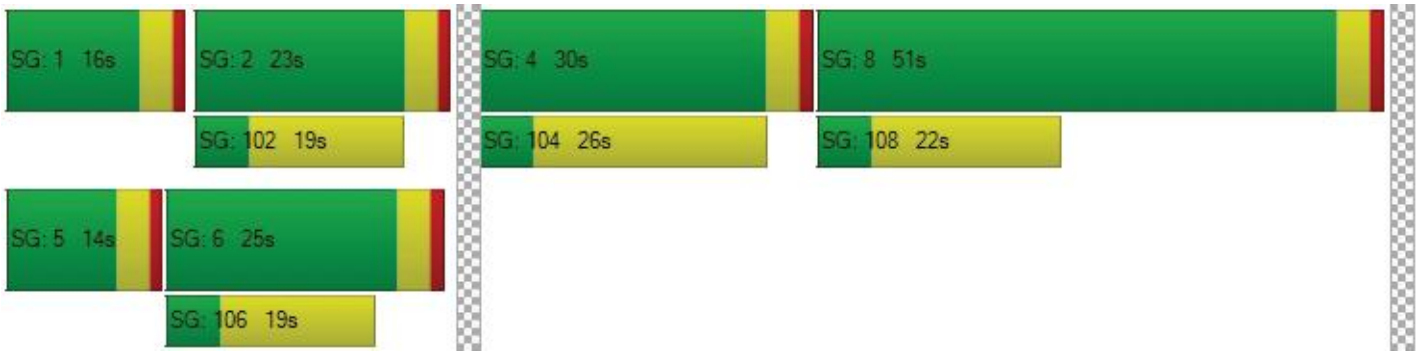
d_M, Delay for Movement [s/veh]	64.98	24.89	25.03	72.44	28.64	28.04	48.48	48.91	49.57	58.04	58.65	59.27
Movement LOS	E	C	C	E	C	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	34.23			32.01			48.98			58.62		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	42.99											
Intersection LOS	D											
Intersection V/C	0.554											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.566	2.643	2.501	2.420
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	350	317	783	433
d_b, Bicycle Delay [s]	40.84	42.50	22.20	36.82
l_b,int, Bicycle LOS Score for Intersection	2.117	1.982	2.289	1.890
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Foothill Blvd at I-15 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	229	0	600	0	2163	1046	0	1526	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	137	0	0	0	40	0	0	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	366	0	600	0	2203	1046	0	1567	0
Peak Hour Factor	1.000	1.000	1.000	0.950	1.000	0.950	1.000	0.950	0.950	1.000	0.950	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	96	0	158	0	580	275	0	412	0
Total Analysis Volume [veh/h]	0	0	0	385	0	632	0	2319	1101	0	1649	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	0	0	5	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	5	0	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	31	0	0	0	89	0	0	89	0
Vehicle Extension [s]	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	10	0	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk				No				No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall				No				No			No	
Maximum Recall				No				No			No	
Pedestrian Recall				No				No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	R	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		27	27	27	85	85	85
g / C, Green / Cycle		0.22	0.22	0.22	0.71	0.71	0.71
(v / s)_i Volume / Saturation Flow Rate		0.19	0.21	0.21	0.45	0.68	0.32
s, saturation flow rate [veh/h]		1810	1639	1615	5176	1615	5176
c, Capacity [veh/h]		405	367	362	3671	1146	3671
d1, Uniform Delay [s]		44.46	45.55	45.73	9.19	15.93	7.44
k, delay calibration		0.27	0.32	0.33	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		10.58	22.98	25.81	0.84	18.75	0.40
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.84	0.92	0.94	0.63	0.96	0.45
d, Delay for Lane Group [s/veh]		55.04	68.53	71.54	10.02	34.68	7.84
Lane Group LOS		E	E	E	B	C	A
Critical Lane Group		No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		10.78	12.17	12.46	9.81	29.49	5.62
50th-Percentile Queue Length [ft/ln]		269.5	304.2	311.4	245.24	737.34	140.55
95th-Percentile Queue Length [veh/ln]		16.16	17.89	18.24	14.95	38.40	9.51
95th-Percentile Queue Length [ft/ln]		404.1	447.2	456.1	373.65	960.00	237.77

Movement, Approach, & Intersection Results

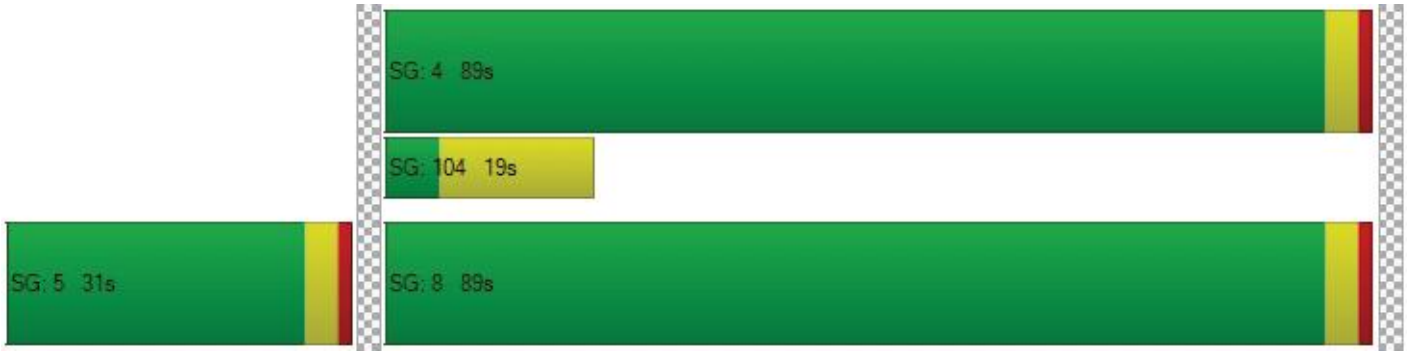
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	56.65	0.00	70.14	0.00	10.02	34.68	0.00	7.84	0.00
Movement LOS				E		E		B	C		A	
d_A, Approach Delay [s/veh]	0.00			65.04			17.96			7.84		
Approach LOS	A			E			B			A		
d_I, Intersection Delay [s/veh]	23.08											
Intersection LOS	C											
Intersection V/C	0.892											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.394	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	450	1417	1417
d_b, Bicycle Delay [s]	60.00	36.04	5.10	5.10
l_b,int, Bicycle LOS Score for Intersection	4.132	3.238	3.441	2.467
Bicycle LOS	D	C	C	B

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Foothill Blvd at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	819	0	521	0	0	0	0	1415	0	0	1401	362
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	177	0	0	41	117
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	819	0	521	0	0	0	0	1592	0	0	1442	479
Peak Hour Factor	0.950	1.000	0.950	1.000	1.000	1.000	1.000	0.950	1.000	1.000	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	216	0	137	0	0	0	0	419	0	0	379	126
Total Analysis Volume [veh/h]	862	0	548	0	0	0	0	1676	0	0	1518	504
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	0	0	0	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	0	0	0	5	0	0	5	0
Maximum Green [s]	30	0	0	0	0	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	60	0	0	0	0	0	0	60	0	0	60	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	24	0	0	0	0	0	0	14	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No							No			No	
Maximum Recall	No							No			No	
Pedestrian Recall	No							No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		C	C	R
C, Cycle Length [s]	120	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39		73	73	73
g / C, Green / Cycle	0.33	0.33	0.33		0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.29		0.32	0.29	0.31
s, saturation flow rate [veh/h]	1810	1774	1615		5176	5176	1615
c, Capacity [veh/h]	594	582	530		3133	3133	977
d1, Uniform Delay [s]	36.59	36.85	38.21		13.83	13.23	13.59
k, delay calibration	0.14	0.15	0.19		0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.06	3.63	8.58		0.66	0.54	1.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.81	0.89		0.54	0.48	0.52
d, Delay for Lane Group [s/veh]	39.66	40.48	46.79		14.49	13.77	15.53
Lane Group LOS	D	D	D		B	B	B
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.91	13.08	14.22		8.66	7.49	8.04
50th-Percentile Queue Length [ft/ln]	322.7	327.0	355.4		216.45	187.34	200.88
95th-Percentile Queue Length [veh/ln]	18.80	19.01	20.40		13.48	11.98	12.68
95th-Percentile Queue Length [ft/ln]	470.1	475.2	510.0		337.09	299.58	317.11

Movement, Approach, & Intersection Results

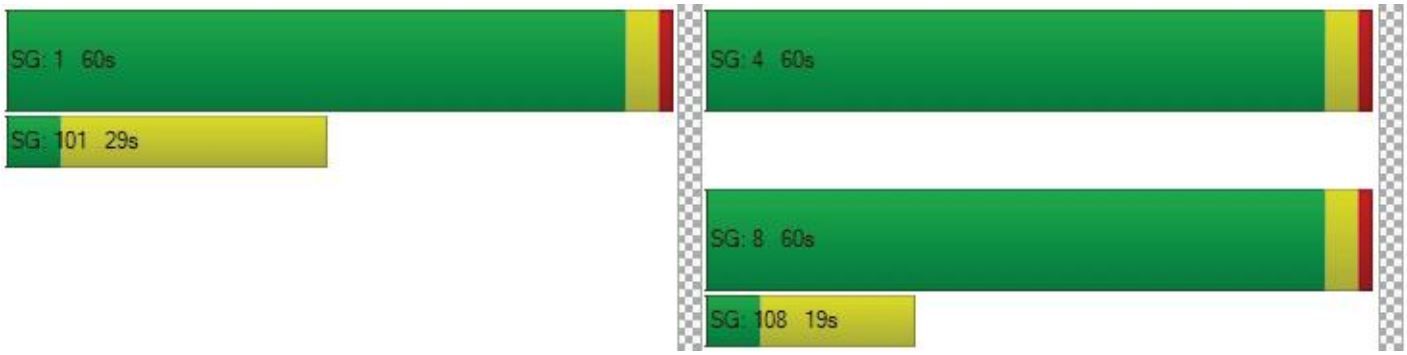
d_M, Delay for Movement [s/veh]	40.03	0.00	45.89	0.00	0.00	0.00	0.00	14.49	0.00	0.00	13.77	15.53
Movement LOS	D		D					B			B	B
d_A, Approach Delay [s/veh]	42.31			0.00			14.49			14.21		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	22.06											
Intersection LOS	C											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.490	0.000	0.000	3.201
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	0	933	933
d_b, Bicycle Delay [s]	17.07	60.00	17.07	17.07
l_b,int, Bicycle LOS Score for Intersection	3.886	4.132	2.481	2.672
Bicycle LOS	D	D	B	B

Sequence

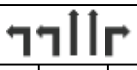
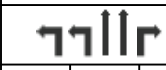
Ring 1	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Foothill Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	80.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.830

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	382	400	224	69	251	174	266	1164	287	140	957	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	158	26	2	0	26	0	0	0	177	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	540	426	226	69	277	174	266	1164	464	142	957	53
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	142	112	59	18	73	46	70	306	122	37	252	14
Total Analysis Volume [veh/h]	568	448	238	73	292	183	280	1225	488	149	1007	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	36	63	0	9	36	0	13	39	39	9	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	31	0	0	27	0	0	17	17	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	59	59	5	32	32	9	35	71	5	31	31
g / C, Green / Cycle	0.27	0.49	0.49	0.04	0.27	0.27	0.08	0.29	0.59	0.04	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.31	0.24	0.15	0.04	0.13	0.14	0.08	0.34	0.30	0.04	0.28	0.03
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1661	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	483	934	794	75	507	443	264	1055	956	146	935	417
d1, Uniform Delay [s]	44.00	20.29	18.18	57.42	37.17	37.31	55.50	42.50	14.34	57.50	44.50	34.19
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.15	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	99.55	1.76	0.97	40.79	3.42	4.10	44.08	75.89	1.95	39.06	40.14	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.18	0.48	0.30	0.97	0.49	0.51	1.06	1.16	0.51	1.02	1.08	0.13
d, Delay for Lane Group [s/veh]	143.5	22.05	19.15	98.21	40.59	41.41	99.58	118.3	16.28	96.56	84.64	34.33
Lane Group LOS	F	C	B	F	D	D	F	F	B	F	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	27.53	8.70	4.14	3.06	6.70	6.10	5.60	26.56	8.02	3.01	18.97	1.28
50th-Percentile Queue Length [ft/ln]	688.2	217.4	103.4	76.62	167.6	152.4	139.8	663.9	200.4	75.36	474.2	32.09
95th-Percentile Queue Length [veh/ln]	39.72	13.54	7.45	5.52	10.95	10.15	9.66	38.30	12.66	5.43	27.29	2.31
95th-Percentile Queue Length [ft/ln]	993.0	338.4	186.2	137.9	273.7	253.7	241.5	957.4	316.5	135.6	682.2	57.76

Movement, Approach, & Intersection Results

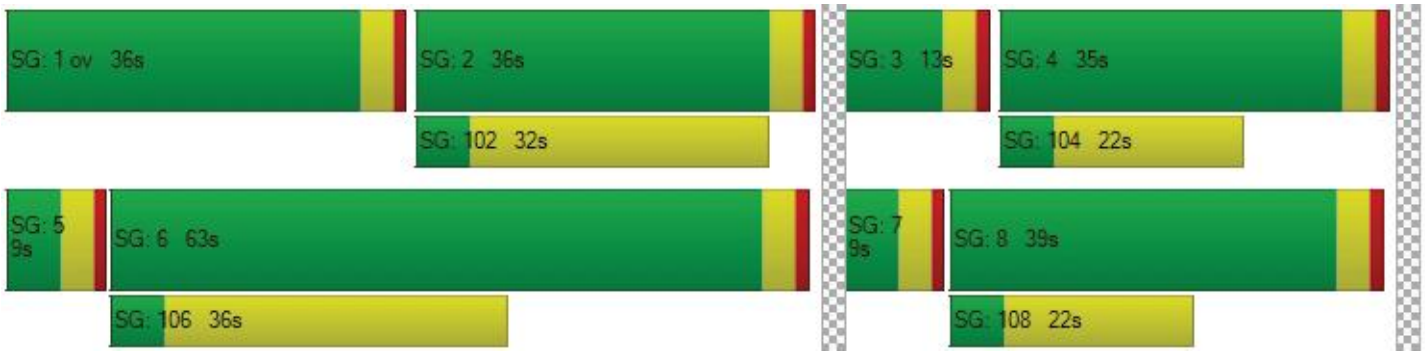
d_M, Delay for Movement [s/veh]	143.5	22.05	19.15	98.21	40.71	41.41	99.58	118.3	16.28	96.56	84.64	34.33
Movement LOS	F	C	B	F	D	D	F	F	B	F	F	C
d_A, Approach Delay [s/veh]	76.53			48.60			90.74			83.78		
Approach LOS	E			D			F			F		
d_I, Intersection Delay [s/veh]	80.89											
Intersection LOS	F											
Intersection V/C	0.830											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.741	2.575	3.198	3.162
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	533	583	517
d_b, Bicycle Delay [s]	15.50	32.27	30.10	33.00
l_b,int, Bicycle LOS Score for Intersection	3.629	2.012	3.204	2.560
Bicycle LOS	D	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Foothill Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	62.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.829

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	461	1014	285	315	855	219	288	1137	236	200	635	138
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	345	57	0	387	2	2	0	0	57	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	461	1359	342	315	1242	221	290	1137	236	257	635	138
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	121	358	90	83	327	58	76	299	62	68	167	36
Total Analysis Volume [veh/h]	485	1431	360	332	1307	233	305	1197	248	271	668	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	28	41	0	27	40	40	12	38	0	14	40	40
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	0	0	31	31	0	27	0	0	31	31
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	24	40	40	23	39	51	8	31	31	10	33	60
g / C, Green / Cycle	0.20	0.33	0.33	0.19	0.32	0.42	0.07	0.26	0.26	0.08	0.28	0.50
(v / s)_i Volume / Saturation Flow Rate	0.27	0.28	0.22	0.18	0.25	0.14	0.09	0.23	0.15	0.08	0.13	0.09
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	362	1708	533	347	1664	681	234	1355	423	293	1441	813
d1, Uniform Delay [s]	48.00	37.24	34.67	48.01	36.94	23.46	56.00	42.54	38.63	54.63	35.87	16.26
k, delay calibration	0.50	0.50	0.50	0.26	0.50	0.50	0.11	0.11	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	170.6	5.10	6.73	25.52	3.81	1.37	142.6	2.09	1.41	12.11	0.23	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.34	0.84	0.68	0.96	0.79	0.34	1.30	0.88	0.59	0.93	0.46	0.18
d, Delay for Lane Group [s/veh]	218.6	42.34	41.40	73.53	40.75	24.83	198.6	44.63	40.04	66.74	36.10	16.36
Lane Group LOS	F	D	D	E	D	C	F	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	27.91	13.62	10.00	12.24	12.08	4.72	8.18	11.54	6.53	4.56	5.45	2.20
50th-Percentile Queue Length [ft/ln]	697.8	340.5	250.0	306.0	301.9	118.0	204.6	288.6	163.3	113.8	136.1	55.07
95th-Percentile Queue Length [veh/ln]	42.05	19.68	15.19	17.98	17.78	8.28	13.90	17.12	10.73	8.06	9.27	3.96
95th-Percentile Queue Length [ft/ln]	1051.	491.9	379.7	449.4	444.4	207.0	347.5	427.9	268.1	201.3	231.8	99.12

Movement, Approach, & Intersection Results

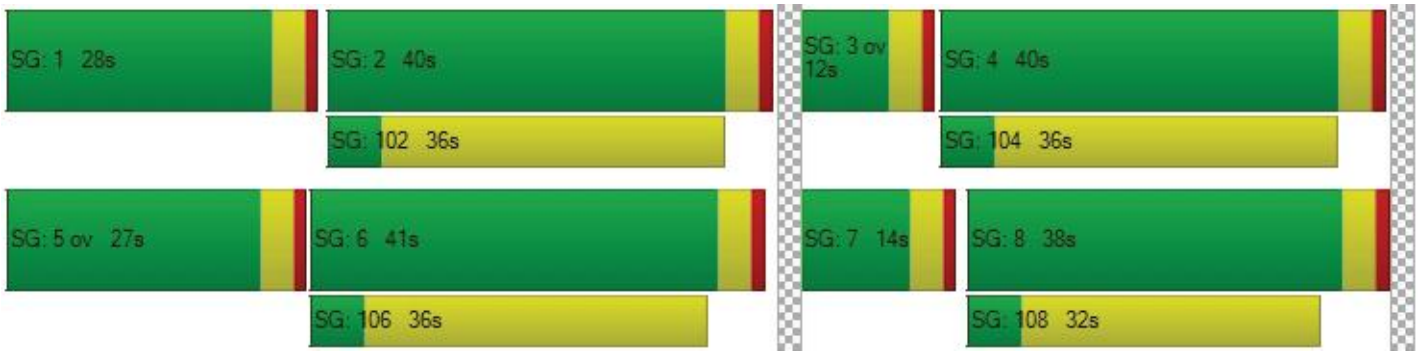
d_M, Delay for Movement [s/veh]	218.6	42.34	41.40	73.53	40.75	24.83	198.6	44.63	40.04	66.74	36.10	16.36
Movement LOS	F	D	D	E	D	C	F	D	D	E	D	B
d_A, Approach Delay [s/veh]	79.76			44.58			70.83			41.12		
Approach LOS	E			D			E			D		
d_I, Intersection Delay [s/veh]	62.09											
Intersection LOS	E											
Intersection V/C	0.829											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.241	3.271	3.204	3.187
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	600	567	600
d_b, Bicycle Delay [s]	28.70	29.40	30.82	29.40
l_b,int, Bicycle LOS Score for Intersection	2.811	2.589	2.522	2.156
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Beech Ave at Foothill Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	49.654

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	214	0	211	0	0	0	0	1511	226	195	887	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	17	0	0	0	0	57	0	16	57	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	0	228	0	0	0	0	1568	226	211	944	0
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	56	0	60	0	0	0	0	413	59	56	248	0
Total Analysis Volume [veh/h]	225	0	240	0	0	0	0	1651	238	222	994	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	49.65	0.00	0.90	0.00	0.00	0.00	0.00	0.02	0.00	0.69	0.01	0.00
d_M, Delay for Movement [s/veh]	10000	10000	10000	3582.	1396.	11.87	10.11	0.00	0.00	37.98	0.00	0.00
Movement LOS	F	F	F	F	F	B	B	A	A	E	A	A
95th-Percentile Queue Length [veh/ln]	59.89	59.89	59.89	0.00	0.00	0.00	0.00	0.00	0.00	4.84	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1497.	1497.	1497.	0.00	0.00	0.00	0.00	0.00	0.00	120.9	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			1663.55			0.00			6.93		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	1304.88											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 23: Foothill Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	84.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.967

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	155	758	152	189	618	80	287	1101	198	444	647	154
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	0	16	0	0	45	0	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	778	152	189	634	80	287	1146	198	444	692	154
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	205	40	50	167	21	76	302	52	117	182	41
Total Analysis Volume [veh/h]	163	819	160	199	667	84	302	1206	208	467	728	162
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	34	0	16	36	0	28	39	0	31	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	30	30	12	32	32	22	35	35	27	40	40
g / C, Green / Cycle	0.08	0.25	0.25	0.10	0.27	0.27	0.18	0.29	0.29	0.23	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.09	0.26	0.27	0.11	0.20	0.20	0.17	0.33	0.13	0.26	0.20	0.10
s, saturation flow rate [veh/h]	1810	1900	1794	1810	1900	1826	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	151	475	448	181	507	487	332	1055	471	407	1206	538
d1, Uniform Delay [s]	55.00	45.00	45.00	54.00	40.41	40.41	48.04	42.50	34.55	46.50	33.38	29.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.21	0.14	0.11	0.47	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	58.04	57.90	59.65	62.03	10.07	10.44	16.27	67.95	0.65	90.18	0.49	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	1.06	1.06	1.10	0.76	0.76	0.91	1.14	0.44	1.15	0.60	0.30
d, Delay for Lane Group [s/veh]	113.0	102.9	104.6	116.0	50.48	50.85	64.31	110.4	35.21	136.6	33.87	29.95
Lane Group LOS	F	F	F	F	D	D	E	F	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.98	21.65	20.65	8.57	11.76	11.35	10.33	25.40	5.03	22.26	8.88	3.52
50th-Percentile Queue Length [ft/ln]	174.5	541.1	516.2	214.2	293.9	283.8	258.2	634.9	125.8	556.3	222.0	88.10
95th-Percentile Queue Length [veh/ln]	11.63	30.31	29.12	13.86	17.38	16.88	15.60	36.50	8.71	32.33	13.77	6.34
95th-Percentile Queue Length [ft/ln]	290.6	757.8	728.0	346.5	434.4	421.9	390.0	912.5	217.8	808.3	344.2	158.5

Movement, Approach, & Intersection Results

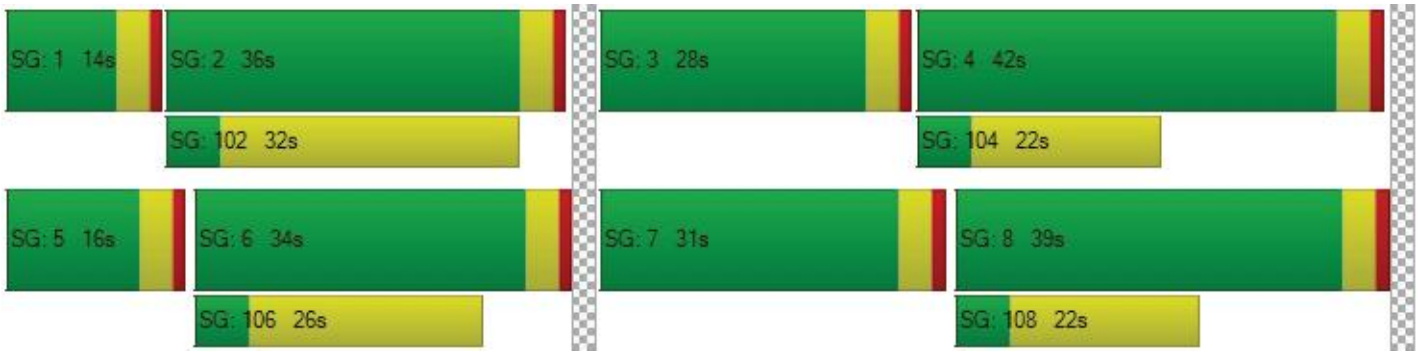
d_M, Delay for Movement [s/veh]	113.0	103.5	104.6	116.0	50.64	50.85	64.31	110.4	35.21	136.6	33.87	29.95
Movement LOS	F	F	F	F	D	D	E	F	D	F	C	C
d_A, Approach Delay [s/veh]	105.08			64.36			93.21			68.78		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	84.11											
Intersection LOS	F											
Intersection V/C	0.967											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.799	2.751	2.905	2.943
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	533	583	633
d_b, Bicycle Delay [s]	33.75	32.27	30.10	28.02
l_b,int, Bicycle LOS Score for Intersection	2.502	2.343	2.975	2.679
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Sierra Ave at Foothill Blvd

Control Type:	Signalized	Delay (sec / veh):	63.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	1095	230	220	750	156	227	958	199	287	615	181
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	17	0	25	9	9	24	0	16	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	1120	247	220	775	165	236	982	199	303	639	181
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	295	65	58	204	43	62	258	52	80	168	48
Total Analysis Volume [veh/h]	168	1179	260	232	816	174	248	1034	209	319	673	191
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	41	0	19	43	0	24	36	0	24	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	37	37	15	39	39	18	32	32	20	34	34
g / C, Green / Cycle	0.11	0.31	0.31	0.13	0.33	0.33	0.15	0.27	0.27	0.17	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.33	0.16	0.13	0.23	0.11	0.14	0.29	0.13	0.18	0.19	0.12
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	195	1115	498	226	1178	526	277	965	431	302	1013	452
d1, Uniform Delay [s]	52.66	41.50	34.21	52.50	35.23	30.58	49.84	44.00	37.06	50.00	38.21	35.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11	0.23	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.66	43.35	3.88	34.54	3.36	1.68	10.63	37.66	0.85	51.72	0.76	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	1.06	0.52	1.03	0.69	0.33	0.89	1.07	0.49	1.06	0.66	0.42
d, Delay for Lane Group [s/veh]	63.32	84.85	38.09	87.04	38.59	32.26	60.47	81.66	37.91	101.7	38.97	35.90
Lane Group LOS	E	F	D	F	D	C	E	F	D	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.55	22.98	6.79	8.96	10.87	4.07	8.11	19.23	5.28	13.34	8.83	4.65
50th-Percentile Queue Length [ft/ln]	138.7	574.5	169.6	224.1	271.8	101.6	202.6	480.6	131.9	333.5	220.6	116.2
95th-Percentile Queue Length [veh/ln]	9.42	31.98	11.06	14.03	16.28	7.32	12.78	27.54	9.04	19.88	13.70	8.18
95th-Percentile Queue Length [ft/ln]	235.3	799.4	276.5	350.6	406.9	183.0	319.4	688.5	226.1	496.9	342.4	204.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.32	84.85	38.09	87.04	38.59	32.26	60.47	81.66	37.91	101.7	38.97	35.90
Movement LOS	E	F	D	F	D	C	E	F	D	F	D	D
d_A, Approach Delay [s/veh]	75.04			46.89			72.00			55.40		
Approach LOS	E			D			E			E		
d_I, Intersection Delay [s/veh]	63.74											
Intersection LOS	E											
Intersection V/C	0.916											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.020	3.087	2.875	2.908
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	650	533	533
d_b, Bicycle Delay [s]	28.70	27.34	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.885	2.568	2.790	2.536
Bicycle LOS	C	B	C	B

Sequence

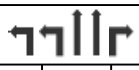
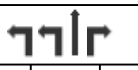
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Arrow Rte at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	170.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.399

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	216	751	240	192	353	128	391	1737	457	177	973	180
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	36	186	0	0	205	0	0	0	36	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	252	937	240	192	558	128	391	1737	493	177	973	180
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	66	247	63	51	147	34	103	457	130	47	256	47
Total Analysis Volume [veh/h]	265	986	253	202	587	135	412	1828	519	186	1024	189
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	6	5	2	2	3	8	8	7	4	0
Auxiliary Signal Groups			6,7			2,3			1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	5	5	5	0
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	12	30	30	12	30	30	33	69	69	9	45	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	0
Pedestrian Clearance [s]	0	21	21	0	21	21	0	24	24	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	26	35	8	26	47	17	65	77	5	53	53
g / C, Green / Cycle	0.07	0.22	0.29	0.07	0.22	0.39	0.14	0.54	0.64	0.04	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.16	0.11	0.16	0.08	0.12	0.96	0.32	0.05	0.33	0.33
s, saturation flow rate [veh/h]	3514	3618	1615	1810	3618	1615	3514	1900	1615	3514	1900	1799
c, Capacity [veh/h]	234	784	471	121	784	634	502	1029	1036	146	837	793
d1, Uniform Delay [s]	56.00	47.00	35.70	56.00	43.95	24.14	49.95	27.50	11.35	57.50	27.87	28.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.28	0.28
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	70.93	126.3	4.34	311.3	6.48	0.77	3.42	353.2	1.73	133.0	3.30	3.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.13	1.26	0.54	1.67	0.75	0.21	0.82	1.78	0.50	1.27	0.74	0.75
d, Delay for Lane Group [s/veh]	126.9	173.3	40.04	367.3	50.43	24.91	53.37	380.7	13.08	190.5	31.17	31.70
Lane Group LOS	F	F	D	F	D	C	D	F	B	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.85	25.38	6.79	14.08	8.84	2.69	6.24	128.8	7.43	4.93	15.26	14.75
50th-Percentile Queue Length [ft/ln]	146.2	634.4	169.6	352.0	221.0	67.34	155.9	3220.	185.6	123.1	381.5	368.6
95th-Percentile Queue Length [veh/ln]	10.19	37.81	11.06	23.12	13.72	4.85	10.33	203.4	11.90	8.87	21.67	21.04
95th-Percentile Queue Length [ft/ln]	254.7	945.2	276.4	577.9	342.9	121.2	258.3	5086.	297.4	221.6	541.7	526.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	126.9	173.3	40.04	367.3	50.43	24.91	53.37	380.7	13.08	190.5	31.38	31.70
Movement LOS	F	F	D	F	D	C	D	F	B	F	C	C
d_A, Approach Delay [s/veh]	142.76			115.97			262.70			52.59		
Approach LOS	F			F			F			D		
d_I, Intersection Delay [s/veh]	170.09											
Intersection LOS	F											
Intersection V/C	1.399											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.999	2.876	3.192	3.066
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1083	683
d_b, Bicycle Delay [s]	36.82	36.82	12.60	26.00
l_b,int, Bicycle LOS Score for Intersection	2.800	2.322	6.112	2.714
Bicycle LOS	C	B	F	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: Arrow Rte at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	102.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.031

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	162	1374	310	103	1160	115	95	758	123	160	607	67
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	402	50	0	444	0	0	0	0	50	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	1776	360	103	1604	115	95	758	123	210	607	67
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	43	467	95	27	422	30	25	199	32	55	160	18
Total Analysis Volume [veh/h]	171	1869	379	108	1688	121	100	798	129	221	639	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	47	0	10	43	0	21	46	0	17	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	21	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	43	43	6	39	39	8	42	42	13	47	47
g / C, Green / Cycle	0.08	0.36	0.36	0.05	0.33	0.33	0.07	0.35	0.35	0.11	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.09	0.41	0.43	0.06	0.33	0.33	0.06	0.42	0.08	0.12	0.34	0.04
s, saturation flow rate [veh/h]	1810	3618	1744	1810	3618	1836	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	151	1296	625	90	1176	597	127	665	565	196	737	627
d1, Uniform Delay [s]	55.00	38.50	38.50	57.00	40.50	40.50	54.91	39.00	27.55	53.50	33.84	23.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.37	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	77.32	79.39	104.2	108.4	31.26	42.78	10.24	104.0	0.20	71.41	10.01	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.13	1.16	1.20	1.19	1.02	1.02	0.79	1.20	0.23	1.13	0.87	0.11
d, Delay for Lane Group [s/veh]	132.3	117.8	142.7	165.4	71.76	83.28	65.15	143.0	27.75	124.9	43.86	23.57
Lane Group LOS	F	F	F	F	F	F	E	F	C	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.79	32.99	36.13	5.47	22.19	24.43	3.34	38.44	2.67	9.79	18.90	1.31
50th-Percentile Queue Length [ft/ln]	194.7	824.6	903.3	136.6	554.7	610.7	83.45	960.9	66.63	244.7	472.4	32.83
95th-Percentile Queue Length [veh/ln]	12.91	46.67	51.70	9.74	30.31	33.04	6.01	54.66	4.80	15.63	26.03	2.36
95th-Percentile Queue Length [ft/ln]	322.8	1166.	1292.	243.5	757.7	826.1	150.2	1366.	119.9	390.8	650.6	59.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	132.3	122.8	142.7	165.4	75.10	83.28	65.15	143.0	27.75	124.9	43.86	23.57
Movement LOS	F	F	F	F	E	F	E	F	C	F	D	C
d_A, Approach Delay [s/veh]	126.62			80.71			120.98			61.55		
Approach LOS	F			F			F			E		
d_I, Intersection Delay [s/veh]	102.09											
Intersection LOS	F											
Intersection V/C	1.031											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.284	3.160	2.786	2.686
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	650	700	633
d_b, Bicycle Delay [s]	24.70	27.34	25.35	28.02
l_b,int, Bicycle LOS Score for Intersection	2.890	2.614	3.254	3.096
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 27: Beech Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	124	345	276	34	368	42	73	830	117	142	510	56
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	3	0	16	0	0	50	0	3	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	362	279	34	384	42	73	880	117	145	560	56
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	95	73	9	101	11	19	232	31	38	147	15
Total Analysis Volume [veh/h]	131	381	294	36	404	44	77	926	123	153	589	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	42	0	0	42	0	0	78	0	0	78	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	38	38	38	38	38	74	74	74	74	74	74
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.32	0.32	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.14	0.20	0.18	0.05	0.21	0.03	0.10	0.49	0.08	0.28	0.31	0.04
s, saturation flow rate [veh/h]	957	1900	1615	776	1900	1615	796	1900	1615	546	1900	1615
c, Capacity [veh/h]	171	602	511	160	602	511	400	1172	996	189	1172	996
d1, Uniform Delay [s]	54.16	35.04	34.25	47.78	35.58	28.80	21.75	17.20	9.54	48.11	12.78	9.15
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.32	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.66	5.01	4.65	3.25	5.88	0.33	0.23	3.56	0.06	8.07	0.34	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.63	0.57	0.23	0.67	0.09	0.19	0.79	0.12	0.81	0.50	0.06
d, Delay for Lane Group [s/veh]	81.82	40.06	38.90	51.02	41.46	29.13	21.98	20.76	9.60	56.18	13.11	9.18
Lane Group LOS	F	D	D	D	D	C	C	C	A	E	B	A
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	5.30	10.32	7.81	1.13	11.19	0.95	1.41	19.03	1.33	5.08	8.55	0.61
50th-Percentile Queue Length [ft/ln]	132.4	257.9	195.2	28.29	279.7	23.67	35.15	475.7	33.31	127.0	213.8	15.32
95th-Percentile Queue Length [veh/ln]	9.07	15.59	12.39	2.04	16.68	1.70	2.53	26.19	2.40	8.78	13.35	1.10
95th-Percentile Queue Length [ft/ln]	226.8	389.6	309.8	50.93	416.9	42.61	63.27	654.6	59.96	219.4	333.7	27.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	81.82	40.06	38.90	51.02	41.46	29.13	21.98	20.76	9.60	56.18	13.11	9.18
Movement LOS	F	D	D	D	D	C	C	C	A	E	B	A
d_A, Approach Delay [s/veh]	46.42			41.05			19.63			21.05		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	29.92											
Intersection LOS	C											
Intersection V/C	0.700											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.726	2.500	2.793	2.767
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	1233	1233
d_b, Bicycle Delay [s]	28.02	28.02	8.82	8.82
l_b,int, Bicycle LOS Score for Intersection	2.890	2.358	3.418	2.881
Bicycle LOS	C	B	C	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: Citrus Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	46.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.762

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	222	968	191	155	817	90	111	779	237	164	390	103
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	3	0	16	0	0	29	0	3	29	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	222	988	194	155	833	90	111	808	237	167	419	103
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	58	260	51	41	219	24	29	213	62	44	110	27
Total Analysis Volume [veh/h]	234	1040	204	163	877	95	117	851	249	176	441	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	47	0	16	41	0	23	40	0	17	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	48	48	12	42	42	10	31	31	13	35	35
g / C, Green / Cycle	0.14	0.40	0.40	0.10	0.35	0.35	0.08	0.26	0.26	0.11	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.13	0.33	0.34	0.09	0.26	0.26	0.06	0.24	0.15	0.10	0.23	0.07
s, saturation flow rate [veh/h]	1810	1900	1794	1810	1900	1836	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	261	755	713	181	671	648	146	944	422	196	549	466
d1, Uniform Delay [s]	50.48	32.74	32.99	53.41	33.93	33.94	54.22	42.84	38.73	52.84	39.52	32.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.59	10.97	12.45	14.68	7.08	7.33	9.75	3.48	1.32	13.48	6.17	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.84	0.85	0.90	0.74	0.74	0.80	0.90	0.59	0.90	0.80	0.23
d, Delay for Lane Group [s/veh]	61.06	43.71	45.44	68.10	41.01	41.28	63.97	46.32	40.06	66.32	45.69	32.77
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.66	18.71	18.32	5.60	13.79	13.39	3.87	12.56	6.56	5.97	12.89	2.44
50th-Percentile Queue Length [ft/ln]	191.4	467.8	458.0	139.8	344.7	334.6	96.74	313.9	163.9	149.1	322.3	61.03
95th-Percentile Queue Length [veh/ln]	12.20	25.81	25.34	9.47	19.88	19.39	6.97	18.37	10.76	9.97	18.78	4.39
95th-Percentile Queue Length [ft/ln]	304.9	645.2	633.5	236.8	497.0	484.6	174.1	459.2	268.9	249.3	469.5	109.8

Movement, Approach, & Intersection Results

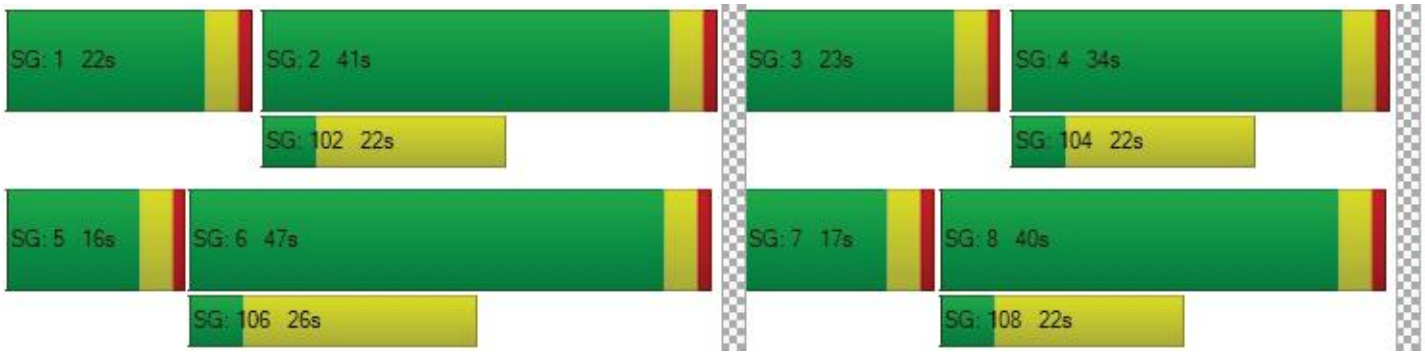
d_M, Delay for Movement [s/veh]	61.06	44.38	45.44	68.10	41.12	41.28	63.97	46.32	40.06	66.32	45.69	32.77
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	47.17			45.01			46.74			48.78		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	46.77											
Intersection LOS	D											
Intersection V/C	0.762											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.857	2.783	2.703	2.784
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	617	600	500
d_b, Bicycle Delay [s]	24.70	28.70	29.40	33.75
l_b,int, Bicycle LOS Score for Intersection	2.779	2.496	2.564	2.756
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 29: Sierra Ave at Arrow Blvd

Control Type:	Signalized	Delay (sec / veh):	38.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.662

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	1135	65	121	824	141	183	535	142	75	353	59
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	42	3	0	41	0	0	9	0	3	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	1177	68	121	865	141	183	544	142	78	362	59
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	33	310	18	32	228	37	48	143	37	21	95	16
Total Analysis Volume [veh/h]	132	1239	72	127	911	148	193	573	149	82	381	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	50	0	14	49	0	26	44	0	12	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	60	60	10	60	60	15	27	27	7	19	19
g / C, Green / Cycle	0.09	0.50	0.50	0.08	0.50	0.50	0.12	0.22	0.22	0.06	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.07	0.35	0.35	0.07	0.29	0.29	0.11	0.20	0.20	0.05	0.12	0.12
s, saturation flow rate [veh/h]	1810	1900	1864	1810	1900	1809	1810	1900	1766	1810	1900	1809
c, Capacity [veh/h]	158	956	938	151	948	903	225	422	393	104	296	282
d1, Uniform Delay [s]	53.88	22.68	22.74	54.22	21.06	21.08	51.52	45.19	45.19	55.80	48.53	48.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.15	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.73	4.08	4.21	11.80	2.50	2.64	9.20	8.33	8.90	12.11	4.07	4.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.69	0.69	0.84	0.57	0.57	0.86	0.89	0.89	0.79	0.76	0.77
d, Delay for Lane Group [s/veh]	64.61	26.76	26.95	66.03	23.55	23.71	60.72	53.53	54.10	67.92	52.60	53.05
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.39	14.90	14.74	4.27	11.11	10.64	6.26	11.72	10.96	2.80	6.81	6.58
50th-Percentile Queue Length [ft/ln]	109.8	372.4	368.5	106.8	277.7	266.0	156.5	292.9	274.0	70.04	170.2	164.5
95th-Percentile Queue Length [veh/ln]	7.83	21.23	21.04	7.66	16.58	15.99	10.37	17.33	16.39	5.04	11.09	10.79
95th-Percentile Queue Length [ft/ln]	195.7	530.6	525.9	191.6	414.4	399.8	259.1	433.3	409.7	126.0	277.1	269.7

Movement, Approach, & Intersection Results

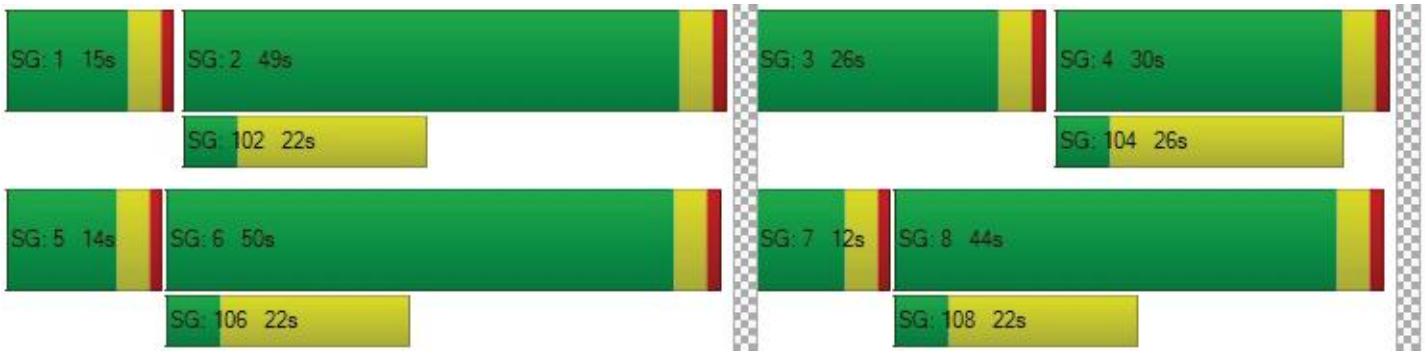
d_M, Delay for Movement [s/veh]	64.61	26.85	26.95	66.03	23.62	23.71	60.72	53.72	54.10	67.92	52.78	53.05
Movement LOS	E	C	C	E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	30.31			28.17			55.26			55.18		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	38.51											
Intersection LOS	D											
Intersection V/C	0.662											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.819	2.904	2.622	2.568
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	750	667	433
d_b, Bicycle Delay [s]	22.82	23.44	26.67	36.82
l_b,int, Bicycle LOS Score for Intersection	2.750	2.538	2.314	1.993
Bicycle LOS	C	B	B	A

Sequence

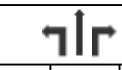
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Whittram Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	65.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.016

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1053	317	220	769	0	0	0	0	225	0	107
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	222	0	0	241	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1275	317	220	1010	0	0	0	0	225	0	107
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	336	83	58	266	0	0	0	0	59	0	28
Total Analysis Volume [veh/h]	0	1342	334	232	1063	0	0	0	0	237	0	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	30	76	0	18	64	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	72	72	14	86	86	22	22	22	22
g / C, Green / Cycle	0.00	0.60	0.60	0.12	0.72	0.72	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.71	0.21	0.13	0.56	0.00	0.00	0.00	0.18	0.07
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1728	1615	1309	1615
c, Capacity [veh/h]	2	1140	969	211	1360	1156	347	296	300	296
d1, Uniform Delay [s]	0.00	24.00	12.10	53.00	11.00	0.00	0.00	0.00	49.88	43.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	89.12	0.97	59.77	4.53	0.00	0.00	0.00	10.13	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	1.18	0.34	1.10	0.78	0.00	0.00	0.00	0.79	0.38
d, Delay for Lane Group [s/veh]	0.00	113.1	13.08	112.7	15.53	0.00	0.00	0.00	60.01	43.84
Lane Group LOS	A	F	B	F	B	A	A	A	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	58.00	4.66	9.85	17.57	0.00	0.00	0.00	7.91	3.02
50th-Percentile Queue Length [ft/ln]	0.00	1450.	116.5	246.3	439.3	0.00	0.00	0.00	197.66	75.59
95th-Percentile Queue Length [veh/ln]	0.00	80.37	8.20	15.59	24.45	0.00	0.00	0.00	12.52	5.44
95th-Percentile Queue Length [ft/ln]	0.00	2009.	205.0	389.7	611.2	0.00	0.00	0.00	312.94	136.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	113.1	13.08	112.7	15.53	0.00	0.00	0.00	0.00	60.01	60.01	43.84
Movement LOS	A	F	B	F	B	A	A	A	A	E	E	D
d_A, Approach Delay [s/veh]	93.18			32.95			0.00			54.78		
Approach LOS	F			C			A			D		
d_I, Intersection Delay [s/veh]	65.65											
Intersection LOS	E											
Intersection V/C	1.016											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.233	0.000	1.955	2.253
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1000	367	367
d_b, Bicycle Delay [s]	9.60	15.00	40.02	40.02
l_b,int, Bicycle LOS Score for Intersection	4.325	3.696	1.560	2.137
Bicycle LOS	E	D	A	B

Sequence

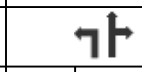
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: Whittram Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	96.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.015

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	160	1769	125	43	1113	69	105	158	379	139	75	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	452	0	0	494	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	2221	125	43	1607	69	105	158	379	139	75	82
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	42	584	33	11	423	18	28	42	100	37	20	22
Total Analysis Volume [veh/h]	168	2338	132	45	1692	73	111	166	399	146	79	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	67	0	10	63	0	10	30	0	13	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	17	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	65	65	4	59	59	6	26	26	9	29
g / C, Green / Cycle	0.08	0.54	0.54	0.03	0.49	0.49	0.05	0.22	0.22	0.08	0.24
(v / s)_i Volume / Saturation Flow Rate	0.09	0.65	0.66	0.02	0.47	0.05	0.06	0.09	0.25	0.08	0.09
s, saturation flow rate [veh/h]	1810	1900	1865	1810	3618	1615	1810	1900	1615	1810	1740
c, Capacity [veh/h]	151	1029	1010	61	1779	794	90	412	350	136	420
d1, Uniform Delay [s]	55.00	27.51	27.51	57.48	29.13	16.24	57.00	40.34	47.00	55.50	38.12
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.44	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	69.86	99.62	109.3	16.27	12.56	0.23	121.6	0.64	89.28	58.02	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.11	1.20	1.22	0.74	0.95	0.09	1.23	0.40	1.14	1.08	0.39
d, Delay for Lane Group [s/veh]	124.8	127.1	136.8	73.75	41.69	16.47	178.6	40.98	136.2	113.52	38.71
Lane Group LOS	F	F	F	E	D	B	F	D	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	7.48	56.26	57.93	1.63	25.45	1.13	5.80	4.30	19.05	6.29	4.15
50th-Percentile Queue Length [ft/ln]	186.9	1406.	1448.	40.71	636.2	28.14	144.9	107.4	476.3	157.19	103.79
95th-Percentile Queue Length [veh/ln]	12.42	78.81	81.92	2.93	33.72	2.03	10.28	7.70	28.11	10.65	7.47
95th-Percentile Queue Length [ft/ln]	310.4	1970.	2047.	73.27	843.0	50.65	256.9	192.4	702.8	266.36	186.82

Movement, Approach, & Intersection Results

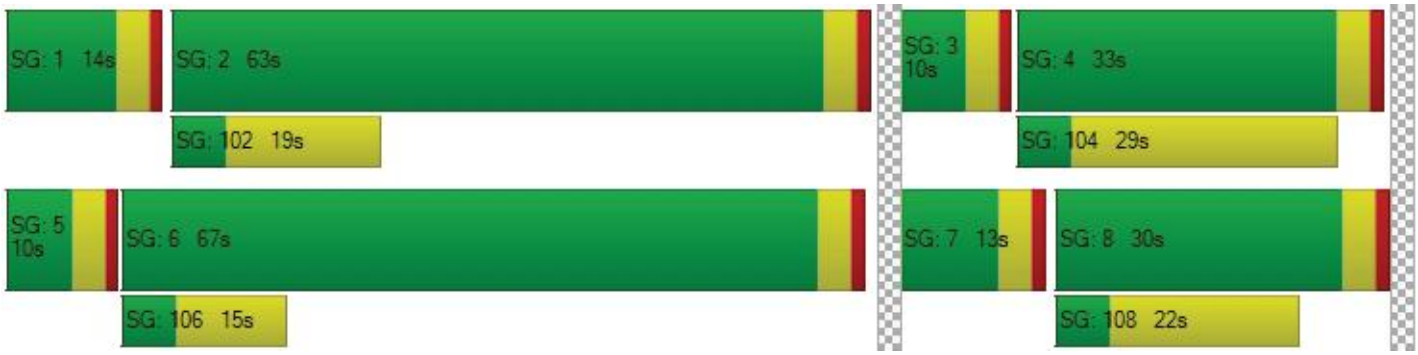
d_M, Delay for Movement [s/veh]	124.8	131.7	136.8	73.75	41.69	16.47	178.6	40.98	136.2	113.5	38.71	38.71
Movement LOS	F	F	F	E	D	B	F	D	F	F	D	D
d_A, Approach Delay [s/veh]	131.52			41.47			119.83			73.83		
Approach LOS	F			D			F			E		
d_I, Intersection Delay [s/veh]	96.77											
Intersection LOS	F											
Intersection V/C	1.015											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.260	3.214	2.389	2.168
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	983	433	483
d_b, Bicycle Delay [s]	13.54	15.50	36.82	34.50
l_b,int, Bicycle LOS Score for Intersection	3.736	3.053	2.675	2.073
Bicycle LOS	D	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 32: Beech Ave at Whittram Ave

Control Type:	Two-way stop	Delay (sec / veh):	415.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.532

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	99	681	0	0	642	46	90	0	185	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	0	19	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	701	0	0	661	46	90	0	185	0	0	0
Peak Hour Factor	0.950	0.950	1.000	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	184	0	0	174	12	24	0	49	0	0	0
Total Analysis Volume [veh/h]	104	738	0	0	696	48	95	0	195	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.01	0.00	0.00	0.01	0.00	1.53	0.00	0.45	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.68	0.00	0.00	0.00	0.00	0.00	415.7	0.00	20.06	0.00	0.00	0.00
Movement LOS	A	A			A	A	F		C			
95th-Percentile Queue Length [veh/ln]	0.40	0.40	0.00	0.00	0.00	0.00	8.38	0.00	2.30	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.10	10.10	0.00	0.00	0.00	0.00	209.4	0.00	57.44	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.20			0.00			149.69			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	23.68											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 33: Napa St at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	85.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1216	155	206	939	0	6	0	34	223	0	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	172	241	0	0	0	0	0	134	0	222
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1216	327	447	939	0	6	0	34	357	0	353
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	320	86	118	247	0	2	0	9	94	0	93
Total Analysis Volume [veh/h]	0	1280	344	471	988	0	6	0	36	376	0	372
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	29	50	0	32	53	0	0	9	0	0	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	47	47	28	75	75	4	4	25	25
g / C, Green / Cycle	0.00	0.39	0.39	0.23	0.63	0.63	0.03	0.03	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.00	0.44	0.45	0.26	0.26	0.26	0.00	0.02	0.21	0.23
s, saturation flow rate [veh/h]	1810	1900	1765	1810	1900	1900	1810	1470	1781	1615
c, Capacity [veh/h]	1	748	695	422	1190	1190	57	46	371	336
d1, Uniform Delay [s]	0.00	36.39	36.39	46.00	11.34	11.34	56.47	57.70	47.50	47.50
k, delay calibration	0.11	0.50	0.50	0.48	0.50	0.50	0.11	0.11	0.34	0.39
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	66.73	81.47	78.30	1.07	1.07	0.80	23.95	41.73	75.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	1.11	1.14	1.12	0.42	0.42	0.11	0.78	1.01	1.11
d, Delay for Lane Group [s/veh]	0.00	103.1	117.8	124.3	12.41	12.41	57.28	81.65	89.23	122.83
Lane Group LOS	A	F	F	F	B	B	E	F	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	35.23	35.58	21.67	6.74	6.74	0.19	1.39	15.32	17.03
50th-Percentile Queue Length [ft/ln]	0.00	880.7	889.4	541.7	168.4	168.4	4.74	34.81	382.92	425.74
95th-Percentile Queue Length [veh/ln]	0.00	48.37	49.80	31.17	11.00	11.00	0.34	2.51	21.90	25.10
95th-Percentile Queue Length [ft/ln]	0.00	1209.	1244.	779.2	274.9	274.9	8.54	62.66	547.46	627.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	108.3	117.8	124.3	12.41	12.41	57.28	57.28	81.65	89.23	89.23	122.8
Movement LOS	A	F	F	F	B	B	E	E	F	F	F	F
d_A, Approach Delay [s/veh]	110.33			48.53			78.17			105.94		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	85.85											
Intersection LOS	F											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	817	83	417
d_b, Bicycle Delay [s]	22.82	21.00	55.10	37.60
l_b,int, Bicycle LOS Score for Intersection	2.899	2.763	1.594	2.794
Bicycle LOS	C	C	A	C

Sequence

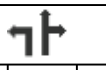
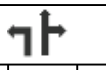
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 34: Merrill Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	62.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.943

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	1	1458	200	372	841	1	0	1	0	107	0	258
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	452	28	0	494	0	0	0	0	28	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1910	228	372	1335	1	0	1	0	135	0	258
Peak Hour Factor	0.946	0.946	0.946	0.950	0.946	0.950	0.950	0.950	0.946	0.946	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	505	60	98	353	0	0	0	0	36	0	68
Total Analysis Volume [veh/h]	1	2019	241	392	1411	1	0	1	0	143	0	272
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	35	49	0	24	38	0	31	30	0	17	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	62	62	20	81	81	0	11	11	22
g / C, Green / Cycle	0.00	0.51	0.51	0.17	0.68	0.68	0.00	0.09	0.09	0.19
(v / s)_i Volume / Saturation Flow Rate	0.00	0.56	0.15	0.22	0.39	0.00	0.00	0.00	0.08	0.17
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1810	1615
c, Capacity [veh/h]	3	1858	829	302	2456	1096	0	176	170	301
d1, Uniform Delay [s]	59.85	29.18	16.68	50.00	10.15	6.19	0.00	49.45	53.48	47.78
k, delay calibration	0.11	0.50	0.50	0.35	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	68.34	48.70	0.89	151.2	0.99	0.00	0.00	0.01	10.53	9.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	1.09	0.29	1.30	0.57	0.00	0.00	0.01	0.84	0.90
d, Delay for Lane Group [s/veh]	128.1	77.88	17.57	201.2	11.13	6.20	0.00	49.46	64.01	57.69
Lane Group LOS	F	F	B	F	B	A	A	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	38.05	3.98	21.68	9.39	0.01	0.00	0.03	4.74	8.75
50th-Percentile Queue Length [ft/ln]	2.04	951.1	99.57	541.9	234.8	0.21	0.00	0.70	118.48	218.84
95th-Percentile Queue Length [veh/ln]	0.15	51.44	7.17	32.97	14.42	0.01	0.00	0.05	8.31	13.61
95th-Percentile Queue Length [ft/ln]	3.67	1286.	179.2	824.1	360.4	0.37	0.00	1.26	207.73	340.14

Movement, Approach, & Intersection Results

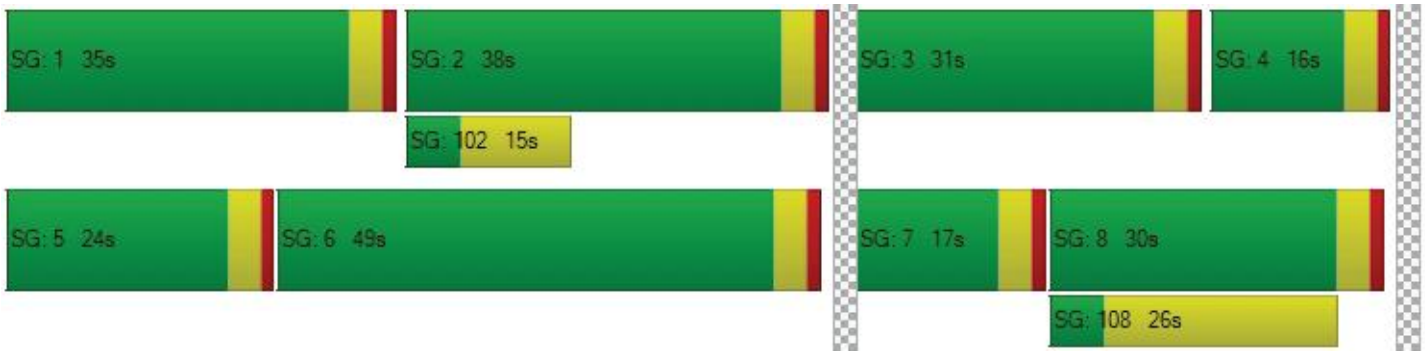
d_M, Delay for Movement [s/veh]	128.1	77.88	17.57	201.2	11.13	6.20	0.00	49.46	49.46	64.01	57.69	57.69
Movement LOS	F	F	B	F	B	A	A	D	D	E	E	E
d_A, Approach Delay [s/veh]	71.48			52.43			49.46			59.87		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	62.73											
Intersection LOS	E											
Intersection V/C	0.943											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.141	0.000	1.956	0.000
Crosswalk LOS	C	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	567	433	200
d_b, Bicycle Delay [s]	23.44	30.82	36.82	48.60
l_b,int, Bicycle LOS Score for Intersection	3.425	3.048	1.561	2.244
Bicycle LOS	C	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 35: Beech Ave at Merrill Ave

Control Type:	All-way stop	Delay (sec / veh):	248.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.966

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	360	65	223	346	92	235	278	51	36	296	159
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	0	19	0	0	28	0	0	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	380	65	223	365	92	235	306	51	36	324	159
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	100	17	59	96	24	62	81	13	9	85	42
Total Analysis Volume [veh/h]	52	400	68	235	384	97	247	322	54	38	341	167
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	452	405	716	569	405	379	406
Degree of Utilization, x	1.21	0.17	1.97	1.55	0.13	1.01	0.41

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	18.79	0.60	49.40	31.86	0.46	12.20	1.97
95th-Percentile Queue Length [ft]	469.63	14.91	1235.01	796.40	11.42	305.05	49.21
Approach Delay [s/veh]	128.32		466.64	260.41		61.75	
Approach LOS	F		F	F		F	
Intersection Delay [s/veh]	248.15						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 36: Merill Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	1046	50	87	896	112	156	331	78	40	235	152
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	1	0	19	0	0	28	0	1	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	1069	51	87	915	112	156	359	78	41	263	152
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	281	13	23	241	29	41	94	21	11	69	40
Total Analysis Volume [veh/h]	65	1125	54	92	963	118	164	378	82	43	277	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	53	0	12	50	0	19	37	0	18	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	66	66	8	68	68	13	26	26	4	18	18
g / C, Green / Cycle	0.05	0.55	0.55	0.06	0.57	0.57	0.11	0.22	0.22	0.03	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.31	0.05	0.29	0.29	0.09	0.10	0.05	0.02	0.12	0.12
s, saturation flow rate [veh/h]	1810	1900	1870	1810	1900	1828	1810	3618	1615	1810	1900	1673
c, Capacity [veh/h]	85	1045	1028	115	1077	1036	192	795	355	60	279	246
d1, Uniform Delay [s]	56.52	17.67	17.68	55.41	15.86	15.87	52.72	40.78	38.47	57.46	49.66	49.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.14	2.24	2.28	11.77	1.73	1.81	10.26	0.44	0.33	14.88	5.96	7.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.57	0.57	0.80	0.51	0.51	0.85	0.48	0.23	0.72	0.82	0.85
d, Delay for Lane Group [s/veh]	69.66	19.91	19.97	67.18	17.59	17.68	62.98	41.22	38.80	72.34	55.62	57.75
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.26	11.10	10.95	3.12	9.46	9.14	5.40	4.93	2.03	1.54	7.12	6.61
50th-Percentile Queue Length [ft/ln]	56.47	277.5	273.8	78.06	236.3	228.4	135.0	123.1	50.73	38.52	177.9	165.2
95th-Percentile Queue Length [veh/ln]	4.07	16.57	16.38	5.62	14.50	14.10	9.21	8.57	3.65	2.77	11.50	10.83
95th-Percentile Queue Length [ft/ln]	101.6	414.1	409.5	140.5	362.4	352.4	230.3	214.2	91.32	69.34	287.3	270.6

Movement, Approach, & Intersection Results

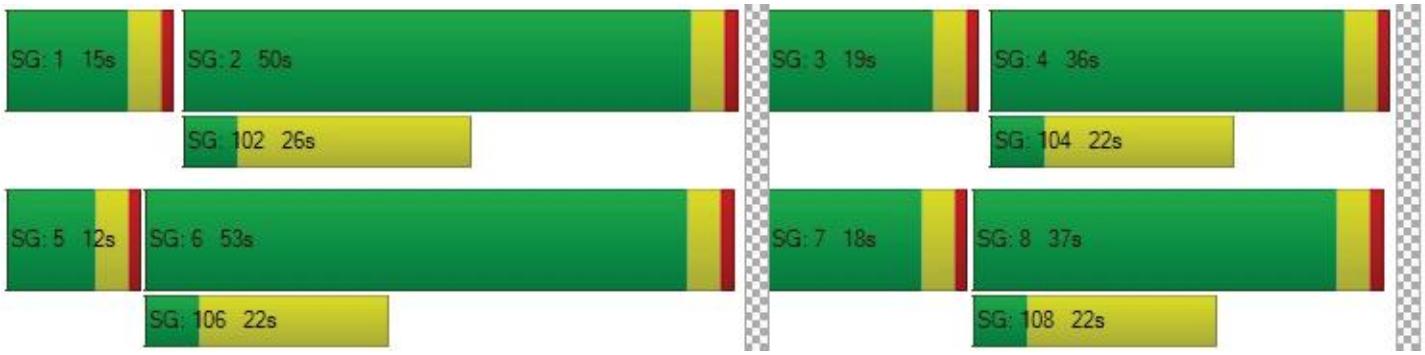
d_M, Delay for Movement [s/veh]	69.66	19.94	19.97	67.18	17.63	17.68	62.98	41.22	38.80	72.34	55.99	57.75
Movement LOS	E	B	B	E	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	22.54			21.52			46.62			58.04		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	31.31											
Intersection LOS	C											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.770	2.894	2.644	2.631
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	767	550	533
d_b, Bicycle Delay [s]	21.00	22.82	31.54	32.27
l_b,int, Bicycle LOS Score for Intersection	2.586	2.527	2.074	1.956
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 37: Sierra Ave at Merrill Ave

Control Type:	Signalized	Delay (sec / veh):	44.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	131	1197	184	82	935	94	124	512	115	124	310	55
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	5	0	0	5	51	52	12	7	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	1202	184	82	940	145	176	524	122	124	322	55
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	316	48	22	247	38	46	138	32	33	85	14
Total Analysis Volume [veh/h]	145	1265	194	86	989	153	185	552	128	131	339	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	61	0	11	57	0	18	30	0	18	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	51	51	7	47	47	14	36	36	11	32	32
g / C, Green / Cycle	0.09	0.42	0.42	0.06	0.39	0.39	0.12	0.30	0.30	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.08	0.39	0.40	0.05	0.31	0.31	0.10	0.18	0.18	0.07	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1814	1810	1900	1812	1810	1900	1778	1810	1900	1805
c, Capacity [veh/h]	166	804	768	106	741	707	211	563	527	161	510	484
d1, Uniform Delay [s]	53.82	32.66	33.07	55.86	32.22	32.26	52.15	36.45	36.46	53.71	35.96	36.00
k, delay calibration	0.11	0.34	0.35	0.11	0.24	0.24	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.21	12.70	15.68	13.89	4.16	4.45	10.91	5.15	5.50	9.62	2.31	2.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.92	0.94	0.81	0.79	0.79	0.88	0.62	0.62	0.82	0.40	0.40
d, Delay for Lane Group [s/veh]	67.02	45.36	48.75	69.75	36.38	36.71	63.06	41.60	41.96	63.33	38.26	38.47
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.93	22.62	22.83	2.98	15.56	14.96	6.11	9.66	9.10	4.31	5.20	5.02
50th-Percentile Queue Length [ft/ln]	123.1	565.4	570.8	74.52	388.9	373.9	152.8	241.4	227.3	107.8	130.0	125.4
95th-Percentile Queue Length [veh/ln]	8.57	30.42	30.67	5.37	22.02	21.30	10.17	14.75	14.04	7.72	8.94	8.69
95th-Percentile Queue Length [ft/ln]	214.1	760.4	766.7	134.1	550.6	532.5	254.2	368.8	351.0	193.0	223.5	217.3

Movement, Approach, & Intersection Results

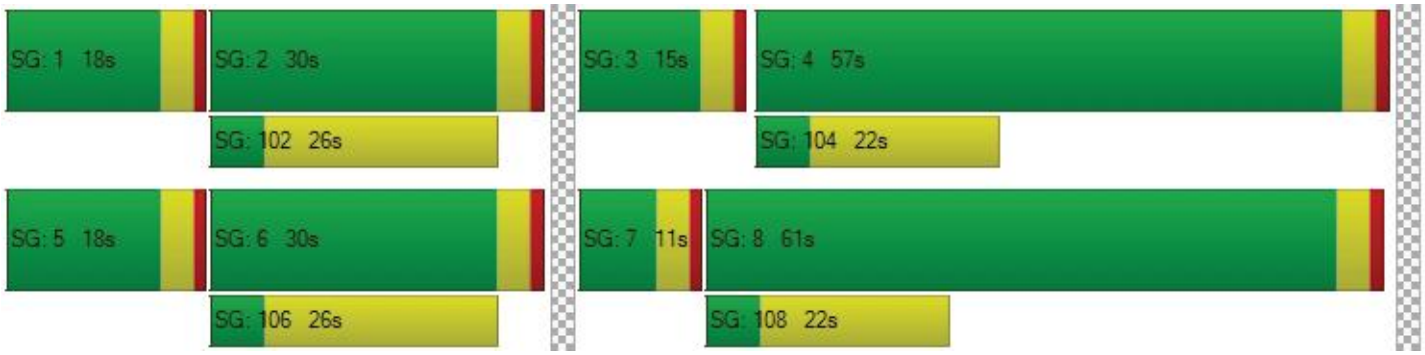
d_M, Delay for Movement [s/veh]	67.02	46.77	48.75	69.75	36.52	36.71	63.06	41.73	41.96	63.33	38.35	38.47
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	48.84			38.87			46.33			44.56		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.89											
Intersection LOS	D											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.932	2.913	2.608	2.580
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	883	433	433
d_b, Bicycle Delay [s]	16.54	18.70	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.883	2.573	2.273	1.995
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 38: Fontana Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	36.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	32	974	77	41	767	297	352	370	16	57	188	24
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	4	16	22	43	0	10	32	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	976	77	41	771	313	374	413	16	67	220	24
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	257	20	11	203	82	98	109	4	18	58	6
Total Analysis Volume [veh/h]	34	1027	81	43	812	329	394	435	17	71	232	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	23	0	9	23	0	62	63	0	25	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	55	55	4	55	55	28	39	39	6	17	17
g / C, Green / Cycle	0.03	0.46	0.46	0.03	0.46	0.46	0.24	0.33	0.33	0.05	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.30	0.30	0.02	0.31	0.32	0.22	0.23	0.01	0.04	0.12	0.02
s, saturation flow rate [veh/h]	1810	1900	1852	1810	1900	1716	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	52	867	844	58	873	789	430	620	527	95	268	228
d1, Uniform Delay [s]	57.72	25.19	25.20	57.60	25.58	25.64	44.58	35.32	27.52	56.07	50.42	44.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.48	3.73	3.83	17.16	4.35	4.87	8.14	1.46	0.02	11.08	8.21	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.65	0.65	0.75	0.69	0.69	0.92	0.70	0.03	0.75	0.87	0.11
d, Delay for Lane Group [s/veh]	71.20	28.91	29.03	74.76	29.94	30.51	52.72	36.78	27.55	67.15	58.63	45.17
Lane Group LOS	E	C	C	E	C	C	D	D	C	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.22	13.02	12.72	1.57	14.25	13.07	12.33	11.29	0.34	2.42	7.42	0.67
50th-Percentile Queue Length [ft/ln]	30.38	325.4	318.0	39.24	356.2	326.6	308.1	282.2	8.49	60.38	185.4	16.68
95th-Percentile Queue Length [veh/ln]	2.19	18.93	18.57	2.83	20.44	18.99	18.08	16.80	0.61	4.35	11.88	1.20
95th-Percentile Queue Length [ft/ln]	54.68	473.3	464.3	70.63	511.0	474.8	452.0	419.9	15.29	108.6	297.0	30.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.20	28.96	29.03	74.76	30.09	30.51	52.72	36.78	27.55	67.15	58.63	45.17
Movement LOS	E	C	C	E	C	C	D	D	C	E	E	D
d_A, Approach Delay [s/veh]	30.23			31.83			44.02			59.45		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	36.84											
Intersection LOS	D											
Intersection V/C	0.675											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.713	2.828	2.498	2.363
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	983	367
d_b, Bicycle Delay [s]	42.50	42.50	15.50	40.02
l_b,int, Bicycle LOS Score for Intersection	2.502	2.536	2.956	2.101
Bicycle LOS	B	B	C	B

Sequence

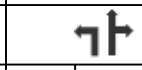
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 39: Randall Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	96.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.006

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	2	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	162	1461	183	160	882	2	5	108	99	185	116	124
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	236	218	0	69	185	66	52	235	238	0	224	69
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	398	1679	183	229	1067	68	57	343	337	185	340	193
Peak Hour Factor	0.950	0.972	0.950	0.972	0.972	0.972	0.972	0.950	0.950	0.950	0.950	0.972
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	105	432	48	59	274	17	15	90	89	49	89	50
Total Analysis Volume [veh/h]	419	1727	193	236	1098	70	59	361	355	195	358	199
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	44	0	20	37	0	9	42	0	14	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	24	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	40	40	16	33	33	5	38	10	43
g / C, Green / Cycle	0.19	0.33	0.33	0.13	0.28	0.28	0.04	0.32	0.08	0.36
(v / s)_i Volume / Saturation Flow Rate	0.23	0.35	0.36	0.13	0.21	0.04	0.03	0.41	0.11	0.31
s, saturation flow rate [veh/h]	1810	3618	1805	1810	5176	1615	1810	1747	1810	1787
c, Capacity [veh/h]	347	1206	602	241	1423	444	75	553	151	640
d1, Uniform Delay [s]	48.50	40.00	40.00	51.83	40.03	32.97	56.96	41.00	55.00	35.89
k, delay calibration	0.40	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.11	0.37
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	113.3	41.97	58.58	22.17	4.11	0.76	15.96	145.40	142.46	11.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.21	1.06	1.08	0.98	0.77	0.16	0.78	1.29	1.29	0.87
d, Delay for Lane Group [s/veh]	161.8	81.97	98.58	74.00	44.13	33.72	72.92	186.40	197.46	47.41
Lane Group LOS	F	F	F	E	D	C	E	F	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	21.25	24.52	27.24	8.54	10.43	1.65	2.11	38.45	10.52	17.02
50th-Percentile Queue Length [ft/ln]	531.1	612.9	681.0	213.5	260.7	41.27	52.66	961.30	262.98	425.59
95th-Percentile Queue Length [veh/ln]	31.64	33.86	37.59	13.34	15.72	2.97	3.79	56.53	17.23	23.79
95th-Percentile Queue Length [ft/ln]	791.0	846.3	939.8	333.4	393.0	74.28	94.80	1413.18	430.67	594.76

Movement, Approach, & Intersection Results

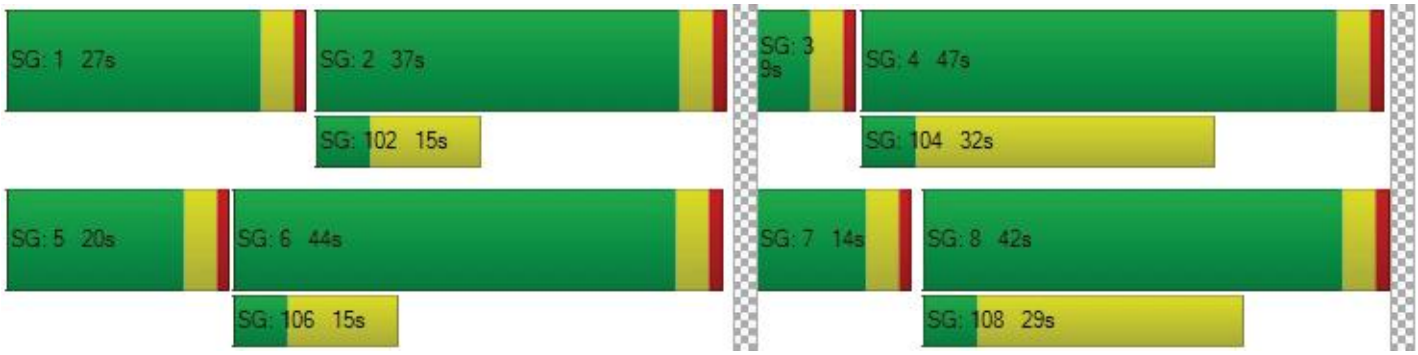
d_M, Delay for Movement [s/veh]	161.8	86.34	98.58	74.00	44.13	33.72	72.92	186.4	186.4	197.4	47.41	47.41
Movement LOS	F	F	F	E	D	C	E	F	F	F	D	D
d_A, Approach Delay [s/veh]	100.88			48.64			177.76			86.32		
Approach LOS	F			D			F			F		
d_I, Intersection Delay [s/veh]	96.19											
Intersection LOS	F											
Intersection V/C	1.006											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.164	3.312	2.483	2.457
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	550	633	717
d_b, Bicycle Delay [s]	26.67	31.54	28.02	24.70
l_b,int, Bicycle LOS Score for Intersection	2.846	2.332	2.838	2.800
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: Beech Ave at Randall Ave

Control Type:	All-way stop	Delay (sec / veh):	309.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.041

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	376	24	45	336	43	77	327	48	19	271	47
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	0	19	20	246	14	0	238	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	376	24	45	336	62	97	573	62	19	509	47
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	99	6	12	88	16	26	151	16	5	134	12
Total Analysis Volume [veh/h]	45	396	25	47	354	65	102	603	65	20	536	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	466	466	770	605
Degree of Utilization, x	1.24	1.23	2.04	1.60

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	19.91	19.74	54.39	34.87
95th-Percentile Queue Length [ft]	497.83	493.50	1359.77	871.86
Approach Delay [s/veh]	155.98	153.29	498.82	306.03
Approach LOS	F	F	F	F
Intersection Delay [s/veh]	309.22			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 41: Randall Ave at Fontana Ave/Catawaba Ave

Control Type:	All-way stop	Delay (sec / veh):	244.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.739

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	0	65	444	87	22	4	34	320	22	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	65	444	87	22	4	34	320	22	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	17	117	23	6	1	9	84	6	0
Total Analysis Volume [veh/h]	0	68	467	92	23	4	36	337	23	1
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	650	401
Degree of Utilization, x	1.74	1.08

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	40.53	14.26
95th-Percentile Queue Length [ft]	1013.29	356.53
Approach Delay [s/veh]	366.31	101.69
Approach LOS	F	F
Intersection Delay [s/veh]	244.51	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	No					Yes				

Volumes

Name										
Base Volume Input [veh/h]	44	15	275	49	4	13	68	291	22	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	65	152	0	0	0	0	162	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	80	427	49	4	13	68	453	22	6
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	21	112	13	1	3	18	119	6	2
Total Analysis Volume [veh/h]	46	84	449	52	4	14	72	477	23	6
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	635	592
Degree of Utilization, x	1.71	1.60

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	39.08	34.16
95th-Percentile Queue Length [ft]	976.97	854.06
Approach Delay [s/veh]	354.52	305.24
Approach LOS	F	F
Intersection Delay [s/veh]	244.51	
Intersection LOS	F	

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	3	18	269	45	0	6	44	106	38	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	18	269	45	0	6	44	106	86	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	71	12	0	2	12	28	23	2
Total Analysis Volume [veh/h]	3	19	283	47	0	6	46	112	91	8
Pedestrian Volume [ped/h]	0					0				

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	400	360	394
Degree of Utilization, x	0.88	0.46	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.87	2.30	0.98
95th-Percentile Queue Length [ft]	221.73	57.40	24.55
Approach Delay [s/veh]	50.47	18.58	
Approach LOS	F	C	
Intersection Delay [s/veh]	244.51		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 42: Randall Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.574

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	105	979	130	96	710	29	24	239	104	64	235	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	42	0	0	0	0	14	2	109	41	0	106	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	147	979	130	96	710	43	26	348	145	64	341	71
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	39	258	34	25	187	11	7	92	38	17	90	19
Total Analysis Volume [veh/h]	155	1031	137	101	747	45	27	366	153	67	359	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	28	46	0	14	32	0	10	42	0	18	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	68	68	8	64	64	3	22	22	6	25	25
g / C, Green / Cycle	0.10	0.56	0.56	0.07	0.53	0.53	0.02	0.19	0.19	0.05	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.09	0.31	0.31	0.06	0.21	0.21	0.01	0.10	0.09	0.04	0.19	0.05
s, saturation flow rate [veh/h]	1810	1900	1823	1810	1900	1862	1810	3618	1615	1810	1900	1615
c, Capacity [veh/h]	186	1069	1026	126	1007	987	45	673	300	88	398	338
d1, Uniform Delay [s]	52.85	16.69	16.73	55.03	16.81	16.81	57.91	44.23	43.92	56.43	46.24	39.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.42	2.09	2.20	11.23	1.17	1.20	12.06	0.69	1.34	12.92	7.68	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.56	0.56	0.80	0.40	0.40	0.60	0.54	0.51	0.77	0.90	0.22
d, Delay for Lane Group [s/veh]	62.27	18.77	18.92	66.26	17.98	18.00	69.97	44.92	45.25	69.35	53.92	39.65
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.07	10.72	10.40	3.40	6.80	6.67	0.96	5.00	4.21	2.32	11.24	1.88
50th-Percentile Queue Length [ft/ln]	126.7	268.1	259.9	85.05	170.0	166.8	24.07	125.0	105.2	58.03	280.9	46.92
95th-Percentile Queue Length [veh/ln]	8.76	16.09	15.68	6.12	11.08	10.91	1.73	8.67	7.58	4.18	16.74	3.38
95th-Percentile Queue Length [ft/ln]	219.0	402.3	392.1	153.0	276.9	272.7	43.33	216.7	189.3	104.4	418.4	84.46

Movement, Approach, & Intersection Results

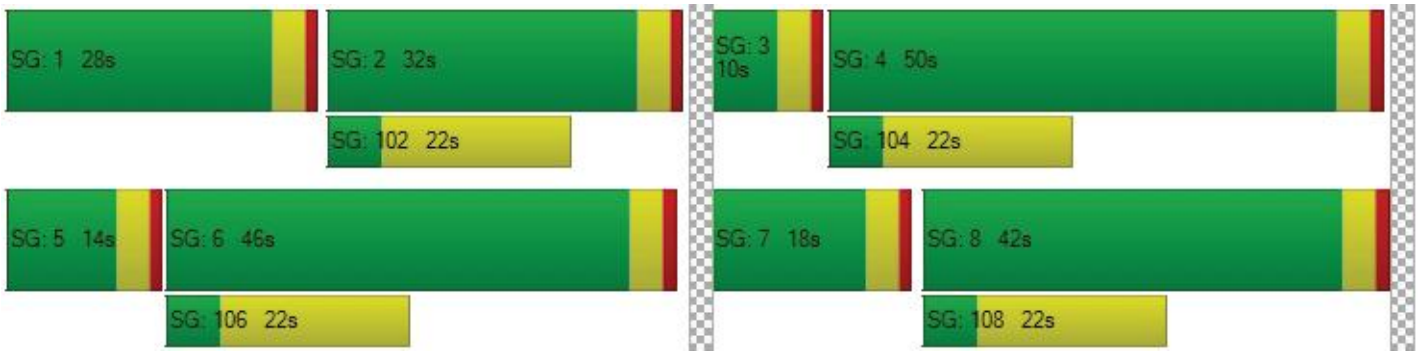
d_M, Delay for Movement [s/veh]	62.27	18.84	18.92	66.26	17.99	18.00	69.97	44.92	45.25	69.35	53.92	39.65
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.93			23.45			46.25			53.84		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.13											
Intersection LOS	C											
Intersection V/C	0.574											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.762	2.710	2.531	2.648
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	467	633	767
d_b, Bicycle Delay [s]	25.35	35.27	28.02	22.82
l_b,int, Bicycle LOS Score for Intersection	2.651	2.296	2.010	2.386
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: Sierra Ave at Randall Ave

Control Type:	Signalized	Delay (sec / veh):	37.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.730

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	1336	182	118	923	78	93	302	104	153	203	96
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	44	0	0	0	0	10	10	12	46	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	1336	182	118	923	88	103	314	150	153	215	96
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	41	352	48	31	243	23	27	83	39	40	57	25
Total Analysis Volume [veh/h]	163	1406	192	124	972	93	108	331	158	161	226	101
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	30	56	0	13	39	0	13	35	0	16	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	24	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	64	64	9	60	60	9	19	19	12	22	22
g / C, Green / Cycle	0.11	0.53	0.53	0.08	0.50	0.50	0.07	0.16	0.16	0.10	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.09	0.42	0.44	0.07	0.28	0.28	0.06	0.13	0.14	0.09	0.09	0.09
s, saturation flow rate [veh/h]	1810	1900	1822	1810	1900	1842	1810	1900	1697	1810	1900	1706
c, Capacity [veh/h]	194	1012	971	136	951	922	133	302	270	181	353	317
d1, Uniform Delay [s]	52.55	22.74	23.21	55.11	20.93	20.94	54.78	49.05	49.18	53.35	43.71	43.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.29	6.46	7.59	20.02	2.46	2.55	11.22	6.57	7.99	13.61	1.02	1.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.80	0.82	0.91	0.57	0.57	0.81	0.85	0.86	0.89	0.48	0.50
d, Delay for Lane Group [s/veh]	61.84	29.19	30.80	75.13	23.39	23.49	66.00	55.63	57.17	66.96	44.74	45.02
Lane Group LOS	E	C	C	E	C	C	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.32	19.53	19.87	4.48	11.04	10.75	3.63	8.01	7.38	5.48	4.64	4.30
50th-Percentile Queue Length [ft/ln]	132.9	488.3	496.7	111.8	275.9	268.6	90.76	200.1	184.5	136.9	115.9	107.3
95th-Percentile Queue Length [veh/ln]	9.10	26.78	27.18	7.94	16.49	16.12	6.53	12.65	11.84	9.31	8.17	7.69
95th-Percentile Queue Length [ft/ln]	227.4	669.5	679.5	198.6	412.1	403.0	163.3	316.1	295.9	232.8	204.2	192.3

Movement, Approach, & Intersection Results

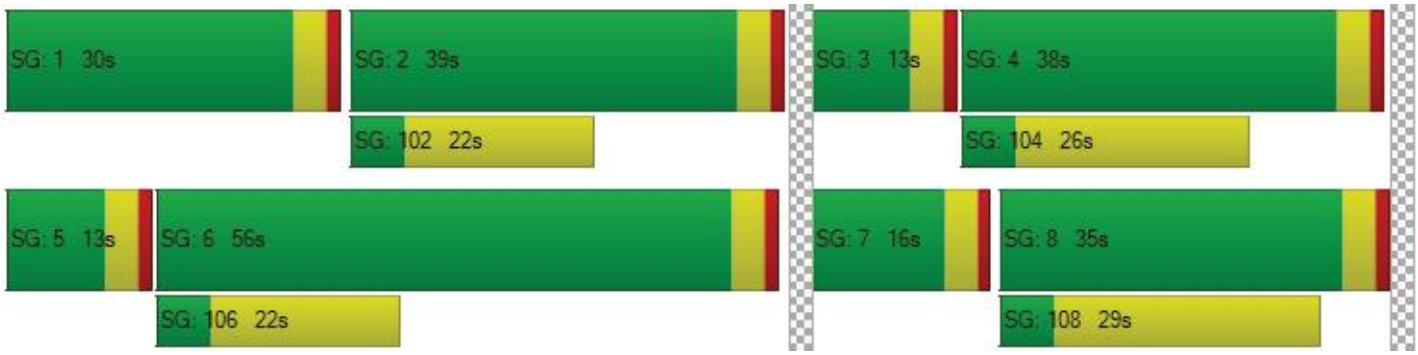
d_M, Delay for Movement [s/veh]	61.84	29.88	30.80	75.13	23.43	23.49	66.00	55.98	57.17	66.96	44.81	45.02
Movement LOS	E	C	C	E	C	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	32.94			28.83			58.11			52.16		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	37.78											
Intersection LOS	D											
Intersection V/C	0.730											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.034	2.924	2.525	2.536
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	583	517	567
d_b, Bicycle Delay [s]	19.27	30.10	33.00	30.82
l_b,int, Bicycle LOS Score for Intersection	3.012	2.541	2.052	1.962
Bicycle LOS	C	B	B	A

Sequence

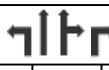
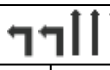
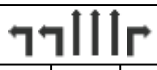
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 44: Fourth St at I-15 SB Ramps/Ontario Mills Dr

Control Type:	Signalized	Delay (sec / veh):	77.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.031

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	133	233	434	131	316	598	915	1261	105	170	683	394
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	12	0	0	12	216
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	233	434	131	316	598	915	1273	105	170	695	610
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	35	61	114	34	83	157	241	335	28	45	183	161
Total Analysis Volume [veh/h]	140	245	457	138	333	629	963	1340	111	179	732	642
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	32	0	12	31	0	32	64	0	12	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	21	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	28	28	8	27	27	27	28	60	60	8	40	40
g / C, Green / Cycle	0.08	0.23	0.23	0.07	0.23	0.23	0.23	0.23	0.50	0.50	0.07	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.28	0.08	0.18	0.19	0.19	0.27	0.26	0.07	0.05	0.14	0.40
s, saturation flow rate [veh/h]	1810	3618	1615	181	190	161	161	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	136	844	377	121	428	363	363	820	2588	808	234	1725	538
d1, Uniform Delay [s]	55.50	37.83	46.00	56.0	43.7	44.7	44.7	46.00	20.24	16.10	55.08	31.06	40.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	44.26	0.87	117.8	84.4	13.1	23.0	23.0	81.87	0.16	0.08	5.15	0.17	103.9
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.29	1.21	1.14	0.78	0.87	0.87	1.17	0.52	0.14	0.76	0.42	1.19
d, Delay for Lane Group [s/veh]	99.76	38.70	163.8	140.	56.8	67.8	67.8	127.8	20.40	16.18	60.23	31.23	143.9
Lane Group LOS	F	D	F	F	E	E	E	F	C	B	E	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.77	3.08	23.48	6.48	10.8	11.2	11.2	21.45	8.34	1.66	2.83	5.52	31.16
50th-Percentile Queue Length [ft/ln]	144.2	77.02	586.9	161.	270.	282.	282.	536.1	208.6	41.49	70.74	138.0	778.8
95th-Percentile Queue Length [veh/ln]	9.81	5.55	34.83	11.1	16.2	16.8	16.8	31.68	13.08	2.99	5.09	9.38	44.99
95th-Percentile Queue Length [ft/ln]	245.2	138.6	870.6	277.	405.	420.	420.	792.0	327.0	74.69	127.3	234.4	1124.

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	99.76	38.70	163.8	140.4	56.81	67.83	127.8	20.40	16.18	60.23	31.23	143.9
Movement LOS	F	D	F	F	E	E	F	C	B	E	C	F
d_A, Approach Delay [s/veh]	116.78			73.60			63.08			81.16		
Approach LOS	F			E			E			F		
d_I, Intersection Delay [s/veh]	77.44											
Intersection LOS	E											
Intersection V/C	1.031											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.706	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	450	1000	667
d_b, Bicycle Delay [s]	35.27	36.04	15.00	26.67
l_b,int, Bicycle LOS Score for Intersection	2.254	2.467	2.887	2.414
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 45: Fourth St at I-15 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.577

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	54	51	179	47	402	755	367	71	41	381	165
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	237	0	0	0	12	0	0	228	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	54	51	416	47	402	755	379	71	41	609	165
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	22	14	13	109	12	106	199	100	19	11	160	43
Total Analysis Volume [veh/h]	87	57	54	438	49	423	795	399	75	43	641	174
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	27	0	30	23	0	37	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	10	0	0	14	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	20	20	20	31	72	72	4	45	45
g / C, Green / Cycle	0.07	0.07	0.07	0.17	0.17	0.17	0.26	0.60	0.60	0.03	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.13	0.13	0.15	0.23	0.08	0.05	0.02	0.15	0.16
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1827	2859	3514	5176	1615	1810	3618	1702
c, Capacity [veh/h]	122	129	109	307	310	485	896	3087	963	59	1354	637
d1, Uniform Delay [s]	54.79	53.77	53.96	47.77	47.72	48.53	43.03	10.58	10.24	57.51	27.72	27.81
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.39	2.39	3.43	4.71	4.41	5.00	3.21	0.09	0.16	15.56	0.91	1.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.44	0.49	0.79	0.79	0.87	0.89	0.13	0.08	0.73	0.41	0.41
d, Delay for Lane Group [s/veh]	62.18	56.16	57.39	52.48	52.13	53.53	46.24	10.67	10.40	73.07	28.63	29.80
Lane Group LOS	E	E	E	D	D	D	D	B	B	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.83	1.74	1.68	7.37	7.35	6.49	11.67	1.54	0.87	1.55	6.01	5.96
50th-Percentile Queue Length [ft/ln]	70.72	43.56	41.99	184.1	183.8	162.2	291.8	38.59	21.78	38.74	150.3	149.1
95th-Percentile Queue Length [veh/ln]	5.09	3.14	3.02	11.82	11.80	10.67	17.28	2.78	1.57	2.79	10.03	9.97
95th-Percentile Queue Length [ft/ln]	127.2	78.41	75.58	295.4	295.0	266.7	431.9	69.47	39.21	69.73	250.8	249.2

Movement, Approach, & Intersection Results

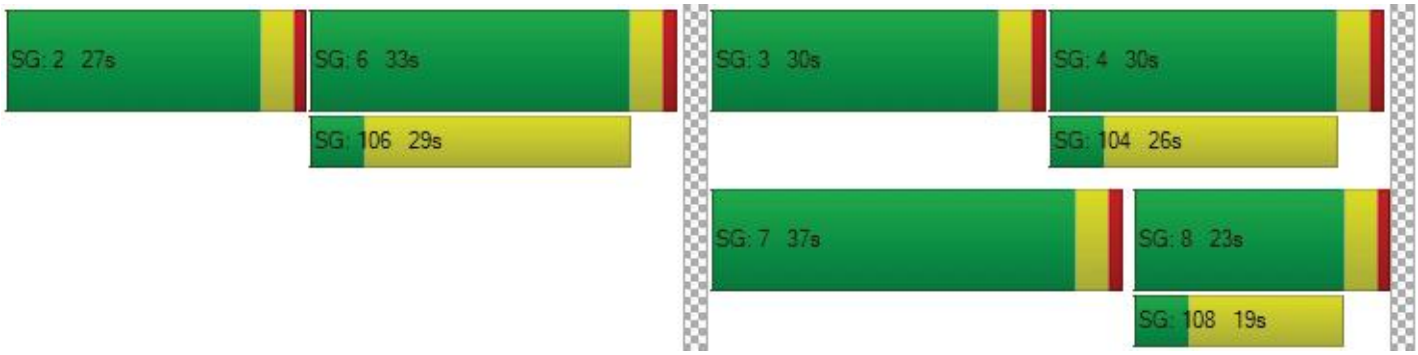
d_M, Delay for Movement [s/veh]	62.18	56.16	57.39	52.32	52.13	53.53	46.24	10.67	10.40	73.07	28.80	29.80
Movement LOS	E	E	E	D	D	D	D	B	B	E	C	C
d_A, Approach Delay [s/veh]	59.14			52.87			32.94			31.22		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	39.69											
Intersection LOS	D											
Intersection V/C	0.577											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.235	2.783	0.000	2.853
Crosswalk LOS	B	C	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	383	317	433
d_b, Bicycle Delay [s]	34.50	39.20	42.50	36.82
l_b,int, Bicycle LOS Score for Intersection	1.723	3.061	2.258	2.032
Bicycle LOS	A	C	B	B

Sequence

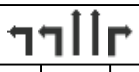
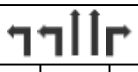
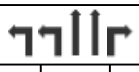
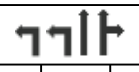
Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 46: Fourth St/San Bernardino Ave at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	199	967	109	185	893	223	257	767	358	138	354	108
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	153	16	0	115	7	7	242	0	20	221	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	1120	125	185	1008	230	264	1009	358	158	575	108
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	295	33	49	265	61	69	266	94	42	151	28
Total Analysis Volume [veh/h]	209	1179	132	195	1061	242	278	1062	377	166	605	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Unsig	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	46	0	12	45	0	18	51	0	11	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	27	0	0	27	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	50	8	49	49	12	39	39	7	35	35
g / C, Green / Cycle	0.08	0.41	0.07	0.40	0.40	0.10	0.33	0.33	0.06	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.06	0.33	0.06	0.29	0.15	0.08	0.29	0.23	0.05	0.19	0.19
s, saturation flow rate [veh/h]	3514	3618	3514	3618	1615	3514	3618	1615	3514	1900	1797
c, Capacity [veh/h]	264	1493	234	1463	653	341	1190	531	205	551	521
d1, Uniform Delay [s]	54.58	30.69	55.34	30.11	25.03	53.12	38.25	35.25	55.84	37.53	37.53
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.16	0.11	0.13	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.35	4.33	7.50	3.17	1.61	4.76	2.58	2.67	7.43	1.70	1.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.79	0.83	0.73	0.37	0.82	0.89	0.71	0.81	0.67	0.67
d, Delay for Lane Group [s/veh]	59.93	35.02	62.83	33.28	26.65	57.88	40.83	37.92	63.27	39.23	39.33
Lane Group LOS	E	D	E	C	C	E	D	D	E	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.30	15.48	3.16	13.37	5.12	4.34	15.08	9.98	2.69	9.79	9.28
50th-Percentile Queue Length [ft/ln]	82.53	386.99	78.94	334.2	127.9	108.3	377.1	249.6	67.37	244.7	231.9
95th-Percentile Queue Length [veh/ln]	5.94	21.93	5.68	19.37	8.83	7.75	21.45	15.17	4.85	14.92	14.27
95th-Percentile Queue Length [ft/ln]	148.55	548.30	142.1	484.1	220.7	193.7	536.3	379.1	121.2	373.0	356.7

Movement, Approach, & Intersection Results

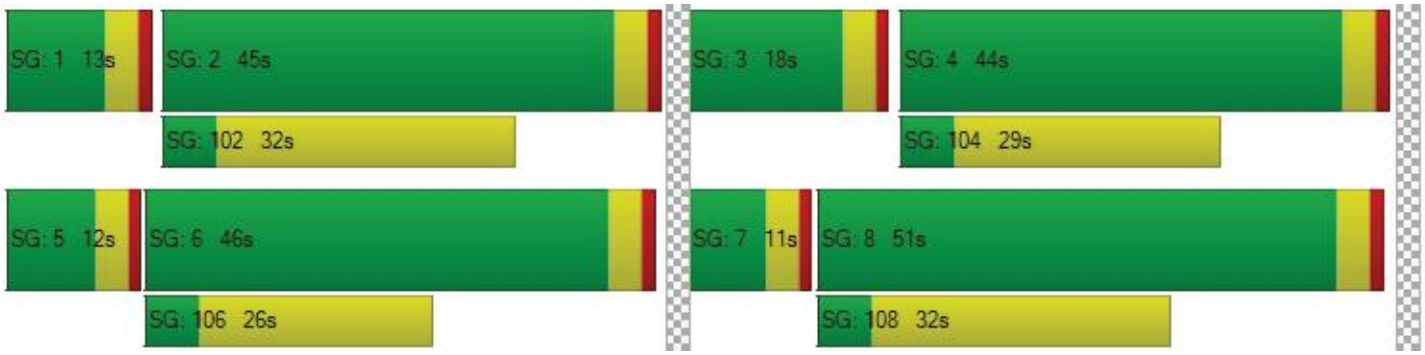
d_M, Delay for Movement [s/veh]	59.93	35.02	0.00	62.83	33.28	26.65	57.88	40.83	37.92	63.27	39.27	39.33
Movement LOS	E	D		E	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	38.77			36.06			42.95			43.78		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.15											
Intersection LOS	D											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.105	3.037	3.079	2.816
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	683	783	667
d_b, Bicycle Delay [s]	25.35	26.00	22.20	26.67
l_b,int, Bicycle LOS Score for Intersection	2.705	2.795	2.976	2.290
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 47: San Bernardino Ave at Commerce Dr

Control Type:	Signalized	Delay (sec / veh):	187.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.202

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	87	3	612	4	0	1	0	1147	50	247	378	4
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	195	0	0	0	0	258	0	200	241	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	3	807	4	0	1	0	1405	50	447	619	4
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	23	1	212	1	0	0	0	370	13	118	163	1
Total Analysis Volume [veh/h]	92	3	849	4	0	1	0	1479	53	471	652	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtP	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	5	30	0	5	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	47	0	9	47	0	9	38	0	26	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	24	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	52	47	52	0	34	34	22	56	56
g / C, Green / Cycle	0.43	0.43	0.39	0.43	0.00	0.28	0.28	0.18	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.53	0.01	0.00	0.41	0.03	0.26	0.17	0.17
s, saturation flow rate [veh/h]	1439	1509	1615	692	1810	3618	1615	1810	1900	1896
c, Capacity [veh/h]	655	769	632	395	0	1021	456	335	888	886
d1, Uniform Delay [s]	19.96	19.86	36.51	19.42	0.00	43.07	31.96	48.90	20.59	20.59
k, delay calibration	0.13	0.17	0.50	0.11	0.11	0.50	0.50	0.48	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.05	164.6	0.01	0.00	207.5	0.52	199.4	1.19	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.07	1.34	0.01	0.00	1.45	0.12	1.41	0.37	0.37
d, Delay for Lane Group [s/veh]	20.02	19.92	201.1	19.43	0.00	250.5	32.48	248.3	21.78	21.78
Lane Group LOS	C	B	F	B	A	F	C	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.75	0.84	46.99	0.08	0.00	44.38	1.22	28.54	6.20	6.19
50th-Percentile Queue Length [ft/ln]	18.66	21.11	1174.	2.04	0.00	1109.	30.45	713.3	154.9	154.6
95th-Percentile Queue Length [veh/ln]	1.34	1.52	69.80	0.15	0.00	67.01	2.19	43.44	10.28	10.27
95th-Percentile Queue Length [ft/ln]	33.58	37.99	1744.	3.68	0.00	1675.	54.81	1086.	257.0	256.6

Movement, Approach, & Intersection Results

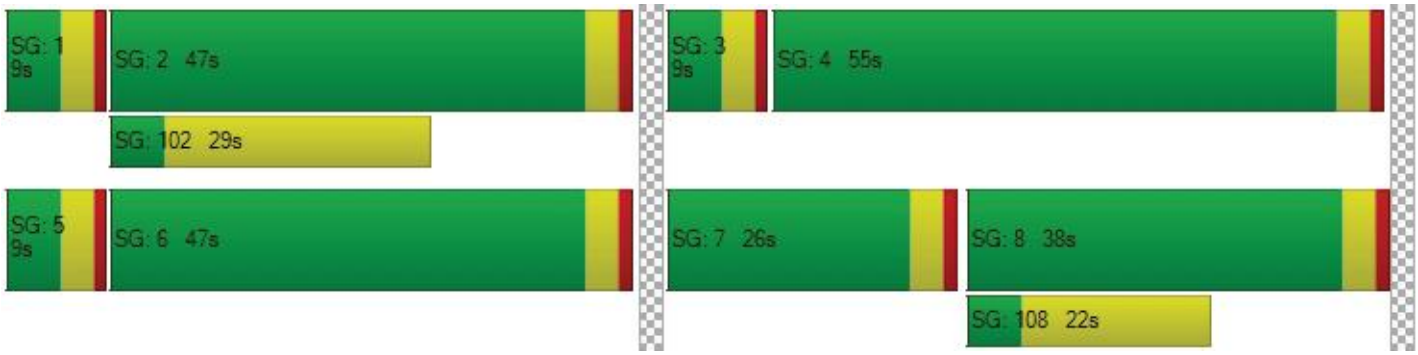
d_M, Delay for Movement [s/veh]	20.02	19.92	201.1	19.43	19.43	19.43	0.00	250.5	32.48	248.3	21.78	21.78
Movement LOS	C	B	F	B	B	B	A	F	C	F	C	C
d_A, Approach Delay [s/veh]	182.94			19.43			243.04			116.48		
Approach LOS	F			B			F			F		
d_I, Intersection Delay [s/veh]	187.47											
Intersection LOS	F											
Intersection V/C	1.202											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.601	0.000	3.061	0.000
Crosswalk LOS	B	F	C	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	867	567	850
d_b, Bicycle Delay [s]	19.27	19.27	30.82	19.84
l_b,int, Bicycle LOS Score for Intersection	3.117	1.568	2.824	2.489
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 48: San Bernardino Ave at Access Rd/Vip Rd

Control Type:	Two-way stop	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	153	0	1569	511	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	436	432	21	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	589	432	1590	516	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	155	114	418	136	0
Total Analysis Volume [veh/h]	0	620	455	1674	543	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.85	0.45	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	217.41	30.75	11.32	0.00	0.00	0.00
Movement LOS	F	D	B	A	A	A
95th-Percentile Queue Length [veh/ln]	9.77	9.77	2.33	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	244.14	244.14	58.27	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	30.75		2.42		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.36					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 49: San Bernardino Ave at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	69.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.929

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	73	1312	187	100	1027	253	606	874	361	108	206	88
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	375	0	58	359	5	21	0	0	0	0	59
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	1687	187	158	1386	258	627	874	361	108	206	147
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	444	49	42	365	68	165	230	95	28	54	39
Total Analysis Volume [veh/h]	77	1776	197	166	1459	272	660	920	380	114	217	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Unsig	Protec	Permi	Permi
Signal Group	1	6	0	5	2	2	3	8	0	7	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	27	0	14	31	31	43	64	0	15	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	21	0	31	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	40	40	10	44	87	39	45	9	15	15
g / C, Green / Cycle	0.05	0.33	0.33	0.08	0.36	0.72	0.33	0.38	0.08	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.04	0.36	0.37	0.09	0.28	0.17	0.36	0.25	0.06	0.10	0.11
s, saturation flow rate [veh/h]	1810	3618	1805	1810	5176	1615	1810	3618	1810	1900	1644
c, Capacity [veh/h]	90	1192	595	151	1878	1165	588	1362	140	245	212
d1, Uniform Delay [s]	56.56	40.23	40.23	55.00	33.93	5.61	40.50	31.28	54.51	50.78	50.98
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.11	58.43	71.01	65.03	3.24	0.47	75.49	0.59	10.81	6.01	8.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	1.10	1.11	1.10	0.78	0.23	1.12	0.68	0.81	0.80	0.83
d, Delay for Lane Group [s/veh]	75.67	98.66	111.2	120.0	37.16	6.08	115.99	31.87	65.32	56.78	59.06
Lane Group LOS	E	F	F	F	D	A	F	C	E	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.80	26.96	28.98	7.28	12.98	2.24	29.42	11.16	3.81	6.14	5.63
50th-Percentile Queue Length [ft/ln]	69.88	673.8	724.4	181.8	324.5	56.08	735.58	279.07	95.28	153.4	140.6
95th-Percentile Queue Length [veh/ln]	5.03	37.79	40.50	12.09	18.89	4.04	41.30	16.64	6.86	10.20	9.52
95th-Percentile Queue Length [ft/ln]	125.7	944.7	1012.	302.3	472.2	100.9	1032.38	416.06	171.5	254.9	237.8

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.67	101.9	111.2	120.0	37.16	6.08	115.9	31.87	0.00	65.32	57.00	59.06
Movement LOS	E	F	F	F	D	A	F	C		E	E	E
d_A, Approach Delay [s/veh]	101.85			39.96			67.01			59.61		
Approach LOS	F			D			E			E		
d_I, Intersection Delay [s/veh]	69.75											
Intersection LOS	E											
Intersection V/C	0.929											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.257	3.288	2.817	2.660
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	450	1000	533
d_b, Bicycle Delay [s]	39.20	36.04	15.00	32.27
l_b,int, Bicycle LOS Score for Intersection	2.687	2.603	2.863	1.961
Bicycle LOS	B	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 50: Beech Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.833

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	97	357	57	45	276	80	87	703	47	21	298	39
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	46	0	0	47	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	357	57	47	276	80	87	749	47	21	345	39
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	94	15	12	73	21	23	197	12	6	91	10
Total Analysis Volume [veh/h]	102	376	60	49	291	84	92	788	49	22	363	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	23	0	0	23	0	81	88	0	9	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	50	50	8	56	3	51	51
g / C, Green / Cycle	0.41	0.41	0.07	0.47	0.02	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.38	0.28	0.05	0.45	0.01	0.19	0.03
s, saturation flow rate [veh/h]	1432	1505	1810	1881	1810	1900	1615
c, Capacity [veh/h]	626	654	121	876	39	799	679
d1, Uniform Delay [s]	33.90	27.37	55.06	30.86	58.13	24.89	20.66
k, delay calibration	0.50	0.50	0.11	0.19	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.28	4.91	9.45	10.88	11.85	0.40	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.65	0.76	0.96	0.56	0.45	0.06
d, Delay for Lane Group [s/veh]	48.18	32.28	64.51	41.74	69.98	25.29	20.69
Lane Group LOS	D	C	E	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	17.20	10.39	3.06	25.16	0.79	7.45	0.70
50th-Percentile Queue Length [ft/ln]	430.00	259.63	76.39	628.92	19.79	186.2	17.42
95th-Percentile Queue Length [veh/ln]	24.00	15.67	5.50	33.38	1.42	11.93	1.25
95th-Percentile Queue Length [ft/ln]	600.04	391.76	137.50	834.56	35.62	298.1	31.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.18	48.18	48.18	32.28	32.28	32.28	64.51	41.74	41.74	69.98	25.29	20.69
Movement LOS	D	D	D	C	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	48.18			32.28			43.99			27.16		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	39.73											
Intersection LOS	D											
Intersection V/C	0.833											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.169	2.185	2.652	0.000
Crosswalk LOS	B	B	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	317	1400	200
d_b, Bicycle Delay [s]	42.50	42.50	5.40	48.60
l_b,int, Bicycle LOS Score for Intersection	2.447	2.259	3.092	2.263
Bicycle LOS	B	B	C	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 51: San Bernardino Ave at Fontana Ave/Elm Ave

Control Type:	Signalized	Delay (sec / veh):	61.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.900

Intersection Setup

Name										
Approach	Northbound					Southbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	6	64	410	82	3	0	52	296	32	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	92	410	82	3	0	52	296	32	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	24	108	22	1	0	14	78	8	3
Total Analysis Volume [veh/h]	6	97	432	86	3	0	55	312	34	14
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	2	0	0	0	0	6	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	52	0	0	0	0	52	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C
C, Cycle Length [s]	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00
g_i, Effective Green Time [s]	48	48
g / C, Green / Cycle	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.43	0.30
s, saturation flow rate [veh/h]	1460	1405
c, Capacity [veh/h]	619	596
d1, Uniform Delay [s]	37.96	28.68
k, delay calibration	0.50	0.27
I, Upstream Filtering Factor	1.00	1.00
d2, Incremental Delay [s]	38.20	3.66
d3, Initial Queue Delay [s]	0.00	0.00
Rp, platoon ratio	1.00	1.00
PF, progression factor	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.70
d, Delay for Lane Group [s/veh]	76.16	32.34
Lane Group LOS	F	C
Critical Lane Group	Yes	No
50th-Percentile Queue Length [veh/ln]	25.04	10.27
50th-Percentile Queue Length [ft/ln]	625.93	256.72
95th-Percentile Queue Length [veh/ln]	33.45	15.52
95th-Percentile Queue Length [ft/ln]	836.14	388.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	76.16	76.16	76.16	76.16	76.16	32.34	32.34	32.34	32.34	32.34
Movement LOS	E	E	E	E	E	C	C	C	C	C
d_A, Approach Delay [s/veh]	76.16					32.34				
Approach LOS	E					C				
d_I, Intersection Delay [s/veh]	61.01									
Intersection LOS	E									
Intersection V/C	0.900									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.279	2.343
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800
d_b, Bicycle Delay [s]	21.60	21.60
l_b,int, Bicycle LOS Score for Intersection	2.424	2.131
Bicycle LOS	B	B

Intersection Setup

Name										
Approach	Eastbound					Westbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					No				

Volumes

Name										
Base Volume Input [veh/h]	9	292	450	59	1	7	36	207	38	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	29	0	0	0	19	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	292	469	88	1	7	36	226	38	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	77	123	23	0	2	9	59	10	3
Total Analysis Volume [veh/h]	9	307	494	93	1	7	38	238	40	11
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss
Signal Group	7	0	4	0	0	3	0	8	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead	-	-	-	-	Lead	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5	0	5	0	0
Maximum Green [s]	5	0	30	0	0	5	0	30	0	0
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	15	0	40	0	0	9	0	34	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall	Yes		No			Yes		No		
Maximum Recall	No		No			No		No		
Pedestrian Recall	No		No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	45	37	45	30	30
g / C, Green / Cycle	0.38	0.31	0.38	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.24	0.32	0.05	0.13	0.03
s, saturation flow rate [veh/h]	1310	1848	971	1900	1615
c, Capacity [veh/h]	463	569	198	475	404
d1, Uniform Delay [s]	31.55	41.51	29.90	38.58	34.85
k, delay calibration	0.50	0.50	0.34	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.95	46.38	1.79	3.74	0.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	1.03	0.23	0.50	0.13
d, Delay for Lane Group [s/veh]	39.49	87.89	31.69	42.33	35.49
Lane Group LOS	D	F	C	D	D
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.89	23.93	0.93	6.51	1.24
50th-Percentile Queue Length [ft/ln]	197.33	598.15	23.18	162.78	30.92
95th-Percentile Queue Length [veh/ln]	12.50	32.64	1.67	10.70	2.23
95th-Percentile Queue Length [ft/ln]	312.51	816.04	41.73	267.40	55.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.49	39.49	87.89	87.89	87.89	31.69	31.69	42.33	35.49	35.49
Movement LOS	D	D	F	F	F	C	C	D	D	D
d_A, Approach Delay [s/veh]	70.97					39.85				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	61.01									
Intersection LOS	E									
Intersection V/C	0.900									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.574	0.000
Crosswalk LOS	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	500
d_b, Bicycle Delay [s]	29.40	33.75
l_b,int, Bicycle LOS Score for Intersection	2.543	2.030
Bicycle LOS	B	B

Intersection Setup

Name										
Approach	Northeastbound					Southwestbound				
Lane Configuration										
Turning Movement	Left2	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00				
Grade [%]	0.00					0.00				
Curb Present	No					No				
Crosswalk	Yes					Yes				

Volumes

Name										
Base Volume Input [veh/h]	8	18	170	13	4	4	8	58	69	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	18	170	13	4	4	8	58	69	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	5	45	3	1	1	2	15	18	1
Total Analysis Volume [veh/h]	8	19	179	14	4	4	8	61	73	2
Presence of On-Street Parking	No				No	No				No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0					0				
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0					0				
v_ab, Corner Pedestrian Volume [ped/h]	0					0				
Bicycle Volume [bicycles/h]	0					0				

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	9	0	0	0	0	10	0	0
Auxiliary Signal Groups										
Lead / Lag	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	19	0	0	0	0	19	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No					No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall			No					No		
Maximum Recall			No					No		
Pedestrian Recall			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R
C, Cycle Length [s]	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	15
g / C, Green / Cycle	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.14	0.04	0.05
s, saturation flow rate [veh/h]	1629	1765	1615
c, Capacity [veh/h]	237	256	202
d1, Uniform Delay [s]	53.29	47.77	48.17
k, delay calibration	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	18.00	0.61	1.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.29	0.37
d, Delay for Lane Group [s/veh]	71.28	48.38	49.31
Lane Group LOS	E	D	D
Critical Lane Group	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.01	2.04	2.13
50th-Percentile Queue Length [ft/ln]	200.16	50.96	53.27
95th-Percentile Queue Length [veh/ln]	12.65	3.67	3.84
95th-Percentile Queue Length [ft/ln]	316.17	91.73	95.89

Movement, Approach, & Intersection Results

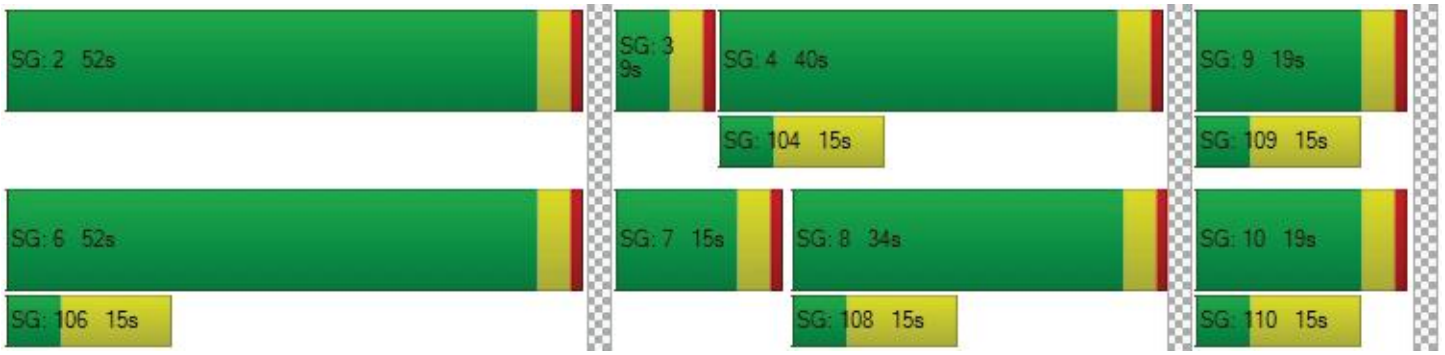
d_M, Delay for Movement [s/veh]	71.28	71.28	71.28	71.28	71.28	48.38	48.38	48.38	49.31	49.31
Movement LOS	E	E	E	E	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	71.28					48.85				
Approach LOS	E					D				
d_I, Intersection Delay [s/veh]	61.01									
Intersection LOS	E									
Intersection V/C	0.900									

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.075	2.399
Crosswalk LOS	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250
d_b, Bicycle Delay [s]	45.94	45.94
l_b,int, Bicycle LOS Score for Intersection	1.875	1.794
Bicycle LOS	A	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	10	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 52: San Bernardino Ave at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	34.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	194	1108	111	68	694	28	59	392	72	86	246	92
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	29	12	0	0	19	0	0	19	30
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	1120	111	97	706	28	59	411	72	86	265	122
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	295	29	26	186	7	16	108	19	23	70	32
Total Analysis Volume [veh/h]	204	1179	117	102	743	29	62	433	76	91	279	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	34	61	0	12	39	0	21	35	0	12	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	69	69	8	62	62	5	19	19	8	21	21
g / C, Green / Cycle	0.13	0.58	0.58	0.07	0.51	0.51	0.05	0.16	0.16	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.34	0.35	0.06	0.20	0.20	0.03	0.14	0.14	0.05	0.11	0.11
s, saturation flow rate [veh/h]	1810	1900	1841	1810	1900	1875	1810	1900	1803	1810	1900	1703
c, Capacity [veh/h]	237	1095	1061	121	973	960	83	305	289	114	338	302
d1, Uniform Delay [s]	51.06	16.43	16.51	55.39	17.95	17.95	56.56	49.00	49.07	55.45	45.67	45.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.86	2.42	2.55	14.59	1.22	1.24	12.48	6.74	7.44	11.81	1.93	2.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.60	0.60	0.85	0.40	0.40	0.75	0.85	0.86	0.80	0.63	0.64
d, Delay for Lane Group [s/veh]	59.93	18.84	19.06	69.97	19.18	19.19	69.04	55.75	56.51	67.26	47.60	48.12
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.58	11.96	11.78	3.54	6.85	6.77	2.15	8.14	7.85	3.09	6.03	5.59
50th-Percentile Queue Length [ft/ln]	164.6	298.9	294.5	88.50	171.2	169.1	53.64	203.4	196.2	77.27	150.8	139.7
95th-Percentile Queue Length [veh/ln]	10.79	17.63	17.41	6.37	11.14	11.03	3.86	12.82	12.45	5.56	10.06	9.47
95th-Percentile Queue Length [ft/ln]	269.8	440.7	435.2	159.3	278.6	275.8	96.56	320.3	311.1	139.0	251.5	236.6

Movement, Approach, & Intersection Results

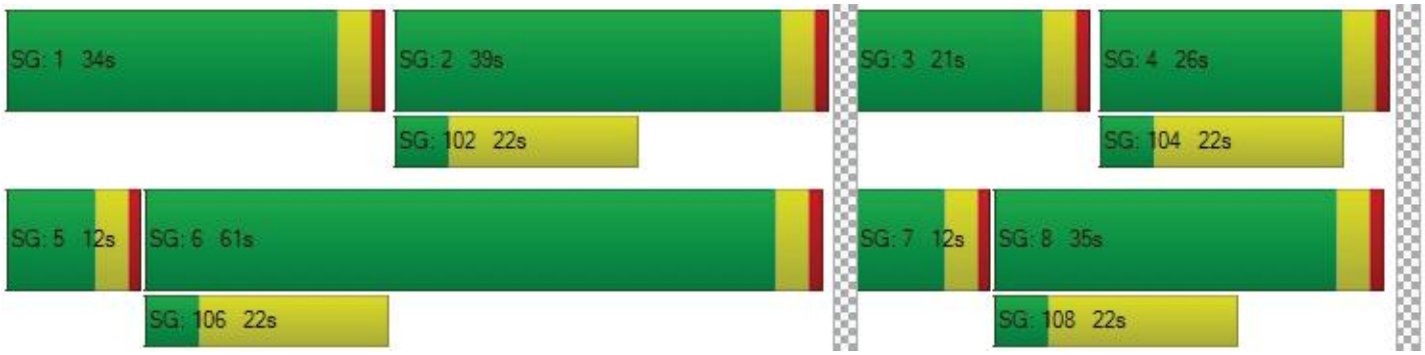
d_M, Delay for Movement [s/veh]	59.93	18.94	19.06	69.97	19.18	19.19	69.04	56.05	56.51	67.26	47.72	48.12
Movement LOS	E	B	B	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	24.52			25.11			57.52			51.39		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	34.03											
Intersection LOS	C											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.785	2.752	2.526	2.655
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	583	517	367
d_b, Bicycle Delay [s]	16.54	30.10	33.00	40.02
l_b,int, Bicycle LOS Score for Intersection	2.797	2.281	2.031	1.970
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 53: Sierra Ave at San Bernardino Ave

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	206	1262	412	79	1007	70	156	382	154	260	317	94
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	22	0	10	24	0	0	2	17	0	2	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	225	1284	412	89	1031	70	156	384	171	260	319	104
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	59	338	108	23	271	18	41	101	45	68	84	27
Total Analysis Volume [veh/h]	237	1352	434	94	1085	74	164	404	180	274	336	109
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	50	0	11	40	0	29	36	0	23	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	27	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	56	56	7	46	46	13	22	22	19	28	28
g / C, Green / Cycle	0.14	0.47	0.47	0.06	0.38	0.38	0.11	0.18	0.18	0.16	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.13	0.37	0.27	0.05	0.30	0.05	0.09	0.16	0.16	0.15	0.12	0.12
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1705	1810	1900	1743
c, Capacity [veh/h]	256	1682	751	106	1381	616	196	352	315	287	447	410
d1, Uniform Delay [s]	50.87	27.43	23.49	56.12	32.77	24.04	52.47	47.53	47.58	50.09	39.97	40.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.16	0.17	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.34	4.19	3.23	21.01	4.57	0.40	9.11	9.83	11.30	21.29	0.93	1.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.80	0.58	0.89	0.79	0.12	0.84	0.87	0.88	0.96	0.52	0.52
d, Delay for Lane Group [s/veh]	64.21	31.61	26.72	77.13	37.34	24.44	61.58	57.36	58.88	71.38	40.90	41.03
Lane Group LOS	E	C	C	E	D	C	E	E	E	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.97	17.11	9.54	3.44	14.61	1.44	5.34	9.85	9.02	9.82	6.07	5.62
50th-Percentile Queue Length [ft/ln]	199.1	427.6	238.5	86.06	365.2	36.06	133.4	246.3	225.5	245.5	151.8	140.4
95th-Percentile Queue Length [veh/ln]	12.60	23.89	14.61	6.20	20.88	2.60	9.13	15.00	13.95	14.96	10.11	9.50
95th-Percentile Queue Length [ft/ln]	314.8	597.2	365.1	154.9	521.9	64.91	228.2	375.0	348.7	374.0	252.8	237.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.21	31.61	26.72	77.13	37.34	24.44	61.58	57.72	58.88	71.38	40.94	41.03
Movement LOS	E	C	C	E	D	C	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	34.38			39.56			58.85			52.55		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	42.36											
Intersection LOS	D											
Intersection V/C	0.745											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.175	2.936	2.587	2.637
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	600	533	433
d_b, Bicycle Delay [s]	22.82	29.40	32.27	36.82
l_b,int, Bicycle LOS Score for Intersection	3.229	2.593	2.177	2.153
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 54: Beech Ave at Fontana Ave

Control Type:	All-way stop	Delay (sec / veh):	249.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.025

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	426	330	4	363	26	55	337	11	244	86	50
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	426	330	4	363	26	55	337	11	244	86	50
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	112	87	1	96	7	14	89	3	64	23	13
Total Analysis Volume [veh/h]	0	448	347	4	382	27	58	355	12	257	91	53
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	795	413	425	359	401
Degree of Utilization, x	2.03	1.08	1.13	0.97	0.13

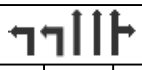
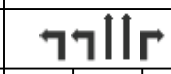
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	55.66	14.44	15.95	10.77	0.45
95th-Percentile Queue Length [ft]	1391.56	361.04	398.65	269.14	11.29
Approach Delay [s/veh]	490.98	99.56	116.02	64.59	
Approach LOS	F	F	F	F	
Intersection Delay [s/veh]	249.10				
Intersection LOS	F				

Intersection Level Of Service Report
Intersection 55: Valley Blvd at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	288	1211	252	138	1319	34	84	523	381	198	281	122
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	169	0	0	135	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	1380	252	138	1454	34	84	523	381	198	281	122
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	76	363	66	36	383	9	22	138	100	52	74	32
Total Analysis Volume [veh/h]	303	1453	265	145	1531	36	88	551	401	208	296	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	45	0	15	44	0	19	48	0	12	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	21	0	0	10	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	52	52	11	51	51	8	33	33	8	33	33
g / C, Green / Cycle	0.10	0.43	0.43	0.09	0.43	0.43	0.06	0.27	0.27	0.07	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.32	0.32	0.08	0.29	0.29	0.05	0.15	0.25	0.06	0.08	0.08
s, saturation flow rate [veh/h]	3514	3618	1755	1810	3618	1878	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	351	1567	760	166	1537	798	115	996	445	234	1008	450
d1, Uniform Delay [s]	53.19	28.30	28.45	53.82	27.78	27.78	55.33	37.18	41.92	55.55	34.01	33.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.22	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.29	3.12	6.52	13.21	2.35	4.48	10.23	0.48	12.91	10.82	0.16	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.74	0.74	0.87	0.67	0.67	0.77	0.55	0.90	0.89	0.29	0.28
d, Delay for Lane Group [s/veh]	59.47	31.42	34.97	67.02	30.13	32.26	65.56	37.66	54.83	66.38	34.17	34.26
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.80	14.21	14.73	4.93	12.25	13.19	2.95	6.98	12.95	3.47	3.43	2.98
50th-Percentile Queue Length [ft/ln]	120.0	355.3	368.2	123.1	306.2	329.7	73.73	174.5	323.6	86.81	85.77	74.56
95th-Percentile Queue Length [veh/ln]	8.40	20.40	21.02	8.57	17.99	19.15	5.31	11.32	18.85	6.25	6.18	5.37
95th-Percentile Queue Length [ft/ln]	209.9	509.8	525.5	214.1	449.7	478.7	132.7	282.9	471.2	156.2	154.3	134.2

Movement, Approach, & Intersection Results

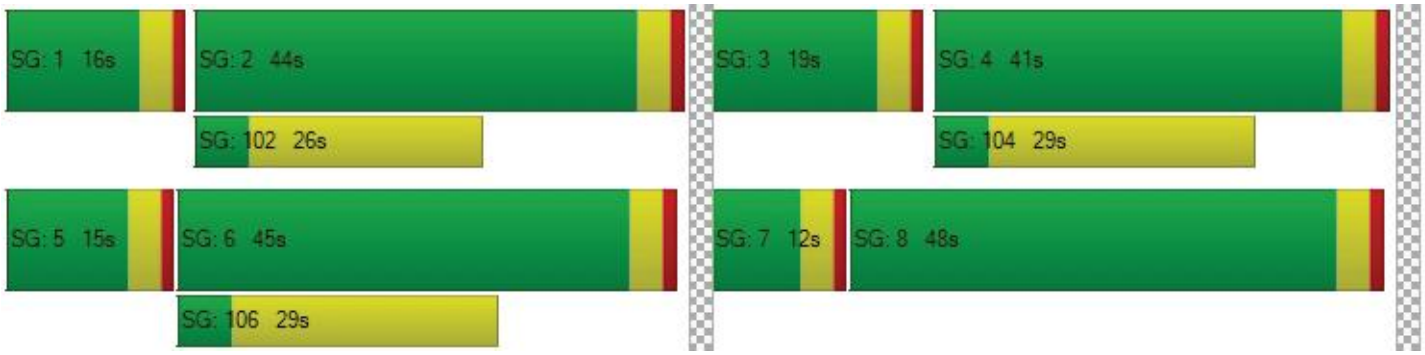
d_M, Delay for Movement [s/veh]	59.47	32.15	34.97	67.02	30.82	32.26	65.56	37.66	54.83	66.38	34.17	34.26
Movement LOS	E	C	C	E	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	36.62			33.92			46.64			44.79		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	38.65											
Intersection LOS	D											
Intersection V/C	0.710											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.080	2.740	2.831
Crosswalk LOS	F	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	683	667	733	617
d_b, Bicycle Delay [s]	26.00	26.67	24.07	28.70
l_b,int, Bicycle LOS Score for Intersection	2.671	2.501	2.418	2.081
Bicycle LOS	B	B	B	B

Sequence

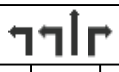
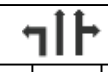
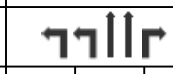
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 56: Valley Blvd at Commerce Dr/I-10 Ramps

Control Type:	Signalized	Delay (sec / veh):	84.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.019

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	245	803	754	12	855	73	143	496	334	804	496	80
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	195	0	0	200	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	998	754	12	1055	73	143	496	334	804	496	80
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	64	263	198	3	278	19	38	131	88	212	131	21
Total Analysis Volume [veh/h]	258	1051	794	13	1111	77	151	522	352	846	522	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	56	0	9	51	0	32	26	0	29	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	24	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	55	55	2	47	47	12	22	22	25	35	35
g / C, Green / Cycle	0.08	0.46	0.46	0.01	0.39	0.39	0.10	0.18	0.18	0.21	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.07	0.55	0.49	0.01	0.32	0.32	0.08	0.14	0.22	0.24	0.14	0.05
s, saturation flow rate [veh/h]	3514	1900	1615	1810	1900	1857	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	293	874	743	27	744	727	183	663	296	732	1050	469
d1, Uniform Delay [s]	54.41	32.40	32.40	58.63	32.46	32.48	52.87	46.76	49.00	47.50	35.31	31.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.36	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.49	102.1	53.02	12.34	9.14	9.39	8.89	2.12	106.7	73.75	0.37	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	1.20	1.07	0.48	0.81	0.81	0.82	0.79	1.19	1.16	0.50	0.18
d, Delay for Lane Group [s/veh]	62.90	134.5	85.42	70.96	41.60	41.87	61.76	48.89	155.7	121.2	35.68	32.06
Lane Group LOS	E	F	F	E	D	D	E	D	F	F	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.20	49.24	31.72	0.49	17.16	16.85	4.92	7.62	17.60	18.37	6.38	1.86
50th-Percentile Queue Length [ft/ln]	104.9	1231.	793.0	12.14	428.9	421.1	122.9	190.4	440.0	459.1	159.5	46.56
95th-Percentile Queue Length [veh/ln]	7.56	69.33	43.10	0.87	23.95	23.58	8.55	12.15	26.62	27.37	10.53	3.35
95th-Percentile Queue Length [ft/ln]	188.9	1733.	1077.	21.86	598.7	589.4	213.8	303.6	665.4	684.3	263.1	83.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.90	134.5	85.42	70.96	41.73	41.87	61.76	48.89	155.7	121.2	35.68	32.06
Movement LOS	E	F	F	E	D	D	E	D	F	F	D	C
d_A, Approach Delay [s/veh]	107.21			42.05			87.47			85.33		
Approach LOS	F			D			F			F		
d_I, Intersection Delay [s/veh]	84.68											
Intersection LOS	F											
Intersection V/C	1.019											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.753	2.871	3.080
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	783	367	317
d_b, Bicycle Delay [s]	19.27	22.20	40.02	42.50
l_b,int, Bicycle LOS Score for Intersection	5.030	2.550	2.405	2.758
Bicycle LOS	F	B	B	C

Sequence

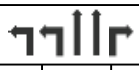
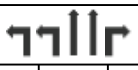
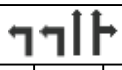
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 57: Valley Blvd at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	75.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.086

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	277	1194	889	112	1219	75	199	506	396	638	407	166
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	313	0	65	295	0	0	0	0	0	0	62
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	277	1507	889	177	1514	75	199	506	396	638	407	228
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	73	397	234	47	398	20	52	133	104	168	107	60
Total Analysis Volume [veh/h]	292	1586	936	186	1594	79	209	533	417	672	428	240
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	8	7	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	5	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	17	44	0	14	41	0	14	40	40	22	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	24	0	0	27	0	0	31	31	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	55	55	10	52	52	9	21	38	18	30	30
g / C, Green / Cycle	0.11	0.45	0.45	0.08	0.43	0.43	0.08	0.18	0.32	0.15	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.08	0.44	0.58	0.10	0.31	0.05	0.06	0.15	0.26	0.19	0.19	0.19
s, saturation flow rate [veh/h]	3514	3618	1615	1810	5176	1615	3514	3618	1615	3514	1900	1675
c, Capacity [veh/h]	381	1643	734	151	2222	693	266	648	518	527	482	425
d1, Uniform Delay [s]	52.03	31.82	32.74	55.00	28.24	20.55	54.51	47.42	37.32	51.00	41.05	41.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.48	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.26	15.33	134.5	117.2	2.03	0.33	5.12	2.70	12.00	127.0	2.16	2.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.97	1.28	1.23	0.72	0.11	0.79	0.82	0.81	1.27	0.73	0.74
d, Delay for Lane Group [s/veh]	55.29	47.15	167.3	172.2	30.27	20.88	59.63	50.12	49.32	178.0	43.21	43.81
Lane Group LOS	E	D	F	F	C	C	E	D	D	F	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.45	25.10	47.99	9.46	12.80	1.40	3.29	7.90	12.84	17.19	9.80	8.87
50th-Percentile Queue Length [ft/ln]	111.1	627.3	1199.	236.6	319.9	35.10	82.30	197.4	321.0	429.7	245.1	221.8
95th-Percentile Queue Length [veh/ln]	7.90	33.31	69.95	15.56	18.67	2.53	5.93	12.51	18.72	26.62	14.94	13.76
95th-Percentile Queue Length [ft/ln]	197.6	832.7	1748.	389.0	466.6	63.17	148.1	312.6	467.9	665.4	373.4	343.9

Movement, Approach, & Intersection Results

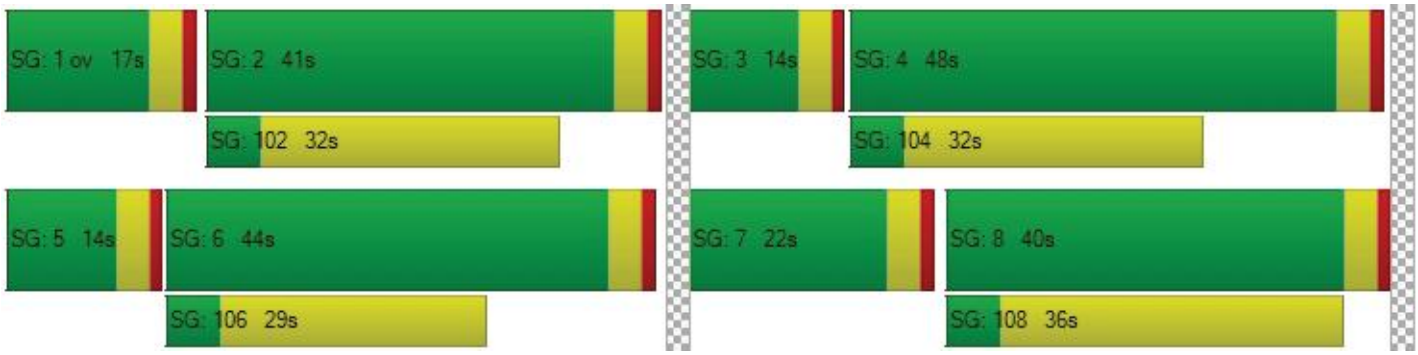
d_M, Delay for Movement [s/veh]	55.29	47.15	167.3	172.2	30.27	20.88	59.63	50.12	49.32	178.0	43.32	43.81
Movement LOS	E	D	F	F	C	C	E	D	D	F	D	D
d_A, Approach Delay [s/veh]	87.97			44.08			51.55			110.96		
Approach LOS	F			D			D			F		
d_I, Intersection Delay [s/veh]	75.00											
Intersection LOS	E											
Intersection V/C	1.086											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.460	3.215	2.979	3.026
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	617	600	733
d_b, Bicycle Delay [s]	26.67	28.70	29.40	24.07
l_b,int, Bicycle LOS Score for Intersection	3.881	2.582	2.516	2.665
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 58: Valley Blvd at Fontana Ave

Control Type:	Signalized	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name												
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	Yes				No				Yes			

Volumes

Name												
Base Volume Input [veh/h]	15	9	4	26	3	46	4	21	48	412	1196	16
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	65	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	9	4	26	3	46	4	21	48	412	1261	16
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	4	2	1	7	1	12	1	6	13	108	332	4
Total Analysis Volume [veh/h]	16	9	4	27	3	48	4	22	51	434	1327	17
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	ProtP	Permi	Permi	Permi
Signal Group	0	2	0	0	0	0	6	0	7	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	Lead	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	0	5	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	0	5	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Split [s]	0	19	0	0	0	0	19	0	9	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No					No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
Minimum Recall		No					No		Yes		No	
Maximum Recall		No					No		No		No	
Pedestrian Recall		No					No		No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	7	7	89	84	84
g / C, Green / Cycle	0.06	0.06	0.74	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.57	0.35	0.36
s, saturation flow rate [veh/h]	1780	1508	854	1900	1892
c, Capacity [veh/h]	146	141	660	1324	1319
d1, Uniform Delay [s]	54.70	55.76	7.46	8.52	8.54
k, delay calibration	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.63	3.25	7.12	1.39	1.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.55	0.73	0.51	0.51
d, Delay for Lane Group [s/veh]	56.34	59.01	14.58	9.91	9.95
Lane Group LOS	E	E	B	A	A
Critical Lane Group	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.71	2.43	5.04	8.01	8.02
50th-Percentile Queue Length [ft/ln]	42.73	60.78	126.02	200.36	200.62
95th-Percentile Queue Length [veh/ln]	3.08	4.38	8.72	12.66	12.67
95th-Percentile Queue Length [ft/ln]	76.92	109.40	218.08	316.43	316.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.34	56.34	56.34	56.34	59.01	59.01	59.01	59.01	14.58	14.58	9.93	9.95
Movement LOS	E	E	E	E	E	E	E	E	B	B	A	A
d_A, Approach Delay [s/veh]	56.34				59.01				11.16			
Approach LOS	E				E				B			
d_I, Intersection Delay [s/veh]	15.89											
Intersection LOS	B											
Intersection V/C	0.490											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	1.777	0.000	2.919
Crosswalk LOS	A	F	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	250	500
d_b, Bicycle Delay [s]	45.94	45.94	33.75
l_b,int, Bicycle LOS Score for Intersection	1.607	1.607	2.710
Bicycle LOS	A	A	B

Intersection Setup

Name								
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	No				Yes			

Volumes

Name								
Base Volume Input [veh/h]	11	559	148	26	6	7	105	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	62	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	621	148	26	6	7	105	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	163	39	7	2	2	28	1
Total Analysis Volume [veh/h]	12	654	156	27	6	7	111	2
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_di, Inbound Pedestrian Volume crossing the leg [ped/h]	0				0			
v_co, Outbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ci, Inbound Pedestrian Volume along the leg [ped/h]	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv	Permissiv
Signal Group	3	8	0	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	34	0	0	0	58	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No				No		
Maximum Recall	No	No				No		
Pedestrian Recall	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	73	73	73	11
g / C, Green / Cycle	0.01	0.61	0.61	0.61	0.09
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.19	0.11	0.08
s, saturation flow rate [veh/h]	1810	1900	1900	1615	1637
c, Capacity [veh/h]	25	1152	1152	979	156
d1, Uniform Delay [s]	58.73	11.01	11.49	10.50	53.23
k, delay calibration	0.11	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.21	0.53	0.71	0.42	9.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.25	0.31	0.19	0.81
d, Delay for Lane Group [s/veh]	71.93	11.54	12.20	10.92	62.81
Lane Group LOS	E	B	B	B	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.45	3.73	4.79	2.23	4.14
50th-Percentile Queue Length [ft/ln]	11.37	93.33	119.87	55.83	103.54
95th-Percentile Queue Length [veh/ln]	0.82	6.72	8.39	4.02	7.45
95th-Percentile Queue Length [ft/ln]	20.47	168.00	209.64	100.50	186.37

Movement, Approach, & Intersection Results

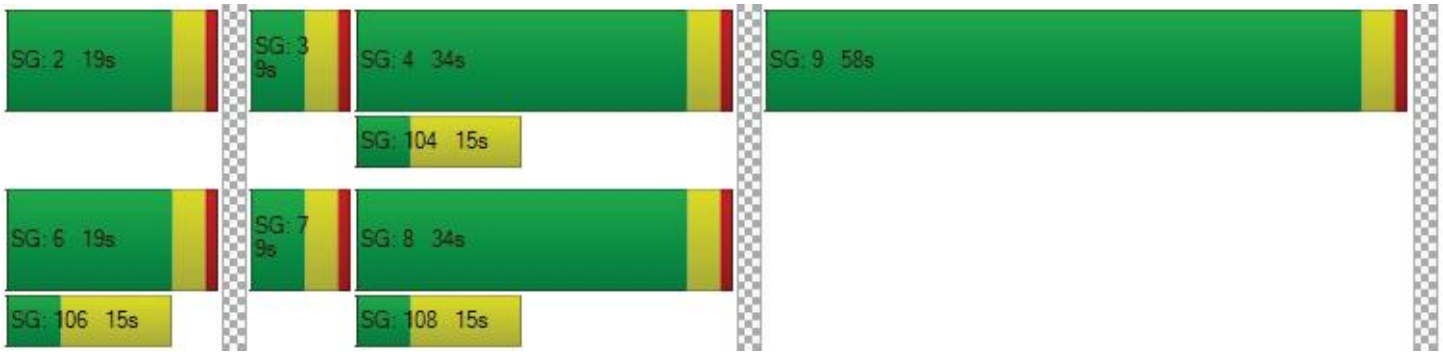
d_M, Delay for Movement [s/veh]	71.93	11.91	12.20	10.92	62.81	62.81	62.81	62.81
Movement LOS	E	B	B	B	E	E	E	E
d_A, Approach Delay [s/veh]	12.54				62.81			
Approach LOS	B				E			
d_I, Intersection Delay [s/veh]	15.89							
Intersection LOS	B							
Intersection V/C	0.490							

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.521
Crosswalk LOS	F	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	900
d_b, Bicycle Delay [s]	33.75	18.15
l_b,int, Bicycle LOS Score for Intersection	2.238	1.764
Bicycle LOS	B	A

Sequence

Ring 1	-	2	3	4	9	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 59: Beech Ave at Valley Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	551.544

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	211	275	422	360	0	219	325	1125	551	265	571	167
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	65	0	0	62	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	211	275	422	360	0	219	325	1190	551	265	633	167
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	56	72	111	95	0	58	86	313	145	70	167	44
Total Analysis Volume [veh/h]	222	289	444	379	0	231	342	1253	580	279	666	176
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

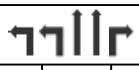
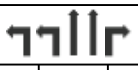
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	334.5	551.5	1.59	0.00	0.00	0.39	0.43	0.01	0.01	0.83	0.01	0.00
d_M, Delay for Movement [s/veh]	10000	10000	10000	10000	10000	15.06	12.78	0.00	0.00	50.84	0.00	0.00
Movement LOS	F	F	F	F	F	C	B	A	A	F	A	A
95th-Percentile Queue Length [veh/ln]	122.1	122.1	122.1	50.21	50.21	1.87	2.15	0.00	0.00	7.21	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3054.	3054.	3054.	1255.	1255.	46.73	53.71	0.00	0.00	180.3	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			6218.82			2.01			12.65		
Approach LOS	F			F			A			B		
d_I, Intersection Delay [s/veh]	2748.82											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 60: Valley Blvd at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	48.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	619	1120	319	108	655	46	78	1189	454	177	844	208
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	12	0	0	12	0	0	0	65	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	681	1132	319	108	667	46	78	1189	519	177	844	208
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	179	298	84	28	176	12	21	313	137	47	222	55
Total Analysis Volume [veh/h]	717	1192	336	114	702	48	82	1252	546	186	888	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	50	0	12	33	0	16	47	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	24	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	46	46	8	29	29	5	43	43	7	45	45
g / C, Green / Cycle	0.21	0.38	0.38	0.07	0.24	0.24	0.04	0.36	0.36	0.06	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.20	0.33	0.21	0.06	0.20	0.20	0.02	0.35	0.34	0.05	0.30	0.30
s, saturation flow rate [veh/h]	3514	3618	1615	1810	1900	1858	3514	3618	1615	3514	1900	1772
c, Capacity [veh/h]	732	1388	620	121	460	450	140	1295	578	205	715	667
d1, Uniform Delay [s]	47.24	33.98	28.77	55.78	43.06	43.06	56.63	37.83	37.37	56.18	33.36	33.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.42	0.11	0.32	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.35	7.08	3.38	26.66	15.37	15.69	3.82	6.21	23.25	13.93	5.91	6.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.86	0.54	0.95	0.82	0.82	0.58	0.97	0.94	0.91	0.80	0.80
d, Delay for Lane Group [s/veh]	58.59	41.06	32.15	82.45	58.42	58.75	60.45	44.04	60.62	70.11	39.27	40.07
Lane Group LOS	E	D	C	F	E	E	E	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.74	17.06	8.07	4.33	12.56	12.33	1.30	18.85	19.01	3.20	15.77	14.98
50th-Percentile Queue Length [ft/ln]	293.5	426.5	201.8	108.1	314.1	308.2	32.44	471.1	475.2	79.89	394.2	374.5
95th-Percentile Queue Length [veh/ln]	17.36	23.83	12.73	7.74	18.38	18.09	2.34	25.97	26.16	5.75	22.28	21.33
95th-Percentile Queue Length [ft/ln]	433.9	595.8	318.3	193.4	459.4	452.1	58.39	649.1	653.9	143.8	557.0	533.1

Movement, Approach, & Intersection Results

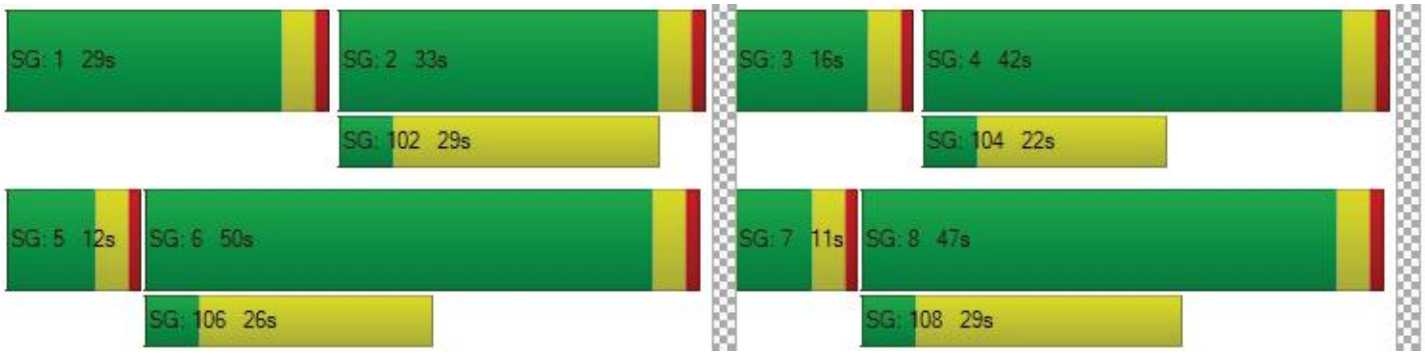
d_M, Delay for Movement [s/veh]	58.59	41.06	32.15	82.45	58.57	58.75	60.45	44.04	60.62	70.11	39.56	40.07
Movement LOS	E	D	C	F	E	E	E	D	E	E	D	D
d_A, Approach Delay [s/veh]	45.33			61.73			49.57			44.04		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	48.59											
Intersection LOS	D											
Intersection V/C	0.803											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.122	2.775	3.101	3.106
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	483	717	633
d_b, Bicycle Delay [s]	22.82	34.50	24.70	28.02
l_b,int, Bicycle LOS Score for Intersection	3.412	2.272	3.111	2.626
Bicycle LOS	C	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 61: Sierra Ave at Valley Blvd

Control Type:	Signalized	Delay (sec / veh):	53.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.897

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	288	1361	814	177	1363	102	333	967	247	709	715	127
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	29	0	12	29	0	0	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	1390	814	189	1392	102	333	967	247	709	715	139
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	76	366	214	50	366	27	88	254	65	187	188	37
Total Analysis Volume [veh/h]	303	1463	857	199	1465	107	351	1018	260	746	753	146
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	6	5	2	0	3	8	0	7	4	4
Auxiliary Signal Groups			6,7									4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	0	5	5	0	5	5	5
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	40	40	10	36	0	34	43	0	27	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	31	31	0	27	0	0	34	0	0	27	27
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No		No	No		No	No	No
Maximum Recall	No	No	No	No	No		No	No		No	No	No
Pedestrian Recall	No	No	No	No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	43	70	6	39	39	15	32	32	23	41	51
g / C, Green / Cycle	0.08	0.35	0.58	0.05	0.32	0.32	0.12	0.27	0.27	0.19	0.34	0.42
(v / s)_i Volume / Saturation Flow Rate	0.09	0.28	0.53	0.06	0.29	0.29	0.10	0.24	0.24	0.21	0.21	0.05
s, saturation flow rate [veh/h]	3514	5176	1615	3514	3618	1835	3514	3618	1709	3514	3618	2859
c, Capacity [veh/h]	293	1833	935	176	1161	589	431	980	463	674	1229	1210
d1, Uniform Delay [s]	55.00	34.89	22.64	57.00	38.88	38.91	51.31	41.97	41.98	48.50	33.02	21.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.27	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	33.87	3.73	15.04	74.75	11.03	19.22	3.78	2.91	12.96	53.77	0.50	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.80	0.92	1.13	0.90	0.90	0.81	0.89	0.89	1.11	0.61	0.12
d, Delay for Lane Group [s/veh]	88.87	38.62	37.68	131.7	49.91	58.13	55.09	44.87	54.95	102.2	33.52	21.08
Lane Group LOS	F	D	D	F	D	E	E	D	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.80	13.31	24.25	4.49	16.24	17.85	5.37	12.62	13.24	15.05	9.17	1.26
50th-Percentile Queue Length [ft/ln]	144.9	332.6	606.2	112.1	406.0	446.1	134.2	315.5	330.9	376.3	229.2	31.59
95th-Percentile Queue Length [veh/ln]	9.86	19.29	32.33	8.07	22.85	24.77	9.17	18.45	19.21	22.56	14.14	2.27
95th-Percentile Queue Length [ft/ln]	246.5	482.2	808.1	201.8	571.2	619.3	229.2	461.1	480.1	563.9	353.3	56.86

Movement, Approach, & Intersection Results

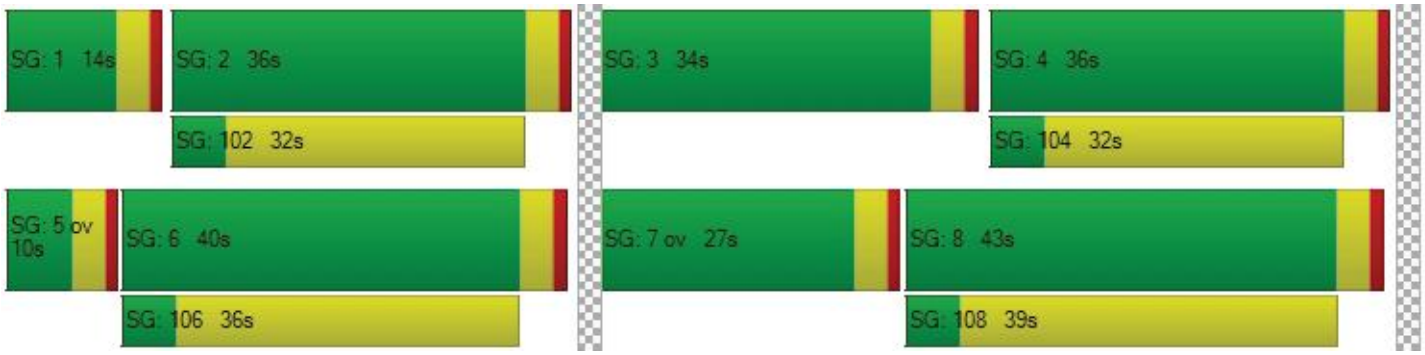
d_M, Delay for Movement [s/veh]	88.87	38.62	37.68	131.7	52.28	58.13	55.09	46.36	54.95	102.2	33.52	21.08
Movement LOS	F	D	D	F	D	E	E	D	D	F	C	C
d_A, Approach Delay [s/veh]	44.12			61.56			49.61			63.59		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	53.49											
Intersection LOS	D											
Intersection V/C	0.897											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.478	3.195	3.081	3.267
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	533	650	533
d_b, Bicycle Delay [s]	29.40	32.27	27.34	32.27
l_b,int, Bicycle LOS Score for Intersection	3.002	2.534	2.456	2.917
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 62: I-10 WB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1505	622	0	1210	819	0	0	0	585	0	484
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	169	0	0	12	123	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1674	622	0	1222	942	0	0	0	585	0	484
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	441	164	0	322	248	0	0	0	154	0	127
Total Analysis Volume [veh/h]	0	1762	655	0	1286	992	0	0	0	616	0	509
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	76	0	0	76	0	0	0	0	44	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	C	R
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81		31	31	31
g / C, Green / Cycle	0.67	0.67		0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.49	0.25		0.21	0.22	0.23
s, saturation flow rate [veh/h]	3618	5176		1810	1735	1615
c, Capacity [veh/h]	2425	3469		476	456	425
d1, Uniform Delay [s]	12.71	8.68		41.11	41.58	42.45
k, delay calibration	0.50	0.50		0.18	0.20	0.24
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.94	0.31		4.82	6.73	12.25
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.37		0.79	0.82	0.88
d, Delay for Lane Group [s/veh]	14.65	8.98		45.93	48.30	54.69
Lane Group LOS	B	A		D	D	D
Critical Lane Group	Yes	No		No	No	Yes
50th-Percentile Queue Length [veh/ln]	14.53	4.71		10.91	11.24	12.05
50th-Percentile Queue Length [ft/ln]	363.24	117.65		272.6	280.9	301.1
95th-Percentile Queue Length [veh/ln]	20.78	8.26		16.32	16.74	17.74
95th-Percentile Queue Length [ft/ln]	519.52	206.59		408.0	418.4	443.4

Movement, Approach, & Intersection Results

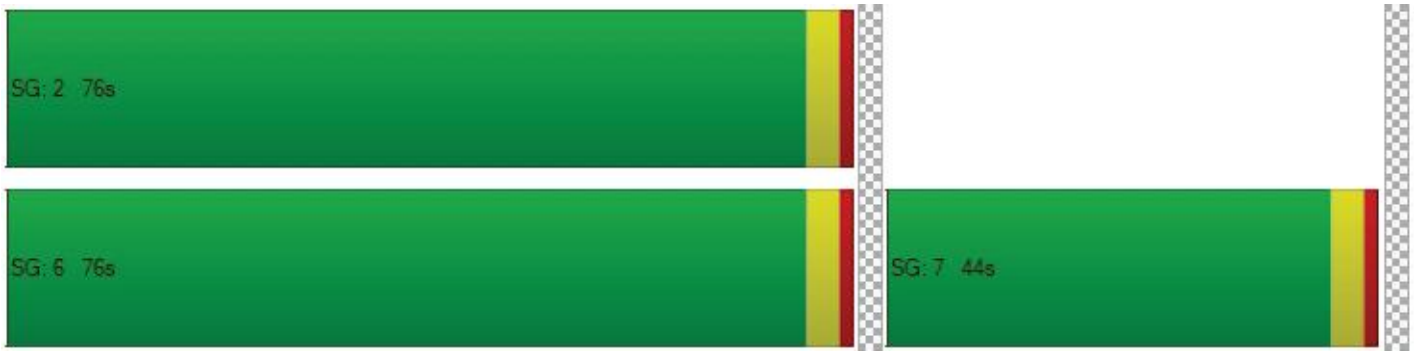
d_M, Delay for Movement [s/veh]	0.00	14.65	0.00	0.00	8.98	0.00	0.00	0.00	0.00	46.86	0.00	53.01
Movement LOS		B			A					D		D
d_A, Approach Delay [s/veh]	14.65			8.98			0.00			49.64		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	22.34											
Intersection LOS	C											
Intersection V/C	0.719											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	0	667
d_b, Bicycle Delay [s]	9.60	9.60	60.00	26.67
l_b,int, Bicycle LOS Score for Intersection	3.013	2.267	4.132	3.416
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 63: I-10 WB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	49.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.943

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1679	436	0	2172	0	0	0	0	581	0	633
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	72	0	0	282	12	0	0	0	0	0	240
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1751	436	0	2454	12	0	0	0	581	0	873
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	461	115	0	646	3	0	0	0	153	0	230
Total Analysis Volume [veh/h]	0	1843	459	0	2583	13	0	0	0	612	0	919
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	49	0	0	49	0	0	0	0	71	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	45	45		67	67
g / C, Green / Cycle	0.38	0.38		0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.36	0.37		0.17	0.57
s, saturation flow rate [veh/h]	5176	6901		3514	1615
c, Capacity [veh/h]	1941	2588		1962	902
d1, Uniform Delay [s]	36.40	37.46		14.17	26.50
k, delay calibration	0.50	0.50		0.11	0.49
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	11.57	17.26		0.09	34.63
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.95	1.00		0.31	1.02
d, Delay for Lane Group [s/veh]	47.97	54.72		14.26	61.13
Lane Group LOS	D	D		B	F
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	19.20	21.63		4.41	32.84
50th-Percentile Queue Length [ft/ln]	480.10	540.67		110.27	821.09
95th-Percentile Queue Length [veh/ln]	26.39	29.25		7.86	42.93
95th-Percentile Queue Length [ft/ln]	659.77	731.34		196.38	1073.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	47.97	0.00	0.00	54.72	0.00	0.00	0.00	0.00	14.26	0.00	61.13
Movement LOS		D			D					B		F
d_A, Approach Delay [s/veh]	47.97			54.72			0.00			42.40		
Approach LOS	D			D			A			D		
d_I, Intersection Delay [s/veh]	49.46											
Intersection LOS	D											
Intersection V/C	0.943											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.730	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	750	0	1117
d_b, Bicycle Delay [s]	23.44	23.44	60.00	11.70
l_b,int, Bicycle LOS Score for Intersection	2.573	2.625	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 64: I-10 WB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	19.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1212	256	0	1049	555	0	0	0	269	0	584
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	77	0	0	0	0	0	0	62
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1224	256	0	1126	555	0	0	0	269	0	646
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	1.000	1.000	1.000	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	322	67	0	296	146	0	0	0	71	0	170
Total Analysis Volume [veh/h]	0	1288	269	0	1185	584	0	0	0	283	0	680
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	53	0	0	53	0	0	0	0	67	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	14	0	0	10	0	0	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No					No		
Maximum Recall		No			No					No		
Pedestrian Recall		No			No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		L	R
C, Cycle Length [s]	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	80	80		32	32
g / C, Green / Cycle	0.66	0.66		0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.25	0.33		0.16	0.24
s, saturation flow rate [veh/h]	5176	3618		1810	2859
c, Capacity [veh/h]	3430	2397		490	774
d1, Uniform Delay [s]	9.09	10.15		37.83	41.88
k, delay calibration	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.32	0.73		1.08	3.43
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.49		0.58	0.88
d, Delay for Lane Group [s/veh]	9.41	10.89		38.91	45.31
Lane Group LOS	A	B		D	D
Critical Lane Group	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	4.86	7.59		7.34	9.94
50th-Percentile Queue Length [ft/ln]	121.58	189.66		183.60	248.50
95th-Percentile Queue Length [veh/ln]	8.48	12.10		11.79	15.11
95th-Percentile Queue Length [ft/ln]	212.00	302.58		294.71	377.76

Movement, Approach, & Intersection Results

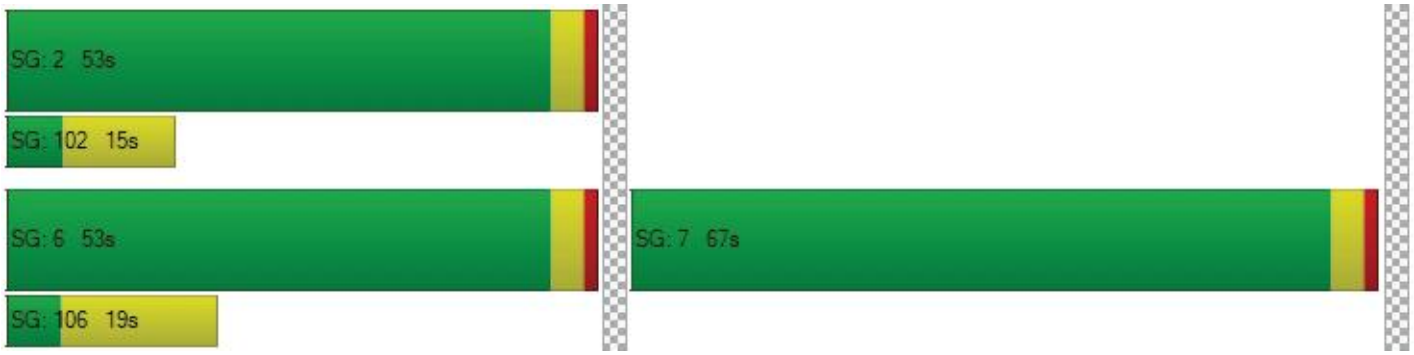
d_M, Delay for Movement [s/veh]	0.00	9.41	0.00	0.00	10.89	0.00	0.00	0.00	0.00	38.91	0.00	45.31
Movement LOS		A			B					D		D
d_A, Approach Delay [s/veh]	9.41			10.89			0.00			43.43		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	19.45											
Intersection LOS	B											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.439	2.381
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	817	0	1050
d_b, Bicycle Delay [s]	21.00	21.00	60.00	13.54
l_b,int, Bicycle LOS Score for Intersection	2.268	2.537	4.132	1.560
Bicycle LOS	B	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 65: I-10 EB Ramps at Etiwanda Ave

Control Type:	Signalized	Delay (sec / veh):	21.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	1713	562	0	1344	394	344	0	439	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	12	0	157	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1725	562	0	1356	394	501	0	439	0	0	0
Peak Hour Factor	1.000	0.950	0.950	1.000	0.950	0.950	0.950	1.000	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	454	148	0	357	104	132	0	116	0	0	0
Total Analysis Volume [veh/h]	0	1816	592	0	1427	415	527	0	462	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	62	0	0	62	0	58	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	10	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No					
Maximum Recall		No			No		No					
Pedestrian Recall		No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	74	74	38	38	
g / C, Green / Cycle	0.62	0.62	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.35	0.39	0.15	0.29	
s, saturation flow rate [veh/h]	5176	3618	3514	1615	
c, Capacity [veh/h]	3191	2230	1113	512	
d1, Uniform Delay [s]	13.59	14.57	32.95	39.23	
k, delay calibration	0.50	0.50	0.11	0.20	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.74	1.42	0.31	10.40	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.57	0.64	0.47	0.90	
d, Delay for Lane Group [s/veh]	14.33	15.99	33.26	49.63	
Lane Group LOS	B	B	C	D	
Critical Lane Group	No	Yes	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.42	12.07	6.22	14.37	
50th-Percentile Queue Length [ft/ln]	235.60	301.76	155.56	359.18	
95th-Percentile Queue Length [veh/ln]	14.46	17.77	10.31	20.58	
95th-Percentile Queue Length [ft/ln]	361.46	444.21	257.83	514.58	

Movement, Approach, & Intersection Results

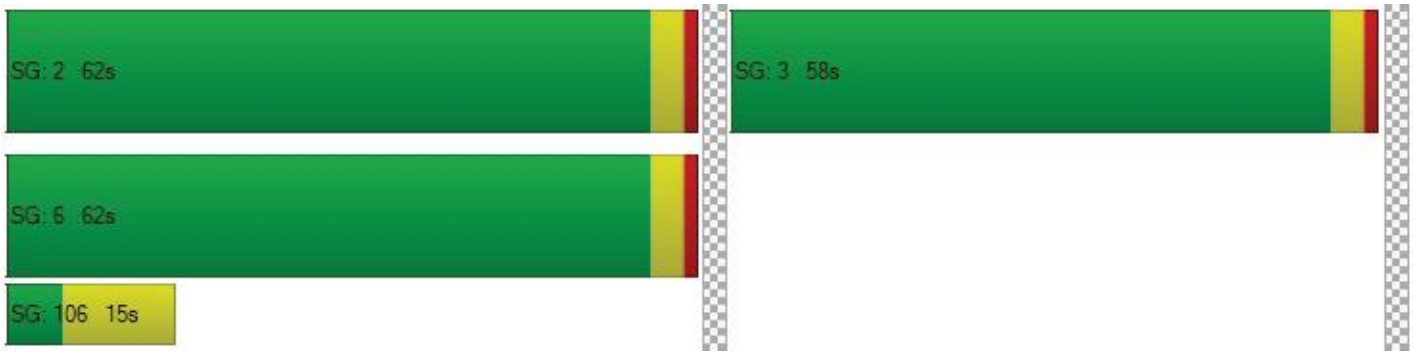
d_M, Delay for Movement [s/veh]	0.00	14.33	0.00	0.00	15.99	0.00	33.26	0.00	49.63	0.00	0.00	0.00
Movement LOS		B			B		C		D			
d_A, Approach Delay [s/veh]	14.33			15.99			40.91			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	21.10											
Intersection LOS	C											
Intersection V/C	0.681											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.439
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	967	967	900	0
d_b, Bicycle Delay [s]	16.02	16.02	18.15	60.00
l_b,int, Bicycle LOS Score for Intersection	2.558	2.737	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 66: I-10 EB Ramps at Cherry Ave

Control Type:	Signalized	Delay (sec / veh):	57.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.958

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1423	533	759	1352	0	741	75	630	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	0	222	60	0	10	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1483	533	981	1412	0	751	75	630	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	390	140	258	372	0	198	20	166	0	0	0
Total Analysis Volume [veh/h]	0	1561	561	1033	1486	0	791	79	663	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	43	0	37	80	0	0	40	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	33	76	36	36	36	
g / C, Green / Cycle	0.33	0.33	0.28	0.63	0.30	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.35	0.29	0.29	0.28	0.29	0.32	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	1810	1759	1615	
c, Capacity [veh/h]	1682	525	966	3278	543	528	485	
d1, Uniform Delay [s]	39.14	40.50	43.50	11.32	40.97	41.43	42.00	
k, delay calibration	0.50	0.50	0.11	0.50	0.42	0.44	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	10.44	58.95	36.48	0.45	23.41	29.49	56.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.93	1.07	1.07	0.45	0.94	0.97	1.05	
d, Delay for Lane Group [s/veh]	49.58	99.45	79.98	11.77	64.38	70.92	98.04	
Lane Group LOS	D	F	F	B	E	E	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	16.24	23.85	19.08	6.63	18.09	19.05	21.70	
50th-Percentile Queue Length [ft/ln]	406.00	596.20	477.01	165.66	452.2	476.2	542.3	
95th-Percentile Queue Length [veh/ln]	22.85	33.29	27.33	10.85	25.07	26.21	30.36	
95th-Percentile Queue Length [ft/ln]	571.22	832.17	683.22	271.20	626.6	655.2	758.8	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	49.58	99.45	79.98	11.77	0.00	66.70	70.92	91.82	0.00	0.00	0.00
Movement LOS		D	F	F	B		E	E	F			
d_A, Approach Delay [s/veh]	62.76			39.74			77.78			0.00		
Approach LOS	E			D			E			A		
d_I, Intersection Delay [s/veh]	57.10											
Intersection LOS	E											
Intersection V/C	0.958											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.520	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	1267	600	0
d_b, Bicycle Delay [s]	27.34	8.07	29.40	60.00
l_b,int, Bicycle LOS Score for Intersection	2.727	2.945	4.089	4.132
Bicycle LOS	B	C	D	D

Sequence

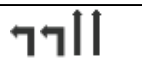
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 67: I-10 EB Ramps at Citrus Ave

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	1008	570	606	730	0	505	8	237	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	65	12	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1020	570	671	742	0	505	8	237	0	0	0
Peak Hour Factor	1.000	0.950	0.950	0.950	0.950	1.000	0.950	0.950	0.950	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	268	150	177	195	0	133	2	62	0	0	0
Total Analysis Volume [veh/h]	0	1074	600	706	781	0	532	8	249	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	37	87	0	0	33	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	59	59	27	90	22	22	
g / C, Green / Cycle	0.49	0.49	0.22	0.75	0.18	0.18	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.37	0.20	0.22	0.15	0.16	
s, saturation flow rate [veh/h]	3618	1615	3514	3618	3514	1623	
c, Capacity [veh/h]	1773	791	789	2706	651	301	
d1, Uniform Delay [s]	22.19	24.82	45.14	4.86	46.93	47.32	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.18	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.55	6.71	3.86	0.27	2.59	10.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.76	0.89	0.29	0.82	0.85	
d, Delay for Lane Group [s/veh]	23.74	31.54	48.99	5.13	49.52	58.30	
Lane Group LOS	C	C	D	A	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.14	14.93	10.57	2.84	7.85	8.33	
50th-Percentile Queue Length [ft/ln]	278.56	373.19	264.24	71.01	196.17	208.33	
95th-Percentile Queue Length [veh/ln]	16.62	21.26	15.90	5.11	12.44	13.07	
95th-Percentile Queue Length [ft/ln]	415.42	531.60	397.53	127.82	311.02	326.68	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	23.74	31.54	48.99	5.13	0.00	49.52	58.30	58.30	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	E	E			
d_A, Approach Delay [s/veh]	26.53			25.95			52.38			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.48											
Intersection LOS	C											
Intersection V/C	0.731											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	1383	483	0
d_b, Bicycle Delay [s]	22.82	5.70	34.50	60.00
l_b,int, Bicycle LOS Score for Intersection	2.480	2.786	2.861	4.132
Bicycle LOS	B	C	C	D

Sequence

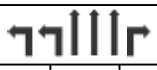
Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 68: Sierra Ave at I-10 EB/WB Ramps

Control Type:	Signalized	Delay (sec / veh):	72.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.189

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	0.00	0.00	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	573	1426	523	554	969	892	1024	0	512	540	0	706
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	17	12	0	0	0	0	0	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	573	1438	523	571	981	892	1024	0	512	540	0	723
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	1.000	0.950	0.950	1.000	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	151	378	138	150	258	235	269	0	135	142	0	190
Total Analysis Volume [veh/h]	603	1514	551	601	1033	939	1078	0	539	568	0	761
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig	Permi	Permi	Unsig
Signal Group	0	6	0	0	2	0	3	0	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	0	0	5	0	0
Maximum Green [s]	0	30	0	0	30	0	30	0	0	30	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	88	0	0	88	0	32	0	0	32	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	17	0	0	17	0	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall		No			No		No			No		
Maximum Recall		No			No		No			No		
Pedestrian Recall		No			No		No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	L
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	28	28
g / C, Green / Cycle	0.70	0.70	0.70	0.70	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.56	0.29	0.88	0.20	0.31	0.16
s, saturation flow rate [veh/h]	1077	5176	681	5176	3514	3514
c, Capacity [veh/h]	717	3623	442	3623	820	820
d1, Uniform Delay [s]	20.77	7.63	30.89	6.75	46.00	42.07
k, delay calibration	0.50	0.50	0.50	0.50	0.17	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.48	0.36	175.71	0.20	144.62	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.42	1.36	0.29	1.31	0.69
d, Delay for Lane Group [s/veh]	32.25	7.99	206.61	6.94	190.62	43.13
Lane Group LOS	C	A	F	A	F	D
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.08	5.20	17.53	3.13	28.59	7.80
50th-Percentile Queue Length [ft/ln]	201.99	129.89	438.14	78.19	714.82	195.02
95th-Percentile Queue Length [veh/ln]	12.74	8.93	29.78	5.63	42.94	12.38
95th-Percentile Queue Length [ft/ln]	318.53	223.34	744.58	140.74	1073.62	309.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.25	7.99	0.00	206.6	6.94	0.00	190.6	0.00	0.00	43.13	0.00	0.00
Movement LOS	C	A		F	A		F			D		
d_A, Approach Delay [s/veh]	14.90			80.38			190.62			43.13		
Approach LOS	B			F			F			D		
d_I, Intersection Delay [s/veh]	72.79											
Intersection LOS	E											
Intersection V/C	1.189											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.501	3.398
Crosswalk LOS	F	F	D	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1400	467	467
d_b, Bicycle Delay [s]	5.40	5.40	35.27	35.27
l_b,int, Bicycle LOS Score for Intersection	2.724	2.458	1.560	1.560
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 69: Milliken Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	40.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	195	1644	376	77	598	132	265	1104	208	125	611	119
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	12	0	0	0	12	0	12	12	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	1644	388	89	598	132	265	1116	208	137	623	131
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	51	433	102	23	157	35	70	294	55	36	164	34
Total Analysis Volume [veh/h]	205	1731	408	94	629	139	279	1175	219	144	656	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	26	47	0	9	30	0	37	49	0	15	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	7	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	5	42	42	21	42	42	11	32	32
g / C, Green / Cycle	0.08	0.38	0.38	0.04	0.35	0.35	0.17	0.35	0.35	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.33	0.25	0.03	0.12	0.09	0.15	0.32	0.14	0.08	0.18	0.09
s, saturation flow rate [veh/h]	3514	5176	1615	3514	5176	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	276	1983	619	145	1790	559	312	1268	566	166	976	436
d1, Uniform Delay [s]	54.11	34.30	30.54	56.68	29.23	28.09	48.58	37.47	29.27	53.78	39.08	34.98
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.13	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.94	5.66	5.43	4.85	0.54	1.06	10.40	3.49	0.43	12.71	0.81	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.87	0.66	0.65	0.35	0.25	0.89	0.93	0.39	0.87	0.67	0.32
d, Delay for Lane Group [s/veh]	58.05	39.96	35.98	61.52	29.77	29.16	58.98	40.96	29.70	66.50	39.89	35.39
Lane Group LOS	E	D	D	E	C	C	E	D	C	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.18	16.36	10.58	1.50	4.60	3.04	9.05	16.94	4.82	4.87	8.70	3.29
50th-Percentile Queue Length [ft/ln]	79.57	409.0	264.5	37.54	115.0	75.99	226.3	423.4	120.5	121.7	217.5	82.15
95th-Percentile Queue Length [veh/ln]	5.73	23.00	15.92	2.70	8.12	5.47	13.99	23.69	8.42	8.49	13.54	5.92
95th-Percentile Queue Length [ft/ln]	143.2	574.9	397.9	67.57	202.9	136.7	349.6	592.2	210.5	212.2	338.5	147.8

Movement, Approach, & Intersection Results

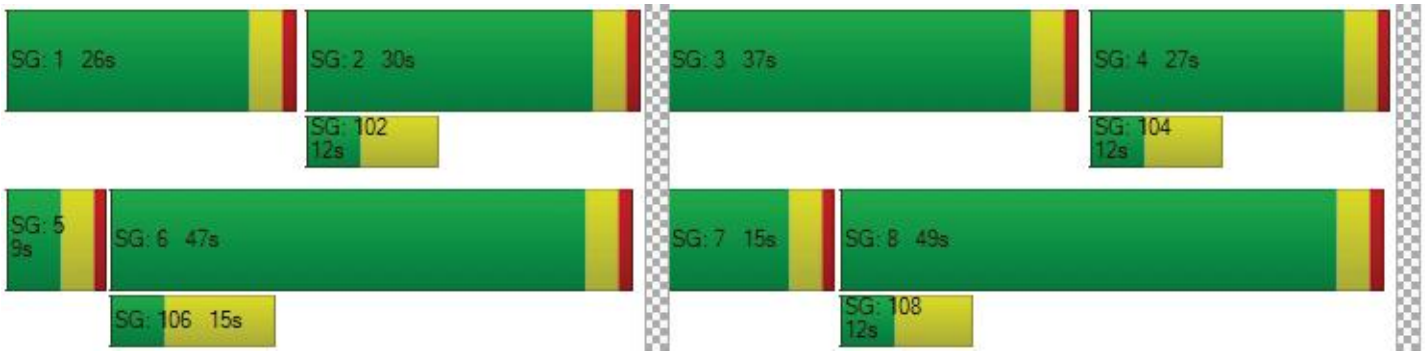
d_M, Delay for Movement [s/veh]	58.05	39.96	35.98	61.52	29.77	29.16	58.98	40.96	29.70	66.50	39.89	35.39
Movement LOS	E	D	D	E	C	C	E	D	C	E	D	D
d_A, Approach Delay [s/veh]	40.85			33.13			42.49			43.31		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.58											
Intersection LOS	D											
Intersection V/C	0.766											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.226	3.191	2.902	2.893
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	717	433	750	383
d_b, Bicycle Delay [s]	24.70	36.82	23.44	39.20
l_b,int, Bicycle LOS Score for Intersection	2.849	2.034	2.940	2.333
Bicycle LOS	C	B	C	B

Sequence

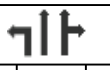
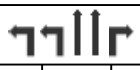
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 70: Rochester Ave at Arrow Rte

Control Type:	Signalized	Delay (sec / veh):	92.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.004

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	62	886	503	344	245	200	389	1463	24	117	762	509
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	36	0	0	36	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	886	503	344	245	200	389	1499	24	117	798	509
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	233	132	91	64	53	102	394	6	31	210	134
Total Analysis Volume [veh/h]	65	933	529	362	258	211	409	1578	25	123	840	536
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	37	38	0	25	26	26	27	48	0	9	30	30
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	17	17	0	21	0	0	21	21
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	34	34	21	49	76	23	44	44	5	26	51
g / C, Green / Cycle	0.05	0.28	0.28	0.18	0.41	0.64	0.19	0.37	0.37	0.04	0.22	0.43
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.33	0.20	0.07	0.13	0.23	0.42	0.42	0.04	0.23	0.33
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1890	3514	3618	1615
c, Capacity [veh/h]	88	1025	458	317	1483	1025	347	697	693	146	784	686
d1, Uniform Delay [s]	56.35	41.53	43.00	49.50	22.50	9.20	48.50	38.00	38.00	57.10	47.00	29.69
k, delay calibration	0.11	0.50	0.50	0.30	0.50	0.50	0.38	0.50	0.50	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.59	13.38	92.38	85.28	0.26	0.45	101.3	83.70	86.25	11.96	38.48	8.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.91	1.16	1.14	0.17	0.21	1.18	1.15	1.16	0.84	1.07	0.78
d, Delay for Lane Group [s/veh]	67.94	54.91	135.3	134.7	22.75	9.65	149.8	121.7	124.2	69.06	85.48	38.29
Lane Group LOS	E	D	F	F	C	A	F	F	F	E	F	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.23	15.11	25.15	16.95	2.38	2.38	20.09	36.25	36.54	2.10	15.81	14.70
50th-Percentile Queue Length [ft/ln]	55.70	377.7	628.8	423.7	59.52	59.43	502.1	906.1	913.4	52.38	395.2	367.5
95th-Percentile Queue Length [veh/ln]	4.01	21.48	36.38	25.31	4.29	4.28	29.81	50.69	51.22	3.77	23.19	20.99
95th-Percentile Queue Length [ft/ln]	100.2	537.0	909.6	632.6	107.1	106.9	745.2	1267.	1280.	94.29	579.7	524.7

Movement, Approach, & Intersection Results

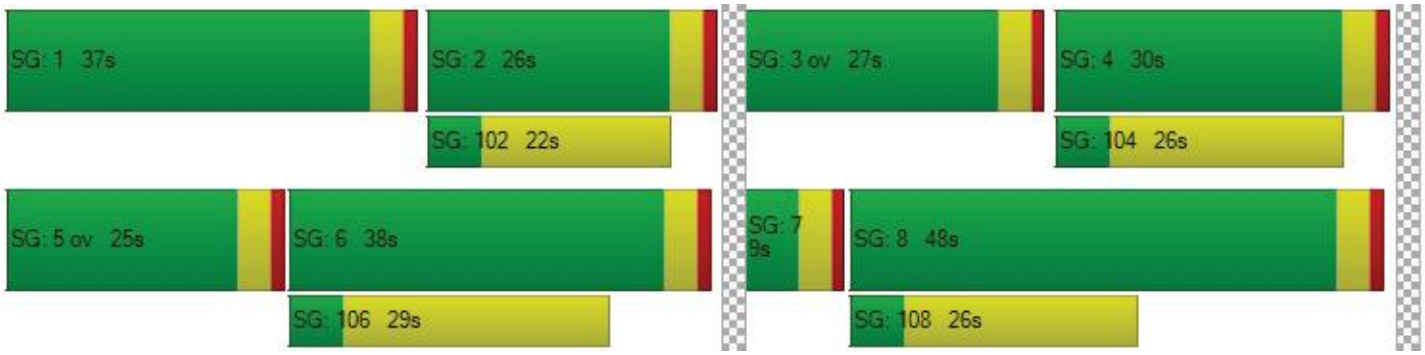
d_M, Delay for Movement [s/veh]	67.94	54.91	135.3	134.7	22.75	9.65	149.8	122.9	124.2	69.06	85.48	38.29
Movement LOS	E	D	F	F	C	A	F	F	F	E	F	D
d_A, Approach Delay [s/veh]	83.34			68.23			128.44			67.26		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	92.55											
Intersection LOS	F											
Intersection V/C	1.004											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.782	2.908	2.925	3.162
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	367	733	433
d_b, Bicycle Delay [s]	30.82	40.02	24.07	36.82
l_b,int, Bicycle LOS Score for Intersection	2.819	2.245	3.220	2.796
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 71: Cherry Ave at Slover Ave

Control Type:	Signalized	Delay (sec / veh):	37.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	50	1279	86	422	1277	459	540	753	117	71	198	408
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	0	48	12	12	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	1327	86	422	1325	471	552	753	117	71	198	408
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	349	23	111	349	124	145	198	31	19	52	107
Total Analysis Volume [veh/h]	53	1397	91	444	1395	496	581	793	123	75	208	429
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Protec	Permi	Permi	Protec	Permi	Overla
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	5	0	5	5	5
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	33	0	20	44	44	24	58	0	9	43	43
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	24	0	0	21	21	0	24	0	0	34	34
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	50	50	16	62	86	20	33	33	5	18	38
g / C, Green / Cycle	0.04	0.42	0.42	0.13	0.51	0.71	0.17	0.28	0.28	0.04	0.15	0.31
(v / s)_i Volume / Saturation Flow Rate	0.03	0.27	0.27	0.13	0.27	0.31	0.17	0.25	0.25	0.02	0.06	0.27
s, saturation flow rate [veh/h]	1810	3618	1841	3514	5176	1615	3514	1900	1813	3514	3618	1615
c, Capacity [veh/h]	69	1516	771	469	2662	1154	586	524	500	135	534	508
d1, Uniform Delay [s]	57.20	27.85	27.85	51.58	19.38	7.07	49.92	41.66	41.84	56.70	46.24	38.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.13	0.11	0.11	0.33
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.42	2.18	4.23	10.41	0.74	1.17	15.51	6.07	7.28	3.56	0.46	10.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.65	0.65	0.95	0.52	0.43	0.99	0.89	0.90	0.56	0.39	0.84
d, Delay for Lane Group [s/veh]	73.63	30.03	32.08	62.00	20.12	8.24	65.43	47.73	49.12	60.25	46.71	49.29
Lane Group LOS	E	C	C	E	C	A	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.91	11.62	12.27	7.29	8.64	5.11	9.93	14.00	13.75	1.18	2.85	13.21
50th-Percentile Queue Length [ft/ln]	47.68	290.4	306.7	182.1	216.0	127.8	248.1	350.0	343.8	29.61	71.33	330.2
95th-Percentile Queue Length [veh/ln]	3.43	17.21	18.01	11.71	13.46	8.82	15.09	20.14	19.83	2.13	5.14	19.17
95th-Percentile Queue Length [ft/ln]	85.82	430.2	450.3	292.8	336.5	220.5	377.3	503.5	495.8	53.30	128.3	479.3

Movement, Approach, & Intersection Results

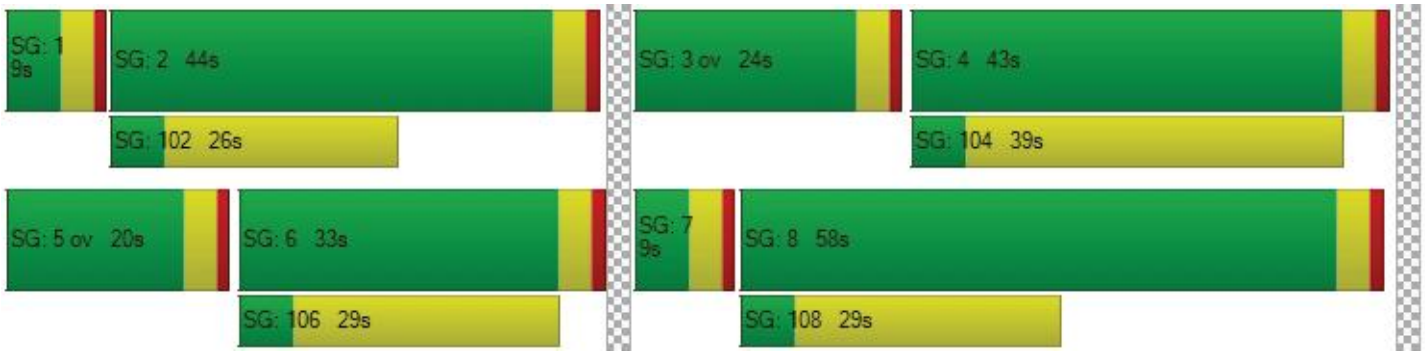
d_M, Delay for Movement [s/veh]	73.63	30.63	32.08	62.00	20.12	8.24	65.43	48.31	49.12	60.25	46.71	49.29
Movement LOS	E	C	C	E	C	A	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	32.20			25.56			55.02			49.69		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	37.31											
Intersection LOS	D											
Intersection V/C	0.745											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.123	3.444	2.834	2.893
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	483	667	900	650
d_b, Bicycle Delay [s]	34.50	26.67	18.15	27.34
l_b,int, Bicycle LOS Score for Intersection	2.407	2.844	2.795	2.147
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 72: Cherry Ave at Santa Ana Ave

Control Type:	Signalized	Delay (sec / veh):	746.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	63.406

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	681	87	107	1002	151	280	122	45	36	50	127
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	24	12	12	12	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	693	87	131	1014	163	292	122	45	36	50	151
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	182	23	34	267	43	77	32	12	9	13	40
Total Analysis Volume [veh/h]	13	729	92	138	1067	172	307	128	47	38	53	159
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	16	0	9	16	0	0	95	0	0	95	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	24	0	0	24	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	12	12	5	15	15	91	91	91	91
g / C, Green / Cycle	0.01	0.10	0.10	0.04	0.13	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.15	0.08	0.23	0.23	63.17	0.03	1.51	0.10
s, saturation flow rate [veh/h]	1810	3618	1794	1810	3618	1768	7	1615	60	1615
c, Capacity [veh/h]	27	366	182	75	464	227	56	1223	88	1223
d1, Uniform Delay [s]	58.68	53.93	53.93	57.50	52.31	52.31	54.50	3.65	43.36	3.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.33	236.3	255.6	384.6	365.9	374.6	3057.83	0.01	104.69	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	1.49	1.51	1.83	1.79	1.79	7.71	0.04	1.03	0.13
d, Delay for Lane Group [s/veh]	72.01	290.2	309.5	442.1	418.2	426.9	3112.33	3.66	148.04	3.97
Lane Group LOS	E	F	F	F	F	F	F	A	F	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.49	17.53	18.36	10.34	30.54	30.40	49.61	0.26	3.82	0.93
50th-Percentile Queue Length [ft/ln]	12.26	438.3	459.0	258.5	763.5	760.1	1240.28	6.39	95.50	23.29
95th-Percentile Queue Length [veh/ln]	0.88	27.89	29.11	17.60	47.93	47.74	89.30	0.46	6.88	1.68
95th-Percentile Queue Length [ft/ln]	22.07	697.1	727.6	440.0	1198.	1193.	2232.51	11.50	171.89	41.93

Movement, Approach, & Intersection Results

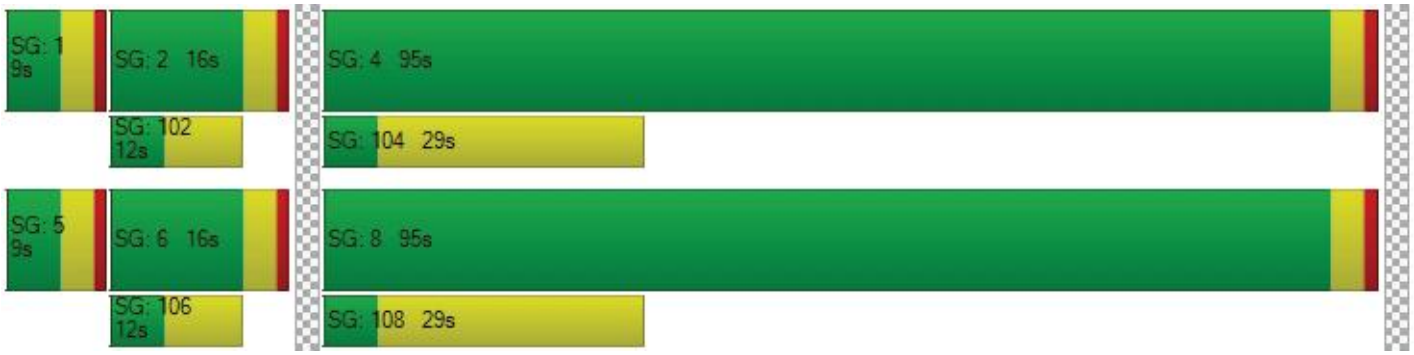
d_M, Delay for Movement [s/veh]	72.01	295.0	309.5	442.1	420.1	426.9	3112.	3112.	3.66	148.0	148.0	3.97
Movement LOS	E	F	F	F	F	F	F	F	A	F	F	A
d_A, Approach Delay [s/veh]	293.19			423.22			2809.20			56.41		
Approach LOS	F			F			F			E		
d_I, Intersection Delay [s/veh]	745.99											
Intersection LOS	F											
Intersection V/C	63.406											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.940	3.404	2.189	2.153
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1517	1517
d_b, Bicycle Delay [s]	48.60	48.60	3.50	3.50
l_b,int, Bicycle LOS Score for Intersection	2.018	2.317	2.355	1.972
Bicycle LOS	B	B	B	A

Sequence

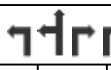
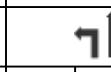
Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 73: Cherry Ave at Sunset Dr

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.518

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	287	52	0	0	66	456	428	0	254	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	287	52	0	0	66	456	428	0	254	0	0	0
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	72	13	0	0	17	114	107	0	64	0	0	0
Total Analysis Volume [veh/h]	287	52	0	0	66	456	428	0	254	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Overla	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	2	0	8	0	0	4	0
Auxiliary Signal Groups						2,8						
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	5	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	30	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	55	69	0	9	23	23	0	33	0	0	9	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	14	0	24	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	No	No		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	85	85	0	64	90	19	19	19	0	0
g / C, Green / Cycle	0.18	0.71	0.71	0.00	0.53	0.75	0.16	0.16	0.16	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.16	0.01	0.01	0.00	0.02	0.29	0.12	0.12	0.09	0.00	0.00
s, saturation flow rate [veh/h]	1781	3560	1870	1781	3560	1589	1781	1781	2813	1781	1870
c, Capacity [veh/h]	321	2523	1325	1	1882	1197	280	280	443	1	1
d1, Uniform Delay [s]	48.06	5.14	5.14	0.00	13.58	5.13	48.41	48.41	46.82	0.00	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.65	0.01	0.02	0.00	0.03	0.92	4.30	4.30	1.17	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.01	0.01	0.00	0.04	0.38	0.76	0.76	0.57	0.00	0.00
d, Delay for Lane Group [s/veh]	56.71	5.15	5.16	0.00	13.62	6.05	52.71	52.71	48.00	0.00	0.00
Lane Group LOS	E	A	A	A	B	A	D	D	D	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	9.14	0.12	0.13	0.00	0.44	3.72	6.47	6.47	3.59	0.00	0.00
50th-Percentile Queue Length [ft/ln]	228.4	3.02	3.25	0.00	10.99	93.01	161.6	161.6	89.77	0.00	0.00
95th-Percentile Queue Length [veh/ln]	14.09	0.22	0.23	0.00	0.79	6.70	10.64	10.64	6.46	0.00	0.00
95th-Percentile Queue Length [ft/ln]	352.3	5.43	5.85	0.00	19.79	167.4	265.8	265.8	161.5	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.71	5.16	5.16	0.00	13.62	6.05	52.71	52.71	48.00	0.00	0.00	0.00
Movement LOS	E	A	A	A	B	A	D	D	D	A	A	A
d_A, Approach Delay [s/veh]	48.80			7.01			50.96			0.00		
Approach LOS	D			A			D			A		
d_I, Intersection Delay [s/veh]	35.62											
Intersection LOS	D											
Intersection V/C	0.518											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	51.34	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.701	0.000	2.700	0.000
Crosswalk LOS	B	F	B	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1083	317	483	83
d_b, Bicycle Delay [s]	12.60	42.50	34.50	55.10
l_b,int, Bicycle LOS Score for Intersection	1.746	1.990	2.685	1.560
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E

B-TURNS WORKSHEETS

Intersection: Cherry Ave SR-210 WB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	166	SOUTH LEG	
	THRU	303	IN ...	675
	RIGHT	0	OUT ...	1,317
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	712	IN ...	1,128
	RIGHT	200	OUT ...	820
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	400
WEST BOUND	LEFT	360	EAST LEG	
	THRU	4	IN ...	735
	RIGHT	252	OUT ...	0
		1,997		5,075

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	166	186
	THRU	303	489
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	712	917
	RIGHT	200	211
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	360	400
	THRU	4	4
	RIGHT	252	331
		1,997	2,537

Intersection: Cherry Ave SR-210 WB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	302	SOUTH LEG	
	THRU	571	IN ...	1,135
	RIGHT	0	OUT ...	948
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	461	IN ...	935
	RIGHT	146	OUT ...	1,026
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	568
WEST BOUND	LEFT	287	EAST LEG	
	THRU	0	IN ...	472
	RIGHT	135	OUT ...	0
		1,902		5,084

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	302	315
	THRU	571	822
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	461	680
	RIGHT	146	253
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	287	267
	THRU	0	0
	RIGHT	135	204
		1,902	2,542

Intersection: Citrus Ave SR-210 WB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	302	SOUTH LEG	
	THRU	906	IN ...	1,302
	RIGHT	0	OUT ...	1,354
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	822	IN ...	1,269
	RIGHT	355	OUT ...	1,468
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	659
WEST BOUND	LEFT	421	EAST LEG	
	THRU	1	IN ...	912
	RIGHT	309	OUT ...	0
		3,116		6,964

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	302	273
	THRU	906	1,029
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	822	883
	RIGHT	355	385
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	421	471
	THRU	1	1
	RIGHT	309	439
		3,116	3,482

Intersection: Citrus Ave SR-210 WB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	323	SOUTH LEG	
	THRU	1,038	IN ...	1,532
	RIGHT	0	OUT ...	1,200
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	732	IN ...	1,318
	RIGHT	395	OUT ...	1,543
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	806
WEST BOUND	LEFT	341	EAST LEG	
	THRU	0	IN ...	699
	RIGHT	332	OUT ...	0
		3,161		7,098

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	323	346
	THRU	1,038	1,187
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	732	857
	RIGHT	395	460
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	341	343
	THRU	0	0
	RIGHT	332	356
		3,161	3,549

Intersection: Sierra Ave SR-210 WB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	792	IN ...	1,004
	RIGHT	0	OUT ...	1,710
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1079	IN ...	1,133
	RIGHT	0	OUT ...	1,379
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
WEST BOUND	LEFT	510	EAST LEG	
	THRU	0	IN ...	952
	RIGHT	291	OUT ...	0
		2,672		6,178

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	792	1,006
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	1,079	1,130
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	510	580
	THRU	0	0
	RIGHT	291	373
		2,672	3,089

Intersection: Sierra Ave SR-210 WB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,132	IN ...	1,228
	RIGHT	0	OUT ...	1,683
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1,172	IN ...	1,409
	RIGHT	0	OUT ...	1,647
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
WEST BOUND	LEFT	297	EAST LEG	
	THRU	0	IN ...	693
	RIGHT	400	OUT ...	0
		3,001		6,659

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,132	1,232
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	1,172	1,404
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	297	279
	THRU	0	0
	RIGHT	400	415
		3,001	3,330

Intersection: Cherry Ave SR-210 EB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	427	IN ...	847
	RIGHT	319	OUT ...	1,314
SOUTH BOUND	LEFT	160	NORTH LEG	
	THRU	805	IN ...	1,210
	RIGHT	0	OUT ...	786
EAST BOUND	LEFT	153	WEST LEG	
	THRU	5	IN ...	593
	RIGHT	296	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	551
		2,165		5,302

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	427	533
	RIGHT	319	316
SOUTH BOUND	LEFT	160	228
	THRU	805	981
	RIGHT	0	0
EAST BOUND	LEFT	153	253
	THRU	5	7
	RIGHT	296	333
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		2,165	2,651

Intersection: Cherry Ave SR-210 EB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	687	IN ...	1,170
	RIGHT	307	OUT ...	1,144
SOUTH BOUND	LEFT	72	NORTH LEG	
	THRU	673	IN ...	945
	RIGHT	0	OUT ...	1,142
EAST BOUND	LEFT	193	WEST LEG	
	THRU	2	IN ...	616
	RIGHT	359	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	445
		2,293		5,461

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	687	854
	RIGHT	307	321
SOUTH BOUND	LEFT	72	121
	THRU	673	819
	RIGHT	0	0
EAST BOUND	LEFT	193	288
	THRU	2	3
	RIGHT	359	325
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		2,293	2,730

Intersection: Citrus Ave SR-210 EB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	817	IN ...	1,294
	RIGHT	408	OUT ...	1,452
SOUTH BOUND	LEFT	302	NORTH LEG	
	THRU	931	IN ...	1,344
	RIGHT	0	OUT ...	1,322
EAST BOUND	LEFT	411	WEST LEG	
	THRU	3	IN ...	886
	RIGHT	402	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	750
		3,274		7,049

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	817	872
	RIGHT	408	422
SOUTH BOUND	LEFT	302	325
	THRU	931	1,019
	RIGHT	0	0
EAST BOUND	LEFT	411	449
	THRU	3	3
	RIGHT	402	433
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,274	3,524

Intersection: Citrus Ave SR-210 EB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,043	IN ...	1,423
	RIGHT	269	OUT ...	1,027
SOUTH BOUND	LEFT	204	NORTH LEG	
	THRU	682	IN ...	1,013
	RIGHT	0	OUT ...	1,710
EAST BOUND	LEFT	496	WEST LEG	
	THRU	3	IN ...	883
	RIGHT	344	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	581
		3,041		6,638

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,043	1,133
	RIGHT	269	291
SOUTH BOUND	LEFT	204	287
	THRU	682	725
	RIGHT	0	0
EAST BOUND	LEFT	496	578
	THRU	3	3
	RIGHT	344	302
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,041	3,319

Intersection: Sierra Ave SR-210 EB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	946	IN ...	1,841
	RIGHT	463	OUT ...	2,024
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1265	IN ...	1,533
	RIGHT	26	OUT ...	1,306
EAST BOUND	LEFT	160	WEST LEG	
	THRU	0	IN ...	881
	RIGHT	553	OUT ...	26
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	899
		3,413		8,511

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	946	1,007
	RIGHT	463	899
SOUTH BOUND	LEFT	0	0
	THRU	1,265	1,454
	RIGHT	26	26
EAST BOUND	LEFT	160	299
	THRU	0	0
	RIGHT	553	570
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,413	4,256

Intersection: Sierra Ave SR-210 EB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,417	IN ...	2,474
	RIGHT	643	OUT ...	1,832
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1,189	IN ...	1,581
	RIGHT	41	OUT ...	1,689
EAST BOUND	LEFT	193	WEST LEG	
	THRU	0	IN ...	710
	RIGHT	409	OUT ...	41
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1,202
		3,892		9,528

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,417	1,356
	RIGHT	643	1,202
SOUTH BOUND	LEFT	0	0
	THRU	1,189	1,465
	RIGHT	41	41
EAST BOUND	LEFT	193	333
	THRU	0	0
	RIGHT	409	368
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,892	4,764

Intersection: Beech Ave Highland Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	37	SOUTH LEG	
	THRU	570	IN ...	915
	RIGHT	67	OUT ...	899
SOUTH BOUND	LEFT	55	NORTH LEG	
	THRU	502	IN ...	790
	RIGHT	93	OUT ...	897
EAST BOUND	LEFT	117	WEST LEG	
	THRU	199	IN ...	465
	RIGHT	75	OUT ...	507
WEST BOUND	LEFT	90	EAST LEG	
	THRU	208	IN ...	530
	RIGHT	61	OUT ...	399
		2,074		5,402

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	37	74
	THRU	570	727
	RIGHT	67	109
SOUTH BOUND	LEFT	55	53
	THRU	502	632
	RIGHT	93	110
EAST BOUND	LEFT	117	110
	THRU	199	237
	RIGHT	75	118
WEST BOUND	LEFT	90	149
	THRU	208	323
	RIGHT	61	60
		2,074	2,701

Intersection: Beech Ave Highland Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	26	SOUTH LEG	
	THRU	384	IN ...	819
	RIGHT	87	OUT ...	803
SOUTH BOUND	LEFT	100	NORTH LEG	
	THRU	386	IN ...	651
	RIGHT	54	OUT ...	732
EAST BOUND	LEFT	65	WEST LEG	
	THRU	324	IN ...	649
	RIGHT	60	OUT ...	396
WEST BOUND	LEFT	68	EAST LEG	
	THRU	185	IN ...	480
	RIGHT	82	OUT ...	667
		1,821		5,197

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	26	66
	THRU	384	588
	RIGHT	87	161
SOUTH BOUND	LEFT	100	75
	THRU	386	524
	RIGHT	54	55
EAST BOUND	LEFT	65	72
	THRU	324	432
	RIGHT	60	146
WEST BOUND	LEFT	68	133
	THRU	185	275
	RIGHT	82	73
		1,821	2,599

Intersection: Citrus Ave Highland Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	75	SOUTH LEG	
	THRU	725	IN ...	939
	RIGHT	72	OUT ...	1,104
SOUTH BOUND	LEFT	337	NORTH LEG	
	THRU	942	IN ...	1,548
	RIGHT	150	OUT ...	1,255
EAST BOUND	LEFT	215	WEST LEG	
	THRU	192	IN ...	551
	RIGHT	53	OUT ...	606
WEST BOUND	LEFT	91	EAST LEG	
	THRU	197	IN ...	724
	RIGHT	246	OUT ...	796
		3,295		7,523

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	75	102
	THRU	725	737
	RIGHT	72	99
SOUTH BOUND	LEFT	337	428
	THRU	942	932
	RIGHT	150	189
EAST BOUND	LEFT	215	224
	THRU	192	269
	RIGHT	53	58
WEST BOUND	LEFT	91	114
	THRU	197	315
	RIGHT	246	294
		3,295	3,761

Intersection: Citrus Ave Highland Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	62	SOUTH LEG	
	THRU	750	IN ...	896
	RIGHT	75	OUT ...	869
SOUTH BOUND	LEFT	294	NORTH LEG	
	THRU	625	IN ...	1,026
	RIGHT	106	OUT ...	1,416
EAST BOUND	LEFT	192	WEST LEG	
	THRU	300	IN ...	805
	RIGHT	54	OUT ...	615
WEST BOUND	LEFT	124	EAST LEG	
	THRU	296	IN ...	1,053
	RIGHT	363	OUT ...	880
		3,241		7,559

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	62	73
	THRU	750	731
	RIGHT	75	92
SOUTH BOUND	LEFT	294	308
	THRU	625	611
	RIGHT	106	107
EAST BOUND	LEFT	192	245
	THRU	300	480
	RIGHT	54	81
WEST BOUND	LEFT	124	177
	THRU	296	435
	RIGHT	363	441
		3,241	3,779

Intersection: Sierra Ave Highland Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	160	SOUTH LEG	
	THRU	919	IN ...	1,491
	RIGHT	38	OUT ...	1,601
SOUTH BOUND	LEFT	219	NORTH LEG	
	THRU	1191	IN ...	2,019
	RIGHT	403	OUT ...	1,535
EAST BOUND	LEFT	291	WEST LEG	
	THRU	252	IN ...	912
	RIGHT	173	OUT ...	1,226
WEST BOUND	LEFT	16	EAST LEG	
	THRU	252	IN ...	591
	RIGHT	199	OUT ...	651
		4,113		10,026

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	160	339
	THRU	919	1,082
	RIGHT	38	67
SOUTH BOUND	LEFT	219	222
	THRU	1,191	1,309
	RIGHT	403	492
EAST BOUND	LEFT	291	280
	THRU	252	362
	RIGHT	173	270
WEST BOUND	LEFT	16	23
	THRU	252	395
	RIGHT	199	173
		4,113	5,012

Intersection: Sierra Ave Highland Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	59	SOUTH LEG	
	THRU	1,316	IN ...	1,767
	RIGHT	65	OUT ...	1,501
SOUTH BOUND	LEFT	357	NORTH LEG	
	THRU	973	IN ...	1,805
	RIGHT	241	OUT ...	2,294
EAST BOUND	LEFT	426	WEST LEG	
	THRU	251	IN ...	1,242
	RIGHT	51	OUT ...	837
WEST BOUND	LEFT	69	EAST LEG	
	THRU	171	IN ...	754
	RIGHT	354	OUT ...	936
		4,333		11,135

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	59	172
	THRU	1,316	1,468
	RIGHT	65	118
SOUTH BOUND	LEFT	357	292
	THRU	973	1,207
	RIGHT	241	318
EAST BOUND	LEFT	426	551
	THRU	251	526
	RIGHT	51	162
WEST BOUND	LEFT	69	132
	THRU	171	347
	RIGHT	354	275
		4,333	5,568

Intersection: Etiwanda Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	113	SOUTH LEG	
	THRU	268	IN ...	519
	RIGHT	102	OUT ...	747
SOUTH BOUND	LEFT	147	NORTH LEG	
	THRU	286	IN ...	726
	RIGHT	257	OUT ...	632
EAST BOUND	LEFT	107	WEST LEG	
	THRU	507	IN ...	863
	RIGHT	78	OUT ...	1,725
WEST BOUND	LEFT	172	EAST LEG	
	THRU	1112	IN ...	1,935
	RIGHT	236	OUT ...	939
		3,385		8,088

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	113	122
	THRU	268	264
	RIGHT	102	134
SOUTH BOUND	LEFT	147	157
	THRU	286	344
	RIGHT	257	226
EAST BOUND	LEFT	107	103
	THRU	507	649
	RIGHT	78	113
WEST BOUND	LEFT	172	291
	THRU	1,112	1,377
	RIGHT	236	266
		3,385	4,044

Intersection: Etiwanda Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	102	SOUTH LEG	
	THRU	163	IN ...	541
	RIGHT	206	OUT ...	452
SOUTH BOUND	LEFT	49	NORTH LEG	
	THRU	94	IN ...	236
	RIGHT	61	OUT ...	354
EAST BOUND	LEFT	74	WEST LEG	
	THRU	991	IN ...	1,560
	RIGHT	115	OUT ...	981
WEST BOUND	LEFT	128	EAST LEG	
	THRU	620	IN ...	1,012
	RIGHT	46	OUT ...	1,563
		2,649		6,699

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	102	122
	THRU	163	193
	RIGHT	206	226
SOUTH BOUND	LEFT	49	52
	THRU	94	113
	RIGHT	61	71
EAST BOUND	LEFT	74	104
	THRU	991	1,286
	RIGHT	115	170
WEST BOUND	LEFT	128	169
	THRU	620	787
	RIGHT	46	58
		2,649	3,350

Intersection: I-15 SB Ramps Baseline Rd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	(194)
SOUTH BOUND	LEFT	367	NORTH LEG	
	THRU	0	IN ...	1,355
	RIGHT	567	OUT ...	0
EAST BOUND	LEFT	0	WEST LEG	
	THRU	537	IN ...	972
	RIGHT	236	OUT ...	1,943
WEST BOUND	LEFT	0	EAST LEG	
	THRU	946	IN ...	617
	RIGHT	0	OUT ...	1,195
		2,653		5,888

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
SOUTH BOUND	LEFT	367	106
	THRU	0	0
	RIGHT	567	1,297
EAST BOUND	LEFT	0	0
	THRU	537	1,088
	RIGHT	236	(194)
WEST BOUND	LEFT	0	0
	THRU	946	646
	RIGHT	0	0
		2,653	2,944

Intersection: I-15 SB Ramps Baseline Rd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	(182)
SOUTH BOUND	LEFT	258	NORTH LEG	
	THRU	0	IN ...	615
	RIGHT	250	OUT ...	0
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1,047	IN ...	1,583
	RIGHT	169	OUT ...	1,032
WEST BOUND	LEFT	0	EAST LEG	
	THRU	558	IN ...	349
	RIGHT	0	OUT ...	1,698
		2,282		5,094

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
SOUTH BOUND	LEFT	258	55
	THRU	0	0
	RIGHT	250	633
EAST BOUND	LEFT	0	0
	THRU	1,047	1,642
	RIGHT	169	(182)
WEST BOUND	LEFT	0	0
	THRU	558	398
	RIGHT	0	0
		2,282	2,547

Intersection: I-15 NB Ramps Baseline Rd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	278	SOUTH LEG	
	THRU	2	IN ...	793
	RIGHT	306	OUT ...	0
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	602
EAST BOUND	LEFT	354	WEST LEG	
	THRU	565	IN ...	1,032
	RIGHT	0	OUT ...	2,318
WEST BOUND	LEFT	0	EAST LEG	
	THRU	1595	IN ...	2,174
	RIGHT	179	OUT ...	1,079
		3,279		7,996

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	278	363
	THRU	2	3
	RIGHT	306	427
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	354	381
	THRU	565	652
	RIGHT	0	0
WEST BOUND	LEFT	0	0
	THRU	1,595	1,954
	RIGHT	179	219
		3,279	3,998

Intersection: I-15 NB Ramps Baseline Rd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	276	SOUTH LEG	
	THRU	0	IN ...	1,298
	RIGHT	514	OUT ...	0
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	895
EAST BOUND	LEFT	439	WEST LEG	
	THRU	912	IN ...	1,700
	RIGHT	0	OUT ...	1,506
WEST BOUND	LEFT	0	EAST LEG	
	THRU	798	IN ...	1,330
	RIGHT	162	OUT ...	1,927
		3,101		8,656

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	276	445
	THRU	0	0
	RIGHT	514	853
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	439	627
	THRU	912	1,074
	RIGHT	0	0
WEST BOUND	LEFT	0	0
	THRU	798	1,061
	RIGHT	162	269
		3,101	4,328

Intersection: Cherry Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	63	SOUTH LEG	
	THRU	529	IN ...	962
	RIGHT	155	OUT ...	1,489
SOUTH BOUND	LEFT	69	NORTH LEG	
	THRU	828	IN ...	1,431
	RIGHT	410	OUT ...	970
EAST BOUND	LEFT	232	WEST LEG	
	THRU	502	IN ...	970
	RIGHT	139	OUT ...	2,125
WEST BOUND	LEFT	414	EAST LEG	
	THRU	1336	IN ...	1,997
	RIGHT	66	OUT ...	774
		4,743		10,718

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	63	107
	THRU	529	661
	RIGHT	155	187
SOUTH BOUND	LEFT	69	59
	THRU	828	885
	RIGHT	410	492
EAST BOUND	LEFT	232	253
	THRU	502	529
	RIGHT	139	183
WEST BOUND	LEFT	414	421
	THRU	1,336	1,527
	RIGHT	66	56
		4,743	5,359

Intersection: Cherry Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	154	SOUTH LEG	
	THRU	926	IN ...	1,534
	RIGHT	338	OUT ...	993
SOUTH BOUND	LEFT	107	NORTH LEG	
	THRU	435	IN ...	734
	RIGHT	86	OUT ...	1,415
EAST BOUND	LEFT	305	WEST LEG	
	THRU	1,060	IN ...	1,803
	RIGHT	81	OUT ...	1,033
WEST BOUND	LEFT	292	EAST LEG	
	THRU	590	IN ...	1,049
	RIGHT	61	OUT ...	1,680
		4,435		10,240

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	154	232
	THRU	926	971
	RIGHT	338	327
SOUTH BOUND	LEFT	107	90
	THRU	435	534
	RIGHT	86	113
EAST BOUND	LEFT	305	394
	THRU	1,060	1,263
	RIGHT	81	141
WEST BOUND	LEFT	292	318
	THRU	590	687
	RIGHT	61	49
		4,435	5,120

Intersection: Beech Baseline Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	65	SOUTH LEG	
	THRU	239	IN ...	552
	RIGHT	13	OUT ...	600
SOUTH BOUND	LEFT	94	NORTH LEG	
	THRU	239	IN ...	728
	RIGHT	197	OUT ...	686
EAST BOUND	LEFT	132	WEST LEG	
	THRU	419	IN ...	653
	RIGHT	37	OUT ...	971
WEST BOUND	LEFT	45	EAST LEG	
	THRU	589	IN ...	921
	RIGHT	82	OUT ...	597
		2,151		5,708

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	65	95
	THRU	239	432
	RIGHT	13	25
SOUTH BOUND	LEFT	94	114
	THRU	239	434
	RIGHT	197	180
EAST BOUND	LEFT	132	135
	THRU	419	458
	RIGHT	37	61
WEST BOUND	LEFT	45	105
	THRU	589	695
	RIGHT	82	120
		2,151	2,854

Intersection: Beech Baseline Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	94	SOUTH LEG	
	THRU	250	IN ...	775
	RIGHT	24	OUT ...	691
SOUTH BOUND	LEFT	131	NORTH LEG	
	THRU	191	IN ...	678
	RIGHT	90	OUT ...	892
EAST BOUND	LEFT	211	WEST LEG	
	THRU	979	IN ...	1,414
	RIGHT	73	OUT ...	830
WEST BOUND	LEFT	65	EAST LEG	
	THRU	552	IN ...	875
	RIGHT	121	OUT ...	1,328
		2,781		7,483

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	94	170
	THRU	250	542
	RIGHT	24	61
SOUTH BOUND	LEFT	131	179
	THRU	191	413
	RIGHT	90	87
EAST BOUND	LEFT	211	200
	THRU	979	1,088
	RIGHT	73	129
WEST BOUND	LEFT	65	150
	THRU	552	573
	RIGHT	121	150
		2,781	3,742

Intersection: Citrus Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	120	SOUTH LEG	
	THRU	571	IN ...	1,524
	RIGHT	733	OUT ...	1,081
SOUTH BOUND	LEFT	124	NORTH LEG	
	THRU	771	IN ...	1,203
	RIGHT	237	OUT ...	1,054
EAST BOUND	LEFT	274	WEST LEG	
	THRU	346	IN ...	816
	RIGHT	109	OUT ...	1,222
WEST BOUND	LEFT	156	EAST LEG	
	THRU	659	IN ...	1,072
	RIGHT	102	OUT ...	1,257
		4,202		9,228

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	120	144
	THRU	571	624
	RIGHT	733	754
SOUTH BOUND	LEFT	124	126
	THRU	771	796
	RIGHT	237	281
EAST BOUND	LEFT	274	317
	THRU	346	377
	RIGHT	109	121
WEST BOUND	LEFT	156	164
	THRU	659	796
	RIGHT	102	112
		4,202	4,614

Intersection: Citrus Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	95	SOUTH LEG	
	THRU	607	IN ...	863
	RIGHT	69	OUT ...	804
SOUTH BOUND	LEFT	127	NORTH LEG	
	THRU	443	IN ...	795
	RIGHT	106	OUT ...	1,049
EAST BOUND	LEFT	299	WEST LEG	
	THRU	720	IN ...	1,372
	RIGHT	115	OUT ...	903
WEST BOUND	LEFT	160	EAST LEG	
	THRU	526	IN ...	962
	RIGHT	58	OUT ...	1,237
		3,325		7,986

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	95	102
	THRU	607	665
	RIGHT	69	97
SOUTH BOUND	LEFT	127	188
	THRU	443	488
	RIGHT	106	120
EAST BOUND	LEFT	299	308
	THRU	720	953
	RIGHT	115	113
WEST BOUND	LEFT	160	202
	THRU	526	681
	RIGHT	58	77
		3,325	3,993

Intersection: Sierra Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	157	SOUTH LEG	
	THRU	629	IN ...	1,196
	RIGHT	56	OUT ...	1,492
SOUTH BOUND	LEFT	220	NORTH LEG	
	THRU	1054	IN ...	1,577
	RIGHT	104	OUT ...	1,245
EAST BOUND	LEFT	94	WEST LEG	
	THRU	405	IN ...	667
	RIGHT	109	OUT ...	932
WEST BOUND	LEFT	90	EAST LEG	
	THRU	492	IN ...	1,000
	RIGHT	139	OUT ...	772
		3,549		8,881

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	157	192
	THRU	629	923
	RIGHT	56	81
SOUTH BOUND	LEFT	220	250
	THRU	1,054	1,228
	RIGHT	104	100
EAST BOUND	LEFT	94	104
	THRU	405	441
	RIGHT	109	122
WEST BOUND	LEFT	90	141
	THRU	492	640
	RIGHT	139	218
		3,549	4,441

Intersection: Sierra Ave Baseline Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	104	SOUTH LEG	
	THRU	974	IN ...	1,516
	RIGHT	61	OUT ...	1,084
SOUTH BOUND	LEFT	226	NORTH LEG	
	THRU	510	IN ...	1,216
	RIGHT	55	OUT ...	1,662
EAST BOUND	LEFT	136	WEST LEG	
	THRU	597	IN ...	1,076
	RIGHT	90	OUT ...	1,014
WEST BOUND	LEFT	92	EAST LEG	
	THRU	640	IN ...	1,191
	RIGHT	235	OUT ...	1,239
		3,720		9,998

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	104	151
	THRU	974	1,259
	RIGHT	61	100
SOUTH BOUND	LEFT	226	335
	THRU	510	814
	RIGHT	55	72
EAST BOUND	LEFT	136	144
	THRU	597	804
	RIGHT	90	131
WEST BOUND	LEFT	92	139
	THRU	640	791
	RIGHT	235	258
		3,720	4,999

Intersection: Etiwanda Ave Church St/Miller Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	141	SOUTH LEG	
	THRU	239	IN ...	563
	RIGHT	145	OUT ...	723
SOUTH BOUND	LEFT	76	NORTH LEG	
	THRU	282	IN ...	670
	RIGHT	121	OUT ...	440
EAST BOUND	LEFT	87	WEST LEG	
	THRU	249	IN ...	486
	RIGHT	108	OUT ...	769
WEST BOUND	LEFT	94	EAST LEG	
	THRU	464	IN ...	683
	RIGHT	69	OUT ...	470
		2,075		4,804

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	141	149
	THRU	239	269
	RIGHT	145	145
SOUTH BOUND	LEFT	76	84
	THRU	282	444
	RIGHT	121	142
EAST BOUND	LEFT	87	95
	THRU	249	241
	RIGHT	108	149
WEST BOUND	LEFT	94	130
	THRU	464	478
	RIGHT	69	76
		2,075	2,402

Intersection: Etiwanda Ave Church St/Miller Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	133	SOUTH LEG	
	THRU	256	IN ...	603
	RIGHT	98	OUT ...	526
SOUTH BOUND	LEFT	23	NORTH LEG	
	THRU	224	IN ...	462
	RIGHT	93	OUT ...	491
EAST BOUND	LEFT	137	WEST LEG	
	THRU	439	IN ...	789
	RIGHT	167	OUT ...	509
WEST BOUND	LEFT	42	EAST LEG	
	THRU	256	IN ...	356
	RIGHT	30	OUT ...	685
		1,898		4,420

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	133	136
	THRU	256	321
	RIGHT	98	146
SOUTH BOUND	LEFT	23	39
	THRU	224	315
	RIGHT	93	108
EAST BOUND	LEFT	137	131
	THRU	439	500
	RIGHT	167	158
WEST BOUND	LEFT	42	53
	THRU	256	265
	RIGHT	30	38
		1,898	2,210

Intersection: I-15 SB Ramps Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	745
SOUTH BOUND	LEFT	150	NORTH LEG	
	THRU	0	IN ...	1,083
	RIGHT	849	OUT ...	647
EAST BOUND	LEFT	0	WEST LEG	
	THRU	520	IN ...	1,450
	RIGHT	798	OUT ...	2,692
WEST BOUND	LEFT	0	EAST LEG	
	THRU	1435	IN ...	2,412
	RIGHT	647	OUT ...	860
		4,399		9,888

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
SOUTH BOUND	LEFT	150	167
	THRU	0	0
	RIGHT	849	918
EAST BOUND	LEFT	0	0
	THRU	520	693
	RIGHT	798	745
WEST BOUND	LEFT	0	0
	THRU	1,435	1,774
	RIGHT	647	647
		4,399	4,944

Intersection: I-15 SB Ramps Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1,016
SOUTH BOUND	LEFT	167	NORTH LEG	
	THRU	0	IN ...	685
	RIGHT	536	OUT ...	461
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1,898	IN ...	3,178
	RIGHT	934	OUT ...	1,997
WEST BOUND	LEFT	0	EAST LEG	
	THRU	1,348	IN ...	1,936
	RIGHT	461	OUT ...	2,325
		5,344		11,598

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
SOUTH BOUND	LEFT	167	162
	THRU	0	0
	RIGHT	536	523
EAST BOUND	LEFT	0	0
	THRU	1,898	2,163
	RIGHT	934	1,016
WEST BOUND	LEFT	0	0
	THRU	1,348	1,474
	RIGHT	461	461
		5,344	5,799

Intersection: I-15 NB Ramps Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	873	SOUTH LEG	
	THRU	0	IN ...	1,427
	RIGHT	494	OUT ...	259
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	228
EAST BOUND	LEFT	0	WEST LEG	
	THRU	441	IN ...	906
	RIGHT	259	OUT ...	2,447
WEST BOUND	LEFT	0	EAST LEG	
	THRU	1219	IN ...	1,702
	RIGHT	197	OUT ...	1,100
		3,483		8,068

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	873	967
	THRU	0	0
	RIGHT	494	460
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	441	640
	RIGHT	259	259
WEST BOUND	LEFT	0	0
	THRU	1,219	1,480
	RIGHT	197	228
		3,483	4,034

Intersection: I-15 NB Ramps Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	731	SOUTH LEG	
	THRU	0	IN ...	1,141
	RIGHT	465	OUT ...	986
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	322
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1,092	IN ...	2,394
	RIGHT	986	OUT ...	2,044
WEST BOUND	LEFT	0	EAST LEG	
	THRU	1,114	IN ...	1,730
	RIGHT	292	OUT ...	1,912
		4,680		10,529

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	731	642
	THRU	0	0
	RIGHT	465	497
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	1,092	1,415
	RIGHT	986	986
WEST BOUND	LEFT	0	0
	THRU	1,114	1,401
	RIGHT	292	322
		4,680	5,264

Intersection: Etiwanda Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	153	SOUTH LEG	
	THRU	199	IN ...	484
	RIGHT	67	OUT ...	1,082
SOUTH BOUND	LEFT	50	NORTH LEG	
	THRU	341	IN ...	773
	RIGHT	230	OUT ...	444
EAST BOUND	LEFT	100	WEST LEG	
	THRU	448	IN ...	959
	RIGHT	210	OUT ...	1,890
WEST BOUND	LEFT	342	EAST LEG	
	THRU	1200	IN ...	1,892
	RIGHT	115	OUT ...	691
		3,455		8,215

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	153	195
	THRU	199	213
	RIGHT	67	76
SOUTH BOUND	LEFT	50	57
	THRU	341	419
	RIGHT	230	296
EAST BOUND	LEFT	100	118
	THRU	448	558
	RIGHT	210	282
WEST BOUND	LEFT	342	381
	THRU	1,200	1,399
	RIGHT	115	113
		3,455	4,107

Intersection: Etiwanda Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	260	SOUTH LEG	
	THRU	348	IN ...	978
	RIGHT	189	OUT ...	666
SOUTH BOUND	LEFT	62	NORTH LEG	
	THRU	209	IN ...	462
	RIGHT	155	OUT ...	682
EAST BOUND	LEFT	236	WEST LEG	
	THRU	931	IN ...	1,719
	RIGHT	176	OUT ...	1,508
WEST BOUND	LEFT	104	EAST LEG	
	THRU	748	IN ...	1,139
	RIGHT	47	OUT ...	1,443
		3,465		8,598

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	260	382
	THRU	348	372
	RIGHT	189	224
SOUTH BOUND	LEFT	62	54
	THRU	209	239
	RIGHT	155	169
EAST BOUND	LEFT	236	266
	THRU	931	1,164
	RIGHT	176	287
WEST BOUND	LEFT	104	140
	THRU	748	957
	RIGHT	47	44
		3,465	4,299

Intersection: Cherry Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	214	SOUTH LEG	
	THRU	404	IN ...	1,128
	RIGHT	115	OUT ...	1,387
SOUTH BOUND	LEFT	164	NORTH LEG	
	THRU	793	IN ...	1,233
	RIGHT	203	OUT ...	862
EAST BOUND	LEFT	183	WEST LEG	
	THRU	414	IN ...	869
	RIGHT	153	OUT ...	1,908
WEST BOUND	LEFT	284	EAST LEG	
	THRU	1138	IN ...	1,719
	RIGHT	98	OUT ...	791
		4,163		9,895

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	214	380
	THRU	404	575
	RIGHT	115	172
SOUTH BOUND	LEFT	164	151
	THRU	793	860
	RIGHT	203	222
EAST BOUND	LEFT	183	197
	THRU	414	468
	RIGHT	153	204
WEST BOUND	LEFT	284	323
	THRU	1,138	1,306
	RIGHT	98	90
		4,163	4,947

Intersection: Cherry Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	276	SOUTH LEG	
	THRU	828	IN ...	1,655
	RIGHT	230	OUT ...	1,291
SOUTH BOUND	LEFT	281	NORTH LEG	
	THRU	634	IN ...	1,265
	RIGHT	195	OUT ...	1,286
EAST BOUND	LEFT	247	WEST LEG	
	THRU	860	IN ...	1,662
	RIGHT	100	OUT ...	1,294
WEST BOUND	LEFT	135	EAST LEG	
	THRU	567	IN ...	925
	RIGHT	123	OUT ...	1,635
		4,476		11,013

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	276	461
	THRU	828	907
	RIGHT	230	285
SOUTH BOUND	LEFT	281	213
	THRU	634	855
	RIGHT	195	198
EAST BOUND	LEFT	247	288
	THRU	860	1,137
	RIGHT	100	236
WEST BOUND	LEFT	135	200
	THRU	567	635
	RIGHT	123	90
		4,476	5,506

Intersection: Beech Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	21	SOUTH LEG	
	THRU	0	IN ...	306
	RIGHT	102	OUT ...	405
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	368
	RIGHT	0	OUT ...	269
EAST BOUND	LEFT	0	WEST LEG	
	THRU	621	IN ...	766
	RIGHT	36	OUT ...	1,821
WEST BOUND	LEFT	198	EAST LEG	
	THRU	1526	IN ...	1,898
	RIGHT	0	OUT ...	843
		2,504		6,675

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	21	108
	THRU	0	0
	RIGHT	102	202
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	621	641
	RIGHT	36	123
WEST BOUND	LEFT	198	282
	THRU	1,526	1,713
	RIGHT	0	0
		2,504	3,068

Intersection: Beech Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	60	SOUTH LEG	
	THRU	0	IN ...	444
	RIGHT	118	OUT ...	421
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	394
	RIGHT	0	OUT ...	540
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1,326	IN ...	1,764
	RIGHT	54	OUT ...	958
WEST BOUND	LEFT	104	EAST LEG	
	THRU	760	IN ...	970
	RIGHT	0	OUT ...	1,652
		2,422		7,142

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	60	214
	THRU	0	0
	RIGHT	118	211
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	1,326	1,441
	RIGHT	54	226
WEST BOUND	LEFT	104	195
	THRU	760	744
	RIGHT	0	0
		2,422	3,031

Intersection: Citrus Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	143	SOUTH LEG	
	THRU	515	IN ...	853
	RIGHT	78	OUT ...	1,169
SOUTH BOUND	LEFT	132	NORTH LEG	
	THRU	724	IN ...	970
	RIGHT	162	OUT ...	820
EAST BOUND	LEFT	149	WEST LEG	
	THRU	428	IN ...	726
	RIGHT	114	OUT ...	1,271
WEST BOUND	LEFT	235	EAST LEG	
	THRU	797	IN ...	1,472
	RIGHT	78	OUT ...	762
		3,555		8,042

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	143	148
	THRU	515	586
	RIGHT	78	120
SOUTH BOUND	LEFT	132	151
	THRU	724	694
	RIGHT	162	125
EAST BOUND	LEFT	149	127
	THRU	428	491
	RIGHT	114	109
WEST BOUND	LEFT	235	365
	THRU	797	998
	RIGHT	78	107
		3,555	4,021

Intersection: Citrus Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	138	SOUTH LEG	
	THRU	673	IN ...	967
	RIGHT	87	OUT ...	1,167
SOUTH BOUND	LEFT	131	NORTH LEG	
	THRU	551	IN ...	801
	RIGHT	71	OUT ...	1,045
EAST BOUND	LEFT	256	WEST LEG	
	THRU	837	IN ...	1,459
	RIGHT	177	OUT ...	786
WEST BOUND	LEFT	287	EAST LEG	
	THRU	553	IN ...	1,212
	RIGHT	119	OUT ...	1,442
		3,880		8,880

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	138	122
	THRU	673	693
	RIGHT	87	152
SOUTH BOUND	LEFT	131	189
	THRU	551	560
	RIGHT	71	52
EAST BOUND	LEFT	256	198
	THRU	837	1,101
	RIGHT	177	164
WEST BOUND	LEFT	287	444
	THRU	553	612
	RIGHT	119	154
		3,880	4,440

Intersection: Sierra Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	79	SOUTH LEG	
	THRU	436	IN ...	988
	RIGHT	79	OUT ...	1,355
SOUTH BOUND	LEFT	192	NORTH LEG	
	THRU	814	IN ...	1,344
	RIGHT	126	OUT ...	1,121
EAST BOUND	LEFT	211	WEST LEG	
	THRU	375	IN ...	787
	RIGHT	100	OUT ...	1,072
WEST BOUND	LEFT	151	EAST LEG	
	THRU	611	IN ...	1,212
	RIGHT	125	OUT ...	784
		3,299		8,663

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	79	129
	THRU	436	722
	RIGHT	79	138
SOUTH BOUND	LEFT	192	216
	THRU	814	996
	RIGHT	126	132
EAST BOUND	LEFT	211	230
	THRU	375	431
	RIGHT	100	125
WEST BOUND	LEFT	151	233
	THRU	611	811
	RIGHT	125	169
		3,299	4,331

Intersection: Sierra Ave Foothill Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	103	SOUTH LEG	
	THRU	798	IN ...	1,486
	RIGHT	135	OUT ...	1,237
SOUTH BOUND	LEFT	153	NORTH LEG	
	THRU	488	IN ...	1,125
	RIGHT	119	OUT ...	1,496
EAST BOUND	LEFT	200	WEST LEG	
	THRU	689	IN ...	1,382
	RIGHT	134	OUT ...	932
WEST BOUND	LEFT	200	EAST LEG	
	THRU	501	IN ...	1,078
	RIGHT	162	OUT ...	1,408
		3,682		10,144

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	103	160
	THRU	798	1,095
	RIGHT	135	230
SOUTH BOUND	LEFT	153	220
	THRU	488	750
	RIGHT	119	156
EAST BOUND	LEFT	200	225
	THRU	689	958
	RIGHT	134	199
WEST BOUND	LEFT	200	287
	THRU	501	615
	RIGHT	162	176
		3,682	5,072

Intersection: Etiwanda Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	325	SOUTH LEG	
	THRU	161	IN ...	681
	RIGHT	36	OUT ...	1,005
SOUTH BOUND	LEFT	120	NORTH LEG	
	THRU	324	IN ...	1,047
	RIGHT	392	OUT ...	470
EAST BOUND	LEFT	93	WEST LEG	
	THRU	245	IN ...	587
	RIGHT	148	OUT ...	1,557
WEST BOUND	LEFT	141	EAST LEG	
	THRU	699	IN ...	1,239
	RIGHT	133	OUT ...	522
		2,817		7,108

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	325	398
	THRU	161	218
	RIGHT	36	65
SOUTH BOUND	LEFT	120	163
	THRU	324	519
	RIGHT	392	364
EAST BOUND	LEFT	93	84
	THRU	245	294
	RIGHT	148	209
WEST BOUND	LEFT	141	277
	THRU	699	795
	RIGHT	133	167
		2,817	3,554

Intersection: Etiwanda Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	163	SOUTH LEG	
	THRU	520	IN ...	1,207
	RIGHT	116	OUT ...	983
SOUTH BOUND	LEFT	127	NORTH LEG	
	THRU	235	IN ...	655
	RIGHT	114	OUT ...	1,220
EAST BOUND	LEFT	349	WEST LEG	
	THRU	622	IN ...	1,476
	RIGHT	387	OUT ...	738
WEST BOUND	LEFT	100	EAST LEG	
	THRU	360	IN ...	768
	RIGHT	144	OUT ...	1,167
		3,237		8,213

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	163	216
	THRU	520	751
	RIGHT	116	240
SOUTH BOUND	LEFT	127	192
	THRU	235	353
	RIGHT	114	111
EAST BOUND	LEFT	349	289
	THRU	622	735
	RIGHT	387	453
WEST BOUND	LEFT	100	177
	THRU	360	411
	RIGHT	144	180
		3,237	4,107

Intersection: Cherry Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	103	SOUTH LEG	
	THRU	671	IN ...	1,336
	RIGHT	122	OUT ...	1,494
SOUTH BOUND	LEFT	53	NORTH LEG	
	THRU	1008	IN ...	1,324
	RIGHT	95	OUT ...	1,201
EAST BOUND	LEFT	70	WEST LEG	
	THRU	390	IN ...	588
	RIGHT	93	OUT ...	997
WEST BOUND	LEFT	154	EAST LEG	
	THRU	601	IN ...	1,072
	RIGHT	59	OUT ...	627
		3,419		8,639

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	103	136
	THRU	671	1,033
	RIGHT	122	168
SOUTH BOUND	LEFT	53	57
	THRU	1,008	1,169
	RIGHT	95	97
EAST BOUND	LEFT	70	81
	THRU	390	403
	RIGHT	93	104
WEST BOUND	LEFT	154	221
	THRU	601	763
	RIGHT	59	87
		3,419	4,320

Intersection: Cherry Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	138	SOUTH LEG	
	THRU	1,069	IN ...	1,847
	RIGHT	219	OUT ...	1,429
SOUTH BOUND	LEFT	69	NORTH LEG	
	THRU	777	IN ...	1,377
	RIGHT	93	OUT ...	1,537
EAST BOUND	LEFT	84	WEST LEG	
	THRU	606	IN ...	976
	RIGHT	98	OUT ...	845
WEST BOUND	LEFT	116	EAST LEG	
	THRU	542	IN ...	780
	RIGHT	59	OUT ...	1,170
		3,870		9,961

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	138	162
	THRU	1,069	1,374
	RIGHT	219	310
SOUTH BOUND	LEFT	69	103
	THRU	777	1,160
	RIGHT	93	115
EAST BOUND	LEFT	84	95
	THRU	606	758
	RIGHT	98	123
WEST BOUND	LEFT	116	146
	THRU	542	567
	RIGHT	59	67
		3,870	4,981

Intersection: Beech Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	83	SOUTH LEG	
	THRU	127	IN ...	523
	RIGHT	114	OUT ...	512
SOUTH BOUND	LEFT	14	NORTH LEG	
	THRU	154	IN ...	423
	RIGHT	84	OUT ...	373
EAST BOUND	LEFT	41	WEST LEG	
	THRU	337	IN ...	500
	RIGHT	58	OUT ...	1,024
WEST BOUND	LEFT	140	EAST LEG	
	THRU	598	IN ...	1,015
	RIGHT	22	OUT ...	552
		1,772		4,922

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	83	107
	THRU	127	260
	RIGHT	114	156
SOUTH BOUND	LEFT	14	24
	THRU	154	260
	RIGHT	84	137
EAST BOUND	LEFT	41	68
	THRU	337	372
	RIGHT	58	62
WEST BOUND	LEFT	140	189
	THRU	598	780
	RIGHT	22	45
		1,772	2,461

Intersection: Beech Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	96	SOUTH LEG	
	THRU	151	IN ...	745
	RIGHT	218	OUT ...	628
SOUTH BOUND	LEFT	18	NORTH LEG	
	THRU	141	IN ...	444
	RIGHT	22	OUT ...	474
EAST BOUND	LEFT	31	WEST LEG	
	THRU	636	IN ...	1,021
	RIGHT	65	OUT ...	664
WEST BOUND	LEFT	90	EAST LEG	
	THRU	429	IN ...	696
	RIGHT	27	OUT ...	1,140
		1,924		5,814

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	96	124
	THRU	151	345
	RIGHT	218	276
SOUTH BOUND	LEFT	18	34
	THRU	141	368
	RIGHT	22	42
EAST BOUND	LEFT	31	73
	THRU	636	830
	RIGHT	65	117
WEST BOUND	LEFT	90	142
	THRU	429	498
	RIGHT	27	56
		1,924	2,906

Intersection: Citrus Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	208	SOUTH LEG	
	THRU	617	IN ...	1,199
	RIGHT	205	OUT ...	1,231
SOUTH BOUND	LEFT	96	NORTH LEG	
	THRU	791	IN ...	1,124
	RIGHT	141	OUT ...	964
EAST BOUND	LEFT	73	WEST LEG	
	THRU	255	IN ...	503
	RIGHT	105	OUT ...	1,043
WEST BOUND	LEFT	226	EAST LEG	
	THRU	437	IN ...	1,019
	RIGHT	131	OUT ...	606
		3,285		7,687

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	208	268
	THRU	617	714
	RIGHT	205	217
SOUTH BOUND	LEFT	96	99
	THRU	791	846
	RIGHT	141	178
EAST BOUND	LEFT	73	90
	THRU	255	289
	RIGHT	105	123
WEST BOUND	LEFT	226	262
	THRU	437	596
	RIGHT	131	160
		3,285	3,843

Intersection: Citrus Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	175	SOUTH LEG	
	THRU	861	IN ...	1,287
	RIGHT	169	OUT ...	1,182
SOUTH BOUND	LEFT	138	NORTH LEG	
	THRU	729	IN ...	1,035
	RIGHT	67	OUT ...	1,100
EAST BOUND	LEFT	78	WEST LEG	
	THRU	565	IN ...	1,127
	RIGHT	168	OUT ...	702
WEST BOUND	LEFT	144	EAST LEG	
	THRU	309	IN ...	633
	RIGHT	92	OUT ...	1,098
		3,495		8,163

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	175	222
	THRU	861	894
	RIGHT	169	171
SOUTH BOUND	LEFT	138	148
	THRU	729	797
	RIGHT	67	90
EAST BOUND	LEFT	78	111
	THRU	565	779
	RIGHT	168	237
WEST BOUND	LEFT	144	148
	THRU	309	390
	RIGHT	92	95
		3,495	4,082

Intersection: Sierra Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	87	SOUTH LEG	
	THRU	511	IN ...	988
	RIGHT	35	OUT ...	1,152
SOUTH BOUND	LEFT	58	NORTH LEG	
	THRU	717	IN ...	1,162
	RIGHT	69	OUT ...	1,003
EAST BOUND	LEFT	67	WEST LEG	
	THRU	402	IN ...	612
	RIGHT	82	OUT ...	750
WEST BOUND	LEFT	69	EAST LEG	
	THRU	527	IN ...	687
	RIGHT	55	OUT ...	546
		2,679		6,900

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	87	112
	THRU	511	837
	RIGHT	35	43
SOUTH BOUND	LEFT	58	76
	THRU	717	988
	RIGHT	69	94
EAST BOUND	LEFT	67	94
	THRU	402	427
	RIGHT	82	92
WEST BOUND	LEFT	69	72
	THRU	527	544
	RIGHT	55	72
		2,679	3,450

Intersection: Sierra Ave Arrow Route

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	85	SOUTH LEG	
	THRU	770	IN ...	1,303
	RIGHT	56	OUT ...	1,027
SOUTH BOUND	LEFT	108	NORTH LEG	
	THRU	507	IN ...	1,082
	RIGHT	77	OUT ...	1,374
EAST BOUND	LEFT	101	WEST LEG	
	THRU	475	IN ...	818
	RIGHT	89	OUT ...	595
WEST BOUND	LEFT	64	EAST LEG	
	THRU	311	IN ...	446
	RIGHT	53	OUT ...	652
		2,696		7,296

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	85	125
	THRU	770	1,135
	RIGHT	56	47
SOUTH BOUND	LEFT	108	114
	THRU	507	824
	RIGHT	77	141
EAST BOUND	LEFT	101	183
	THRU	475	491
	RIGHT	89	142
WEST BOUND	LEFT	64	60
	THRU	311	330
	RIGHT	53	56
		2,696	3,648

Intersection: Etiwanda Ave Whittram Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	418	IN ...	744
	RIGHT	151	OUT ...	1,181
SOUTH BOUND	LEFT	65	NORTH LEG	
	THRU	572	IN ...	1,029
	RIGHT	0	OUT ...	714
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
WEST BOUND	LEFT	234	EAST LEG	
	THRU	0	IN ...	382
	RIGHT	137	OUT ...	259
		1,577		4,310

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	418	572
	RIGHT	151	171
SOUTH BOUND	LEFT	65	89
	THRU	572	941
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	234	241
	THRU	0	0
	RIGHT	137	142
		1,577	2,155

Intersection: Etiwanda Ave Whittram Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	664	IN ...	1,309
	RIGHT	283	OUT ...	973
SOUTH BOUND	LEFT	196	NORTH LEG	
	THRU	515	IN ...	972
	RIGHT	0	OUT ...	1,160
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
WEST BOUND	LEFT	201	EAST LEG	
	THRU	0	IN ...	312
	RIGHT	88	OUT ...	460
		1,947		5,186

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	664	1,053
	RIGHT	283	258
SOUTH BOUND	LEFT	196	201
	THRU	515	769
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	201	205
	THRU	0	0
	RIGHT	88	107
		1,947	2,593

Intersection: Cherry Ave Whittram Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	186	SOUTH LEG	
	THRU	806	IN ...	1,632
	RIGHT	132	OUT ...	1,643
SOUTH BOUND	LEFT	35	NORTH LEG	
	THRU	1068	IN ...	1,431
	RIGHT	89	OUT ...	1,344
EAST BOUND	LEFT	30	WEST LEG	
	THRU	30	IN ...	266
	RIGHT	200	OUT ...	478
WEST BOUND	LEFT	150	EAST LEG	
	THRU	136	IN ...	336
	RIGHT	68	OUT ...	202
		2,930		7,332

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	186	251
	THRU	806	1,239
	RIGHT	132	145
SOUTH BOUND	LEFT	35	33
	THRU	1,068	1,293
	RIGHT	89	103
EAST BOUND	LEFT	30	34
	THRU	30	24
	RIGHT	200	208
WEST BOUND	LEFT	150	142
	THRU	136	124
	RIGHT	68	70
		2,930	3,666

Intersection: Cherry Ave Whittram Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	143	SOUTH LEG	
	THRU	1,366	IN ...	2,024
	RIGHT	112	OUT ...	1,622
SOUTH BOUND	LEFT	38	NORTH LEG	
	THRU	688	IN ...	1,220
	RIGHT	56	OUT ...	1,947
EAST BOUND	LEFT	87	WEST LEG	
	THRU	141	IN ...	599
	RIGHT	294	OUT ...	276
WEST BOUND	LEFT	122	EAST LEG	
	THRU	67	IN ...	259
	RIGHT	73	OUT ...	255
		3,187		8,203

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	143	152
	THRU	1,366	1,769
	RIGHT	112	100
SOUTH BOUND	LEFT	38	39
	THRU	688	1,113
	RIGHT	56	69
EAST BOUND	LEFT	87	105
	THRU	141	117
	RIGHT	294	379
WEST BOUND	LEFT	122	131
	THRU	67	55
	RIGHT	73	73
		3,187	4,101

Intersection: Beech Ave Whittram Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	134	SOUTH LEG	
	THRU	290	IN ...	633
	RIGHT	7	OUT ...	487
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	261	IN ...	532
	RIGHT	111	OUT ...	547
EAST BOUND	LEFT	57	WEST LEG	
	THRU	5	IN ...	129
	RIGHT	66	OUT ...	251
WEST BOUND	LEFT	0	EAST LEG	
	THRU	3	IN ...	4
	RIGHT	1	OUT ...	12
		935		2,595

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	134	138
	THRU	290	487
	RIGHT	7	8
SOUTH BOUND	LEFT	0	0
	THRU	261	421
	RIGHT	111	111
EAST BOUND	LEFT	57	58
	THRU	5	4
	RIGHT	66	67
WEST BOUND	LEFT	0	0
	THRU	3	3
	RIGHT	1	1
		935	1,297

Intersection: Beech Ave Whittram Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	88	SOUTH LEG	
	THRU	400	IN ...	771
	RIGHT	2	OUT ...	816
SOUTH BOUND	LEFT	1	NORTH LEG	
	THRU	314	IN ...	686
	RIGHT	39	OUT ...	763
EAST BOUND	LEFT	80	WEST LEG	
	THRU	3	IN ...	247
	RIGHT	165	OUT ...	134
WEST BOUND	LEFT	6	EAST LEG	
	THRU	6	IN ...	15
	RIGHT	3	OUT ...	6
		1,107		3,438

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	88	85
	THRU	400	681
	RIGHT	2	2
SOUTH BOUND	LEFT	1	1
	THRU	314	642
	RIGHT	39	44
EAST BOUND	LEFT	80	78
	THRU	3	2
	RIGHT	165	167
WEST BOUND	LEFT	6	7
	THRU	6	4
	RIGHT	3	4
		1,107	1,719

Intersection: Etiwanda Ave Napa St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	1	SOUTH LEG	
	THRU	551	IN ...	1,053
	RIGHT	201	OUT ...	1,248
SOUTH BOUND	LEFT	49	NORTH LEG	
	THRU	753	IN ...	1,122
	RIGHT	1	OUT ...	891
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	2
	RIGHT	2	OUT ...	2
WEST BOUND	LEFT	174	EAST LEG	
	THRU	0	IN ...	214
	RIGHT	40	OUT ...	250
		1,772		4,782

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	1	1
	THRU	551	849
	RIGHT	201	202
SOUTH BOUND	LEFT	49	48
	THRU	753	1,074
	RIGHT	1	1
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	2	2
WEST BOUND	LEFT	174	172
	THRU	0	0
	RIGHT	40	42
		1,772	2,391

Intersection: Etiwanda Ave Napa St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	907	IN ...	1,273
	RIGHT	60	OUT ...	1,163
SOUTH BOUND	LEFT	95	NORTH LEG	
	THRU	571	IN ...	1,037
	RIGHT	0	OUT ...	1,267
EAST BOUND	LEFT	5	WEST LEG	
	THRU	0	IN ...	35
	RIGHT	30	OUT ...	0
WEST BOUND	LEFT	191	EAST LEG	
	THRU	0	IN ...	240
	RIGHT	49	OUT ...	155
		1,908		5,171

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	907	1,216
	RIGHT	60	55
SOUTH BOUND	LEFT	95	100
	THRU	571	939
	RIGHT	0	0
EAST BOUND	LEFT	5	5
	THRU	0	0
	RIGHT	30	30
WEST BOUND	LEFT	191	194
	THRU	0	0
	RIGHT	49	47
		1,908	2,585

Intersection: Cherry Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	3	SOUTH LEG	
	THRU	813	IN ...	1,244
	RIGHT	117	OUT ...	1,581
SOUTH BOUND	LEFT	130	NORTH LEG	
	THRU	1237	IN ...	1,592
	RIGHT	0	OUT ...	1,574
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	3
WEST BOUND	LEFT	145	EAST LEG	
	THRU	0	IN ...	569
	RIGHT	253	OUT ...	246
		2,698		6,810

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	3	3
	THRU	813	1,155
	RIGHT	117	102
SOUTH BOUND	LEFT	130	144
	THRU	1,237	1,428
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	145	153
	THRU	0	0
	RIGHT	253	419
		2,698	3,405

Intersection: Cherry Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	1	SOUTH LEG	
	THRU	1,458	IN ...	2,012
	RIGHT	200	OUT ...	1,256
SOUTH BOUND	LEFT	199	NORTH LEG	
	THRU	841	IN ...	1,559
	RIGHT	1	OUT ...	2,067
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1	IN ...	1
	RIGHT	0	OUT ...	2
WEST BOUND	LEFT	107	EAST LEG	
	THRU	0	IN ...	344
	RIGHT	206	OUT ...	592
		3,014		7,833

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	1	1
	THRU	1,458	1,809
	RIGHT	200	219
SOUTH BOUND	LEFT	199	372
	THRU	841	1,168
	RIGHT	1	1
EAST BOUND	LEFT	0	0
	THRU	1	1
	RIGHT	0	0
WEST BOUND	LEFT	107	88
	THRU	0	0
	RIGHT	206	258
		3,014	3,917

Intersection: Beech Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	51	SOUTH LEG	
	THRU	162	IN ...	383
	RIGHT	58	OUT ...	403
SOUTH BOUND	LEFT	56	NORTH LEG	
	THRU	145	IN ...	437
	RIGHT	76	OUT ...	620
EAST BOUND	LEFT	103	WEST LEG	
	THRU	129	IN ...	364
	RIGHT	56	OUT ...	506
WEST BOUND	LEFT	67	EAST LEG	
	THRU	230	IN ...	593
	RIGHT	153	OUT ...	248
		1,286		3,555

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	51	75
	THRU	162	251
	RIGHT	58	57
SOUTH BOUND	LEFT	56	65
	THRU	145	241
	RIGHT	76	132
EAST BOUND	LEFT	103	159
	THRU	129	126
	RIGHT	56	79
WEST BOUND	LEFT	67	84
	THRU	230	299
	RIGHT	153	210
		1,286	1,777

Intersection: Beech Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	30	SOUTH LEG	
	THRU	215	IN ...	474
	RIGHT	48	OUT ...	430
SOUTH BOUND	LEFT	118	NORTH LEG	
	THRU	172	IN ...	661
	RIGHT	40	OUT ...	754
EAST BOUND	LEFT	129	WEST LEG	
	THRU	224	IN ...	614
	RIGHT	33	OUT ...	320
WEST BOUND	LEFT	32	EAST LEG	
	THRU	148	IN ...	370
	RIGHT	129	OUT ...	615
		1,318		4,239

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	30	49
	THRU	215	360
	RIGHT	48	65
SOUTH BOUND	LEFT	118	223
	THRU	172	346
	RIGHT	40	92
EAST BOUND	LEFT	129	235
	THRU	224	328
	RIGHT	33	51
WEST BOUND	LEFT	32	34
	THRU	148	178
	RIGHT	129	159
		1,318	2,119

Intersection: Citrus Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	51	SOUTH LEG	
	THRU	676	IN ...	943
	RIGHT	27	OUT ...	1,182
SOUTH BOUND	LEFT	61	NORTH LEG	
	THRU	902	IN ...	1,255
	RIGHT	92	OUT ...	1,096
EAST BOUND	LEFT	147	WEST LEG	
	THRU	156	IN ...	355
	RIGHT	48	OUT ...	456
WEST BOUND	LEFT	43	EAST LEG	
	THRU	206	IN ...	429
	RIGHT	103	OUT ...	248
		2,512		5,965

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	51	74
	THRU	676	835
	RIGHT	27	32
SOUTH BOUND	LEFT	61	64
	THRU	902	1,077
	RIGHT	92	117
EAST BOUND	LEFT	147	149
	THRU	156	153
	RIGHT	48	54
WEST BOUND	LEFT	43	52
	THRU	206	265
	RIGHT	103	113
		2,512	2,983

Intersection: Citrus Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	45	SOUTH LEG	
	THRU	922	IN ...	1,166
	RIGHT	34	OUT ...	1,014
SOUTH BOUND	LEFT	78	NORTH LEG	
	THRU	735	IN ...	1,075
	RIGHT	100	OUT ...	1,318
EAST BOUND	LEFT	139	WEST LEG	
	THRU	250	IN ...	552
	RIGHT	53	OUT ...	392
WEST BOUND	LEFT	29	EAST LEG	
	THRU	195	IN ...	398
	RIGHT	136	OUT ...	467
		2,716		6,382

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	45	62
	THRU	922	1,046
	RIGHT	34	50
SOUTH BOUND	LEFT	78	85
	THRU	735	896
	RIGHT	100	103
EAST BOUND	LEFT	139	142
	THRU	250	331
	RIGHT	53	78
WEST BOUND	LEFT	29	40
	THRU	195	227
	RIGHT	136	130
		2,716	3,191

Intersection: Sierra Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	57	SOUTH LEG	
	THRU	568	IN ...	915
	RIGHT	91	OUT ...	1,314
SOUTH BOUND	LEFT	33	NORTH LEG	
	THRU	877	IN ...	1,271
	RIGHT	42	OUT ...	922
EAST BOUND	LEFT	50	WEST LEG	
	THRU	340	IN ...	453
	RIGHT	93	OUT ...	443
WEST BOUND	LEFT	134	EAST LEG	
	THRU	370	IN ...	488
	RIGHT	43	OUT ...	447
		2,698		6,255

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	57	52
	THRU	568	794
	RIGHT	91	84
SOUTH BOUND	LEFT	33	51
	THRU	877	1,141
	RIGHT	42	64
EAST BOUND	LEFT	50	70
	THRU	340	313
	RIGHT	93	72
WEST BOUND	LEFT	134	101
	THRU	370	328
	RIGHT	43	58
		2,698	3,127

Intersection: Sierra Ave Merrill Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	113	SOUTH LEG	
	THRU	833	IN ...	1,433
	RIGHT	164	OUT ...	1,109
SOUTH BOUND	LEFT	64	NORTH LEG	
	THRU	696	IN ...	1,122
	RIGHT	56	OUT ...	1,376
EAST BOUND	LEFT	75	WEST LEG	
	THRU	453	IN ...	637
	RIGHT	101	OUT ...	447
WEST BOUND	LEFT	111	EAST LEG	
	THRU	270	IN ...	369
	RIGHT	46	OUT ...	629
		2,982		7,124

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	113	118
	THRU	833	1,197
	RIGHT	164	131
SOUTH BOUND	LEFT	64	82
	THRU	696	935
	RIGHT	56	94
EAST BOUND	LEFT	75	124
	THRU	453	416
	RIGHT	101	97
WEST BOUND	LEFT	111	77
	THRU	270	236
	RIGHT	46	55
		2,982	3,562

Intersection: Citrus Ave Fontana Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	20	SOUTH LEG	
	THRU	645	IN ...	812
	RIGHT	75	OUT ...	899
SOUTH BOUND	LEFT	23	NORTH LEG	
	THRU	871	IN ...	1,205
	RIGHT	122	OUT ...	968
EAST BOUND	LEFT	103	WEST LEG	
	THRU	90	IN ...	414
	RIGHT	11	OUT ...	629
WEST BOUND	LEFT	74	EAST LEG	
	THRU	78	IN ...	327
	RIGHT	31	OUT ...	262
		2,143		5,515

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	20	47
	THRU	645	698
	RIGHT	75	68
SOUTH BOUND	LEFT	23	26
	THRU	871	816
	RIGHT	122	361
EAST BOUND	LEFT	103	230
	THRU	90	168
	RIGHT	11	17
WEST BOUND	LEFT	74	66
	THRU	78	220
	RIGHT	31	40
		2,143	2,758

Intersection: Citrus Ave Fontana Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	18	SOUTH LEG	
	THRU	868	IN ...	895
	RIGHT	69	OUT ...	728
SOUTH BOUND	LEFT	34	NORTH LEG	
	THRU	681	IN ...	1,018
	RIGHT	106	OUT ...	1,189
EAST BOUND	LEFT	136	WEST LEG	
	THRU	178	IN ...	737
	RIGHT	9	OUT ...	517
WEST BOUND	LEFT	42	EAST LEG	
	THRU	83	IN ...	246
	RIGHT	20	OUT ...	463
		2,244		5,793

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	18	32
	THRU	868	813
	RIGHT	69	52
SOUTH BOUND	LEFT	34	41
	THRU	681	678
	RIGHT	106	297
EAST BOUND	LEFT	136	352
	THRU	178	370
	RIGHT	9	16
WEST BOUND	LEFT	42	34
	THRU	83	188
	RIGHT	20	24
		2,244	2,897

Intersection: Cherry Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	10	SOUTH LEG	
	THRU	838	IN ...	1,242
	RIGHT	104	OUT ...	1,633
SOUTH BOUND	LEFT	156	NORTH LEG	
	THRU	1207	IN ...	1,573
	RIGHT	9	OUT ...	1,275
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1	IN ...	(1)
	RIGHT	0	OUT ...	38
WEST BOUND	LEFT	214	EAST LEG	
	THRU	0	IN ...	400
	RIGHT	109	OUT ...	269
		2,648		6,429

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	10	20
	THRU	838	1,123
	RIGHT	104	106
SOUTH BOUND	LEFT	156	164
	THRU	1,207	1,385
	RIGHT	9	18
EAST BOUND	LEFT	0	0
	THRU	1	(1)
	RIGHT	0	0
WEST BOUND	LEFT	214	248
	THRU	0	0
	RIGHT	109	152
		2,648	3,215

Intersection: Cherry Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	16	SOUTH LEG	
	THRU	1,461	IN ...	1,994
	RIGHT	163	OUT ...	1,306
SOUTH BOUND	LEFT	160	NORTH LEG	
	THRU	882	IN ...	1,371
	RIGHT	2	OUT ...	1,987
EAST BOUND	LEFT	5	WEST LEG	
	THRU	2	IN ...	18
	RIGHT	5	OUT ...	19
WEST BOUND	LEFT	165	EAST LEG	
	THRU	0	IN ...	314
	RIGHT	124	OUT ...	385
		2,985		7,394

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	16	17
	THRU	1,461	1,824
	RIGHT	163	166
SOUTH BOUND	LEFT	160	217
	THRU	882	1,140
	RIGHT	2	3
EAST BOUND	LEFT	5	8
	THRU	2	3
	RIGHT	5	6
WEST BOUND	LEFT	165	159
	THRU	0	0
	RIGHT	124	154
		2,985	3,697

Intersection: Beech Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	17	SOUTH LEG	
	THRU	193	IN ...	378
	RIGHT	42	OUT ...	375
SOUTH BOUND	LEFT	6	NORTH LEG	
	THRU	194	IN ...	417
	RIGHT	82	OUT ...	399
EAST BOUND	LEFT	55	WEST LEG	
	THRU	115	IN ...	222
	RIGHT	18	OUT ...	351
WEST BOUND	LEFT	31	EAST LEG	
	THRU	173	IN ...	301
	RIGHT	39	OUT ...	192
		965		2,635

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	17	28
	THRU	193	290
	RIGHT	42	58
SOUTH BOUND	LEFT	6	7
	THRU	194	302
	RIGHT	82	110
EAST BOUND	LEFT	55	66
	THRU	115	128
	RIGHT	18	28
WEST BOUND	LEFT	31	44
	THRU	173	213
	RIGHT	39	44
		965	1,317

Intersection: Beech Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	15	SOUTH LEG	
	THRU	213	IN ...	434
	RIGHT	12	OUT ...	403
SOUTH BOUND	LEFT	34	NORTH LEG	
	THRU	162	IN ...	420
	RIGHT	31	OUT ...	498
EAST BOUND	LEFT	62	WEST LEG	
	THRU	171	IN ...	361
	RIGHT	22	OUT ...	215
WEST BOUND	LEFT	10	EAST LEG	
	THRU	113	IN ...	205
	RIGHT	42	OUT ...	306
		887		2,842

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	15	31
	THRU	213	376
	RIGHT	12	24
SOUTH BOUND	LEFT	34	45
	THRU	162	336
	RIGHT	31	43
EAST BOUND	LEFT	62	77
	THRU	171	237
	RIGHT	22	48
WEST BOUND	LEFT	10	19
	THRU	113	141
	RIGHT	42	45
		887	1,421

Intersection: Fontana Ave/Cata Randall Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	43	SOUTH LEG	
	THRU	60	IN ...	396
	RIGHT	69	OUT ...	632
SOUTH BOUND	LEFT	41	NORTH LEG	
	THRU	86	IN ...	543
	RIGHT	14	OUT ...	282
EAST BOUND	LEFT	6	WEST LEG	
	THRU	95	IN ...	179
	RIGHT	57	OUT ...	210
WEST BOUND	LEFT	55	EAST LEG	
	THRU	146	IN ...	230
	RIGHT	14	OUT ...	224
		686		2,696

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	43	67
	THRU	60	242
	RIGHT	69	86
SOUTH BOUND	LEFT	41	75
	THRU	86	436
	RIGHT	14	32
EAST BOUND	LEFT	6	13
	THRU	95	63
	RIGHT	57	104
WEST BOUND	LEFT	55	92
	THRU	146	111
	RIGHT	14	27
		686	1,348

Intersection: Fontana Ave/Cata Randall Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	33	SOUTH LEG	
	THRU	51	IN ...	594
	RIGHT	48	OUT ...	437
SOUTH BOUND	LEFT	12	NORTH LEG	
	THRU	42	IN ...	378
	RIGHT	7	OUT ...	474
EAST BOUND	LEFT	2	WEST LEG	
	THRU	143	IN ...	178
	RIGHT	22	OUT ...	186
WEST BOUND	LEFT	39	EAST LEG	
	THRU	142	IN ...	190
	RIGHT	7	OUT ...	242
		548		2,679

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	33	65
	THRU	51	444
	RIGHT	48	87
SOUTH BOUND	LEFT	12	34
	THRU	42	320
	RIGHT	7	22
EAST BOUND	LEFT	2	8
	THRU	143	120
	RIGHT	22	49
WEST BOUND	LEFT	39	68
	THRU	142	100
	RIGHT	7	22
		548	1,340

Intersection: Citrus Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	113	SOUTH LEG	
	THRU	591	IN ...	931
	RIGHT	196	OUT ...	1,043
SOUTH BOUND	LEFT	103	NORTH LEG	
	THRU	849	IN ...	945
	RIGHT	50	OUT ...	810
EAST BOUND	LEFT	80	WEST LEG	
	THRU	110	IN ...	344
	RIGHT	135	OUT ...	286
WEST BOUND	LEFT	123	EAST LEG	
	THRU	108	IN ...	368
	RIGHT	67	OUT ...	449
		2,525		5,176

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	113	104
	THRU	591	623
	RIGHT	196	206
SOUTH BOUND	LEFT	103	117
	THRU	849	778
	RIGHT	50	50
EAST BOUND	LEFT	80	92
	THRU	110	126
	RIGHT	135	125
WEST BOUND	LEFT	123	140
	THRU	108	133
	RIGHT	67	95
		2,525	2,588

Intersection: Citrus Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	50	SOUTH LEG	
	THRU	874	IN ...	1,005
	RIGHT	82	OUT ...	697
SOUTH BOUND	LEFT	66	NORTH LEG	
	THRU	634	IN ...	709
	RIGHT	13	OUT ...	897
EAST BOUND	LEFT	20	WEST LEG	
	THRU	165	IN ...	263
	RIGHT	39	OUT ...	213
WEST BOUND	LEFT	57	EAST LEG	
	THRU	148	IN ...	271
	RIGHT	63	OUT ...	441
		2,211		4,496

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	50	50
	THRU	874	822
	RIGHT	82	130
SOUTH BOUND	LEFT	66	96
	THRU	634	603
	RIGHT	13	12
EAST BOUND	LEFT	20	15
	THRU	165	215
	RIGHT	39	33
WEST BOUND	LEFT	57	60
	THRU	148	150
	RIGHT	63	60
		2,211	2,248

Intersection: Sierra Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	31	SOUTH LEG	
	THRU	725	IN ...	970
	RIGHT	49	OUT ...	1,574
SOUTH BOUND	LEFT	22	NORTH LEG	
	THRU	1043	IN ...	1,344
	RIGHT	36	OUT ...	1,016
EAST BOUND	LEFT	57	WEST LEG	
	THRU	200	IN ...	415
	RIGHT	93	OUT ...	322
WEST BOUND	LEFT	134	EAST LEG	
	THRU	203	IN ...	522
	RIGHT	50	OUT ...	341
		2,643		6,504

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	31	31
	THRU	725	876
	RIGHT	49	64
SOUTH BOUND	LEFT	22	30
	THRU	1,043	1,276
	RIGHT	36	38
EAST BOUND	LEFT	57	65
	THRU	200	247
	RIGHT	93	104
WEST BOUND	LEFT	134	195
	THRU	203	253
	RIGHT	50	75
		2,643	3,252

Intersection: Sierra Ave Randall Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	68	SOUTH LEG	
	THRU	1,025	IN ...	1,578
	RIGHT	112	OUT ...	1,131
SOUTH BOUND	LEFT	64	NORTH LEG	
	THRU	785	IN ...	1,116
	RIGHT	62	OUT ...	1,512
EAST BOUND	LEFT	76	WEST LEG	
	THRU	231	IN ...	436
	RIGHT	66	OUT ...	339
WEST BOUND	LEFT	117	EAST LEG	
	THRU	164	IN ...	453
	RIGHT	58	OUT ...	601
		2,828		7,166

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	68	67
	THRU	1,025	1,336
	RIGHT	112	182
SOUTH BOUND	LEFT	64	118
	THRU	785	923
	RIGHT	62	69
EAST BOUND	LEFT	76	80
	THRU	231	302
	RIGHT	66	55
WEST BOUND	LEFT	117	153
	THRU	164	203
	RIGHT	58	96
		2,828	3,583

Intersection: I-15 SB Ramps/O Fourth St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	86	SOUTH LEG	
	THRU	48	IN ...	223
	RIGHT	77	OUT ...	455
SOUTH BOUND	LEFT	136	NORTH LEG	
	THRU	246	IN ...	1,362
	RIGHT	885	OUT ...	724
EAST BOUND	LEFT	267	WEST LEG	
	THRU	400	IN ...	839
	RIGHT	59	OUT ...	2,422
WEST BOUND	LEFT	134	EAST LEG	
	THRU	1190	IN ...	1,874
	RIGHT	220	OUT ...	698
		3,748		8,598

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	86	81
	THRU	48	58
	RIGHT	77	83
SOUTH BOUND	LEFT	136	166
	THRU	246	250
	RIGHT	885	946
EAST BOUND	LEFT	267	336
	THRU	400	449
	RIGHT	59	55
WEST BOUND	LEFT	134	149
	THRU	1,190	1,395
	RIGHT	220	330
		3,748	4,299

Intersection: I-15 SB Ramps/O Fourth St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	119	SOUTH LEG	
	THRU	208	IN ...	755
	RIGHT	360	OUT ...	544
SOUTH BOUND	LEFT	107	NORTH LEG	
	THRU	282	IN ...	933
	RIGHT	534	OUT ...	1,370
EAST BOUND	LEFT	817	WEST LEG	
	THRU	1,020	IN ...	2,193
	RIGHT	94	OUT ...	1,235
WEST BOUND	LEFT	152	EAST LEG	
	THRU	605	IN ...	1,096
	RIGHT	306	OUT ...	1,826
		4,604		9,952

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	119	113
	THRU	208	208
	RIGHT	360	434
SOUTH BOUND	LEFT	107	131
	THRU	282	286
	RIGHT	534	514
EAST BOUND	LEFT	817	837
	THRU	1,020	1,261
	RIGHT	94	96
WEST BOUND	LEFT	152	161
	THRU	605	608
	RIGHT	306	325
		4,604	4,976

Intersection: I-15 NB Ramps Fourth St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	44	SOUTH LEG	
	THRU	25	IN ...	103
	RIGHT	34	OUT ...	104
SOUTH BOUND	LEFT	338	NORTH LEG	
	THRU	49	IN ...	1,380
	RIGHT	955	OUT ...	395
EAST BOUND	LEFT	255	WEST LEG	
	THRU	331	IN ...	696
	RIGHT	25	OUT ...	1,881
WEST BOUND	LEFT	30	EAST LEG	
	THRU	552	IN ...	940
	RIGHT	95	OUT ...	739
		2,733		6,239

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	44	49
	THRU	25	21
	RIGHT	34	32
SOUTH BOUND	LEFT	338	309
	THRU	49	42
	RIGHT	955	1,030
EAST BOUND	LEFT	255	271
	THRU	331	397
	RIGHT	25	28
WEST BOUND	LEFT	30	34
	THRU	552	802
	RIGHT	95	104
		2,733	3,120

Intersection: I-15 NB Ramps Fourth St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	74	SOUTH LEG	
	THRU	48	IN ...	165
	RIGHT	43	OUT ...	142
SOUTH BOUND	LEFT	114	NORTH LEG	
	THRU	42	IN ...	526
	RIGHT	359	OUT ...	963
EAST BOUND	LEFT	674	WEST LEG	
	THRU	752	IN ...	1,828
	RIGHT	63	OUT ...	1,097
WEST BOUND	LEFT	37	EAST LEG	
	THRU	631	IN ...	893
	RIGHT	140	OUT ...	1,211
		2,977		6,825

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	74	67
	THRU	48	47
	RIGHT	43	51
SOUTH BOUND	LEFT	114	143
	THRU	42	39
	RIGHT	359	343
EAST BOUND	LEFT	674	751
	THRU	752	1,016
	RIGHT	63	63
WEST BOUND	LEFT	37	39
	THRU	631	687
	RIGHT	140	165
		2,977	3,412

Intersection: Etiwanda Ave Fourth St/San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	228	SOUTH LEG	
	THRU	643	IN ...	1,283
	RIGHT	85	OUT ...	1,327
SOUTH BOUND	LEFT	59	NORTH LEG	
	THRU	766	IN ...	1,276
	RIGHT	139	OUT ...	1,154
EAST BOUND	LEFT	149	WEST LEG	
	THRU	155	IN ...	439
	RIGHT	92	OUT ...	996
WEST BOUND	LEFT	143	EAST LEG	
	THRU	309	IN ...	792
	RIGHT	42	OUT ...	314
		2,810		7,582

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	228	298
	THRU	643	894
	RIGHT	85	92
SOUTH BOUND	LEFT	59	69
	THRU	766	1,010
	RIGHT	139	196
EAST BOUND	LEFT	149	187
	THRU	155	152
	RIGHT	92	101
WEST BOUND	LEFT	143	217
	THRU	309	502
	RIGHT	42	73
		2,810	3,791

Intersection: Etiwanda Ave Fourth St/San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	158	SOUTH LEG	
	THRU	754	IN ...	1,276
	RIGHT	90	OUT ...	1,388
SOUTH BOUND	LEFT	148	NORTH LEG	
	THRU	608	IN ...	1,301
	RIGHT	171	OUT ...	1,299
EAST BOUND	LEFT	182	WEST LEG	
	THRU	575	IN ...	1,381
	RIGHT	229	OUT ...	727
WEST BOUND	LEFT	108	EAST LEG	
	THRU	268	IN ...	518
	RIGHT	65	OUT ...	1,061
		3,356		8,952

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	158	199
	THRU	754	967
	RIGHT	90	109
SOUTH BOUND	LEFT	148	185
	THRU	608	893
	RIGHT	171	223
EAST BOUND	LEFT	182	257
	THRU	575	767
	RIGHT	229	358
WEST BOUND	LEFT	108	138
	THRU	268	305
	RIGHT	65	75
		3,356	4,476

Intersection: Commerce Dr San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	46	SOUTH LEG	
	THRU	3	IN ...	200
	RIGHT	220	OUT ...	181
SOUTH BOUND	LEFT	4	NORTH LEG	
	THRU	8	IN ...	12
	RIGHT	0	OUT ...	6
EAST BOUND	LEFT	1	WEST LEG	
	THRU	182	IN ...	231
	RIGHT	33	OUT ...	817
WEST BOUND	LEFT	263	EAST LEG	
	THRU	473	IN ...	1,051
	RIGHT	2	OUT ...	490
		1,235		2,987

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	46	9
	THRU	3	1
	RIGHT	220	218
SOUTH BOUND	LEFT	4	12
	THRU	8	2
	RIGHT	0	0
EAST BOUND	LEFT	1	0
	THRU	182	260
	RIGHT	33	4
WEST BOUND	LEFT	263	176
	THRU	473	808
	RIGHT	2	5
		1,235	1,493

Intersection: Commerce Dr San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	46	SOUTH LEG	
	THRU	3	IN ...	394
	RIGHT	492	OUT ...	46
SOUTH BOUND	LEFT	3	NORTH LEG	
	THRU	0	IN ...	4
	RIGHT	1	OUT ...	5
EAST BOUND	LEFT	0	WEST LEG	
	THRU	791	IN ...	1,084
	RIGHT	45	OUT ...	385
WEST BOUND	LEFT	140	EAST LEG	
	THRU	261	IN ...	514
	RIGHT	2	OUT ...	1,560
		1,784		3,993

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	46	7
	THRU	3	1
	RIGHT	492	409
SOUTH BOUND	LEFT	3	4
	THRU	0	0
	RIGHT	1	0
EAST BOUND	LEFT	0	0
	THRU	791	1,147
	RIGHT	45	2
WEST BOUND	LEFT	140	44
	THRU	261	378
	RIGHT	2	4
		1,784	1,996

Intersection: Vip Rd San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	3
	RIGHT	3	OUT ...	1
EAST BOUND	LEFT	0	WEST LEG	
	THRU	397	IN ...	481
	RIGHT	0	OUT ...	1,062
WEST BOUND	LEFT	1	EAST LEG	
	THRU	746	IN ...	1,061
	RIGHT	1	OUT ...	481
		1,148		3,089

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	3	3
EAST BOUND	LEFT	0	0
	THRU	397	481
	RIGHT	0	0
WEST BOUND	LEFT	1	1
	THRU	746	1,059
	RIGHT	1	1
		1,148	1,544

Intersection: Vip Rd San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
EAST BOUND	LEFT	0	WEST LEG	
	THRU	1,295	IN ...	1,569
	RIGHT	0	OUT ...	511
WEST BOUND	LEFT	0	EAST LEG	
	THRU	400	IN ...	511
	RIGHT	0	OUT ...	1,569
		1,695		4,161

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	1,295	1,569
	RIGHT	0	0
WEST BOUND	LEFT	0	0
	THRU	400	511
	RIGHT	0	0
		1,695	2,080

Intersection: Cherry Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	111	SOUTH LEG	
	THRU	854	IN ...	1,361
	RIGHT	95	OUT ...	1,384
SOUTH BOUND	LEFT	88	NORTH LEG	
	THRU	904	IN ...	1,415
	RIGHT	383	OUT ...	1,408
EAST BOUND	LEFT	181	WEST LEG	
	THRU	80	IN ...	449
	RIGHT	118	OUT ...	945
WEST BOUND	LEFT	143	EAST LEG	
	THRU	332	IN ...	803
	RIGHT	79	OUT ...	292
		3,368		8,057

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	111	141
	THRU	854	1,096
	RIGHT	95	122
SOUTH BOUND	LEFT	88	81
	THRU	904	989
	RIGHT	383	347
EAST BOUND	LEFT	181	202
	THRU	80	89
	RIGHT	118	158
WEST BOUND	LEFT	143	237
	THRU	332	457
	RIGHT	79	110
		3,368	4,029

Intersection: Cherry Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	65	SOUTH LEG	
	THRU	1,021	IN ...	1,555
	RIGHT	140	OUT ...	1,399
SOUTH BOUND	LEFT	76	NORTH LEG	
	THRU	775	IN ...	1,230
	RIGHT	225	OUT ...	1,990
EAST BOUND	LEFT	468	WEST LEG	
	THRU	667	IN ...	1,824
	RIGHT	302	OUT ...	449
WEST BOUND	LEFT	75	EAST LEG	
	THRU	184	IN ...	390
	RIGHT	58	OUT ...	1,161
		4,056		9,997

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	65	58
	THRU	1,021	1,312
	RIGHT	140	187
SOUTH BOUND	LEFT	76	100
	THRU	775	930
	RIGHT	225	198
EAST BOUND	LEFT	468	590
	THRU	667	874
	RIGHT	302	361
WEST BOUND	LEFT	75	108
	THRU	184	194
	RIGHT	58	88
		4,056	4,998

Intersection: Beech Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	29	SOUTH LEG	
	THRU	126	IN ...	290
	RIGHT	6	OUT ...	393
SOUTH BOUND	LEFT	43	NORTH LEG	
	THRU	129	IN ...	392
	RIGHT	75	OUT ...	350
EAST BOUND	LEFT	30	WEST LEG	
	THRU	216	IN ...	397
	RIGHT	16	OUT ...	611
WEST BOUND	LEFT	7	EAST LEG	
	THRU	341	IN ...	536
	RIGHT	66	OUT ...	261
		1,084		3,230

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	29	67
	THRU	126	217
	RIGHT	6	5
SOUTH BOUND	LEFT	43	19
	THRU	129	285
	RIGHT	75	88
EAST BOUND	LEFT	30	67
	THRU	216	237
	RIGHT	16	90
WEST BOUND	LEFT	7	18
	THRU	341	456
	RIGHT	66	66
		1,084	1,615

Intersection: Beech Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	17	SOUTH LEG	
	THRU	158	IN ...	513
	RIGHT	25	OUT ...	343
SOUTH BOUND	LEFT	39	NORTH LEG	
	THRU	100	IN ...	386
	RIGHT	35	OUT ...	462
EAST BOUND	LEFT	68	WEST LEG	
	THRU	546	IN ...	847
	RIGHT	12	OUT ...	476
WEST BOUND	LEFT	13	EAST LEG	
	THRU	227	IN ...	331
	RIGHT	35	OUT ...	795
		1,275		4,153

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	17	97
	THRU	158	357
	RIGHT	25	57
SOUTH BOUND	LEFT	39	35
	THRU	100	276
	RIGHT	35	80
EAST BOUND	LEFT	68	87
	THRU	546	703
	RIGHT	12	47
WEST BOUND	LEFT	13	21
	THRU	227	298
	RIGHT	35	18
		1,275	2,076

Intersection: Fontana Ave/Elm San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	21	SOUTH LEG	
	THRU	14	IN ...	276
	RIGHT	9	OUT ...	499
SOUTH BOUND	LEFT	42	NORTH LEG	
	THRU	34	IN ...	641
	RIGHT	21	OUT ...	270
EAST BOUND	LEFT	42	WEST LEG	
	THRU	159	IN ...	208
	RIGHT	11	OUT ...	333
WEST BOUND	LEFT	9	EAST LEG	
	THRU	169	IN ...	232
	RIGHT	11	OUT ...	254
		542		2,714

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	21	87
	THRU	14	157
	RIGHT	9	31
SOUTH BOUND	LEFT	42	127
	THRU	34	439
	RIGHT	21	77
EAST BOUND	LEFT	42	83
	THRU	159	96
	RIGHT	11	28
WEST BOUND	LEFT	9	32
	THRU	169	170
	RIGHT	11	30
		542	1,357

Intersection: Fontana Ave/Elm San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	19	SOUTH LEG	
	THRU	54	IN ...	557
	RIGHT	26	OUT ...	391
SOUTH BOUND	LEFT	14	NORTH LEG	
	THRU	23	IN ...	379
	RIGHT	8	OUT ...	740
EAST BOUND	LEFT	128	WEST LEG	
	THRU	402	IN ...	733
	RIGHT	18	OUT ...	267
WEST BOUND	LEFT	12	EAST LEG	
	THRU	184	IN ...	245
	RIGHT	18	OUT ...	515
		906		3,827

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	19	64
	THRU	54	410
	RIGHT	26	82
SOUTH BOUND	LEFT	14	52
	THRU	23	296
	RIGHT	8	32
EAST BOUND	LEFT	128	292
	THRU	402	381
	RIGHT	18	59
WEST BOUND	LEFT	12	36
	THRU	184	171
	RIGHT	18	38
		906	1,914

Intersection: Citrus Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	116	SOUTH LEG	
	THRU	589	IN ...	884
	RIGHT	159	OUT ...	961
SOUTH BOUND	LEFT	100	NORTH LEG	
	THRU	785	IN ...	880
	RIGHT	63	OUT ...	1,010
EAST BOUND	LEFT	135	WEST LEG	
	THRU	118	IN ...	330
	RIGHT	67	OUT ...	347
WEST BOUND	LEFT	107	EAST LEG	
	THRU	130	IN ...	648
	RIGHT	261	OUT ...	424
		2,630		5,482

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	116	122
	THRU	589	569
	RIGHT	159	192
SOUTH BOUND	LEFT	100	97
	THRU	785	731
	RIGHT	63	53
EAST BOUND	LEFT	135	123
	THRU	118	134
	RIGHT	67	73
WEST BOUND	LEFT	107	157
	THRU	130	172
	RIGHT	261	318
		2,630	2,741

Intersection: Citrus Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	173	SOUTH LEG	
	THRU	956	IN ...	1,239
	RIGHT	47	OUT ...	676
SOUTH BOUND	LEFT	48	NORTH LEG	
	THRU	575	IN ...	608
	RIGHT	25	OUT ...	1,074
EAST BOUND	LEFT	53	WEST LEG	
	THRU	305	IN ...	470
	RIGHT	64	OUT ...	419
WEST BOUND	LEFT	44	EAST LEG	
	THRU	212	IN ...	423
	RIGHT	71	OUT ...	571
		2,573		5,480

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	173	159
	THRU	956	956
	RIGHT	47	111
SOUTH BOUND	LEFT	48	68
	THRU	575	536
	RIGHT	25	14
EAST BOUND	LEFT	53	29
	THRU	305	392
	RIGHT	64	54
WEST BOUND	LEFT	44	86
	THRU	212	246
	RIGHT	71	89
		2,573	2,740

Intersection: Sierra Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	49	SOUTH LEG	
	THRU	731	IN ...	1,058
	RIGHT	162	OUT ...	1,690
SOUTH BOUND	LEFT	10	NORTH LEG	
	THRU	1158	IN ...	1,555
	RIGHT	67	OUT ...	948
EAST BOUND	LEFT	27	WEST LEG	
	THRU	177	IN ...	343
	RIGHT	83	OUT ...	487
WEST BOUND	LEFT	258	EAST LEG	
	THRU	306	IN ...	541
	RIGHT	38	OUT ...	372
		3,066		6,995

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	49	57
	THRU	731	866
	RIGHT	162	147
SOUTH BOUND	LEFT	10	13
	THRU	1,158	1,414
	RIGHT	67	116
EAST BOUND	LEFT	27	42
	THRU	177	212
	RIGHT	83	90
WEST BOUND	LEFT	258	186
	THRU	306	314
	RIGHT	38	39
		3,066	3,498

Intersection: Sierra Ave San Bernardino Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	182	SOUTH LEG	
	THRU	958	IN ...	1,739
	RIGHT	368	OUT ...	1,346
SOUTH BOUND	LEFT	67	NORTH LEG	
	THRU	880	IN ...	1,151
	RIGHT	54	OUT ...	1,511
EAST BOUND	LEFT	92	WEST LEG	
	THRU	340	IN ...	665
	RIGHT	135	OUT ...	517
WEST BOUND	LEFT	232	EAST LEG	
	THRU	281	IN ...	551
	RIGHT	75	OUT ...	731
		3,664		8,211

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	182	181
	THRU	958	1,262
	RIGHT	368	302
SOUTH BOUND	LEFT	67	72
	THRU	880	1,003
	RIGHT	54	70
EAST BOUND	LEFT	92	156
	THRU	340	358
	RIGHT	135	151
WEST BOUND	LEFT	232	192
	THRU	281	265
	RIGHT	75	94
		3,664	4,106

Intersection: Beech Ave Fontana Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	6	SOUTH LEG	
	THRU	102	IN ...	314
	RIGHT	8	OUT ...	773
SOUTH BOUND	LEFT	8	NORTH LEG	
	THRU	123	IN ...	417
	RIGHT	45	OUT ...	259
EAST BOUND	LEFT	21	WEST LEG	
	THRU	43	IN ...	159
	RIGHT	2	OUT ...	283
WEST BOUND	LEFT	21	EAST LEG	
	THRU	147	IN ...	672
	RIGHT	7	OUT ...	248
		533		3,126

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	6	7
	THRU	102	221
	RIGHT	8	86
SOUTH BOUND	LEFT	8	24
	THRU	123	381
	RIGHT	45	14
EAST BOUND	LEFT	21	14
	THRU	43	138
	RIGHT	2	7
WEST BOUND	LEFT	21	386
	THRU	147	263
	RIGHT	7	25
		533	1,563

Intersection: Beech Ave Fontana Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	164	IN ...	780
	RIGHT	64	OUT ...	618
SOUTH BOUND	LEFT	4	NORTH LEG	
	THRU	101	IN ...	346
	RIGHT	23	OUT ...	531
EAST BOUND	LEFT	42	WEST LEG	
	THRU	130	IN ...	416
	RIGHT	1	OUT ...	58
WEST BOUND	LEFT	7	EAST LEG	
	THRU	77	IN ...	334
	RIGHT	12	OUT ...	671
		625		3,753

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	164	426
	RIGHT	64	330
SOUTH BOUND	LEFT	4	3
	THRU	101	363
	RIGHT	23	2
EAST BOUND	LEFT	42	55
	THRU	130	337
	RIGHT	1	11
WEST BOUND	LEFT	7	244
	THRU	77	56
	RIGHT	12	50
		625	1,877

Intersection: Etiwanda Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	292	SOUTH LEG	
	THRU	941	IN ...	1,534
	RIGHT	78	OUT ...	1,606
SOUTH BOUND	LEFT	41	NORTH LEG	
	THRU	857	IN ...	1,267
	RIGHT	43	OUT ...	1,361
EAST BOUND	LEFT	25	WEST LEG	
	THRU	45	IN ...	161
	RIGHT	128	OUT ...	418
WEST BOUND	LEFT	165	EAST LEG	
	THRU	161	IN ...	619
	RIGHT	68	OUT ...	195
		2,844		7,162

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	292	213
	THRU	941	1,213
	RIGHT	78	103
SOUTH BOUND	LEFT	41	56
	THRU	857	1,182
	RIGHT	43	33
EAST BOUND	LEFT	25	20
	THRU	45	37
	RIGHT	128	105
WEST BOUND	LEFT	165	320
	THRU	161	172
	RIGHT	68	128
		2,844	3,581

Intersection: Etiwanda Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	257	SOUTH LEG	
	THRU	937	IN ...	1,669
	RIGHT	121	OUT ...	1,710
SOUTH BOUND	LEFT	64	NORTH LEG	
	THRU	940	IN ...	1,477
	RIGHT	30	OUT ...	1,374
EAST BOUND	LEFT	75	WEST LEG	
	THRU	256	IN ...	456
	RIGHT	340	OUT ...	304
WEST BOUND	LEFT	136	EAST LEG	
	THRU	91	IN ...	398
	RIGHT	88	OUT ...	612
		3,335		8,000

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	257	202
	THRU	937	1,211
	RIGHT	121	252
SOUTH BOUND	LEFT	64	138
	THRU	940	1,319
	RIGHT	30	24
EAST BOUND	LEFT	75	41
	THRU	256	223
	RIGHT	340	193
WEST BOUND	LEFT	136	198
	THRU	91	77
	RIGHT	88	122
		3,335	4,000

Intersection: Commerce Dr/I-1 Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	56	SOUTH LEG	
	THRU	215	IN ...	700
	RIGHT	398	OUT ...	751
SOUTH BOUND	LEFT	8	NORTH LEG	
	THRU	307	IN ...	234
	RIGHT	42	OUT ...	194
EAST BOUND	LEFT	18	WEST LEG	
	THRU	107	IN ...	177
	RIGHT	21	OUT ...	643
WEST BOUND	LEFT	394	EAST LEG	
	THRU	320	IN ...	985
	RIGHT	30	OUT ...	508
		1,916		4,194

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	56	133
	THRU	215	165
	RIGHT	398	391
SOUTH BOUND	LEFT	8	3
	THRU	307	202
	RIGHT	42	32
EAST BOUND	LEFT	18	15
	THRU	107	114
	RIGHT	21	46
WEST BOUND	LEFT	394	503
	THRU	320	478
	RIGHT	30	14
		1,916	2,097

Intersection: Commerce Dr/I-1 Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	32	SOUTH LEG	
	THRU	371	IN ...	1,424
	RIGHT	673	OUT ...	1,456
SOUTH BOUND	LEFT	11	NORTH LEG	
	THRU	254	IN ...	895
	RIGHT	25	OUT ...	953
EAST BOUND	LEFT	40	WEST LEG	
	THRU	443	IN ...	842
	RIGHT	23	OUT ...	461
WEST BOUND	LEFT	718	EAST LEG	
	THRU	443	IN ...	405
	RIGHT	71	OUT ...	698
		3,104		7,135

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	32	245
	THRU	371	803
	RIGHT	673	333
SOUTH BOUND	LEFT	11	2
	THRU	254	855
	RIGHT	25	73
EAST BOUND	LEFT	40	143
	THRU	443	363
	RIGHT	23	334
WEST BOUND	LEFT	718	266
	THRU	443	143
	RIGHT	71	6
		3,104	3,567

Intersection: Cherry Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	466	SOUTH LEG	
	THRU	1012	IN ...	2,174
	RIGHT	370	OUT ...	2,102
SOUTH BOUND	LEFT	91	NORTH LEG	
	THRU	1138	IN ...	1,506
	RIGHT	69	OUT ...	1,422
EAST BOUND	LEFT	86	WEST LEG	
	THRU	116	IN ...	453
	RIGHT	267	OUT ...	981
WEST BOUND	LEFT	506	EAST LEG	
	THRU	305	IN ...	1,034
	RIGHT	71	OUT ...	662
		4,497		10,334

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	466	519
	THRU	1,012	1,233
	RIGHT	370	425
SOUTH BOUND	LEFT	91	118
	THRU	1,138	1,298
	RIGHT	69	87
EAST BOUND	LEFT	86	94
	THRU	116	119
	RIGHT	267	240
WEST BOUND	LEFT	506	563
	THRU	305	375
	RIGHT	71	96
		4,497	5,167

Intersection: Cherry Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	247	SOUTH LEG	
	THRU	951	IN ...	1,539
	RIGHT	696	OUT ...	1,116
SOUTH BOUND	LEFT	98	NORTH LEG	
	THRU	948	IN ...	482
	RIGHT	67	OUT ...	785
EAST BOUND	LEFT	178	WEST LEG	
	THRU	452	IN ...	663
	RIGHT	354	OUT ...	550
WEST BOUND	LEFT	395	EAST LEG	
	THRU	240	IN ...	1,217
	RIGHT	82	OUT ...	1,450
		4,708		7,801

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	247	117
	THRU	951	538
	RIGHT	696	889
SOUTH BOUND	LEFT	98	103
	THRU	948	351
	RIGHT	67	26
EAST BOUND	LEFT	178	80
	THRU	452	458
	RIGHT	354	127
WEST BOUND	LEFT	395	638
	THRU	240	407
	RIGHT	82	166
		4,708	3,901

Intersection: Fontana Ave/Herr Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	8	SOUTH LEG	
	THRU	9	IN ...	21
	RIGHT	4	OUT ...	32
SOUTH BOUND	LEFT	73	NORTH LEG	
	THRU	5	IN ...	361
	RIGHT	50	OUT ...	196
EAST BOUND	LEFT	56	WEST LEG	
	THRU	314	IN ...	541
	RIGHT	11	OUT ...	809
WEST BOUND	LEFT	16	EAST LEG	
	THRU	545	IN ...	656
	RIGHT	49	OUT ...	542
		1,140		3,157

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	8	9
	THRU	9	10
	RIGHT	4	2
SOUTH BOUND	LEFT	73	149
	THRU	5	10
	RIGHT	50	202
EAST BOUND	LEFT	56	134
	THRU	314	390
	RIGHT	11	13
WEST BOUND	LEFT	16	9
	THRU	545	598
	RIGHT	49	52
		1,140	1,579

Intersection: Fontana Ave/Herr Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	15	SOUTH LEG	
	THRU	5	IN ...	24
	RIGHT	4	OUT ...	29
SOUTH BOUND	LEFT	46	NORTH LEG	
	THRU	4	IN ...	46
	RIGHT	21	OUT ...	570
EAST BOUND	LEFT	157	WEST LEG	
	THRU	1,081	IN ...	1,623
	RIGHT	15	OUT ...	584
WEST BOUND	LEFT	10	EAST LEG	
	THRU	487	IN ...	719
	RIGHT	53	OUT ...	1,229
		1,898		4,824

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	15	12
	THRU	5	9
	RIGHT	4	3
SOUTH BOUND	LEFT	46	30
	THRU	4	2
	RIGHT	21	13
EAST BOUND	LEFT	157	412
	THRU	1,081	1,196
	RIGHT	15	16
WEST BOUND	LEFT	10	11
	THRU	487	559
	RIGHT	53	148
		1,898	2,412

Intersection: Beech Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	6	SOUTH LEG	
	THRU	1	IN ...	512
	RIGHT	21	OUT ...	1,000
SOUTH BOUND	LEFT	92	NORTH LEG	
	THRU	3	IN ...	751
	RIGHT	29	OUT ...	285
EAST BOUND	LEFT	14	WEST LEG	
	THRU	399	IN ...	572
	RIGHT	8	OUT ...	686
WEST BOUND	LEFT	14	EAST LEG	
	THRU	605	IN ...	720
	RIGHT	72	OUT ...	583
		1,264		5,109

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	6	187
	THRU	1	96
	RIGHT	21	229
SOUTH BOUND	LEFT	92	162
	THRU	3	442
	RIGHT	29	146
EAST BOUND	LEFT	14	59
	THRU	399	192
	RIGHT	8	321
WEST BOUND	LEFT	14	238
	THRU	605	352
	RIGHT	72	130
		1,264	2,555

Intersection: Beech Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	4	SOUTH LEG	
	THRU	2	IN ...	908
	RIGHT	18	OUT ...	815
SOUTH BOUND	LEFT	74	NORTH LEG	
	THRU	0	IN ...	580
	RIGHT	20	OUT ...	767
EAST BOUND	LEFT	117	WEST LEG	
	THRU	1,003	IN ...	1,351
	RIGHT	7	OUT ...	692
WEST BOUND	LEFT	7	EAST LEG	
	THRU	509	IN ...	693
	RIGHT	125	OUT ...	1,258
		1,886		7,065

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	4	211
	THRU	2	275
	RIGHT	18	422
SOUTH BOUND	LEFT	74	360
	THRU	0	0
	RIGHT	20	219
EAST BOUND	LEFT	117	325
	THRU	1,003	476
	RIGHT	7	551
WEST BOUND	LEFT	7	265
	THRU	509	261
	RIGHT	125	167
		1,886	3,533

Intersection: Citrus Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	439	SOUTH LEG	
	THRU	581	IN ...	1,093
	RIGHT	136	OUT ...	1,649
SOUTH BOUND	LEFT	84	NORTH LEG	
	THRU	759	IN ...	801
	RIGHT	31	OUT ...	677
EAST BOUND	LEFT	35	WEST LEG	
	THRU	281	IN ...	733
	RIGHT	464	OUT ...	802
WEST BOUND	LEFT	265	EAST LEG	
	THRU	376	IN ...	973
	RIGHT	82	OUT ...	472
		3,533		7,200

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	439	375
	THRU	581	553
	RIGHT	136	161
SOUTH BOUND	LEFT	84	68
	THRU	759	716
	RIGHT	31	18
EAST BOUND	LEFT	35	24
	THRU	281	243
	RIGHT	464	467
WEST BOUND	LEFT	265	465
	THRU	376	409
	RIGHT	82	99
		3,533	3,600

Intersection: Citrus Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	553	SOUTH LEG	
	THRU	970	IN ...	131
	RIGHT	285	OUT ...	20
SOUTH BOUND	LEFT	96	NORTH LEG	
	THRU	540	IN ...	33
	RIGHT	41	OUT ...	235
EAST BOUND	LEFT	70	WEST LEG	
	THRU	663	IN ...	1,156
	RIGHT	405	OUT ...	475
WEST BOUND	LEFT	158	EAST LEG	
	THRU	753	IN ...	701
	RIGHT	183	OUT ...	1,291
		4,717		4,041

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	553	16
	THRU	970	43
	RIGHT	285	71
SOUTH BOUND	LEFT	96	31
	THRU	540	2
	RIGHT	41	2
EAST BOUND	LEFT	70	22
	THRU	663	1,189
	RIGHT	405	8
WEST BOUND	LEFT	158	9
	THRU	753	457
	RIGHT	183	170
		4,717	2,021

Intersection: Sierra Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	180	SOUTH LEG	
	THRU	1217	IN ...	2,055
	RIGHT	675	OUT ...	2,268
SOUTH BOUND	LEFT	109	NORTH LEG	
	THRU	1386	IN ...	1,838
	RIGHT	98	OUT ...	1,498
EAST BOUND	LEFT	170	WEST LEG	
	THRU	259	IN ...	676
	RIGHT	151	OUT ...	782
WEST BOUND	LEFT	546	EAST LEG	
	THRU	419	IN ...	981
	RIGHT	94	OUT ...	1,003
		5,304		11,102

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	180	222
	THRU	1,217	1,217
	RIGHT	675	613
SOUTH BOUND	LEFT	109	108
	THRU	1,386	1,600
	RIGHT	98	132
EAST BOUND	LEFT	170	203
	THRU	259	282
	RIGHT	151	191
WEST BOUND	LEFT	546	477
	THRU	419	427
	RIGHT	94	78
		5,304	5,551

Intersection: Sierra Ave Valley Blvd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	236	SOUTH LEG	
	THRU	1,176	IN ...	2,341
	RIGHT	727	OUT ...	1,857
SOUTH BOUND	LEFT	154	NORTH LEG	
	THRU	1,201	IN ...	1,347
	RIGHT	87	OUT ...	1,803
EAST BOUND	LEFT	267	WEST LEG	
	THRU	863	IN ...	1,444
	RIGHT	219	OUT ...	1,075
WEST BOUND	LEFT	633	EAST LEG	
	THRU	638	IN ...	1,324
	RIGHT	106	OUT ...	1,721
		6,307		12,913

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	236	288
	THRU	1,176	1,361
	RIGHT	727	693
SOUTH BOUND	LEFT	154	142
	THRU	1,201	1,102
	RIGHT	87	102
EAST BOUND	LEFT	267	333
	THRU	863	887
	RIGHT	219	224
WEST BOUND	LEFT	633	530
	THRU	638	685
	RIGHT	106	108
		6,307	6,456

Intersection: Etiwanda Ave I-10 WB Off-Ramp

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	762	IN ...	1,562
	RIGHT	445	OUT ...	1,649
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	774	IN ...	1,642
	RIGHT	408	OUT ...	1,579
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	655
WEST BOUND	LEFT	490	EAST LEG	
	THRU	0	IN ...	1,123
	RIGHT	531	OUT ...	445
		3,410		8,656

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	762	1,092
	RIGHT	445	445
SOUTH BOUND	LEFT	0	0
	THRU	774	1,012
	RIGHT	408	655
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	490	637
	THRU	0	0
	RIGHT	531	487
		3,410	4,328

Intersection: Etiwanda Ave I-10 WB Off-Ramp

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	986	IN ...	2,252
	RIGHT	622	OUT ...	1,795
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1,033	IN ...	1,917
	RIGHT	422	OUT ...	1,766
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	819
WEST BOUND	LEFT	347	EAST LEG	
	THRU	0	IN ...	832
	RIGHT	432	OUT ...	622
		3,842		10,003

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	986	1,505
	RIGHT	622	622
SOUTH BOUND	LEFT	0	0
	THRU	1,033	1,210
	RIGHT	422	819
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	347	585
	THRU	0	0
	RIGHT	432	262
		3,842	5,002

Intersection: Cherry Ave I-10 WB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	993	IN ...	1,749
	RIGHT	543	OUT ...	2,849
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1748	IN ...	1,942
	RIGHT	0	OUT ...	1,972
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	123
WEST BOUND	LEFT	738	EAST LEG	
	THRU	0	IN ...	1,796
	RIGHT	637	OUT ...	543
		4,659		10,974

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	993	1,164
	RIGHT	543	543
SOUTH BOUND	LEFT	0	0
	THRU	1,748	1,901
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	738	949
	THRU	0	0
	RIGHT	637	808
		4,659	5,364

Intersection: Cherry Ave I-10 WB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,339	IN ...	2,037
	RIGHT	389	OUT ...	2,541
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	1,805	IN ...	1,940
	RIGHT	0	OUT ...	2,306
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	(67)
WEST BOUND	LEFT	518	EAST LEG	
	THRU	0	IN ...	1,193
	RIGHT	492	OUT ...	389
		4,543		10,339

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,339	1,679
	RIGHT	389	389
SOUTH BOUND	LEFT	0	0
	THRU	1,805	1,960
	RIGHT	0	0
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	518	581
	THRU	0	0
	RIGHT	492	627
		4,543	5,236

Intersection: Citrus Ave I-10 WB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	654	IN ...	737
	RIGHT	272	OUT ...	1,367
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	983	IN ...	1,570
	RIGHT	466	OUT ...	1,005
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	496
WEST BOUND	LEFT	363	EAST LEG	
	THRU	0	IN ...	834
	RIGHT	448	OUT ...	272
		3,186		6,281

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	654	476
	RIGHT	272	272
SOUTH BOUND	LEFT	0	0
	THRU	983	1,059
	RIGHT	466	496
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	363	308
	THRU	0	0
	RIGHT	448	529
		3,186	3,141

Intersection: Citrus Ave I-10 WB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,075	IN ...	1,284
	RIGHT	256	OUT ...	1,009
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	892	IN ...	1,427
	RIGHT	474	OUT ...	1,576
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	555
WEST BOUND	LEFT	240	EAST LEG	
	THRU	0	IN ...	684
	RIGHT	498	OUT ...	256
		3,435		6,791

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,075	1,048
	RIGHT	256	256
SOUTH BOUND	LEFT	0	0
	THRU	892	847
	RIGHT	474	555
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
WEST BOUND	LEFT	240	161
	THRU	0	0
	RIGHT	498	528
		3,435	3,395

Intersection: Etiwanda Ave I-10 EB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1074	IN ...	1,709
	RIGHT	381	OUT ...	2,068
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	966	IN ...	1,605
	RIGHT	238	OUT ...	1,661
EAST BOUND	LEFT	308	WEST LEG	
	THRU	0	IN ...	1,034
	RIGHT	671	OUT ...	238
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	381
		3,638		8,696

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,074	1,329
	RIGHT	381	381
SOUTH BOUND	LEFT	0	0
	THRU	966	1,366
	RIGHT	238	238
EAST BOUND	LEFT	308	331
	THRU	0	0
	RIGHT	671	702
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,638	4,348

Intersection: Etiwanda Ave I-10 EB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,287	IN ...	2,269
	RIGHT	562	OUT ...	1,768
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	969	IN ...	1,742
	RIGHT	394	OUT ...	2,056
EAST BOUND	LEFT	298	WEST LEG	
	THRU	0	IN ...	769
	RIGHT	392	OUT ...	394
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	562
		3,902		9,561

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,287	1,713
	RIGHT	562	562
SOUTH BOUND	LEFT	0	0
	THRU	969	1,344
	RIGHT	394	394
EAST BOUND	LEFT	298	344
	THRU	0	0
	RIGHT	392	425
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,902	4,781

Intersection: Cherry Ave I-10 EB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1234	IN ...	1,780
	RIGHT	483	OUT ...	2,374
SOUTH BOUND	LEFT	460	NORTH LEG	
	THRU	1488	IN ...	2,311
	RIGHT	0	OUT ...	1,848
EAST BOUND	LEFT	401	WEST LEG	
	THRU	6	IN ...	1,224
	RIGHT	617	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1,094
		4,689		10,631

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,234	1,305
	RIGHT	483	477
SOUTH BOUND	LEFT	460	609
	THRU	1,488	1,701
	RIGHT	0	0
EAST BOUND	LEFT	401	543
	THRU	6	8
	RIGHT	617	673
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		4,689	5,316

Intersection: Cherry Ave I-10 EB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	1,236	IN ...	1,845
	RIGHT	419	OUT ...	1,784
SOUTH BOUND	LEFT	513	NORTH LEG	
	THRU	1,182	IN ...	1,913
	RIGHT	0	OUT ...	2,054
EAST BOUND	LEFT	509	WEST LEG	
	THRU	43	IN ...	1,447
	RIGHT	548	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1,367
		4,450		10,409

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	1,236	1,313
	RIGHT	419	533
SOUTH BOUND	LEFT	513	759
	THRU	1,182	1,153
	RIGHT	0	0
EAST BOUND	LEFT	509	741
	THRU	43	75
	RIGHT	548	630
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		4,450	5,204

Intersection: Citrus Ave I-10 EB Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	651	IN ...	724
	RIGHT	332	OUT ...	1,292
SOUTH BOUND	LEFT	534	NORTH LEG	
	THRU	851	IN ...	1,406
	RIGHT	0	OUT ...	766
EAST BOUND	LEFT	304	WEST LEG	
	THRU	8	IN ...	761
	RIGHT	427	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	834
		3,107		5,783

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	651	462
	RIGHT	332	262
SOUTH BOUND	LEFT	534	562
	THRU	851	844
	RIGHT	0	0
EAST BOUND	LEFT	304	304
	THRU	8	9
	RIGHT	427	448
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,107	2,892

Intersection: Citrus Ave I-10 EB Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	893	IN ...	1,378
	RIGHT	509	OUT ...	762
SOUTH BOUND	LEFT	501	NORTH LEG	
	THRU	647	IN ...	1,025
	RIGHT	0	OUT ...	1,297
EAST BOUND	LEFT	451	WEST LEG	
	THRU	7	IN ...	670
	RIGHT	212	OUT ...	0
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1,014
		3,220		6,146

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	893	846
	RIGHT	509	533
SOUTH BOUND	LEFT	501	474
	THRU	647	551
	RIGHT	0	0
EAST BOUND	LEFT	451	452
	THRU	7	8
	RIGHT	212	211
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		3,220	3,073

Intersection: Sierra Ave I-10 Ramps

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	420	SOUTH LEG	
	THRU	718	IN ...	1,398
	RIGHT	357	OUT ...	1,901
SOUTH BOUND	LEFT	500	NORTH LEG	
	THRU	741	IN ...	2,294
	RIGHT	821	OUT ...	2,204
EAST BOUND	LEFT	855	WEST LEG	
	THRU	0	IN ...	1,183
	RIGHT	501	OUT ...	978
WEST BOUND	LEFT	428	EAST LEG	
	THRU	0	IN ...	1,157
	RIGHT	550	OUT ...	950
		5,891		12,067

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	420	279
	THRU	718	780
	RIGHT	357	340
SOUTH BOUND	LEFT	500	610
	THRU	741	984
	RIGHT	821	699
EAST BOUND	LEFT	855	760
	THRU	0	0
	RIGHT	501	424
WEST BOUND	LEFT	428	493
	THRU	0	0
	RIGHT	550	665
		5,891	6,034

Intersection: Sierra Ave I-10 Ramps

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	512	SOUTH LEG	
	THRU	1,223	IN ...	2,283
	RIGHT	467	OUT ...	1,882
SOUTH BOUND	LEFT	480	NORTH LEG	
	THRU	861	IN ...	2,024
	RIGHT	796	OUT ...	2,986
EAST BOUND	LEFT	914	WEST LEG	
	THRU	0	IN ...	1,252
	RIGHT	457	OUT ...	957
WEST BOUND	LEFT	463	EAST LEG	
	THRU	0	IN ...	1,247
	RIGHT	566	OUT ...	981
		6,739		13,610

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	512	374
	THRU	1,223	1,426
	RIGHT	467	483
SOUTH BOUND	LEFT	480	498
	THRU	861	942
	RIGHT	796	583
EAST BOUND	LEFT	914	853
	THRU	0	0
	RIGHT	457	399
WEST BOUND	LEFT	463	540
	THRU	0	0
	RIGHT	566	706
		6,739	6,805

Intersection: Milliken Ave Arrow Rte

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	176	SOUTH LEG	
	THRU	333	IN ...	492
	RIGHT	80	OUT ...	1,210
SOUTH BOUND	LEFT	108	NORTH LEG	
	THRU	705	IN ...	1,305
	RIGHT	218	OUT ...	429
EAST BOUND	LEFT	77	WEST LEG	
	THRU	409	IN ...	561
	RIGHT	118	OUT ...	1,496
WEST BOUND	LEFT	156	EAST LEG	
	THRU	1102	IN ...	1,361
	RIGHT	103	OUT ...	583
		3,585		7,438

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	176	151
	THRU	333	269
	RIGHT	80	72
SOUTH BOUND	LEFT	108	132
	THRU	705	920
	RIGHT	218	254
EAST BOUND	LEFT	77	64
	THRU	409	380
	RIGHT	118	117
WEST BOUND	LEFT	156	173
	THRU	1,102	1,091
	RIGHT	103	96
		3,585	3,719

Intersection: Milliken Ave Arrow Rte

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	174	SOUTH LEG	
	THRU	1,468	IN ...	2,052
	RIGHT	329	OUT ...	914
SOUTH BOUND	LEFT	62	NORTH LEG	
	THRU	520	IN ...	788
	RIGHT	118	OUT ...	1,854
EAST BOUND	LEFT	237	WEST LEG	
	THRU	979	IN ...	1,415
	RIGHT	186	OUT ...	833
WEST BOUND	LEFT	107	EAST LEG	
	THRU	541	IN ...	750
	RIGHT	102	OUT ...	1,404
		4,823		10,009

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	174	178
	THRU	1,468	1,521
	RIGHT	329	352
SOUTH BOUND	LEFT	62	67
	THRU	520	598
	RIGHT	118	123
EAST BOUND	LEFT	237	231
	THRU	979	985
	RIGHT	186	199
WEST BOUND	LEFT	107	117
	THRU	541	532
	RIGHT	102	101
		4,823	5,005

Intersection: Rochester Ave Arrow Rte

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	49	SOUTH LEG	
	THRU	170	IN ...	362
	RIGHT	66	OUT ...	743
SOUTH BOUND	LEFT	105	NORTH LEG	
	THRU	390	IN ...	1,052
	RIGHT	270	OUT ...	560
EAST BOUND	LEFT	118	WEST LEG	
	THRU	333	IN ...	866
	RIGHT	69	OUT ...	1,740
WEST BOUND	LEFT	166	EAST LEG	
	THRU	1013	IN ...	2,152
	RIGHT	134	OUT ...	1,388
		2,883		8,864

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	49	26
	THRU	170	150
	RIGHT	66	187
SOUTH BOUND	LEFT	105	444
	THRU	390	395
	RIGHT	270	216
EAST BOUND	LEFT	118	84
	THRU	333	757
	RIGHT	69	38
WEST BOUND	LEFT	166	310
	THRU	1,013	1,498
	RIGHT	134	326
		2,883	4,432

Intersection: Rochester Ave Arrow Rte

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	55	SOUTH LEG	
	THRU	791	IN ...	1,266
	RIGHT	257	OUT ...	368
SOUTH BOUND	LEFT	87	NORTH LEG	
	THRU	219	IN ...	766
	RIGHT	179	OUT ...	1,522
EAST BOUND	LEFT	347	WEST LEG	
	THRU	879	IN ...	1,740
	RIGHT	21	OUT ...	968
WEST BOUND	LEFT	68	EAST LEG	
	THRU	490	IN ...	1,397
	RIGHT	173	OUT ...	2,310
		3,566		10,337

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	55	27
	THRU	791	738
	RIGHT	257	503
SOUTH BOUND	LEFT	87	344
	THRU	219	241
	RIGHT	179	179
EAST BOUND	LEFT	347	276
	THRU	879	1,463
	RIGHT	21	10
WEST BOUND	LEFT	68	117
	THRU	490	762
	RIGHT	173	509
		3,566	5,169

Intersection: Cherry Ave Slover Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	FY INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	28	SOUTH LEG	
	THRU	937	IN ...	1,252
	RIGHT	55	OUT ...	1,650
SOUTH BOUND	LEFT	409	NORTH LEG	
	THRU	1110	IN ...	2,585
	RIGHT	522	OUT ...	1,898
EAST BOUND	LEFT	407	WEST LEG	
	THRU	220	IN ...	665
	RIGHT	42	OUT ...	930
WEST BOUND	LEFT	53	EAST LEG	
	THRU	258	IN ...	705
	RIGHT	351	OUT ...	728
		4,392		10,414

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	28	37
	THRU	937	1,144
	RIGHT	55	67
SOUTH BOUND	LEFT	409	447
	THRU	1,110	1,531
	RIGHT	522	613
EAST BOUND	LEFT	407	398
	THRU	220	214
	RIGHT	42	52
WEST BOUND	LEFT	53	68
	THRU	258	281
	RIGHT	351	356
		4,392	5,207

Intersection: Cherry Ave Slover Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	35	SOUTH LEG	
	THRU	857	IN ...	1,416
	RIGHT	66	OUT ...	1,465
SOUTH BOUND	LEFT	377	NORTH LEG	
	THRU	983	IN ...	2,099
	RIGHT	405	OUT ...	2,201
EAST BOUND	LEFT	440	WEST LEG	
	THRU	672	IN ...	1,381
	RIGHT	84	OUT ...	673
WEST BOUND	LEFT	60	EAST LEG	
	THRU	177	IN ...	632
	RIGHT	364	OUT ...	1,188
		4,520		11,055

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	35	50
	THRU	857	1,279
	RIGHT	66	86
SOUTH BOUND	LEFT	377	379
	THRU	983	1,277
	RIGHT	405	445
EAST BOUND	LEFT	440	540
	THRU	672	723
	RIGHT	84	117
WEST BOUND	LEFT	60	71
	THRU	177	178
	RIGHT	364	382
		4,520	5,528

Intersection: Cherry Ave Santa Ana Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	36	SOUTH LEG	
	THRU	762	IN ...	829
	RIGHT	11	OUT ...	811
SOUTH BOUND	LEFT	114	NORTH LEG	
	THRU	720	IN ...	1,097
	RIGHT	331	OUT ...	1,098
EAST BOUND	LEFT	245	WEST LEG	
	THRU	39	IN ...	374
	RIGHT	80	OUT ...	426
WEST BOUND	LEFT	9	EAST LEG	
	THRU	21	IN ...	246
	RIGHT	66	OUT ...	211
		2,434		5,090

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	36	54
	THRU	762	748
	RIGHT	11	20
SOUTH BOUND	LEFT	114	128
	THRU	720	674
	RIGHT	331	302
EAST BOUND	LEFT	245	206
	THRU	39	62
	RIGHT	80	106
WEST BOUND	LEFT	9	31
	THRU	21	70
	RIGHT	66	144
		2,434	2,545

Intersection: Cherry Ave Santa Ana Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	8	SOUTH LEG	
	THRU	601	IN ...	701
	RIGHT	29	OUT ...	926
SOUTH BOUND	LEFT	67	NORTH LEG	
	THRU	890	IN ...	1,047
	RIGHT	130	OUT ...	921
EAST BOUND	LEFT	243	WEST LEG	
	THRU	49	IN ...	370
	RIGHT	30	OUT ...	168
WEST BOUND	LEFT	13	EAST LEG	
	THRU	21	IN ...	213
	RIGHT	83	OUT ...	316
		2,164		4,662

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	8	12
	THRU	601	594
	RIGHT	29	87
SOUTH BOUND	LEFT	67	107
	THRU	890	845
	RIGHT	130	106
EAST BOUND	LEFT	243	201
	THRU	49	122
	RIGHT	30	45
WEST BOUND	LEFT	13	36
	THRU	21	50
	RIGHT	83	127
		2,164	2,331

APPENDIX **F**

SIGNAL WARRANT ANALYSIS
WORKSHEETS

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Foothill Blvd** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Existing
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →			**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	2,381	123	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	2,244	178	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	4,625	301	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Foothill Blvd** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year plus Phases 1 and 2
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES					**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	2,914	315	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	2,949	442	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			5,863	757	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Foothill Blvd** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	2,858	310	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	2,819	425	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			5,677	735	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Merrill Ave** EB WB # OF APPROACH LANES: **2**

CITY, STATE: **Fontana, CA**

COMMENTS: Existing
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**600**	**200**		**900**	**100**		**480**	**160**		**720**	**80**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	548	450		Y			Y		Y	Y	**Y**		Y		**Y**	
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	623	386	Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	1,171	836	1	2	**1**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**0**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Merrill Ave** EB WB # OF APPROACH LANES: **2**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year plus Phases 1 and 2
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**600**	**200**		**900**	**100**		**480**	**160**		**720**	**80**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	845	711	Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	1,174	592	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	2,019	1,303	2	2	**2**	1	2	**1**	2	2	**2**	2	2	**2**	**2**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Merrill Ave** EB WB # OF APPROACH LANES: **2**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**600**	**200**		**900**	**100**		**480**	**160**		**720**	**80**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	829	691	Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	1,135	564	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	1,964	1,255	2	2	**2**	1	2	**1**	2	2	**2**	2	2	**2**	**2**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Randall Ave** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Existing
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	534	243	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	467	255		Y			Y		Y	Y	**Y**		Y			
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			1,001	498	1	2	**1**	0	2	**0**	2	2	**2**	0	2	**0**	**0**	**0**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Randall Ave** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year plus Phases 1 and 2
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	886	732	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	1,174	592	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			2,060	1,324	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Randall Ave** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	795	384	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	855	452	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	1,650	836	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Randall Ave** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Catawba Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Existing
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	373	172		Y			Y			Y			Y			
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	355	132					Y			Y			Y			
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			728	304	0	1	**0**	0	2	**0**	0	2	**0**	0	2	**0**	**0**	**0**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Randall Ave** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Catawba Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year plus Phases 1 and 2
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	855	543	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	1,099	596	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	1,954	1,139	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Randall Ave** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Catawba Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	0	0														
08:00 AM TO 09:00 AM	0	0														
09:00 AM TO 10:00 AM	711	543	Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM	0	0														
04:00 PM TO 05:00 PM	720	596	Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	0	0														
06:00 PM TO 07:00 PM	0	0														
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	1,431	1,139	2	2	**2**	0	2	**0**	2	2	**2**	2	2	**2**	**2**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Valley Blvd** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Existing
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	1,112	124	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	1,768	94	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			2,880	218	2	0	**0**	2	2	**2**	2	1	**1**	2	2	**2**	**2**	**0**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Valley Blvd** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year plus Phases 1 and 2
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	1,949	750	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	3,131	908	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			5,080	1,658	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Valley Blvd** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Beech Ave** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Fontana, CA**

COMMENTS: Horizon Year plus Phases 1 and 2
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1 MAIN LINE	WARRANT 1 - Condition A, Part 1 SIDE STREET	WARRANT 1 - Condition A, Part 1 BOTH MET	WARRANT 1 - Condition B, Part 1 MAIN LINE	WARRANT 1 - Condition B, Part 1 SIDE STREET	WARRANT 1 - Condition B, Part 1 BOTH MET	WARRANT 1 - Condition A, Part 2 MAIN LINE	WARRANT 1 - Condition A, Part 2 SIDE STREET	WARRANT 1 - Condition A, Part 2 BOTH MET	WARRANT 1 - Condition B, Part 2 MAIN LINE	WARRANT 1 - Condition B, Part 2 SIDE STREET	WARRANT 1 - Condition B, Part 2 BOTH MET	WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
THRESHOLD VALUES					**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	1,874	750	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	3,004	908	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			4,878	1,658	2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

01/14/22
Kimley-Horn and Associates